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## MANAGERIAL METHODS OF SPORTS ACTIVITY LEADERSHIP

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**Abstract:** A good sports manager is the person who has some personal characteristics and appropriate scientific training, that is based on competences. A good coach manager falls into a certain sports management style, is the one who assumes responsibilities, knows his collaborators - athletes, the team working to train the athletes, other groups involved (staff, management, media, fans, federation referees, colleagues of the same profession, investors, etc.) - engages in achieving its objectives.

**Key words:** *coaches, management styles, skills.*

**Introduction.** Using management knowledge will favor the activity in terms of its systematic reasoning, which is why the coach needs increasingly more adequate preparation. However, a good management of the sports team, which is in fact a human resources management may not produce any prescribed solutions to be learned and to lead the coach to the solution.

The conceptual integration and the pragmatic management must take into account the particular characteristics of the environment. It is necessary first of all to coach athletes to know both their potential and their biometric personality, especially their behavioral extremes - manifestations in situations of extreme satisfaction or dissatisfaction.

The measures taken according to management theories, have double effect: a main effect represented by the desired, hoped for consequences, and a side effect consisting of non- intuited, unwanted consequences, called perverted effects.

### **Theoretical aspects of managerial leadership styles of the sports activity.**

The coaches need to be aware that their athletes can react in both directions, depending on the athletes behavior, reactions, as well as on the managerial behavior that takes the form of the leadership style. Regarding the athletes' behavior, it is dependent on a number of external or internal factors. The theories of human behavior enlarge upon the issue, the most famous being the theory of stimulus-response, the theory of motivation and the transaction theory.

These theories share three fundamental assumptions: the behavior is caused (caused by stimuli), the behavior is motivated (caused by motivation) and the behavior is oriented towards a goal (purpose). Therefore, the coach's knowledge about the impact of desires, tensions, frustrations, motives, needs, interests, and so on, on the entire activity, is claimed fully, because the athletes' reaction to the "stimuli" is different, regardless of their effect - positive or negative, or their genesis. This is where the differentiated perception phenomenon, each athlete's level of aspiration, expectation and achievement manifests[1].

**The contemporary managerial behavior patterns** can be sorted by categories related to strategy, organization, management, operational processes,

individuals, behavior and primary processes. These include: SWOT, Benchmarking, Activity Based Costing, Balanced Scorecard, EFQM. All these tools are recommended as a guide, some authors using them as tools for analysis and strategy development[2].

In turn the managerial behavior influences through coach's leadership style, the athletes work.

The management style is the manner in which a leader operates, understanding thereby the particular features of his style of work and is a factor that greatly influences the efficiency of the group he leads.

The managerial styles were grouped according to several criteria[3].

According to the attitude of responsibility there are: the repulsive style, the dominant and the indifferent (Fig.1).

*The repulsive style* refuses promotions, exaggerates through the respect for the athletes', takes hasty and less effective solutions, has a low self confidence, avoids responsibility and promotes an inactive peaceful climate.

*The dominant style* characterizes those coaches, whose behavior is oriented towards the acquisition of power, being dynamic, active persons promoting a conflicting, tense climate. They think highly of themselves, they are convinced of their own superiority, but they are able to carry out tasks related to a particular management seat, a framework in which failures are due to others.

*The indifferent style* is marked by a lack of interest in their own hierarchy development,; once entrusting the task, they will be good managers; their main orientation is diligently towards the duties. They have a realistic picture about themselves and others and maintain a balanced climate. Although inclined to think that the last leadership style would be preferable, however there are situations in which the other two categories may be effective: in extreme situations, the dominant style, through the predisposition to adopt firm decisions and the ambition to achieve good results, is much likely to be more effective than others, in situations of panic, the efficiency of the repulsive style will have much to suffer due to haste in making decisions, detrimental to the quality, and to the lack of perseverance.



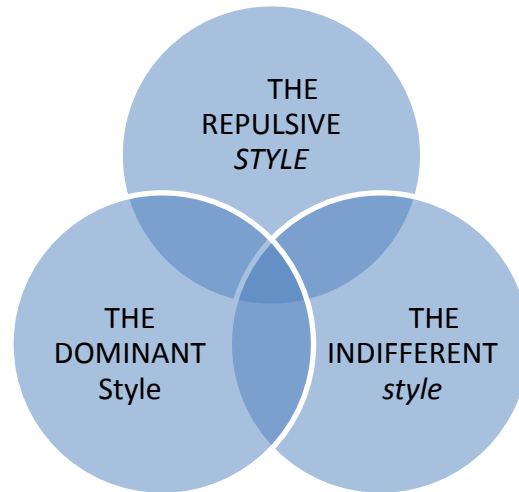


Fig.1 The managerial styles according to the attitude of responsibility

b **According to the exercised authority** are identified several categories of managerial styles (style authoritarian, democratic and permissive, Kurt Lewin et al., 1939), and by type of area (the area of the leader and the exercise of authority by the liberty zone of collaborators Fig.2)[4].

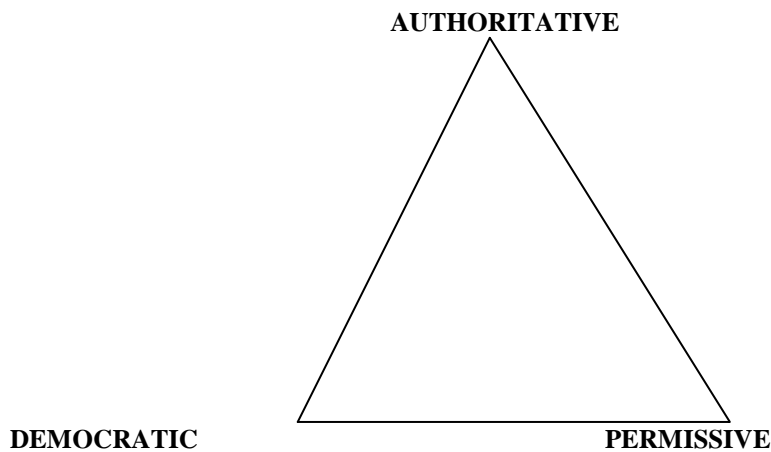


Fig.2 The managerial styles according to **exercised authority** (K.Lewin și colab. 1939)

*The authoritarian style* is identified with the *dominant style* and it refers to the refusal to accept the participation of other persons, in the performance of management duties, leading to diminishing the sense of responsibility on the part of the athletes to the exaggeration of control, with effects in terms of the movement of interest from the objectives pursued to the rules, with the creation of a mechanism of excessive control. Some authors identify, within the authoritarian style, a strict authoritarian style, a benevolent authoritarian style and an incompetent authoritarian manager style.

*The democratic style* ensures the athletes' participation in the training process, becoming a collaborator- coach, reducing, thus, the tensions and the conflicts, resulting in a reduced control, leading to some reservation towards generating innovative work. Brown subdivides democratic style managers in genuine democrats and pseudo-democrats. *The permissive style* is characterized by avoiding interventions, promoting the organization and spontaneous management of the activity, the group morale being low due to the lack of support from the coach.

Regarding the classification of the type of area, this delineates the steps of each zone by the way of taking a decision. In the exercise of the coach's authority, the first step is occupied by those who take the decision and announce it, the second stage includes those that convince the athletes of the importance of the decision, the third step comprises those presenting the draft decision, likely to be modified, and the last stage is occupied by the leaders who present their ideas and receive questions. In the area of the collaborators' freedom, those who collect suggestions and decide the matter are situated on the first step, the second step consists of delineating the problem and asking the group to make decisions, the last step allows the collaborators to make decisions within clearly defined limits[5].

**a. According to the initiation of the structure and the consideration**, the managerial style that includes both the organizational side as well as the human one, is noted. By the initiation of structure, Fleishman and Harris designate managers towards the orientation of organization: distribution of tasks, setting the group components and determining how to achieve tasks, a style that reduces the uncertainties.

**b. According to the concern for athletes and getting the performance** (Fig. 3), the managerial styles comprise 9 steps, the first one being held by those who show the lowest interest and the ninth showing the highest level of concern. There

must be a separation of management styles and considering this criterion they identified five types of managerial behavior: task-centered leader (9.1) people centered leader - a populist (1.9) drained leader (1.1) moderate leader - oscillatory (5.5), - group centered leader (9.9).

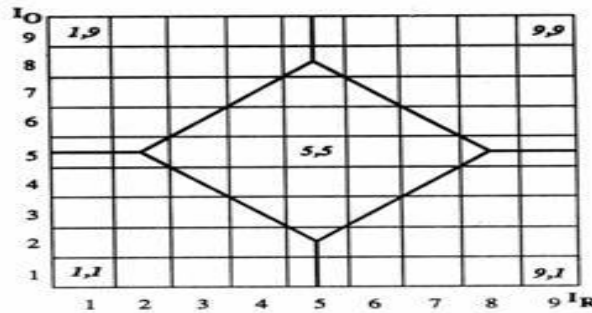


Fig. 3 management styles grid (Blake și Mounnton, 1964)

The sociologists Robert R. Blake and Jane S. Mounnton (1964) divided the grid into 5 approximately equal areas, giving the representative managerial styles:

- Drained leader (1.1), Zone A corresponds to 1.2, 1.3, 1.4, 1.5;
- People-centered leader - populist (1.9), Zone B corresponds to 1.8, 1.7, 1.6;
- - group centered leader (9.9), Zone C corresponds to 9.8, 9.7, 9.6, 9.5;
- Focused on the task leader (9.1), Zone D corresponds to 9.2: 9.3, 9.4
- Moderate leader - oscillatory (5.5), Zone E corresponds to 5.4: 5.3, 5.2, 5.6, 5.7.

**c. According the interest for performance, people and efficiency,** they identified eight categories of managerial styles, of which 4 are considered effective and 4 not (Reddin WI). The effective styles include: *the methodological style* that uses modern management methods, *the humanist style* that gives priority to human resources, as a guarantee of efficiency, *the technician style*, that focuses on the performance, in a fundamental manner, seeking rational solutions and *the moderate style* that strikes a balance between performance and the requirements of people. Within the category of ineffective styles the disinterested style, that is indifferent to the results, is included, *the paternalistic style* shows an exaggerated concern for people, *the abusive style* crosses the interest only to performance and *the irresolute style* that exaggerates in balancing the interests.

**d. By the type of motivation, communication and cooperation,** they identified the very authoritarian style, authoritarian- benevolent, consultative - participatory style and the highly participative style. In approaching the types of trainer-manager, Carl Jung Swiss starts from human typology and distinguishes two human types: extrovert and introvert. This polarization is diversified by intermediate types:

balanced, prototype leader, compensated, the prototype creator[6].

Thus we distinguished three leadership styles:

**participatory democratic style**, where concern for achieving the athletes objectives, without neglecting their problems, ease in establishing and maintaining human contact, broad delegation of authority, responsibility, kindness, tact, attachment;

**autocratic style** that is negative previous style, that lack of consultation, placing the forefront of formal authority, lack of confidence in sports, lack of delegation, excessive control and guidance;

**participatory-style authoritarian** frequent presenting features at half the minimum set.

To determine the value given to the different sports activity leadership styles , in terms of management, we used a questionnaire made up by A.Dragu, which sets the 50 features selected by its author, the orientation towards certain subjects, towards some preferred teaching styles, respectively, the authoritative, the enthusiastic creative, the cooperative- friendly, the balanced- experienced [7].

**Subjects.** The sample selected for our study is considered representative and consisted of 120 subjects, 30 teachers with at least 10 years experience in the department, coaches within the "University of Craiova School Sports Club " and the Petrache Triscu "High School Sports" "Craiova, 30 students who attended 4 years, 30 students who attended for 3 years, both categories referring to the bachelor level and 30 graduate students from FEFS Craiova.

#### The data collected and their interpretation

To highlight the answers orientation and to facilitate their interpretation, we realized the responses grouping into features categories, given the authoritarian style, creative-enthusiastic, cooperative- friendly, balanced, experienced (Table 1). Each participant completed the questionnaires with their preferences, they were processed and presented below.

Table 1. Students' Options for educational leadership styles

Nr. crt.	Didactic management styles	3-years students		4-years students		Master students		teachers	
		Nr.	%	Nr.	%	Nr.	%	Nr.	%
1	the authoritative	3	10	3	10	9	30	11	36,66
2	the enthusiastic creative	6	20	9	30	11	36,66	2	6,66
3	cooperative- friendly	15	50	12	40	4	13,33	6	20
4	balanced- experienced	6	20	6	20	6	20	11	36,66

We noted the fact that, as the training is more advanced, the creative style is much more appreciated, knowledge opening horizons to young athletes who in their early stages were inclined to indulgence, amending teachers rigidity and conservatism, aspect highlighted by our study. We can say that, as the student knows and to deepen the mysteries of his/her future profession, he/she becomes more mature and open to theoretical methodological and practical luggage growth opportunities, specific to the future profession.

#### **Conclusions**

The Knowledge sets needed by a good coach-manager are integrative, combining organic specialist knowledge of sports with managerial ones, knowledge of sports science, with the general and specific economic, legal, administrative and socio-psycho-pedagogical targets.

A Successful coach is one who will be able to combine this knowledge in order to manage the whole process of sports training.

In fact a coach-manager must coordinate and direct the efforts of human collectives to achieve common goals.

The leading activity is defined as a complex one, that combines the manager quality with the professional one, to streamline the effort required to achieve performance.

#### **References:**

- [1]. Budevici-Puiu L. Consultanța managerială în sport. Chișinău: Valinex SA, 2009. 203 p.
- [2]. Rees W.D. Arta managementului. București: Tehnică, 1996, p. 25-27.
- [3]. Cerchez N., Mateescu E. Elemente de management școlar. Iași: Spiru Haret, 1995, p. 94-137.
- [4]. Cojocariu V.M. Introducere în managementul educației. București: Didactică și Pedagogică, 2004. 274 p.
- [5]. Fizeal J.L, D'itri M. Evaluarea eficienței manageriale: cazul antrenorilor de baschet de nivel universitar. București: Evaluarea antrenorilor în organizații sportive, MTS CCPS, 1999, p.71.
- [6]. Jung C.G. Tipuri psihologice. București: Humanitas, 1997. 544 p.
- [7]. Dragu A. Structura personalității profesorului. București: Didactică și Pedagogică, 1996, p.31-114.

## THE IMPORTANCE OF POLYVALENT TRAINING OF JUNIOR III ATHLETES

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**Abstract:** The polyvalent training should ensure the development of a body able to adapt quickly and accurately, to the next stage, to the effort of any athletic test according to the diverse motor capabilities available. At this level of preparation (age 13-15), we recommend the simultaneous approach in the training process for the development of all basic motor skills, respecting the physiological and methodological peculiarities of sports training.

**Key words:** *physical effort, training, competitions.*

**Introduction.** The sports training should be understood not only as a long-term process directed to a higher development of psycho-physical characteristics, critical to obtain high performance, but also as a process that can not manifest and have a sense of existence until the expected growth of all basic characteristics, in the way that a sufficient development to complete as much as possible the discrepancies between a quality and another has been ensured to everyone. The concept of the polyvalent athletic training includes [1]:

- balanced development of all physical qualities in relation to age peculiarities;
- formation of specific athletics motor skills luggage, including learning the technique of running, jumps and throwing tests;
- practicing tests i.e. polyathlon contest.

### **The motivation for choosing the topic.**

We emphasized this age peculiarities of polyvalent preparation and the opportunities of success for future work groups of tests specialization.

**The purpose of the paper.** This paper aims to find what the characteristics of children and juniors polyvalent training are and the specialization peculiarities in a specific test in junior level III, by allocating funds in the annual plan, as well as the testing and assessment system used in order to specialize in a particular test.

### **Research methods:**

- study method the bibliography and the planning documents and evidence;
- the method of statistical processing of the data and their interpretation;
- test method;
- direct observation method;
- experimental methods.

Over time, in the practice of athletic training, there have been two trends: one to perform physical training through strictly specific and the other to promote a multilateral physical training [2]. The performance of only physical training, through exercises and specific requirements may have neglected the complexity of content in sports training. The excessive use of specific means to prepare children and youth groups III may result, as a first step, in the acceleration of progress. Later you can notice a performance increase capacity stagnation and even a limitation, many youth, considered genuine performance athletes, will not confirm the Junior I and Senior career.

For the achievement of a polyvalent athletes training, some criteria are very important [3]:

- selection, which is an act of screening children and youth with outstanding athletic ability;
- the relationship between the qualities and skills;
- continued development of psycho-motor qualities;
- appropriate means and methods used in the physical training of athletes;
- the polyvalent training objectives in the preparation of athletes.

**Organizing and carrying out the research** In this paper, the organization and conducting the research took place in the gym and Ion Oblemenco stadium Craiova. The subjects, who underwent this study, were children aged 13-15, because we wanted to investigate the effectiveness of poly athletic Junior III training, specializing in tests and also the results from these competitions. The training orientation of these subjects was made towards a versatile and poly athletic training, the only one which may ensure the development of a healthy body, capable, in the superior stages, to adapt quickly and accurately to specific effort, to any tests or groups of tests in athleticism, to avoid early, narrow specialization, directed towards achieving immediate performance, which has the effect of a slow and insignificant progress.

The selection means for the general physical training has a wider and more diverse source, as the practical test is less tactical and with a low technical content. The general physical training volume varies depending on the level of athletes training. It is higher in groups III juniors, narrower and more specialized in advanced and becomes predominantly specific in high performance athletes groups.

The share of general physical training is different in an annual training cycles, has an important role in middle cycles, from the beginning of the training, to ensure the development of basic motor skills and increase the functional capacity of the body [4]. The content of specific training is submitted to obtaining adaptations and increase in exercise capacity as required and to obtaining the peak values of the competitive model [5]. The tests and control standards are grouped into two broad categories:

- Tests of physical multilateral training:
  - general;
  - specific.
- Tests regarding the polyvalent preparation, a training governed by the ability of practicing within the contest,

in polyathlon tests (tetrathlon, pentathlon, heptathlon) in the junior III category.

The evidence of physical multilateral training were grouped as follows (Table 1):

1. Tests for measuring the speed of travel:

-running in 30m distance starting from downwards. They ran once departing from the block - starts to order.

-running in 30m distance, standing start. The subjects ran once, with a free departure.

-running in 50m distance standing start. The subjects ran once with standing start, with a free departure.

Table 1. The results of the tests and control standards in the initial testing and final testing

the tests and control standards name and family name	S. long jump. without moose (m)		30m a.s.p.		30m a.s.j.		50m a.s.p.		120m a.s.p.		300m a.s.p.	
	T.I.	T.F.	T.I.	T.F.	T.I.	T.F.	T.I.	T.F.	T.I.	T.F.	T.I.	T.F.
A.I.	1.78	1.80	5.20	5.10	5.35	5.25	7.6	7.4	22.7	22.5	50.4	50.1
B.I.V.	1.56	1.60	4.90	4.70	5.05	4.95	7.4	7.2	20.5	20.3	42.8	42.4
C.D.	2.10	2.15	3.90	3.90	4.30	4.10	6.7	6.5	17.8	17.5	37.8	37.5
D.M.	1.60	1.70	4.90	4.80	5.40	5.10	7.5	7.3	21.5	21.3	48.9	48.7
H.M.	1.70	1.80	4.50	4.30	4.75	4.55	7.3	7.0	20.4	20.2	43.7	43.5
L.A.	1.65	1.75	4.90	4.90	5.35	5.15	7.3	7.2	21.9	21.7	49.9	49.6
L.C.	1.55	1.65	5.05	4.95	5.20	5.20	7.9	7.8	23.6	23.6	50.0	49.8
L.L.	1.65	1.75	4.55	4.35	4.80	4.60	7.7	7.5	22.4	22.1	48.9	48.7
M.M.	1.65	1.85	4.50	4.20	4.65	4.55	7.6	7.4	21.8	21.7	47.8	47.4
N.A.	1.55	1.65	5.00	4.90	5.40	5.30	7.9	7.7	22.9	22.9	49.7	49.3
N.A.M	1.70	1.80	4.50	4.20	4.60	4.50	7.3	7.0	20.5	20.1	49.8	49.1
N.O.	1.75	1.87	5.00	4.85	5.10	5.00	7.8	7.4	23.5	23.1	49.7	49.2
O.I.P.	1.80	1.80	5.10	5.00	5.25	4.90	7.9	7.5	23.7	23.4	50.1	49.4
S.O.	1.65	1.72	4.90	4.75	5.05	5.00	7.7	7.3	23.5	23.1	50.0	49.2
T.A.S	1.75	1.86	4.80	4.60	4.90	4.80	7.6	7.4	22.7	22.4	49.5	48.7
T.R.	1.70	1.85	5.00	4.80	5.05	5.00	7.7	7.7	23.2	23.0	50.1	49.3
U.S.	1.85	1.97	5.15	5.00	5.25	5.15	7.9	7.8	23.9	23.4	50.6	50.0
U.T.	1.50	1.62	5.60	5.30	5.75	5.65	8.2	8.1	24.0	23.7	50.8	50.2
V.A.	1.55	1.69	5.55	5.35	5.65	4.55	8.1	7.9	24.1	23.6	50.1	49.7
V.I.M	1.65	1.72	5.40	5.10	5.55	5.40	8.1	8.0	24.0	23.6	50.2	50.0
arithmetic mean	1.68	1.78	4.92	4.75	5.12	4.94	7.66	7.46	22.43	22.16	48.54	48.09
Standard deviation	0.132	0.125	0.338	0.337	0.362	0.362	0.342	0.373	1.591	1.569	3.214	3.153
C.V.	7.857	7.022	6.869	7.094	7.070	7.327	4.464	5.000	7.093	7.080	6.621	6.556

2. Test to determine the explosive strength of the lower limbs:

- long-jump without moose. There have been two attempts in the long jump pit and we considered the best jump. The measurement was made from tiptoe placed on the ground before jumping and the last footprint in the sand left after the jump.

3. Test for speed testing under stress:

- running in 120m distance with a standing starting. Athletes ran once with no starting command.

- running in 300m distance with a standing starting. They ran once in groups of four.

Interpretation of data obtained.

As can be seen from Table 1, there are growths in the average of the initial and final testing, in all control tests, and the coefficient of variation has values well below the 15% standard, so we conclude that the spread of results is very small, the average is representative and the sample of subjects is very homogeneous.

### Conclusions.

1. At this level of preparation, we recommend the simultaneous approach in the training process for the

development of all basic motor skills, respecting the physiological and methodological peculiarities of sports training.

2. The value of a polyvalent training is underlined by the specialist Federation, which has modeled the competition system for beginners (children and juniors III) particularly in polyathlons (triathlon, tetrathlon, pentathlon).

3. The results provide a guideline regarding the selection process (a permanent process) as well as regarding the use of the most effective means of training in the preparation of young athletes for these tests.

### References:

- [1]. Dragomir M., Albină A.E. (2009), *Atletismul în școală*, Ed.Universitaria, Craiova, p.16-18.
- [2]. Alexe N.(1993), *Antrenamentul sportiv modern*, Ed. Editis, București, p.45-46.
- [3]. Bompa T. (2003), *Totul despre pregătirea tinerilor campioni*, Ed. Exponto, București, p.66-67.
- [4]. Rață G., Rață B. C-tin. (1999), *Aptitudini motrice de bază*, Ed. Plumb, Bacău, p.121-122.
- [5]. Cârstea G. (2000), *Teoria și metodică educației fizice și sportului*, Ed.AN-DA, București, p.67-68.



## OPTIMIZING DEFENSE HANDBALL GAME IN LEVEL JUNIORS II

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**Abstract:** The defense game needs to be characterized by a great mobilization of players, an increasing offensive against the opponent holding the ball, which always obstructs the teammate close by.

Defense represents a tactical practice in which a team aims to take possession of the ball in order to carry an offensive action, without violating the law or allowing the opponent to score a point. **Introduction.** A great performance will be attributed to those teams that have both a good attack and a very good defense ability. A correct action of defense, with improved tactical and technical approaches, and within the rules of the game, will only provide benefits to the team – this is true when the umpire supervising stays within the same sports high exigencies. **Research methods** and techniques: study information material, teacher observation, records, experiment teaching, graphics. **Data interpretation.** The aim was to confirm the hypothesis that, by applying certain methods and means, we get to improve the game of defense and increase the efficiency of the activity. This present experiment helped us notice an obvious increase of all the parameters being considered (motricity and technical-tactic). **Conclusions.** The objectification, systematization and standardization of training means will contribute to the compliance with the individualization principle that will capitalize on the player's quality.

The game technique improving during the defense stage increases the game efficiency.

**Keywords:** *defense, handball, juniors*

### Introduction

Regardless of the system adopted, the defense should be mobile, flexible and staunch. Players are moving quickly, will give a decisive battle, decisively and forcefully attack an opponent, not to the extent permitted by regulation. [1]

Defense is the tactical situation where a struggling team into possession for the purpose of undertaking offensive actions without committing foul, irregular and without allowing the opponent to score points. A proper defense activity, improved tactical and technical means, carried within the game rules ensures that only benefit the team. [1]

Addressing the junior training component is conducted methodical principles and rules specific performance training in handball. Periodization training, setting objectives and tasks of the various stages and cycles of training, training program content to improve component performance are similar to handball. [2]

The work takes the form of an experimental study aiming to influence the implementation of a means in the process of training on motor skills, techniques and tactics of the game in defense.

Careful observation of the game the best teams in the world, led us to the conclusion that the great performances are obtained only teams besides attack and defense were very good.

Playing defense claims system from each defender tactical knowledge on the most convenient ways to use the various techniques specific defenses that apply them consciously every time with complete safety and with conviction. [3]

In conclusion, we can say that the work is of great interest and importance because neither team can lay claim to obtain athletic performance without defense very well put together and in doing so allow me to agree with the statement of a professional argue that „the best defense is attack ."

This paper contributes to:

Development and improvement of general and specific physical preparation of the players.

Specifying priorities in the process of preparing physically and technically , tactically and psychologically theory in context with the task of training , depending on objective and performance at club;

Improving the objectivity of the process of training in the club team;

Systematize the means used in the training and settlement funds on their effectiveness;

### Materials and methods

Research Hypotheses at the moment we can say that most of the issues of the training is satisfactorily resolved, but continuing training requirements shall impose new studies and research.

Given the purpose of this work is necessary to determine the assumptions that starts conducting the research.

- Improvement of technical and tactical defense training significantly improves the quality of the game on defense.

- Selection and streamline the training tools is a primordial necessity in the training process.

- Improvement of general and specific physical training increases efficiency defense game.

Research methods and techniques: bibliographic study method, observation method pedagogical method records, statistical and mathematical method, graphical method.

The experiment was conducted at the School Sports Club no. 6 Bucharest girls junior handball team I. For the experiment were selected parts of lot 14 sports representative aged 16-19.

In this experiment involved 14 players of which 12 outfield players and two goalkeepers who basically were used only in checking the bilateral game, they not participating directly in the experiment.

Initial testing was done on 25.08.2012 and final testing was done on 05.22.2013, with the final match of the

Junior National Championship II.

Nr crt	Nume si prenume	Postul	Tip somatic		Indice de proportionalitate	Anvergura	Lungime palma	Desch palma
			Inaltime	Greutate				
1	AE	ES / ALS	160 cm	54kg	$\frac{160-100}{54} = 1,11$	160	16	17
2	CG	ID / AID	170 cm	56kg	$\frac{170-100}{56} = 1,25$	170	18	20
3	CO	C / ACS	171 cm	58kg	$\frac{171-100}{58} = 1,22$	172	18,5	20,5
4	CN	ED / ALD	168 cm	55kg	$\frac{168-100}{55} = 1,23$	170	17	20
5	DM	PI / ACD	172 cm	70kg	$\frac{172-100}{70} = 1,02$	172	18	21,5
6	FL	ED / ALD	176 cm	60kg	$\frac{176-100}{60} = 1,26$	178	18,5	22,5
7	IA	ES / ALS	168 cm	67 kg	$\frac{168-100}{67} = 1,01$	169	16,5	18
8	PR	ES / ALS	165 cm	55kg	$\frac{165-100}{55} = 1,18$	166	17	18
9	PG	IS / AIS	175 cm	67kg	$\frac{175-100}{67} = 1,11$	178	18,5	22
10	SC	IS / AIS	176 cm	68kg	$\frac{176-100}{68} = 1,11$	179	18,5	21,5
11	SF	ID / AID	174 cm	70kg	$\frac{174-100}{70} = 1,05$	177	18	21
12	SM	PI / AC	170 cm	62kg	$\frac{170-100}{62} = 1,12$	170	17,5	21
13	RA	PO	172 cm	68kg	$\frac{172-100}{68} = 1,05$	174	18	20
14	SM	PO	177 cm	67kg	$\frac{177-100}{67} = 1,14$	180	19	22,5

Table 1 Anthropometric data of the subjects tested

The experiment was spread throughout the 2012-2013 competitive year from summer training period and ending with the last period that return competitive national championship .

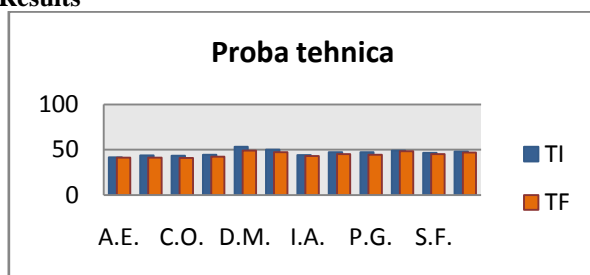
The tests both the initial and final corresponded both in terms of content and from the point of view of the conditions of the process.

Because we set our goals to be consistent with reality and show the possibilities release team at the start of the experiment, we make a brief analysis of the group. The experimental group consists of 14 players clinically healthy and able to exercise (data on female players were tabulated)

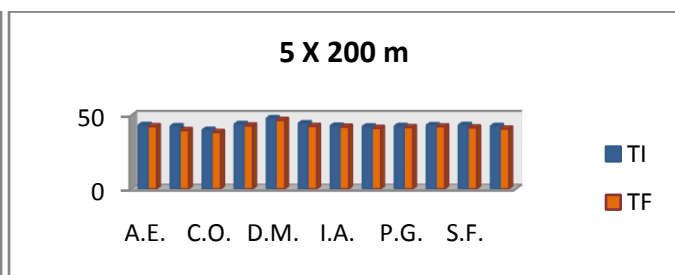
**Control samples are:** 5x30m, technical test field female players, 3x200m, pentasalt.

The results were tabulated in control samples at both initial testing and the final, and the results were represented and the graphics.

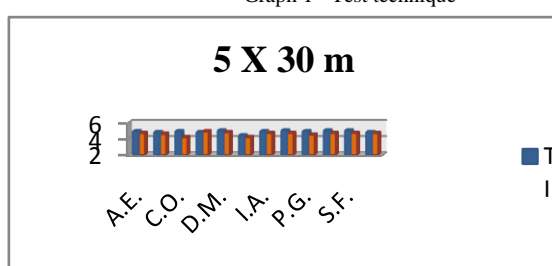
## Results



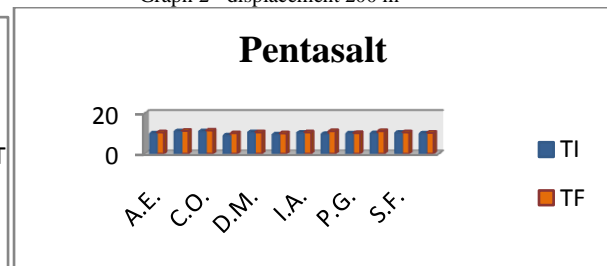
Graph 1 - Test technique



Graph 2 - displacement 200 m



Graph 3 - 30 m movement



Graph 4 - Pentasalt

N r. C rt	N.P.	5x30m						Test technique						3x200m						Pentasalt					
		Ti	Tf	Dt	Pi	Pf	Dp	Ti	Tf	Dt	Pi	Pf	Dp	Ti	Tf	Dt	Pi	Pf	Dp	Ti	Tf	Dt	Pi	Pf	Dp
1	A. E.	4.9	4.7	0.2	1.0	4.0	2.0	41.6	41.3	0.3	34	37	3	4.3	42.3	0.8	69	77	8	10	10 <sup>50</sup>	0.5	3.0	40	1.0
2	C. G.	4.8	4.6	0.2	3.0	5.0	2.0	43.7	41.2	2.5	13+10	38+10	2.5	4.2	39.7	3.6	77	100	2.3	11	11 <sup>25</sup>	0.2	5.0	55	5
3	C. O.	4.9	4.2	0.7	2.0	9.0	2.0	43.3	40.9	2.4	17+5	41+15	3.4	3.9	38.4	1.4	100	100	0	11	11 <sup>45</sup>	0.4	5.0	59	9
4	C. N.	4.9	4.8	0.1	2.0	3.0	1.0	44.6	42.4	2.2	4	26	2.2	4.3	42.8	1.0	62	72	1.0	9 <sup>20</sup>	10 <sup>10</sup>	0.9	1.4	32	1.8
5	D. M.	5.0	4.8	0.2	1.0	3.0	2.0	53.3	49.1	4.2	5	10	5	4.7	46.5	1.2	23	35	8	10 <sup>50</sup>	10 <sup>55</sup>	0.0	4.0	41	1
6	F. L.	4.4	4.2	0.2	7.0	9.0	2.0	50.0	47.5	2.5	0	0	0	4.4	42.4	1.9	57	76	1.9	9 <sup>50</sup>	10 <sup>05</sup>	0.5	2.0	31	1.1
7	I. A.	4.9	4.7	0.2	2.0	4.0	2.0	44.2	43.1	1.1	8	19	1.1	4.2	41.9	0.7	74	81	7	10 <sup>30</sup>	10 <sup>50</sup>	0.2	3.6	40	4
8	P. R.	5.0	4.7	0.3	1.0	4.0	3.0	47.3	45.2	2.1	0	0	0	4.2	41.1	1.0	79	89	1.0	9 <sup>70</sup>	11 <sup>10</sup>	1.1	2.4	52	2.8
9	P. G.	4.9	4.5	0.4	2.0	6.0	4.0	47.5	44.6	2.9	0	4	4	4.2	41.6	1.8	76	84	8	10	10 <sup>15</sup>	0.1	3.0	33	3
10	S. C.	5.0	4.7	0.3	1.0	4.0	3.0	49.0	48.3	0.7	0	0	0	4.3	42.2	0.8	70	78	8	10 <sup>30</sup>	11 <sup>15</sup>	1.5	3.2	53	2.1
11	S. F.	5.0	4.7	0.3	1.0	4.0	3.0	46.6	5.2	1.4	0	0	0	4.3	41.4	1.7	69	86	1.7	10 <sup>30</sup>	10 <sup>50</sup>	0.2	3.6	40	4
12	S. M.	4.8	4.7	0.1	3.0	4.0	1.0	48.2	47.0	1.2	0	0	0	4.2	40.6	1.8	76	94	1.8	10	10 <sup>30</sup>	0.3	3.0	36	6
X	—	4.8	4.6	0.2			2.8	46.6	44.6	2.0			9	4.3	41.7	1.3			1.3	10 <sup>14</sup>	10 <sup>63</sup>	0.4			1.0
ΣD <sub>P</sub>					2.0	5.0	3.0				96	200	1.0				83.2	97.2	1.4				3.9	51.2	1.2
(ΣD) <sup>2</sup>							102.400						108.16					196.03						144.00	
ΣD <sub>P</sub> <sup>2</sup>							1150.0						243.6					200.8						195.4	

Table 2 Mathematical processing parameter values registered their statistical interpretation



### Discussion and conclusions

Jakob Vestergaard Oltchimului former coach reveals secret to success: „You can win matches in the attack, but trophies are obtained defense”

It is important at the junior level I, the two phases of the game (defense - attack) to work interdependently and not separately especially during season.

Planned training program gave the results expected by sensing motor behavior, technical and tactical athletes both during training and the official game.

Means used in the training program to which were added deceptive movements used before contact with the striker led to a substantial improvement of both the individual and the defense of the collective.

Tests correspond with the rules and requirements for the participation in the National Handball Championships.

The number of goals conceded and data flow, compared to the number of goals conceded and return data allowed calculation of the rate of progression of the defense.

All data from the battery of tests were processed by means of statistical and mathematical calculating:

- Differences between initial and final tests;
- The rate of progression of the two values (initial and final) driving in all samples;
- The arithmetic average of the initial and final tests;
- Standard deviation;
- Coefficient of variability for the assessment of homogeneity of the group.

I finally ordered, systematized and reported by experienced graphic made for each sample.

Data interpretation methods chosen revealed an increase in business efficiency and improved defensive play.

During the experiment was conducted in a noticeable increase in all parameters and technical-tactical driving both in terms of individual and collective.

Following the completion of the experiment, during a competitive year, with the junior team I School Sports Club No.6 Bucharest, we reached the following conclusions:

Selection and classification means training is a necessity in the training process;

Objectification, rationalization and standardization of means of training contribute to the principle that the exploitation qualities of the players;

General and specific physical training the efficiencies defense game;

Game improvement technology to increase the efficiency defense in the game;

So, we can say that we started hypotheses were confirmed;

The game of handball defense when dealing with a share as high as the time of the attack, they get great performance than those teams besides attack and defense were very good;

Current stage of development of handball, must act to raise the quality of individual and collective defense game.

The percentage given training game attack is too large sports club handball at school to the given training to play defense.

Experiments showed that giving increased importance to defense preparedness will entail improving the game in attack and hence the performance results in the game of handball.

### References

- [1]. Kunst Ghermănescu, I., Gogăltan, V., Jianu, E., Negulescu, I., (1983). *Teoria și metodică handbalului*, București: Editura Didactică și pedagogică, p. 117
- [2]. Hantău, C., (2004). *Handbal Antrenamentul copiilor și juniorilor*, București: Editura Printech, p. 78
- [3]. Biro, F., Roman, C., Dragoș, P., (2002). *Handbal Inițiere*, Oradea: Editura Universității din Oradea, p. 155

# TACTICS TO IMPROVE THE GAME OF FOOTBALL THROUGH THE IMPROVEMENT OF THE TECHNIQUE OF EXECUTION AT THE LEVEL OF JUNIOR A (17-19 YEARS OLD)

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## Summary

The way of training junior footballers and their participation in the competition involve structuring correctly the content of the technique and tactics of the football game, taking into account bio-motor and psychic age particularities, all of these leading to increasing efficiency of the process of training, especially when the team and their finalisation are concerned.

*The purpose of research* is represented by the establishment of the most important aspects related to training juniors A, with regard to the improvement of the game technique, seen as an important prerequisite for improving the tactics of football game in attack and, in particular, in finalization.

In the research I used *method of practising globally in various conditions and competitions*, and during the training sessions, *we improved technical elements with the ball*.

The comparisons made between the initial and the final testing have highlighted players' significant progress in the four specific tests. The results obtained by the subjects in the tests show that players have significantly improved their performances between the two tests, thus confirming the research hypotheses.

Analyzing and interpreting the data of the experiment we claim the selection of the most significant means of improving individual and collective technique have led to the advancement of technical and technical-tactical factors, with direct effect on the assessment in the games.

**Keywords:** *football, training, technique, tactics, finalization.*

## Introduction

The way of training junior footballers and their participation in the competition involve structuring correctly the content of the technique and tactics of the football game, taking into account bio-motor and psychic age particularities, all of these leading to increasing efficiency of the process of training, especially when the team and their finalization are concerned.

The best players are characterized by competitiveness and desire for victory, the ability to control their emotions, self-confidence, along with certain skills specific to a football player. Most research studies have as an axiomatic starting point a pattern of a player, highlighting his skills and thus, recommending a selection based on them.

The process of improving technique involves the execution of a wide variety of exercises, where achievements require the athlete's skills of perception, analysis and reflection along with the ability to combine simple movement in more complex motor actions [1]. The whole process of preparing the player consists of creating optimal conditions for developing his maximal competition capacity during the game. This is the reason why, regardless of temperament and character traits, a well-prepared player possesses enough mental strength to exploit opportunities in all stages of the game [2]. The overall goal with 17-18-year-old players is the improvement of specific technical means in order to enhance the effectiveness of regaining possession, construction and finalization[3] by acquiring the basic mechanism of all technical procedures and of individual and collective tactical actions for attack and defence in situations of

adversity [4].

If technique is closely linked to players' motor processes of behaviour, tactics involve the player mostly at intellectual as well as at emotional and willingness level. The player's behavior in a particular phase of the game is preceded and accompanied by complex psychic processes. The option for leading the ball, passing, dodging, shooting to the goal, the individual action to overtake the opponent, etc., are the result of these processes. Each game action (behaviour, gesture, invention) has in its content intellectual, motor and character components.

A football player is not born with football qualities, but through training sessions properly executed along with specific competitiveness within the team, he develops the ability to work with the ball up to mastery [5]. Collective tactics in attack sum up the principles and rules, which are followed by the whole team during the game, when players collaborating among themselves act in unison against the opponents' defensive system.

Eliminating the opponent from playing through individual or collective overcoming is a matter of utmost importance and, at the same time, the basic condition that precedes the act of finalisation, which is the final goal of the game. The ability to overcome the opponent by dribbling or moving efficiently the ball must remain the permanent objectives of training, in order to obtain superiority in present conditions of adversity during the attack. The variety of game phases and movements in different areas of the game has developed the tactical relationships among teammates, but also the obligation to act effectively by technical and tactical means specific to all pitch areas.

The basic condition of these movements is to occupy the game areas in equilibrium, through an organised circulation, which will avoid over-crowding certain areas at the expense of others. The emergence of such disturbances can be fatal, especially when these occur at the expense of the team's defensive structure.

The state of concentration, coordination and synchronization of several players moving simultaneously on previously established or unpredictable paths and spaces, is a basic tactical requirement of the current game to which the players should adhere, regardless of their position in the team.

#### **Purpose of research**

It is represented by the establishment of the most important aspects related to training juniors A, with regard to the improvement of the game technique, seen as an important prerequisite for improving the tactics of football game in attack and, in particular, in finalization.

#### **Research hypotheses**

1. Technical procedures improved up to the level of virtuosity will contribute decisively to the differentiation and integration of their players in the highest level senior teams.

2. The improvement of the technique of the game contributes decisively to enhancing the effectiveness of the football game, thus improving the tactics of the game, especially in finalization.

#### **Material and method**

In the research I used *method of practising globally in various conditions and competitions* [6]. Thus, within the framework of the training sessions, *improved technical elements with the ball* were [7]:

##### *1. Kicking and taking possession of the ball*

This is the main element of the game; the variety of its technical procedures carried out in various positions, in the presence of the opponent and at increased speed represents absolutely necessary conditions for the player's effective participation in the game.

During the game, depending on the situation, there are a multitude of combinations and chains among them, which, if executed correctly, add value to the game and turn it into a spectacle.

##### *2. Hitting the ball with his head*

Using this procedure depends on the likelihood of rapidly and successfully continuing the moment in the game. The player's intervention on the ball by hitting it with his head is performed depending on the venue and the tactics required by the game.

Hitting the ball with the head is used to repel the ball, pass or send the ball to the gate. Of course, the technical procedures and the biomechanics of impact are the same in the three tactical situations.

The efficiency of the process is carried out according to the placement, anticipating the moment of attacking the ball, orientating and informing about the trajectory, choosing the right time for the jump, the force of impact.

##### *2. Dispossessing the opponent*

Dispossessing the opponent of the ball is a technical element of defence first, and secondly of attack, if it succeeds. Technical connections of dispossession are

only carried out only if after performing it, the player has remained in possession of the ball. Thus, after gaining possession, the player can execute one of technical procedures: leading, dodge, passing, shooting on the goal. The most common algorithm is: dispossessing-leading-passing.

From tactical point of view, the following principles should be taken into account:

↪ the decisive attack is not the solution, but the prudent one, focussing on the ball, not on the opponent, especially in the penalty area, but also in its vicinity;

↪ protective measures of the gate should be taken, posterior dubbling being performed after dispossession;

↪ within large spaces attacking is carried out through exploration and blocking;

↪ after failing to dispossess, the defender places himself behind the striker, marking another opponent, or in a free zone of its defensive bloc;

↪ after the success of the dispossession, the continuation of offensive action is compulsory.

##### *3. Leading the ball*

It represents the technical element linking other items such as acquisition (with leg, chest, head), dispossession, followed by dribbling or kicking (in the form of passing or sending the ball to the goal, centering, launching, opening or rebounding). It should be carried out in a varied motor context, running in different tempi and always changing directions, brought about by the intervention of opponents and partners, as well as the personal tactical intentions of the one who is leading the ball. While leading, there appear further physical actions: stops and starts, dodges, changes of direction and sense, and maneuvers to protect the ball attacked by the opponent.

##### *4. Juking or dodging an opponent*

The tactical purpose of dodges is misleading and eliminating the opponent in his defensive opposing action, this way winning a favorable attack position or time of attack in addition to defence, both advantages leading from the first moment to a local or overall numerical superiority.

#### **Exercises used during the research**

1. Passing between two performers through a loophole 1,5-2 metres wide, made up of two stakes. Passing are executed after gaining possession or directly, depending on the abilities of the performers. The distance between the performers will be 8-10 or 12-14 meters.

2. Passing the ball among three players placed in the edges of an equilateral triangle with 20-metre- sides. At first, passes will be executed after possession, then the doers will be required to pass directly.

3. Passing the ball between two or among three players with or without the exchanging positions, 20-25 meters and shooting to the goal. The distance between the performers is 5-6 meters.

4. Leading the ball to the edge of the pitch, on a distance of 20 m, completed with centering. Players who get the center shoot to the goal. It is advisable for the coach to conduct the exercise. He will send the ball

to the forward, who will perform a possession beforehand, followed by leading and shooting to the goal.

5. A and B Players perform two passes while moving. When they approach the line of 16 m, B passes deeply to A, who will directly center to the players in the triplet. They start at the same time with players from the sidelines and will shoot directly with his foot or head.

6. Exercises 5 and 6, but with an active adversary, who tries to tackle the opponent.

### Subjects

The experimental group was made up of 16 junior football players (born in 1994 and 1995), all of them students in „Gica Popescu” Football School.

### Results

*Description of the technical and tactical tests used in the experiment*

1. *The transmission of the ball with precision*-(the ball on a certain spot; a 2m-wide and 16m-long path is drawn; each player will be allowed to try 10 times; the successful attempts (when the ball does not go out of the pitch) are recorded.

### Processing and interpretation of the results

Table No. 1. Results from *transmitting the ball with precision*

<i>Transmitting the ball with precision</i>	<b>Initial testing</b>	<b>Final testing</b>	p
<i>Subjects' average</i>	<b>4.37</b>	<b>8</b>	<b>&lt; 0,05</b>

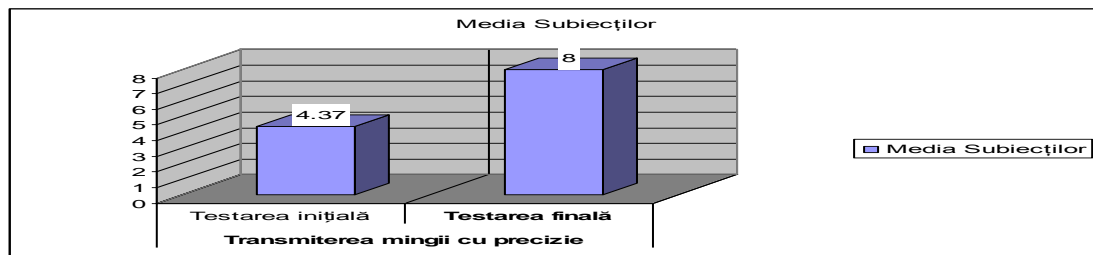


Fig. 1. *Transmitting the ball with precision* – arithmetical averages graph

Table No. 2. Results from *possession, leading and shooting towards the goal*

<i>Possession, leading and shooting towards the goal</i>	<b>Initial testing</b>	<b>Final testing</b>	p
<i>Subjects' average</i>	<b>6.50</b>	<b>5.59</b>	<b>&lt; 0,05</b>

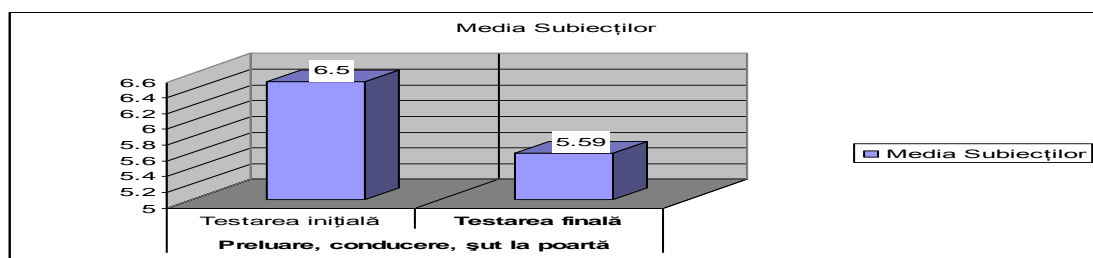


Fig. 2. *Preluare, conducere, șut la poartă* – arithmetical averages graph

Table No. 3. Results from *dribbling among 5 stakes*

<i>Dribbling among 5 stakes</i>	<b>Initial testing</b>	<b>Final testing</b>	p
<i>Subjects' average</i>	<b>5.6</b>	<b>4.7</b>	<b>&lt; 0,01</b>

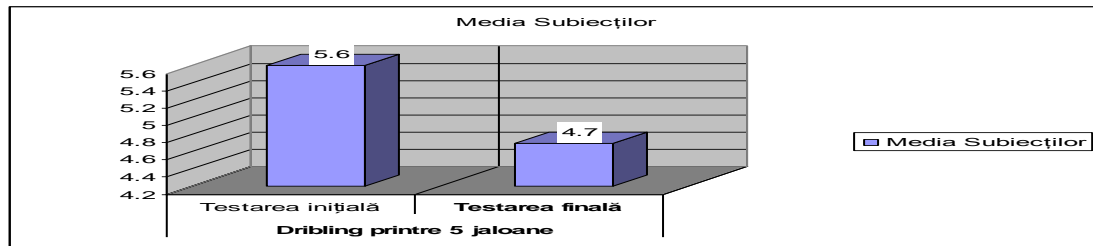


Fig. 3. Dribbling among 5 stakes – arithmetical averages graph

Table No. 4. Results from finalisation as a result of 10 centers

Finalisation as a result of 10 centers	Initial testing	Final testing	p
Subjects' average	4.75	8.25	< 0,01

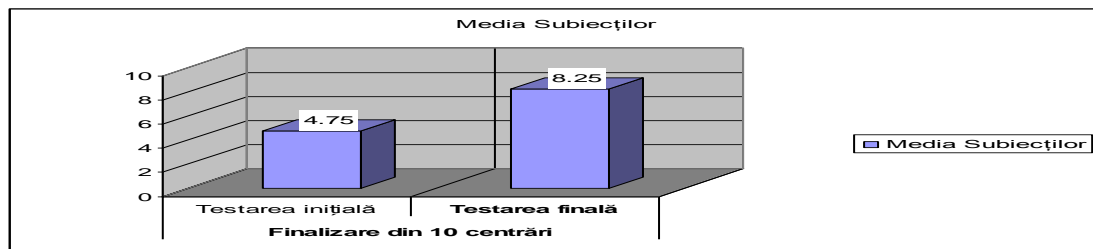


Fig. 3. Finalisation as a result of 10 centers – arithmetical averages graph

### Discussion

The comparisons made between the initial and the final testing have highlighted players' significant progress in the four specific tests. The results obtained by the subjects in the tests show that players have significantly improved their performances between the two tests, thus confirming the research hypotheses.

Taking each topic apart and comparing the results reported to the alleged values of an ideal model, we would recommend to insist on a multilateral training of each player as well as on getting him accustomed to hard work required by the difficult position he occupies in the team.

In the process of training young juniors, modeling training and its individualisation are basic elements in developing their individual value and increasing the efficiency of the game.

In *transmitting the ball with precision* it was recorded an average of 4,37 successful executions in initial testing, and 8 in final testing, thus recording significant increase of successful executions - 3,63, resulting from the use of specific exercises.

In *possession, leading and shooting towards the goal* it was recorded an average of 6.5 successful executions in initial testing, and 5,59 in final testing, thus recording significant increase of successful executions - 0.51, resulting from the use of specific exercises.

In *dribbling among 5 stakes* it was recorded an average of 5.6 successful executions in initial testing, and 4.7 in final testing, thus recording significant increase of successful executions - 0.9, resulting from the use of specific exercises.

In *finalisation as a result of 10 centers* it was recorded an average of 4.75 successful executions in initial testing, and 8,25 in final testing, thus recording

significant increase of successful executions - 3,50, resulting from the use of specific exercises.

### Conclusions

Analyzing and interpreting the data of the experiment we have reached the following conclusions:

- ♣ The significant improvement technical procedures of the game in attack confirmed the research hypothesis about the efficiency of finalisation.
- ♣ The comparisons between the initial and the final testing have highlighted players' significant progress made by the experimental group during and after doing the specific exercises tested.
- ♣ The selection of the most significant means of improving individual and collective technique have led to the advancement of technical and technical-tactical factors, with direct effect on the assessment in the games.

### Bibliografie

- [1]. RĂDULESCU, M., (2007). *Fotbal – Tehnica – Factor prioritar*. Edit. Răzeșu, București, p. 111.
- [2]. EPURAN, M., HORN, E., (1985). *Mecanisme de influențare a comportamentului în fotbal*. Edit. Sport-Turism, București, p. 16.
- [3]. MOTROC, I., MOTROC, FL., (1996). *Fotbalul la copii și juniori*. București, Edit. Didactică și Pedagogică, RA, p. 173.
- [4]. RĂDULESCU, M., COJOCARU, V., (2003). *Ghidul antrenorului de fotbal-copii și juniori*. Edit. Axis-Mundi, București, p. 191.
- [5]. LENNOX, Jim (2004). *Scoring tactics of strikers*. National soccer coaches association of America, The soccer coaching bible, p. 131.
- [6]. DRAGNEA, A, TEODORESCU-MATE, S. (2002). *Teoria sportului*. Ed. Fest, București, p. 264.
- [7]. BARBU, D., (2008). *Tehnica jocului de fotbal*. Edit. Universitaria, Craiova, p. 23-108.



# THE WINTER OLYMPICS IN SOCHI AND ITS IMPACT ON THE OLYMPIC MOVEMENT'S

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**Abstract:** The XXII Edition of the Olympic Winter Games, hosted by Russia he was born on 4 July 2007 in the framework of the 119th meeting of the board of the International Olympic Committee (C.I.O) from Ciudad de Guatemala. "Putin's Games", attribute given by the international media of Russian edition of Olympic Winter Games, seems to be fully justified, since their introduction (1924 Chamonix-France) in Olympic competition calendar and so far, there has been another edition of the games, which have not received such attention and support from the host country representatives. In the sports events, The Olympic Games in Sochi have gathered 2,800 athletes from 90 countries participating, over 13,000 accredited journalists and were awarded 294 medals (98 sets). In the economic plan, "Putin Games" have succeeded "performance" to be the most expensive in history, the 51 billion dollars to cover the costs of the other 20 previous editions taken together. Socially, he managed "performance" to produce hundreds of personal dramas among the citizens of the city of Sochi, in the name of "the Olympic ideal" were stripped of their housing in the place to which Olympic arenas were built, these being forced to live in conditions almost inhuman. Seen as a whole, this year's competition was the Grand sports event of its kind in history. Concluding, the question arises - Does impact socially, politically, economically, in the sphere of culture, education and the Olympic legacy, created for this edition of The Olympic Games, justifies the huge effort made by the Russian nation in support of the games? So, only the passage of time to be determined!

**Keywords:** "Olympic Movement", "Sochi 2014" The Olympic Games, "Putin's Games", "impact".

## Introduction

The Odyssey of the XXII Edition of the Olympic Winter Games, hosted by Russia began seven years ago, on July 4 2007, during the 119th meeting of the board of the International Olympic Committee (C.I.O) from Ciudad de Guatemala, with a strong support from Russian President Vladimir Putin and the athlete Maria Șarapova, the city of Sochi won the right to organize the games, displacing them the other two contracandidate, Salzburg (Austria), and Pyeongchang (South Korea). Chronologically, however, things were different!

"Time zero" Russian dream was, in fact, in early 2006, President Putin and the Russian businessman Vladimir Potanin were in Austria, where they enjoyed the alpine slopes. "I was on holiday, skiing, with President Putin. Enjoy superb slopes in Austria, we wondered why there and in Russia a resort offering the same conditions. The mountains have, we lacked investment" - recalls Potanin, the fourth richest man in Russia, whose wealth was estimated by Forbes at 17.8 billion dollars! [1]

The Kremlin leader's desire, intensely publicized by the international media has had a lot of supporters, on all levels, this year's Edition of enjoying countless recognitions from the highest level of International Olympic Forum and the United Nations respectively, along with a whole series of criticisms coming both from States and international bodies campaigning for the protection of human rights and on the part of some of the inhabitants of the city of Sochi, who have lived the true drama of the Games.

The most spectacular Olympic Winter Games history, had legally and financially, a historically very interesting! Thus, from an original budget of \$ 300 million, required building a new resort with several high-tech, only a year old, with the choice of Sochi as host of the competition, the cost has risen to \$ 2 billion,

which subsequently climbed to the \$ 12 billion as at the end touch the fabulous sum of 51 billion dollars. A large portion of these amounts has been granted by private investors (Potanin invested 2.5 billion dollars in the construction of Rosa Kutor) or large state companies such as oil giant Gazprom, which has invested 3 billion euros in building other database in Sochi.

With regard to the investments made, the arguments of some of Putin's supporters since any economic reasoning-fianaciar. According to an interview with Vladimir Potanin of the BBC, his motivation is more than evident: "I realize that I will not recover even a fraction of the investment. But I did it because I want these Olympics to be an important legacy for Russia, let us put even more on the world map ". [1]

## "The Putin's Games"

According to the international press, the phrase "The Putin's Games" attributed to this year the Russian edition of the Olympic Winter Games, has its full justification based on its declaration itself during an interview conducted by public television station **Rossia24**, regarding its decision with respect to the determination of Sochi, host city of the competition: "It is with great pleasure to see what's going on here, since I personally chose this place for the conduct of the first Winter Olympics on the territory of Russia ". [2] In the same interview, Kremlin leader made it clear that: "In 2001 or 2002, I came here and, passing through this area, and I said, - Let's start here, where is now the Gazprom, which will house samples of biathlon and cross-country skiing", AFP reported. In order to obtain, in 2007, the organization of the games, from which he made a major symbol of Russia's return to the international stage and an operation of self-aggrandisement, Vladimir Putin has made use of all his influence. Choosing the city of Sochi, C.I.O members.they wanted to demonstrate, according to

Kremlin leader, argue that Russia. After listening to the presentations of all the candidate countries to organize the 2014 Olympic Games, "not just one but several", C.I.O. members have stated, according to Vladimir Putin, "we support Russia today, we wish to support, we need this country".[3]

Proof that President Putin has used all his influence to give life, reckoning it as an achievement of the first rank of his tenure, is that all his actions were and still are suspicious of great acts of corruption, by which his relatives were able to accumulate wealth unimaginable from contracts to build sports databases accommodation, facilities, infrastructure, etc.

Thus, according to Alexei Navalnii dissident, considered the number one opponent of President Putin made on BuzzFeed website (www.buzzfeed.com), the investment record of 51 billion dollars for the Olympic Winter Games - five times higher than the amount expended for the previous edition at the 2010 Games in Vancouver, was possible because "the Russian authorities have concluded contracts with costly, certain companies, which have been exempt from auctions and have overloaded the bills with hundreds of millions of dollars". [4]

Navalnii, together with his team, has developed a ranking of fraud "Top 10 frauds", through which showed how they enriched their relatives by Putin from Olympic Winter Games in Sochi.

1. *Russian Taxpayers covering 96% of the spending on the Olympic Games.*

Most of the projects were not funded directly by the State have been paid out of the federal budget funds of the province of Krasnodar, or EBV, loans granted by the Bank to the State-led development.

2. *Olympic Stadium is twice and a half more expensive than similar stadiums in Europe.*

The construction of the stadium Fisht Olympics has cost not less than 780 million dollars (19.500 dollars per spectator), and a half twice more expensive than similar stadiums in Europe.

3. *Three of the old friends of Putin have received contracts of 15 billion dollars.* Vladimir Yakunin, the head of the company that holds a monopoly on Russian railways, RZhd, has received 20 infrastructure projects. The most expensive of them had cost 8.7 million dollars. Gennady Timcenko, Mostotrest, owner of the company has obtained the right to build the first 14 miles of the road linking the Olympic village of Krasnaya Polyana resort. The road was supposed to cost \$ 3.7 billion less than was spent. Arkady Rotenberg has received contracts for Games infrastructure, worth over 7 billion dollars.

4. *Iskander Makhmudov, general manager of UGMK, built hockey arena Shayba (7000 seats) with 33 million dollars more than the market price.* Makhmudov is one of the largest private Kremlin contractors: 70% of its business contracts with the railway company.

5. *Ski Instructor of Prime Minister Dmitry Medvedev received a contract of \$ 2.5 billion.*

Dmitri Novikov, Director of the Federation of skiing and Snowboarding of Russia as well as the founder and President of Rosengineering Company, is the only

subcontractor that was awarded the right to build the project in Sochi, a resort for skiing and biathlon facilities for State-funded projects.

6. *A construction company owned by politicians in Siberia with no experience in building sports arenas, has spent 2.3 times more than the market price.*

The company built the stadium Mostovik hockey Bolshoi with 167 million dollars, and Sanki bob track with 93 million dollars, 60 percent more than the price originally set.

7. *The Governor of the Krasnodar province has spent 15 million dollars of the funds granted the games to buy a helicopter.*

Alexander Tkachev, the Governor of the Krasnodar province, acquired from public money, intended for Games, a helicopter equipped with leather seats and air conditioning.

8. *The Governor's stepson Krasnodar region has built a "Russian Disneyland."*

Roman Batalov, his stepson Alexander Tkachev, Governor of the Krasnodar province, achieved via an off-shore companies in the Federation of St. Kitts and Nevis (island nation in the Lesser Antilles), the contract for the building of a "Russian Disneyland", which cost \$ 238 million.

9. *City of Sochi Officials organized in 2007 a ceremony opening the new false Olympic Games airport, three years before the opening of the airport.*

Oleg Deripaska in 2006 received the contract for the completion of the construction of the airport in Sochi, for organizing the first visits of members of C.I.O., in 2007. On this occasion, were spent 676 million dollars.

10. *Vladimir Putin had spent Christmas in a new Orthodox Church, built with \$ 15 million of the money allocated to the organisation of the Olympic Games.*

On the occasion of the games organization, administrative leadership of the city of Sochi, made the decision to build an Orthodox Church in the vicinity of sports bases, with funds coming from the Government of Krasnodar. [5]

On the same line of high-level corruption may be entered and the Russian businessman Valery Morozov, an entrepreneur involved in projects in Sochi, saying much of the money ended up in the pockets of Russian officials, according to abc News. The businessman claims that local organizers winter Olympic Games told him to add 30 mil. dollars to the price of the invoice and then directs money to them temporarily-environment through shadow companies, notes CBS News. [6]

And Boris Nemtsov, the rival of Putin and former vice premier, to support allegations of corruption: "everyone knows that this is the biggest criminal case in the history of Russia," says one concerned. "I estimate that they stole a total of 30 billion. dollars," Nemtsov said. [7]

#### **The economic impact**

According to Bloomberg, the Olympic Games in Sochi, worth 51 billion dollars, 11 billion cost more than the most expensive Edition so far: Olympic Games in Beijing in 2008, costing 40 billion dollars. The

construction of the stadium has cost 780 million, trampoline jumping 265 million, and nearly 9 billion infrastructure. The construction of the stadium Fisht Olympics has cost not less than 780 million dollars (19.500 dollars per spectator), and trampoline jumping which was estimated to cost only \$ 40 million, went to cost \$ 265 million. Also, the infrastructure of roads and railways, has cost only slightly from 8.7 billion dollars, three times more than NASA's mission to Mars (Mars Rover). [8]

Security costs have reached over 3 billion dollars due to the fact that no less than 70,000 troops have secured and police officers measures of protection of all participants of the games.

While Russia is the country with the largest expenditure in the history of the Olympics, C.I.O. prepares for record receipts. C.I.O. estimates that the four major sources of income (TV rights agreements with Olympic partners, licensing rights and the marketing of tickets) will generate nearly five billion dollars. The benefits of investments made by Russia, will be long term and only at the regional level, according to a report on the EBRD, they will record an increase of 189%.

Big companies pay fabulous amounts for exclusive partner status at the Olympics. Of all the sponsors of the first category, included in The Olympic program Partner, the most valuable contracts. Big companies pay fabulous amounts for exclusive partner status to Olympic Games. At the most recent edition of the summer Olympic Games, London 2012, the amount paid to a partner of the TOP programme has exceeded \$ 100 million. [6]

Partner companies from the next level in turn pay 40 million dollars. Even before the onset of the Olympic Games in Sochi, C.I.O. announced extension of the agreement with Panasonic, until 2024, according to sportspromedia.com. The contract between Panasonic and C.I.O was valid until the 5th Edition of the Rio-2016. Of the other TOP partners, seven contracts were valid until the 2020 Edition Tokyo: Coca-Cola, Dow, GE, McDonald 's, Omega, P&G and Visa, while Atos and Samsung have agreements valid until 2016. [10]

And in relation to the rewards that would be obtained by were the top 3 places, Olympic Games in Sochi have outranked all the previous editions of the competition. Thus, according to the Secretary general of the Olympic Committee of Azerbaijan, Agadjan Abiev, quoted by the website "news.az" each gold medal would have been rewarded with 510.000 dollars, while silver and bronze for azeri athletes would have been paid with 255,000 \$, and 130,000 respectively. [11]

And Romania was the top prizes that would have been offered the athletes for medals in Sochi. Thus, a gold medal would have been rewarded by the Ministry of youth and sports with 70,000 euros, while the Romanian Sport Olympic Committee would be offered 30,000 euros. In addition, each rank in the top 10 at the Olympic Games in Sochi would be Romanian sportsmen as 10,000 euros. [12]

On the same line, the prizes offered by the Americans were of 18.300 dollars for the gold medal, while the silver and bronze were remunerated with 11,000, and 7,300 dollars, respectively. [13]

#### **Social impact – The costs and figures of the "Olympiad"**

- 51-billion-dollar cost of holding the games in Sochi, the most expensive (1992 - Barcelona - 9.4 billion; 1996 – Atlanta - 1.8 billion; 2000 – Sydney - 3.8 billion; 2004 – Athens - 15 billion; 2008 –Beijing - 43 billion; 2010 – Vancouver - 8.7 billion); [14]

- Olympic Games in Oslo-2022 will not exceed 6 billion dollars (4.4 billion euros);

- 221de million euros represents the estimated proceeds from the organizers;

- 4,85 billion dollars to collect C.I.O. from the games;

- 88 countries have had athletes at Sochi, compared with 82 in Vancouver (Russia-223 athletes; USA-230; Canada-220; Switzerland-168; Germany-151; Norway-134; Austria 130; Italy and Japan-113; Sweden-106; France-105; Finland-103; 18 countries presented 1 athletes, and 11 country two athletes; North Korea was absent from races, any athlete failing to qualify for the first time in the last 12 years);

-7 states have kicked off " the white Olympiad" (East Timor, Malta, Paraguay, Togo, Tonga and Zimbabwe, Dominica - a state with only 70,000 inhabitants);

- 98 races in 15 disciplines were played, with 7 more disciplines than the 2010 Edition-Vancouver;

- 98 Olympic titles were awarded, compared with 86 in Vancouver in 2010 or 61 at Lillehammer-1994;

- 1.254 medals were awarded to Sochi (98 sets);

- 30 of jewelers and engravers have made medals that have used silver 2000 kg, 700 kg of bronze and 6 kg of gold;

- 25,000 volunteers have participated in the Sochi Games (23,000 Russians and 2,000 foreigners from almost 60 countries);

- 37,000 by representatives of the order forces have supervised the event;

- 3 billion viewers watched the competition;

- 367 km of cars roads have been built in Sochi, 77 bridges and 201 km railroad;

- 7,000 heads of Hall, cooks, waiters, bartenders and cashiers have been working during the Olympics;

- 14,000 people have carried the Olympic Torch through 2,900 municipalities of Russia;

- 40,000 miles of track, including the Olympic Torch into space and into the depths of Lake Baikal;

- 60,000 workers have worked on building sites in Sochi for the fitting-out of premises for Olympics;

- 265,000 gallons of soup were prepared during the games;

- hundreds of families have been expropriated to make way for the Olympic Village;

- 8.3 degrees was the average temperature in the month of February in Sochi, which is the highest average temperature for an edition of the Olympic Winter Games. [15]

#### **Conclusions**

- recently concluded event in Russia was, from all points of view, the "tip of the spear" in terms of



competition sports, surclas, by far, all other Edition of the Olympic Games, at those lime summer and winter;

- was the biggest sporting event in history, for which they worked 158,000 people (athletes, journalists, intervention units, volunteers, medical staff, workers);
- was the most grandiose cultural-artistic show dedicated to a sporting event, festivity of open/close the following over 40,000 spectators presents in the Fisht Olympics Stadium
- was the most publicized event of the world, the following over 3 billion viewers;
- is the most controversial edition in the history of modern Olympics. According to representatives of the business and political environment in Russia, behind organization Games are hiding the biggest acts of corruption in the history of this country, the amounts spent on illegal arrive when the charge of 31de billion dollars;

- is the most expensive Olympic Games in history, total costs reach to 51 billion dollars. In comparison, the cost per-event at Beijing Olympic Games in 2008 was 132 million dollars, having regard to the cost were 302 events, and in 2014 in Sochi, when the account were 98 events, the cost per-event was 510 million dollars. Also, If we calculate theat in Beijing there were events in 28 sports disciplines, the average cost per-discipline was 1,42 billion dollars, while the Winter Olympics in Sochi, having regard to the were 15 sports disciplines - the average cost per-discipline reached 7.14 billion dollars.

The event was considered the strongest impact in social, political, economic, in the sphere of culture, education and the Olympic legacy, we put the question, on the one hand, if still not could lose in shine, as a result of the many controversies that have been created

around this Olympic Games Edition, and, on the other hand, if the huge effort made by the Russian people to support the games, will ever be rewarded?

So, only the future generations can determine theat!

#### References

- [1] Prosport.ro (<http://www.prosport.ro/>) – accessed February 6, 2014
- [2] AFP ([www.afp.com/en](http://www.afp.com/en)) – accessed February 6, 2014
- [3] Agerpres ([www.agerpres.ro](http://www.agerpres.ro)) – accessed February 6, 2014
- [4] <http://www.buzzfeed.com/tag/sochi> - accessed February, 2014
- [5] Adevarul.ro (<http://adevarul.ro/>) - accessed February, 2014
- [6] CBS News ([www.cbsnews.com](http://www.cbsnews.com)) - accessed February, 2014
- [7] The Wall Street Journal ([online.wsj.com](http://online.wsj.com)) - accessed February, 2014
- [8] Realitatea.net (<http://www.realitatea.net/>) - accessed February, 2014
- [9] TVR ([www.tvr.ro](http://www.tvr.ro)) - accessed February, 2014
- [10] Ziuconstanta.ro (<http://www.ziuconstanta.ro/>) - accessed February, 2014
- [11] news.az (<http://news.az/articles/sports>) - accessed February, 2014
- [12] C.O.S.R. ( <http://www.cosr.ro/>) - accessed January, February, March, 2014
- [13] Prosport.ro (<http://www.prosport.ro/soci>) – accessed February, 2014
- [14] Ziarul Financiar ([en.wikipedia.org/wiki/Ziarul\\_Financiar](http://en.wikipedia.org/wiki/Ziarul_Financiar)) – accessed February, 2014
- [15] [olympic.org](http://www.olympic.org) (<http://www.olympic.org/>) - accessed January, February, March, 2014

# STUDY ON DEVELOPMENT OF EXPLOSIVE FORCE PRACTICES RHYTHMIC GYMNASTICS ATHLETES

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**Abstract.** Rhythmic gymnastics is a sport discipline that addresses priority females. Scientific research uses a range of traditional and non-traditional methods, which check various aspects of rhythmic gymnastics training in accordance with the current requirements of high performance sport. Based on the proposed tasks, experimental research was conducted in Bucharest Triumph Sports Club, which perform workouts at the gym Olimpia on a group of 11 sports ages 5-12 years of age.

Exercise capacity is the maximum amount of work done by an individual in a given unit of time. Knowing them allows the application of one of the fundamental principles of medical kinetologiei, respectively progressivity effort.

Exercise capacity of the body is not the sum of the functional capacities of all organs and systems of the human body, but is restricted to those organs after reaching maximum capacity functional obstacle to the effort, although other organ systems may allow this.

Explosive force is particularly important artistic jumps, one of the four groups of mandatory body elements gimnastică rhythmic competitions. Artistic jumps and spectacular elements of great technical difficulty and is characterized by: dynamics and technical mastery; different and varied forms of the flight path, the nature of the pulse (beat) the variety of body positions during flight and its segments.

**Keywords:** *explosive force, rhythmic gymnastics.*

## Introduction

To evaluate the expansion gymnasts, so important for achieving one of the compulsory body movement groups consider necessary to determine the age and weight testing grouped gymnasts morphological development [1]. We conducted an initial test, and a final one for both morphological development and functional testing skills test (Sargent).

## Materials and methods

Experimental research was conducted in Bucharest Triumph Sports Club, a group of 11 sports between the ages of 5-12 years, we have tested twice (initial and final), in order to determine developments that have had a gymnasts [2, 3].

Results

## Morphological development of gymnasts

Age was recorded in years, I preferred the chronological age that athletes had at the time.

INITIAL	TEST	
	Initial	Final
C.O.	12	13
S.M.	10	11
D.B.	10	11
S.I.	9	10
S.G.	9	10
P.R.	7	8
R.A.	7	8
M.R.	7	8
F.L.	7	8
B.A.	6	7
S.A.	5	6

**Table 1. Age gymnasts**

**Weight** (kg) I measured it with scale. The women were summarily equipment without shoes and weighed in the morning. Weight was recorded in kilograms.

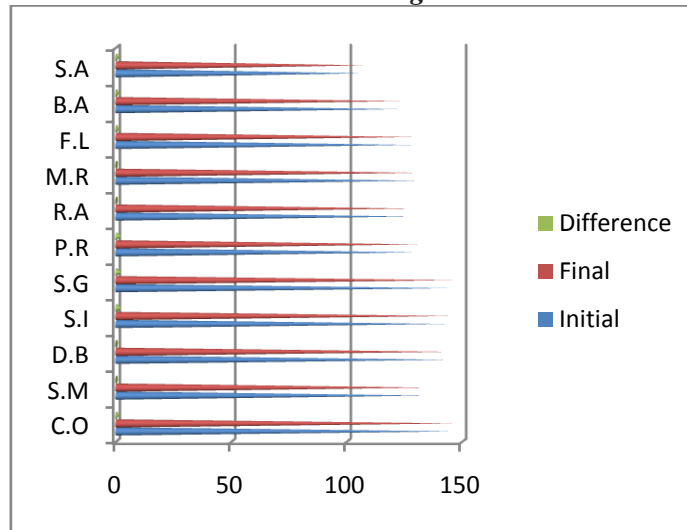
INITIAL	MEASUREMENT		Difference
	Initial	Final	
C.O.	34,5	35	0,5
S.M.	31	32	1
D.B.	35	35	0
S.I.	30,5	30	0,5
S.G.	33,5	33	0,5
P.R.	23	24	1
R.A.	24	24,5	0,5
M.R.	26	27	1
F.L.	22	22	0
B.A.	22	23,5	1,5

S.A.	17	17,5	0,5
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**Table 2. Body weight gymnasts**

**3. Height (cm)** is the longest of the human body. This was measured between the vertex and the plane plants. Subject standing with his back to staturmetru, legs and spine as straight, head up, eyes forward. I appreciated her waist in centimeters and recorded on the form.

INITIAL	MEASUREMENT		Difference
	Initial	Final	
C.O.	146	147	1
S.M.	135	135	0
D.B.	144	144	0
S.I.	143	145	2
S.G.	144	146	2
P.R.	130	132	2
R.A.	128	128	0
M.R.	131	131	0
F.L.	128	129	1
B.A.	122	123	1
S.A.	107	108	1

**Table 3. Height****Figure 1. Height gymnasts in the two tests**

### Testing functional skills

**1. Sargent test** - is testing the strength and anaerobic capacity. The aim was to assess the aerobic alactacide maximum power expressed in kg / s, the detent measurement in centimeters. After a preliminary heating, the gymnast has performed 3 maximal vertical jumps, taking into account the performance and being assessed in cm.

INITIAL	TEST		Difference
	Initial	Final	
C.O.	73,8	77,9	4,1
S.M.	74,3	75,5	1,2
D.B.	67,1	68,3	1,2
S.I.	74,7	75,1	0,4
S.G.	68,1	71,1	3
P.R.	63,1	64,5	1,4
R.A.	64,5	67	2,5
M.R.	68,1	70,3	2,3
F.L.	55,2	56,2	1
B.A.	52,2	53,9	1,7
S.A.	31,8	33,6	1,8

Table 4. Sargent test

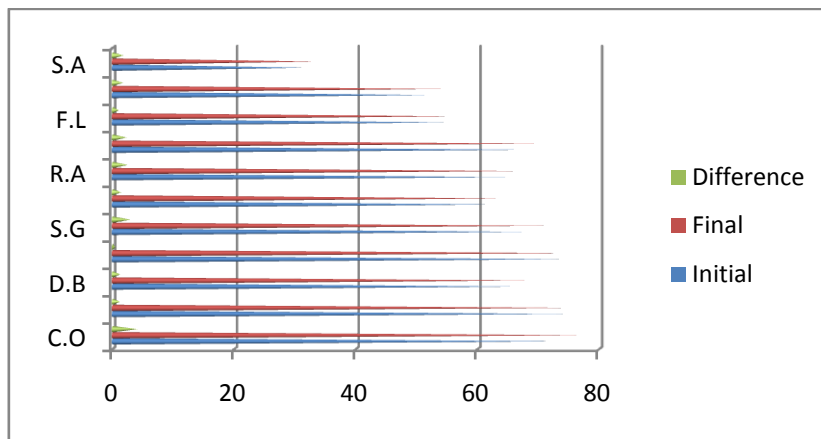


Figure 2. The values obtained for test Sargent

**Explosive force (cm):** initial position standing shoulder to the wall, the gymnast performs 3 maximal vertical jumps. We considered the performance being assessed in cm.

INITIAL	TEST		Difference
	Initial	Final	
C.O.	32	30	2
S.M.	36	36	0
D.B.	26	27	1
S.I.	37	38	1
S.G.	28	31	3
P.R.	35	35	0
R.A.	35	37	2
M.R.	36	37	1
F.L.	28	29	1
B.A.	25	25	0
S.A.	12	13	1

Table 5. The values of the two tests explosive force

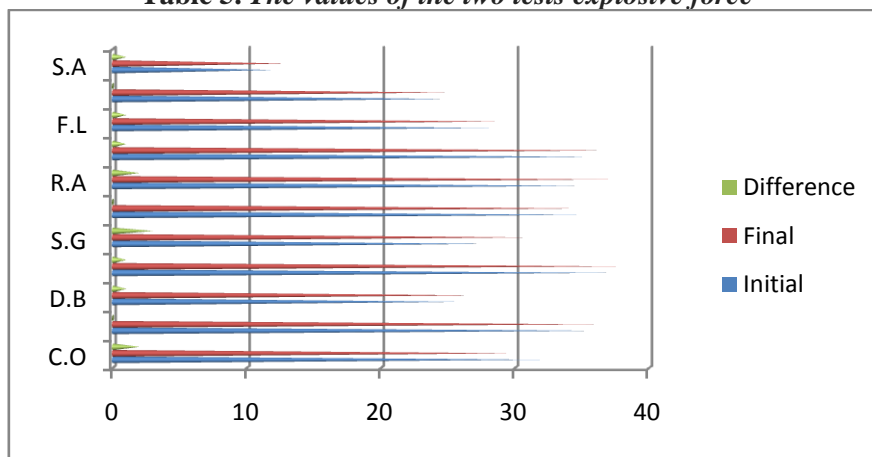


Figure 3. Level of development of explosive force

**Discussion**

The higher the jump (assessed in cm), the best test result Sargent. The greater the number of repetitions performed correctly, the best result obtained from testing detent.

**Conclusions**

Sargent test

The lower limit (m) is obtained by the S.A 31.8 initial testing and final testing is 33.6, the upper limit (M) is obtained from and 74.7 S.I. initial testing and final testing highest value was obtained for C.O and 77.9, which shows that S.A. has the lowest level of development of anaerobic capacity in the two tests, and S.I initial testing has achieved the highest value of

power and anaerobic capacity, as well as C.O in final testing.

The amplitude (A), which is the difference between the upper and the lower is the value of 42.9, 44.3 in the initial test and final testing. Amplitude the values observed in the two tests, it is apparent that the training between the two tests have been based on the development of anaerobic capacity and power.

Analysing the standard deviation (S) of the two tests, the first of which value was 147.75 and 149.59 in the final, which demonstrates that there is a large scattering of values around the mean, so in the group of values are very different sports.

Coefficient of variation (V) which represents the degree of homogeneity of team gymnasts have values 19.17 % and 18.86 % at initial testing to final testing, which confirms that this group of gymnasts show average uniformity regarding the anaerobic capacity.

**Explosive force**

After initial testing and final flashed to S.G gymnasts, R.A is assessed as very good progress (detent value increased by 2 cm), performed well in D.B, S.I, M.R, F.L, S.A (detent value increased by 1 cm), satisfactory progress in M.S, P.R, B.A (stalled) and unsatisfactory in C.O (regressed).

The lower limit (m) 12 is obtained from S.A initial testing and final testing is 13, the upper limit (M) is obtained from and 37 S.I initial testing and final testing

is 38, which shows that S.A has a low flash compared to the S.I.

The amplitude (A), which is the difference between the upper and the lower is the value of initial testing and 25 to 25 of the testing end. It is found that the amplitude value of the two tests are identical, so there was no emphasis on the development of detention (explosive force) between the two tests.

Analysing the standard deviation (S) of the two tests, the first of which value was 49.82 and 49.29 in the final, which demonstrates that there is a large scattering of values around the mean, so in the group of values are very different sports.

Coefficient of variation (V) which represents the degree of homogeneity of team gymnasts have values 25.53 % and 22.85 % at initial testing to final testing, which confirms the lack of homogeneity.

#### **References**

- [1] Macovei S., (2007), *Antrenamentul în gimnastica ritmică, repere teoretice și metodice*, Editura Bren, București, p. 32.
- [2] Buțu I. M., (2012), *Studii și cercetări privind influența factorilor de mediu asupra capacității de efort în sportul de performanță*, teza de doctorat, Universitatea Politehnica București, p. 156 – 180.
- [3] Macovei S., Buțu I. M., (2007), *Metodica predării gimnasticii ritmice în școală*, Editura Bren, București, p. 97 – 99.

# OPTIMIZING JUNIOR FOOTBALL PLAYERS PHYSICAL TRAINING USING COMBINATIONS OF MUSCLE CONTRACTIONS

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**Abstract:** In order to optimize the physical training, we made a program and applied for 9 months, with a weekly frequency, to the experiment group, while the control group followed a standard practice. The subjects (age  $16 \pm 1.5$ ) were tested before and after the program and the results confirmed that the program was efficient, confirmed statistically by value of  $p < 0.05$ . Using combinations of muscle contractions in training junior football I players during competition period, lead to superior results in their specific workforce development indices.

**Key words:** *football, physical training, plyometric, force*

## Introduction

The contemporary football game features requires the training modeling, according to the current requirements of the game, as well as, the use of all forms of organizing the training process: frontal (the whole team), compartments, in pairs and individually. On the basis of a superior tactical and technical training lies, always a good physical training, an unceasing development of motor skills and, above all, a very good muscle training. All the literature points out that the motor force is the most important quality, the support of the motor qualities development.

The general and specific junior I football players physical training have to be based on a very good muscle training, a high level of power indices, as the basis for the development of combined motor skills and complexes made of these.

Alexe Nicu, talking about the importance of the physical preparation of athletes, presented muscle training programs, based, generally, on working with loads. The same author has shown, in addition to the theoretical aspects of the power and strength training, also, muscle training programs, based on working with weightlifting, bars, for various sports fields. [1]

Explosive leg power is a key ingredient to maximizing vertical jump performance. [2]

The key to improving explosive power is coordinating a proper training cycle consisting of weight training, flexibility, speed training and plyometrics. Many coaches improperly set up a cycle weight program without a running and plyometric program. [3]

## Material and Method

**The purpose of the experimental research** is the verification of the programs, built by us, to optimize the special physical training for junior footballers to implement them to practice strength training to young footballers.

The developed model structure respects the training sequence, specific to the muscle force development, as it results from the literature and practice of strength training: maximum force  $\rightarrow$  muscle hypertrophy  $\rightarrow$  specific force.

The final programs, appropriate to the achievement of these goals, is based entirely on the combination of two regimes of muscle contractions, and determined according to the characteristic of the specific effort in the position of each of the subjects within the team. The sample exercise:

## OPERATIONAL OBJECTIVES MEANS USED DOSAGE STAGING REPRESENTATION

Increasing muscle mass in the lower body	From sitting on the box of the gym (70-75 cm), sand belt, jumping in depth, with amortization, landing on both feet, pause 1-2 sec., Jump on another gym box (70-75 cm)	- Number of repetitions - 8 - the load of the belt - 10% of body weight - Serial Number - 4-5 - Break between series - 4-5 minutes
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The elaborated program was applied for 9 months, with a weekly frequency, to the experiment group, while the control group followed a standard practice. The subjects (age  $16 \pm 1.5$ ) were tested before and after the program. The tests involved:

- a long jump without moose. With tiptoes behind the jump line, each player jumps, arms with moose. We measure the distance between the line and the footprint left by the back foot, taking into account the best jump of two tests.
- Hitting the ball after successive jumps over fences. We have eight parallel fences, height 40 cm, before the 16 m line, parallel to this, the last fence being placed at a distance of 2 meters from the area. On this line a ball is placed. Each player performs successive jumps, beating on both feet, over 8 fences and then shoots the ball so that it enters the goal without touching the ground. They perform two timed tests and recorded the best. Each failure is charged with one 0.1 sec. (shooting down a fence, the ball dropped on the ground, before the goal line or left outside the goal).

## Results

Applying the tests, we obtained the following results:

Regarding the explosive power of the lower limbs, tested by the long jump without moose, there is a breakthrough of the experimental group (table 1).

Table no. 1 Statistical parameters for the long jump without moose

Parameters	Experiment group		Control group	
	T1	T2	T1	T2
arithmetic Mean	2,14	2,24	2,04	2,13
Standard deviation	0,11	0,08	0,16	0,14
Maximum	2,40	2,45	2,35	2,4
Minimum	2,00	2,15	1,8	2
Amplitude	0,40	0,30	0,55	0,4
Variation quotient	5,14	3,57	7,84	6,57

In the *final test* the experiment group has an increase of 4.67% (0.1 m) from the initial testing. In the *control group* in the final testing, there is a rise of 4.41% (0.09 m) from the *initial testing*. Both groups are homogeneous, the coefficient of variation with values below 10%. By applying the Student t test for each group, we get:

- in the *experiment group*  $t_{\text{calculated}} = 10.24 > 2.977$  ( $t_{\text{table}}$  for 14 degrees of freedom),  $p < 0.001$ , indicating that there are significant differences between the means of the two tests;
- in the *control group*:  $t_{\text{calculated}} = 5.07 > 2.977$  ( $t_{\text{table}}$  for 14 degrees of freedom),  $p < 0.001$ , indicating that there are significant differences between the two test environments.

With the *initial testing* the arithmetic mean of the experiment group is 4.9% (0.1 m), higher than the control group average. In the *final testing*, the arithmetic mean of the experiment group is 5.16% (0.11 m), higher than the control group average.

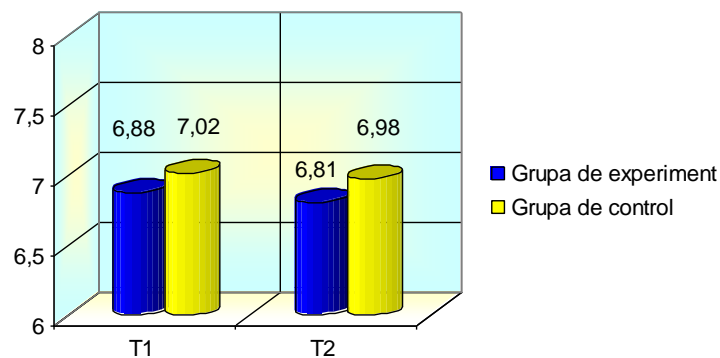
Initially there are no significant differences between the means of two groups:  $t_{\text{calculated}} = 2.06 < 2.763$  ( $t_{\text{table}}$  for 28 degrees of freedom) and  $p = 0.095$ .

Applying the Student test in the final testing we get:  $t_{\text{calculated}} = 2.8 > 2.048$  ( $t_{\text{table}}$  for 28 degrees of freedom),  $p < 0.05$ , indicating that there are significant differences between the means of the two groups.

*B. Hitting the ball after successive jumps over fences*

Table no. 2 statistical parameters for kicking the ball away after successive jumps over fences

Parameters	Experiment group		Control group	
	T1	T2	T1	T2
Arithmetic mean	6,88	6,81	7,02	6,98
Standard deviation	0,24	0,24	0,28	0,3
Maximum	7,51	7,40	7,55	7,51
Minimum	6,52	6,47	6,5	6,47
Amplitude	0,99	0,93	1,05	1,04
Variation quotient	3,49	3,52	3,99	4,3



Graph no. 1 Hitting the ball after successive jumps over fences - the arithmetic means chart

In the final testing the experiment the group recorded a decrease of 1.02% (0.07 s) from the initial testing.

With the control group, in the final testing, there is a decrease of 0.57% (0.04 s) from the initial testing. Both



groups are homogeneous, the coefficient of variation with values below 10%. By applying the the Student test for each group, we get:

- in the experiment group  $t_{\text{calculated}} = 5.97 > 2.977$  ( $t_{\text{table}}$  for 14 degrees of freedom),  $p < 0.001$ , indicating that there are significant differences between the means of the two tests;
- in the control group:  $t_{\text{calculated}} = 2 < 2.145$  ( $t_{\text{table}}$  for 14 degrees of freedom),  $p = 0.064$ , indicating that there are significant differences between the two test environments.
- With the initial testing the experiment group the arithmetic mean of is 1.99% (0.14 s) less than the control group average.

With the final testing of the experiment group the arithmetic mean of is 2.44% (0.17 s) below the average control group.

Following the student test initial testing , we obtain the following results:

$t_{\text{calculated}} = 1.43 < 2.763$  ( $t_{\text{table}}$  for 28 degrees of freedom) and  $p = 0.164$ , indicating that there are significant differences between the means of the two groups.

Applying the Student test in the final testing we get:  $t_{\text{calculated}} = 1.68 < 2.763$  ( $t_{\text{table}}$  for 28 degrees of freedom) and  $p = 0.105$ , indicating that there are significant differences between the means of the two groups.

Most subjects belonging to the experiment group occupy top places in the 1st half of the hierarchy, while the control group components are generally placed at the end.

### Conclusions

Using combinations of muscle contractions in training junior football I players during competition period, should lead to achieving superior results in their specific workforce development indices. Also, the specific positions in the team require, specifically, the development of certain specific manifestations of force: power, speed, strength, endurance, strength, speed under coordination, strength, accuracy, etc. The final model of force development, specific to football

players I emerged from the experimental research, is based on programs that include training methods based solely on two combination regimes of muscle contractions.

In the general physical preparation phase, the preparation strength aims primarily to increase the muscle mass of junior I football players, the most appropriate method being the isometric, concentric for goalkeepers and eccentric-concentric for the field players.

The Concept underlying the instructional strategy for implementing the training program focused on developing muscle specific force in junior football players I, and was built and tested by us, based on the following:

- Physical training in general and training the muscular strength in particular, play an important role in the evolution of performance junior football players I;
- the strength preparation is based on the use of methods built on regimes of muscle contractions combinations;
- To develop junior football players I specific force, we need the compulsory stage of muscle training, proper to muscle hypertrophy and the maximum intra-and inter-muscular force development phase,
- To develop specific strength during the competitive period the most appropriate method is based on regimes combinations of muscle concentric, plyometric contractions;

### References:

- [1]. Nicu, A., (1993), Antrenamentul sportiv modern, Editura Editis, București, p.56
- [2]. Adams K., O'Shea J., O'Shea K., Climstein M., (1992), The Effect of Six Weeks of Squat, Plyometric and Squat-Plyometric Training on Power Production, Journal of Strength & Conditioning Research, Volume 6, Issue 1.
- [3]. Costello F., (1984), Using weight training and plyometrics to increase explosive power for football, National Strength & Conditioning Association Journal, [Volume 6 - Issue 2 . pp 22-25](#)



# THE PILATES EXERCISES INFLUENCE ON THE IMPROVEMENT OF MOTOR PARAMETERS

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**Abstract:** The paper aims to focus on the effects of Pilates exercises on the abdomen flexibility and strength in 20 students (age  $15 \pm 1.5$ .) in order to validate the introduction of these programs in the school curriculum, results that were compared with those of the control group ( $n = 20$ ) who did not participate in our program. Thus, with the application of Pilates, they found statistically significant differences ( $p < 0.001$ ) in the case of anteroposterior flexibility and  $p < 0.005$  for the abdominal strength.

**Keywords:** *pilates exercises, trunk.*

## Introduction

Pilates is a method for maintaining the physical condition of a person. This includes a group of physical exercise with a growing popularity. Pilates exercises have been designed and developed by Joseph Pilates in the early 20th century and were designed using the mind to control the muscles.

Pilates technique is based on strengthening of the postural muscles to maintain a balanced position of the body, important to support the spine.

However, the benefits of Pilates exercises are more extensive and are part of an innovative system aimed at strengthening the power of the mind and body. Lately, quite a few myths about this form of sport have been formulated. [1]

Pilates combines elements that make this activity unique. These are:

- **focus** - the element that connects the mind and the exercises that you perform. Pilates exercises use the power of mind to transmit impulses exactly in the area to be worked.
- **Control** - every move serves a function and the control is very important. Therefore, Pilates Exercises are running controlled and orderly, thus avoiding injury or adverse effects that can occur on the body by overwork.

- **Center** - is the central area of our body, abdomen, hips, waist and buttocks muscles. The center is a distinctive element of the Pilates method. Also, called the "powerhouse" ("Powerhouse"), is the main energy generator to execute Pilates exercises, this energy being distributed to the extremities.

- **Fluidity** - the Pilates exercises are dynamic, continuous and elegant i.e. a long walk or a dance.

- **Accuracy** - every exercise in Pilates method has a purpose and that lays the emphasis on proper execution.

- **Breathing** - as in daily life, the correct breathing exercises will help energize the execution and will oxygenate the blood. [2] Pilates exercise promote statistically significant increases in abdominal endurance, fostering flexibility and upper-body muscular endurance. [3]

## Materials and Methods

The research was conducted in the Highschool V. Madgaru in Târgu Jiu during September 2013-February 2014.

The research included a sample was composed of 20 subjects, female, from high school (ninth grade), no health problems who voluntarily accepted to participate in the experiment and control group (composed of 20 students of the Theological High School).

We made up sets of exercises included in motor systems with different difficulty.

PILATES PROGRAM		
Tehchnical description	Dosing	Methodological Indications
- Sitting at a distance of 15-20 cm from a wall, knees slightly bent and feet shoulder-width apart - the entire the backbone sticks to the wall, head up, the neck stretched and shoulders relaxed, arms along the body, then easily withdraw the abdomen (the stomach sucked)	20 sec.	The body position should be well controlled, and all the attention goes to the spine.
- From the same position - we are running inhalation and exhalation, simultaneously lowering the chin to the chest and lift the pelvic muscles, feeling the stretching the neck and the upper back. During this period, the arms hang freely along the body	2x8T	The spine remains in constant contact with the wall, and the arms should stay as relaxed
- From this position - we are running trunk bending forward with arms relaxed down. For a few moments we are running some breathing exercises	1x8T	The basin remains against the wall and the arms are touching the ground
- From sitting - rotating the head left and then right.		

Throughout the movement we must ensure that there is no tension or movements at shoulder height.	2x8T	The movement runs slow, but at large amplitude
- From sitting - the head turning sideways left and then laterally on the right. The back of the neck should remain relaxed and the chin pulled slightly back.	2x8T	The movement runs slow, and the body position must be controlled
- From sitting - raise your shoulders up, the arms relaxed at your sides. The return is in free-fall, not through positioning.	2x8T	Your back straight and the arms stretched perfectly
- The same exercise with alternative lifting of the shoulder.	2x8T	The back straight and the arms stretched perfectly
- From sitting - push the shoulders slightly forward, so to close the front of the chest. In a slow and long circular motion, the shoulders go back, so that the shoulder blades press between them.	2x8T	If you feel the tension in your neck, tilt your head slightly forward.
- From standing slightly apart, your back straight, the shoulders relaxed – the lateral trunk bending is performed, leaving the hand sliding as far down along the leg, only from the shoulder joint.	2x8T	we attempt to execute the movement at the maximum amplitude
The same exercise, but with the opposite arm lifting up.	2x8T	Raising the arm above will increase the amplitude of movement. The arm should be perfectly stretched
- Sitting on a Bobath ball gymnastics, arms bent, hand in hand, so only your fingertips to touch each other - is running a firm push your fingertips without the other parts of the hand to touch.	10 seconds	The back should be well stretched and the shoulders lowering
- Sitting on a Bobath ball gym with arms folded - we are running rotating wrist clockwise and then the reverse.	10 seconds	The arms should remain in their initial position, the movement being located only in the joint
- From the same position - slowly tighten the fist and open quickly.	2x8T	The back straight and the arms should not exceed the shoulders level
- Sitting on a Bobath gymnastics ball, arms hanging down alongside the body - we breathe easily and exhale when the arms are raised laterally. The movement is run slowly.	2x8T	The back straight and arms should not exceed the shoulders level
- From the same position - during exhalation, the arms go back, the palms outstretched. The movement continues at length, without moving your shoulders or carry a back extension.	2x8T	The movement is run slowly in order to realize the position of the spine and arms
- Sitting on a Bobath gymnastics ball, the arms bent, the forearms forward, the palms up - we inhale and the forearms go laterally. On exhale we return to the original position.	2x8T	The elbows should be kept along the body, on the total duration of the movement
- Sitting on a Bobath gym ball, arms bent, hands crossed on the chest - we breathe easily, and on the exhale we are executing laterally the twisting of the trunk.	2x8T	It is important that throughout the exercise, the hips do not move.
- Standing slightly apart, the back straight, the arms forward, holding a scarf in the hands - we breathe easily, and on the exhale we the arms raise up.	2x8T	It is important not to stand with the arms and shoulders.
- Standing slightly apart, laterally against the seat, with the left hand on the handle - easily we breathe and raise the right arm up, we expire and we easily bend the trunk left laterally (towards the seat). We	2x8T	We should not turn the hips and shoulders to the fulcrum.

repeat on the other side.		
- The same exercise, but on the other side	2x8T	The back straight and the arm outstretched upwards
- Standing slightly apart facing the seat, at arm's length - we inhale and we raise the arms upwards, we expire and the trunk leans easily forward without arching the back.	2x8T	We can maintain this position a few seconds, feeling the arms, the back and the neck flexing.
- Sitting sideways on a chair with the feet on the ground, his left hand on the back seat, the right hand behind your head - we breathe easily and breathe out as we are running a laterally bending of the trunk.	2x8T	We execute it on the side. we raise above the elbow so as to feel better the movement
- The same exercise, but the lateral arm is bent running upwards.	2x8T	The back straight and the arm outstretched upwards
- Sitting on the edge of a chair with feet slightly apart, resting on the ground, the knees bent (the back straight, the head up, the hands on thighs) - without moving your heels, pull the toes back slowly so that the notch in the leg raises and the curvature deepens.	30 seconds	The whole body is relaxed in order to focus only on the foot
- From the same position - we slowly raise the toes as high as possible, the feet remaining in constant contact with the ground.	30 seconds	The movement is done slowly but as broadly as possible. In return the legs relax
Sitting sideways against the chair, the hand resting against the backrest- with the abdomen retreated to the spine, we slowly raise a foot off the ground and we are running the foot flexion and extension. It is run also, with the other leg.	30 seconds with each leg	The leg must be stretched, without neglecting the back position and the foot support.
- Sitting side ways against the chair, the hand resting against the backrest, the fingertips apart shaped V - we breathe easily and on the exhale we slowly bend the knees. At the following inhale, the legs spread and the movement continues to lift to the toes.	2X8	We must ensure that throughout the exercise, the back remains straight, the abdomen withdrawn and the shoulders relaxed
- The same exercise, only that the feet are shoulder-width apart.	2X8	The back straight, the shoulders relaxed and the abdomen withdrawn
- Sitting side ways against the chair, the hand resting against the backrest - bends the knee backwards and is grabbed the ankle with your hand on the same side, without arching the back.	30 seconds maintained	The support leg remains stretched
- Sitting with the back straight, shoulders relaxed, the arms forward - the foot flexion is run so that your fingers point towards the ceiling.	2X8	It is important that the knees do not bend.

Following the implementation of the training program developed, we notice significant improvements especially in tests that directly relate to the specific content. Therefore, it is necessary to remember that schoolgirls who have practiced Pilates, recorded improved performance on tests of trunk bending forward and lifting the torso down.

### Results

The trunk lift test from lying. The arithmetic mean average value of the group of students from the initial testing is 20.9, and in the final testing is 23.25, representing an increase of 11.2%. The standard deviations are small, the arithmetic mean is representative of the sample ( $S_i = \pm 2.77, \pm 3.08 L_s \Rightarrow$ ). The variability coefficient, through its initial testing values ( $CV = 13\%$ ) and the final testing ( $Cv = 13\%$ ) show a homogeneous group average.

The analysis of the difference between the average obtained initially from the initial testing to the final testing and the means obtained showed a significant difference from "t" to experiment with a value against 0.001019 to materiality  $p < 0.005$ .

Test	Subjects	X	S	Cv	t	Threshold	Significance
<b>Ti</b>	20	20,9	2,77	0,13	0,001019	<0,005	Significantly distinct
<b>Tf</b>	20	23,25	3,08	0,13			

Table 1 - The comparative results of the trunk lifting from lying test (experiment group, initial testing, final testing)

The value of the arithmetic mean of the experimental group was higher than that of the control group, both in the initial test and in the final testing. If in the initial testing, the difference was 3.7 (20.9 compared to 17.2 in the experimental control group), with the final testing, the difference increased to 5.35 (23.25 in the experimental group versus 17.9 in the control group). There was thus an increase of 11.2% in the experimental group, compared to 4% in the control group.

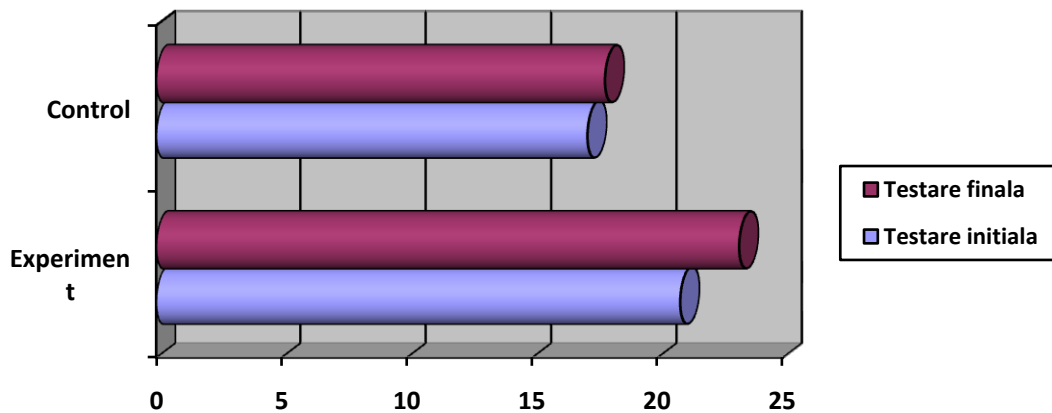


Figure 1. The comparative results (experimental group - the control group) to lifting from the trunk **lying** test between the initial testing and the final testing

Bending the torso forward Test. The arithmetic mean average value of the group of students from the initial testing is 3.55, and with the final test is 6.75, which represents an increase of 66.6%. The standard deviations are small, the arithmetic mean is representative of the test ( $S_i = \pm 6.6$ ,  $S_t = \pm 6.21$ ). The variability coefficient, through its initial testing values ( $CV = 18\%$ ) and the final testing ( $CV = 9\%$ ) indicate a small spreading range results from the average, showing a high homogeneity of the group.

The analysis of the difference between the average obtained initially from the initial testing to the final testing and the means obtained showed a significant difference from "t" to the experiment group with a value of 0.000161 to the materiality  $p < 0.001$ .

Test	Subjects	X	S	Cv	t	threshold	Significance
<b>Ti</b>	20	3,55	6,6	1,86	0,000161	<0,001	Very significant
<b>Tf</b>	20	6,75	6,21	0,9			

Table 2 – The results of the trunk bending forward comparative test (experiment group, initial testing, final testing)

The value of the arithmetic mean of the experimental group was higher than that of the control group, both with the initial test and final testing. The progress was evident both in the experimental group (from 3.55 to 6.75), meaning 66.6% and the control group (from -3 to -1.1), meaning 63.3%.

### Conclusions

The need to display the physical conditions in everyday life, both in aesthetics and in terms of health, are important issues for the young generation. The physical education "traditional" is not entirely an attractive the young redirecting themselves towards the new physical activities in line with the current requirements.

The intention is not to give up what is currently used in schools in physical education and sports but to include, in addition to the existing methods and time-tested a number of alternative disciplines in the curriculum at school's decision.

Approaching students' favorite sports disciplines in an organized framework, will certainly support, in the future, their independent practice during leisure.

The sports disciplines chosen will ensure through their content, an increasing motor density in lessons, therefore something that actually increases the students' effort and the endurance capacity from a higher perspective.

The tests, confirm the hypothesis that Pilates can positively influence the strength and flexibility of anteroposterior abdominal muscles, leading to the subjects' physical condition optimization.

### References

- [1] [http://www.sfatulmedicului.ro/Sanatate-prin-sport/mituri-despre-exercitiile-pilates\\_11476](http://www.sfatulmedicului.ro/Sanatate-prin-sport/mituri-despre-exercitiile-pilates_11476).
- [2] <http://www.gymsport.ro/ce-este-pilatesul/>
- [3] Kloubec J., (2010), Pilates for improvement of muscle endurance, flexibility, balance, and posture. *J Strength Cond Res* 24(3): 661-667

## DANCE - TO ENJOY THIS DELICATE MOVEMENT THAT MAKES US VIBRATE AND EXALT LIFE

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**Abstract:** Dancing can be considered as a mysterious movement, a contradiction of everything that happens on a daily basis, a transformation of the self, transformation and retrieval of their identity.

Which exceeds the daily, the usual, this can be considered a miracle. Miracles do happen, they are not illusive. Miracles arise in our consciousness and also we give them life and integrate them into our existence. Divine, miracle exists within us. We must have the courage to find and take them out. In this way, we can live surpassing our human condition, reaching higher levels of thinking and feeling. Art is the means by which people can be saved from ordinary existence. Dancing can make us tick.

Dance is the movement of body and soul to the music. Dance is emotion and soul entwining of physical movement and inner feeling. Dance can be practiced as a simply sport because he is more practiced with the soul than the body. Dance elevate the soul, dance is the outward manifestation of inner feeling.

**Key words:** *dance, feeling, miracle, emotion, musicality.*

### Introduction

„Dance is the manifestation of the life instinct (whether you call it creative energy, libido and joy of living), the evolution toward spirituality by identifying what is immortal. Therefore, the expression of dance can be raw and the embodiment of the process of individuation”.[1]

Dance is the movement of body and soul to the music. Dance is emotion and soul entwining of physical movement and inner feeling. Dance can be practiced as a simply sport because he is more practiced with the soul than the body. Dance elevate the soul, dance is the outward manifestation of inner feeling.

„Dance is a form of communication: between you and your body, between you and other people. He is non-verbal communication, involving spontaneous consciousness and subconscious. He is a communication in a relaxed situation. Social convention associated the dance with the moments of entertainment and fun. Two reasons proves that the dance are therapeutic function and also there are two therapeutic outcomes, which in dance therapy are mutually reinforcing”.[2]

### Dancing is sublime moving to the delightful music

„Our steps are so easy and so familiar, that they never have the honor to be them-selves, but rather, they are perceived as not belonging to our body. So they take us as they wish, according to the location, purpose, mood or person. However they are what they are, and we follow them without recognizing this. This perfect process is followed by Athikté on the smooth and smoothly podium, without defects. Based on its alternative movements, she organizes symmetric geometry, the heel helps the body to tilt to one side, the other leg supporting the body on the other side, and just like that, her head remains high at all times, and his forehead supports all wavy movements of her body. Somehow or another, this podium is almost perfect, these extraordinary movements also become a universal model. Look what beauty and what perfect symmetry appears from the movements of his noble feet! The magnitude of his steps is given by the music.

The length of the steps is harmonized with the nature”.[3]

These are the experiences described by Éryximaque. She says dancing may change the feeling of Athikté. Always dance had a healing and curative power. The dance begins in the soul, therefore it is inner strength.

The soul is one who enjoys musicality that gives to dance, and the body receives these positive signals. The dance moves are puzzling and, in turn, and the feelings of those who dance are very positive and bring harmony. Through dance, the dancers share their emotions, hopes, passions and experiences. Dance is the art by which we understand how the dancers feel through the movements of their bodies. Dancing can be considered as a medicine for the soul. He heals and makes less happy moments bearable. Sometimes the dance has the ability to offer the chance of life.

The thing that has the ability to excite also has the ability to change lives. People have a right to have caprices, and dance can be one of those fads. People have the chance to choose between medicine provided by doctors, and remedies for the soul.

„Phèdre: «What remedies are there?»

Éryximaque : «There are eight remedies: heat and cold , abstinence and excess, air and water , recreation and movement . That is all».

Socrate: «But there are only two remedies for the soul».

Phèdre: «What are the remedies?»

Socrate: «Truth and falsehood».

Phèdre: «How so?»

Socrate: «Are they as waking and sleeping? Do we seek awakening and clarity of light when we ground a bad dream? We are not awakened by the sun that gives us power and palpable presence of those around us? But in return, we want that sleep and dreams to eliminate the inconvenience and pain during the day? Yes, we want this and we implore darkness although we are in the sun. Being eager to know, being ignorant easily, we seek a remedy of what we have in terms of what we do not, and we seek to improve what we have, through what we don't have. Both the reality and the illusions we live, have no other resource than the truth



which is their weapon and the lie that is their armor».[4]

Dancing can be considered as a mysterious movement, a contradiction of everything that happens on a daily basis, a transformation of the self, transformation and retrieval of their identity.

„Dance is a dancing woman who ceases to be a woman of divine standpoint because her movements can touch the clouds. But the infinite can not be captured in a dream or in reality. Therefore, any woman can achieve this infinite, so she is again snowflake, bird, idea. The same earth wants her back and refund the status of women.”[5]

Through dance, we can reach the divine mind, we can have access to higher levels of the subconscious, we can understand the diversions of life or misunderstood. Divine thinking can be achieved by accessing the subconscious. Man must not remain trapped in the ordinary world in daily. Man must find the means to access beyond the present and normal.

„ Phèdre: «As far as I'm concerned, dancer contemplation leads me to realize many things and their representations. I can tell the relationship between these things, I dial my own opinion. I realize these things.

For example, it seems to me that Athikté is love. But what kind of love? Athikté not see love as an adventure miserable. She is not a mistress. Not at all. She is love itself. How can we define and how can we paint the love? We know that the material of love is the identification of lover's desires.

So dancing should delight through subtle features, through divine impulses, through delicacy of the points. This universal creature has no body, no face, but she has qualities, it defines lives and destinies, and it gives rise to desires that know no sleep and rest.

Therefore, only a dancer can make it beautiful and visible through her movements. In all, it is love. She is game and happiness, and tears, and laughter. Charm, offering, surprise, yes, no, happiness and happy sadness. She celebrates all the mysteries of absence and presence, she has the power to overcome disasters. And in the present, to bring grace of Aphrodite, watch her! She is like a wave of the sea. Sometimes light, sometimes heavy, it is a magical light»!”[6]

Which exceeds the daily, the usual, this can be considered a miracle. Miracles do happen, they are not illusive. Miracles arise in our consciousness and also we give them life and integrate them into our existence. Divine, miracle exists within us. We must have the courage to find and take them out. In this way, we can live surpassing our human condition, reaching higher levels of thinking and feeling. Art is the means by

which people can be saved from ordinary existence. Dancing can make us tick.

„Socrates: «Dancers! How much grace and what perfectly movement! Their hands seem to speak and their feet seem to write. How much precision in these beings who are studying so much to be able to use perfectly their forces! All difficulties give them naked, and they are subject to mobility with happiness. In this case, certainty is a game. Might say that knowledge has found the perfect form and grace consented spontaneous intelligence. Look at them! The thin dancer is easiest carried away. Who is she really? She is pleasant hardness. She gives, she borrows, she measures exactly the cadence. Even if I close my eyes, I see her exactly as she dance, with my hearing. I'll follow and I watch her, she is rhythm and music, and for me it is impossible not to hear her motions».”[7]

### Conclusions

Dancing is a dream from which we have all your access if we want it. Dance can mean pleasure multiplied of extraordinary meetings between us and the movements of the dancers. In our soul, wonderful things happen when we see the dancers. We see how the dancers feet keep pace, extent beat and hear the sweet symphony of a musical divine. Their faces are bright lovely, they take us on the wings of a dream.

The art of dance is like the morning dawn, a new beginning of life, of universe. Voluptuousness of the movements creates first feelings. The freshness of our feelings depends on how we feel the movements of the dancers. Between limbs that move, the soul vibrating and thoughts garnished, there is no difference. We get carried away, we indulge in this divine music movements, we offer vibrating and we ask in return, spirituality and grace.

### References

- [1] Dansul – legătura între om și univers, apud: <http://seductiaturului.ro/arta-dezvoltarii-personale/dansul---legatura-intre-om-si-univers.html>.
- [2] Dansul – legătura între om și univers, apud: <http://seductiaturului.ro/arta-dezvoltarii-personale/dansul---legatura-intre-om-si-univers.html>.
- [3][http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme\\_et\\_danse.pdf](http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme_et_danse.pdf), p. 7.
- [4][http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme\\_et\\_danse.pdf](http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme_et_danse.pdf), p. 3.
- [5][http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme\\_et\\_danse.pdf](http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme_et_danse.pdf), p. 3.
- [6][http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme\\_et\\_danse.pdf](http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme_et_danse.pdf), p. 10.
- [7][http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme\\_et\\_danse.pdf](http://ugo.bratelli.free.fr/ValeryPaul/ValeryAme_et_danse.pdf), p. 4.

## STUDY ON IMPROVING THE PERFORMANCE OF JUNIOR HANDBALL IV BY APPLYING SPECIFIC OPERATIONAL MODELS RALLY

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**Abstract:** Analysis of current trends on preparing junior handball observed in practice or referred to in the literature, reflecting the following: a need to address this level of "the entire contents of the game" B. combining the technical and tactical training content that is resultant use (in preparation) integrative exercises specific game itself, tend to achieve tactical and technical training and comprehensive method prevailed in a low proportion by the analytical method. Under these conditions, the necessity of a solid tactical and technical base still at this level requires specialists looking for new ways to approach learning subject content. In this sense, this approach aims observing aspects involved in preparing technical and tactical approach by applying specific drive means of attack and defense phases. So in essence, this research aimed to increase the efficiency of training by introducing capacity optimization strategies junior handball performance that are based on complex actuation means, that models specific operational phases of the game. The research conducted over 20 weeks confirms that addressing technical and tactical content through specific phases of game business models can contribute to the development of motor ability and can increase effective capacity expression while playing a junior handball.

**Key words:** handball, junior, maximal performance, rally, operational models.

### Introduction

Analysis participating teams play at the world championships and other international competitions reveals among other directions and tendencies of development of modern handball, increasing and maintaining the pace of play throughout the match result which is based largely increased speed of the game in all phases of attack and total physical commitment defensive player. This shows that the dynamics of the game changed completely, as confirmed by specialists in the field[1].

New conditions for expression of technical potential require an intense tactical athlete body and to cope with increased effort indices, appliances and body organs must possess high functional capacity. In addition, amid strenuous request individual technical and tactical skills, the couple of players, but also the collective must show permanently.

In conclusion, the performance capability of handball player, with all its components requires a high level.

In this respect, the implementation of this initiative we started following assumptions:

- ♣ performance ability - represented by a sumum capacity (including motor ability and effort) maybe the subject of optimization by improving its components;
- ♣ optimization strategy driving capability, subsequent training model, routing and control of the training requires knowledge and "to produce the new" in preparation model features specific to each echelon competitive game;
- ♣ foundation and methodology training reconsidering future high performance handball yet to be achieved from the children and juniors, aiming constantly to improve operational strategies - the component model training - development of indicators based on the final model of the game and the player.

Regarding the technical and tactical training in the game of handball, the presence of special features is observed. Thus, if the other sports games two components "Technical" and "preparing tactics" are addressed separately if handball experts consider that

"work analyzing players during matches is observed that the two components are inseparable, that they are, in fact, a "[2] which is why the preparation they are addressed concurrently. This does not translate in terms of absence of technical procedures and tactical actions, but in the presence of integrative forms it manifests in the form of unit specific game. Moreover, noting content handball is found that game actions individual or collective training involving all stakeholders, and the predominance of one or other necessary means determines the complexity of the training approach. Consequently, as stated by Rizescu, C., (2008) "objectification game leads in selecting the most effective means of training to ensure success in the competition. Means are required for the structure and call the game "[3].

Technical and tactical training to the echelons of children is achieved through the comprehensive and in a small proportion of the analytical method. "Relationship between the two ways of training are not the same at all levels maintain base table handball performance. If the groups of children beginners analytically insignificant proportion is used at every level of higher value, its share will gradually increase, surpassing the share of overall path performance juniors who need to complete their individual technical and tactical executions " [2].

From a technical standpoint, the junior echelons must ensure learning and deepening, using means becoming more complex and analytical method, then tire content of the game.

### Material and Methods

The purpose and objectives of the research.

This research aims to increase the efficiency of the training process by introducing strategies to optimize the performance capacity of junior handball players that based actuating means complex operational models that specific phases of the game.

Given the need for practical verification of methodologies own new strategy for optimizing the

performance capacity were established the following objectives:

- ♣ Develop and implement training programs that are based on specific operational phases of game models to optimize performance capacity within age appropriate junior level.

- ♣ Rational experimental application efficiency training programs that analyze feedback on the plan they produce in general and specific motor and adaptive.

The research was conducted over 20 weeks, in January 2012 - June 2012, and during its running we used a combination of research methods of general and particular methods - in order to quantify information and data collection and statistical and mathematical methods for processing them - in order to determine the status and evolution traced variables. Thus, in order to collect information, we used the following methods: bibliographic study (document) method of observation (teaching) method, experiment and test method.

Subjects included in this research were: experiment group - consisting of 14 handball players, under the direction of Prof. Manuel Colțescu from CS Novaci and control group - made up of 13 players working in the CSS Craiova, the team coached by Prof. Daniela Padeanu. Subjects aged 11 to 12 years old practicing handball 2-3 years. Teams have benefited from similar conditions of work and testing, the material allowing the proper course of the experiment.

At this level of training program provides a total 360 minutes training per week. The total minutes were distributed in 4 workouts per week of 90 minutes each. The difference in approach in the two groups training

was the fact that the experiment group, rally their operational models, is the attack phase (in our case, only two of them, namely to counter and attack the system) and defense phase (refolding and defense system) have replaced traditional means of addressing the technical content of tactical lessons topics. For example (Table 1), the lessons that aim to "strengthen the counter" in meanscycle 5 (the technical training are allocated 8.4 h, 2.4 h and 10.8 h tactical training physical training) were used a total of 15 simultaneously strengthening exercises targeting the counter and refolding, emphasis being placed successively on "catching the ball coming up", "dribbling while running multiple", "shot on goal from the jump", "man to man marking", "tracking the striker" etc..

Similarly, they approached other phases of attack and defense.

Defining functional somatosensory and motor profile "moment" of subjects (research feature cross) and follow the dynamics of these parameters (the default type of longitudinal research - knowledge that allowed for evolution subjects) by comparing the results obtained by each group a series of measurements and tests are considered relevant to the aim pursued. Statistical parameters that were investigated phenomenon characterized tendency: arithmetic mean, standard deviation and coefficient of variation. To show whether the data are significant differences between student test was applied and Anova [4] using, in addition to the Microsoft Office Excel and statistical online computing soft ware specialist.

Table 1. Specific operational Model Code counter

Cod	Specific operational Model Code counter
C1	C1 initial settlement: two rows in opposite corners of the land (diagonal) 2 goalkeepers. Action: launch counterattack by one of the porters - catching the ball - huge - complete and pass the string tail opposite.
C2	Initial settlement C2: two columns of 3 strikers in the left side of each semicircle, 2 goalies. Action: launch counterattack by one of the porters (with short pass on the dexterous arm) - huge - finalization after completion muster player left on the counter watching the first player from the opposite sequence, the action continues to counterattack launched by the other goalie
C3	Original settlement: two rows of 3 strikers in the left side of each semicircle, 2 goalies. Action: launch counterattack by one of the porters (the long side arm handy) - huge - finalization after completion muster player left on the counter watching the first player from the opposite sequence, the action continues to counterattack launched by the other goalie..
C4	Launch tries to counterattack preceded by the keeper
C5	Initial Lineup: two rows in opposite corners (diagonally Wing) 3 defenders in the middle, 2 goalies. Action: pass the goalkeeper - taking back - huge - overcoming defender closely marking (man to man) - complete
C6	Original settlement: two rows in opposite corners (the extreme) and two on the inter station, 2goalies Action: Player on the far post: tries to goalkeeper - taking back - huge - test completion; Player in the post-inter muster with marking "man to man".
C7	Initial Lineup: two strings on extreme positions. Action: string player to the left of the keeper which will launch counterattack pass to the player on the right string (short pass), the first player to top the counter watching muster
C8	Initial settlement: two strings on extreme positions. Action: string player to the left of the keeper which will launch counterattack pass to the player on the right string (long), the first player to top the counter watching muster



C9	Initial settlement: two rows at the extremes and one in the middle. Action: string player to the left of the keeper which will launch counterattack pass to the player on the right string (long) center player to muster a counterattack following tip.
C10	Initial settlement C10: two rows at the extremes and one in the middle. Action: The player to the left to pass string goalkeeper who will opt in launching the counter to one of the two lateral rows (long short / long), the player in the center top of the counter watching muster.
C11	Initial settlement C11: two forwards and two defenders at the line of 9m. Action: a defender, coming from interception, recovered the ball and trigger counter towards goal, forwards muster.
C12	Initial settlement C12: two strikers on the wings and two intermediaries, porter, four defenders. Action: goalkeeper tries to launch a counterattack with intermediate (right), it passes the tip left; muster defenders and defender interception tip comes off the counter.
C13	Tip interception C13 Same as right..
C14	Initial settlement C14: two forwards (extreme RIGHT and a player fix - far left - the middle) two goal keepers; Action: goalkeeper receives the ball from the right wing launches counterattack to the same player (½ long to land) after catching the ball pass the tip to fix and continue running the player to catch the ball where the 9m line and complete, after completion muster .
C 15	InitialLineup:pairs,onthewings. Action: making the counter in three passes between peaks finalization muster the speed back up to the center line, back in 1800, running speed up the semi-circle of 6m.

## Results

From the point of view, at this stage of research it is found the following:

♣ Heart Ruffier resistance index reflects an improvement in recovery heart rate (to promote the range ranked as "poor" in the ranked as "medium"), both groups registering significant differences between the two tests (2.69 - experiment group; 1.59 - control group) are not significant differences between the means of the two test groups.

♣ Assessment of aerobic capacity achieved by estimating oxygen consumption in relative value (relative VO<sub>2</sub>) reflects the existence of significant differences between means of testing to another and a better outcome parameter in the experiment group (1.49 ml.kg<sup>-1</sup> . min<sup>-1</sup>) compared to the controlgroup(1.38ml.kg<sup>-1</sup>.Mini<sup>-1</sup>).

♣ Rate pressure (RPP) which reflects cardiac activity and report the myocardial oxygen consumption (indicator is calculated based on the FC and systolic BP during exercise) significant differences between the two tests in both groups (-18, 43, -10.61), revealing a favorable index decreased between maximal oxygen consumption in the myocardium during exercise and power (work done by the heart during exercise).

Analyzing the data, in terms of general and specific motor is observed the following:

♣ The running speed 30 m absolute value recorded at initial testing environments (5.11 and 5.17 s) is below the threshold specified by the federation to age 11 (5.10 s), but the final test (4.81 s, 5 , 05S) with a progress of 0.30 s and 0.12 s, both groups perform better than specified value (4.81 s - 5.05s and experiment group-control group).

♣ Explosive strength of the lower limbs, assessed through the length of the jump seat, falls initially (181.93 cm 178.77 cm) to specify the model parameters (187cm or 190cm for preliminary selection for selecting relatively stable). In final testing experiment group (193.57 cm) falls relatively stable selection requirements exceeding this threshold to 3.57

cm, but significant progress control group (5.38cm) did not achieve the scale.

♣ When throwing the ball away with enthusiasm handball three steps both groups (24.75 m 23.69 m) exceeded the scale set for this age (23m), making significant progress between the two tests and exceeding the scale of 4.39 m - experiment group and 2.42 m - control group.

♣ Regarding huge sample among landmarks on distance 30m, averages (7.56 and 7.62 s) that reflect the performance group under the recommended value (7s), but they are improving significantly from one test to another (0.27 s - experiment group, 0.19 s - control group).

♣ Of the two forms of proof of travel triangle (2x, 3x) subjects were tested by the variant that involves making three complete cycles, which have the scale set to "advanced" value 22s. If initial testing (24.56 s, 24.66 s) groups do not reach this threshold, the final testing experiment group get better performance with 0.44 s to scale, but the control group with 1.38 s progress fails to reach this threshold.

In essence, it appears that the driver applied the evidence highlights elevations (motility of general and specific) in both groups included in the experiment, the most significant progress in the experimental group - reflected the significant differences between the means of the two groups, seen in testing final.

Regarding ability to execute specific content items rally shows the following aspects:

♣ Initial testing hierarchy rally by the absolute value of the mean scores obtained in both groups is counter (section 7.14 - experiment group, 7.15 points - control group) muster (7, 07pct. 7.08 points) attack the system (6.64 points, 6.69 points) and defense system (section 6.43, section 6.54).

♣ At final testing, it appears that the highest score was achieved in phase I of defence - folding (8.79 points - experiment group, 8.15 points - control group), followed by scores of counter (8 , 71pct., section 8.00), attack the system (8.43 points, 7.77 points) and defense system (section 8.29, section7.62).

♣ Regarding the evolution of the two test groups at different it is observed that the most significant progress was made in defense of the system (28.93% - experiment group, 16.51% - control group), the attack system (26.96%, 16.14%) muster (24.33%, 15.11%) and counter (21.99%, 11.89%).

#### **Discussions and Conclusions**

The results of the research highlights the functional indices and driving improvement.

Thus, from the point of view, at this stage of research, the development of resistance index reflects an improvement Ruffier heart pulse rate return to the experiment group, which is the 10.86% improvement over the control group. Another indicator expressed in terms of FC and systolic BP during exercise (rate-pressure), reflecting a more favorable ratio between maximal oxygen consumption in the myocardium during exercise and heart work done (power) in the experiment group compared the control group (difference between groups in final testing averages being 7.98%). Although in both cases the differences between groups in final testing environments are not significant, there is a positive development of the economy of effort in the experiment group.

In terms of finding Increased motor (motility of general and specific) in both groups included in the experiment, the most significant progress in the experimental group - reflected in the significant differences between the means of the two groups, seen in final testing. Analyzing the data, it appears that the biggest differences between the experimental group and control group recorded samples manifestation involving speed, force and throw off and slightly lower in the event involving coordinative capacities.

Regarding the hypothesis, it implies that the application of operational models attack and defense phases may increase effective capacity expression while playing a junior handball players - we can say that it confirms the practical point of view the results in the evaluation of athletes during competition. Thus, in the development of the four groups of indicators specific phases of the game (game imposed by the model at this stage) was observed in addition to the insignia of the progress of experimental group (28.93% of the defense system; 26.96% to attack the system, 24.33% and 21.99% to muster the counter) and the significant difference between the means of the two groups (8.87% in counterattacking the defense system 8.79%, 8.49 % to attack the system and 7.85% to muster).

In conclusion, the results obtained in the research emphasizes improving somatic, functional and driving indices. Thus, we can say that the use of operational models implemented in the preparation stages of the game can lead athletes to optimize performance ability, within the limits and age appropriate to junior level.

#### **References:**

- [1] Orțănescu, C. (2001). Handbal de performanță. Teorie și practică, Editura Universitaria, Craiova, p.10
- [2] Kunst-Ghermănescu, I., Gogâltan, V., Jianu, E., Negulescu, I. (1983). Teoria și metodică handbalului, Editura Didactică și Pedagogică, București, p.263
- [3] Rizescu, C. (2008). Pregătirea tehnică a handbaliștilor începători prin eșalonarea mijloacelor specifice, Teză de doctorat, Chișinău, p.16
- [5]<http://www.danielsoper.com/statcalc3/calc.aspx?id=43>

# WAYS OF OPTIMIZING THE FIELD TENNIS TRAINING TO BEGINNERS - A CASE STUDY

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**Abstract:** The present research aims at revealing the fact that through the optimization of the game content to the level of 10 year beginners, we achieve an improvement of sports performances. Therefore, we have applied salutary methods and means which determine a fast learning and improvement of the technical and tactical aspects of the singles game, considering 4 tennis players aged 10. The content of the selected exercises proved effectiveness in the beginners' training, optimizing the learning and the consolidation of motor skills specific to tennis players. Another positive aspect is that the performance of these exercises generated a real enjoyment.

**Keywords:** *table tennis, training, performance*

## Introduction

Tennis is truly a lifetime game. Children as young as 6 years old can learn how to play (most of the professional players began playing it at a very early age), and it is common to see older adults, in their 70s and beyond, playing regularly. [1]

The physical skills for this stage are the fundamental movement, they underpin future physical capacities and without them athletic development might be compromised later [2].

The competition activity – the show sport – encounters an outstanding development regarding the number of organized competitions, as well as their scope. Concerning the sports training, we may noticed a continuous process of distinguishing and improving the competition activity. The study of the great champions' activity brings out a special training of all factors involved in the sports performance, which is often strictly particularized. Sportsmen's training should be performed individually for all the components of the sports training. We should start from the range of motor actions involved in the evolution of competitions, from the specific nature of the effort, focusing on the learning of the technique and strategy, on the development of motor skills, so that they should correspond to the basic requirements of the specific sports branch practice.

Strength and conditioning professionals need therefore to understand tennis-specific movement requirements but also how to monitor the individual athlete's rate and timing of growth and maturation. They need to communicate with the parents, the coaches, and even with the athlete's physician, to deliver developmentally appropriate strength and conditioning programs.[3].

## Material and methods

Through the experiment developed during the period October 5th, 2012 – May 5th, 2013, we intend to check the effectiveness of our methods and means meant to contribute to an accurate learning of basic technical methods specific to the field tennis played by children. Starting from these premises, our paper approaches and tests efficient methods and means meant to precipitate the learning and the optimization of the singles game technique and strategy considering 4 tennis players (age 10). For an appropriate evolution and organization of the experiment, we have drawn up worksheets including the subjects' somatic and functional indices,

namely, the initial and the final values of the testing for each index comparable with those recommended by the Romanian Tennis Federation. As well, the initial level of motor skills development and the technical-tactical knowledge were tested. Following the recorded data, we have elaborated and undertaken a system of acting means as a support for the technical-tactical training which we have applied 7 months surveying the efficient evolution during the competition game.

## Results

For an objective analysis and interpretation of data, we shall apply the comparative research for the resulting indices (somatic, motor, technical-tactical indices and the results achieved during the official competitions) which indicates the evolution, stagnation and regress aspects for certain trials and control norms, confirming, concurrently, the quality of acting systems and methods for all the training components focused on the optimization of the technical-tactical content of the singles game to children.

An analysis of the subjects' somato-functional indices points out the fact that most of the subjects develop an accurate evolution stage, registering superior index values as compared to the pattern proposed by the R.T.F., mainly concerning the vital ability and torque control seen as key elements in determining the efficiency and in applying means specific to the training and to the competition game.

The 11 parameters were correlated to the children's biological evolution. Between the final and the initial testing, we recorded progresses for most of the parameters, but the most important parameters involved in the tennis game – waist, amplitude, perimeter of the thorax and vital ability- were compared to the pattern of the tennis federation, thus:

- the waist registers higher values for three sportsmen and lower values for three sportsmen as compared to the pattern values. The individual progress mean is +2 cm for both age categories.
- the amplitude value is lower in the case of two sportsmen. The individual progress mean is +2.5 cm for both groups.
- the perimeter of the thorax indicates higher values for all the four sportsmen with an individual progress mean of +5cm.
- the vital ability registers superior values for all the four sportsmen.

Table 1 Results of the motor tests

Subject Testing	A.S.		R.T.F.		D.M.		RT.F.		E.E.		RT.F.		M.C.		RT.F.	
	I	F	I	F	I	F	I	F	I	F	I	F	I	F	I	F
Control trial																
30m flat sprint with standing start (sec)	6.8	6.5	6.6	3	6.9	6.8	6.	1	6.	6.	6.	3	6.	6.	6.	1
Standing long jump (m)	1 <sup>75</sup>	1 <sup>90</sup>	1 <sup>75</sup>	1	1 <sup>60</sup>	1 <sup>70</sup>	1 <sup>75</sup>	1	1 <sup>7</sup>	1 <sup>90</sup>	1 <sup>75</sup>	1	1 <sup>60</sup>	1 <sup>70</sup>	1 <sup>7</sup>	10
Standing triple jump (m)	4 <sup>90</sup>	5 <sup>10</sup>							4 <sup>9</sup>	5 <sup>10</sup>						
Oina ball throwing without take-off (m)	33	35	34		29	33	34		3	35	34		29	33	3	
Combined running on tennis court (1 track = 60m) 1 min x 3 sessions, 1 min break, 2 min x 3 sessions, 1 min break	4.5	5.5	-	1	4.5	5	-	0.	4.	5.	-	1	4.	5	-	0.
	37	39			37	30		5	5	5			5	30		5
	0	0			0	0			3	39			37	0		
									7	0			0			
									0							
Coxo-femoral mobility (cm)	5	8	15		9	10	15		5	8	15		9	10	1	
Fixed bar hang, leg lift and maintain up to a 90 degrees angle (sec)	8	15	15		12	18	15		8	15	15		12	18	1	

The results registered to physical tests and control trials reveal a general evolution of the level of motor skills proved by the sportsmen between the testing, confirming, thus, the positive influence of the acting systems and methods applied during the training process:

- 1\* for the 30m flat run trial, 2 sportsmen place themselves below the requirements of the R.T.F. pattern and 3 sportsmen exceed it. The value of the individual general progress is +3 tenth of a second;
- 2\* for the long standing jump, only 2 sportsmen place themselves under the federation standard to the final testing, the other 2 sportsmen exceed it;
- 3\* for the triple standing jump no federation standard is available, thus, we may compare the results of the two testing. The progress mean registered by the 4 sportsmen is about 20cm;
- 4\* the oina ball throwing trial determines, through the results to the two tests, a general evolution of the explosive force at the level of the racket. Only 2 sportsmen do not manage to exceed the standard set by the federation; the other 2 sportsmen exceed it. The individual progress mean is about 4 meters;
- 5\* to the combined running on the tennis court, we may notice a general improvement of the endurance under terms of speed;
- 6\* for the coxo-femoral mobility, though, there is a slight improvement between the initial and the final testing, with an individual progress mean of +2 cm, only 2 sportsmen manage to top the federation standards. It is the only trial which may still generate increase opportunities;
- 7\* to the test of force under terms of endurance (bar hang lifting and maintaining legs to a 90 degrees angle), we may observe values which are close to the R.T.F. pattern and a progress mean of about 8 seconds.

Table 2. Results of the technical tests

TESTS AND	A.S.		Total		D.M.		Total		E.E.		Total		M.C.		Total	
	I	F	scores	I	F	scores	I	F	scores	I	F	scores	I	F	scores	
NORMS SERVE	I	2	3	5 of 20	0	1	1 of 20	2	3	5 of 20	0	1	1 of 20			
	II	3	4	7 of 20	1	1	2 of 20	3	4	7 of 20	1	1	2 of 20			
FOREHAND	along line	2	4	6 of 20	1	2	3 of 20	2	4	6 of 20	1	2	3 of 20			
	diagonal	1	3	4 of 20	1	1	2 of 20	1	3	4 of 20	1	1	2 of 20			
BACKHAND	along line	2	3	5 of 20	0	1	1 of 20	2	3	5 of 20	0	1	1 of 20			
	diagonal	1	3	4 of 20	0	1	of 20	1	3	4 of 20	0	1	of 20			
VOLLEY	right	2	3	5 of 20	1	1	2 of 20	2	3	5 of 20	1	1	2 of 20			
	left	2	1	3 of 20	0	1	3 of 20	2	1	3 of 20	0	1	3 of 20			

SMASH	cz.	1	3	4 of 20	0	1	1 of 20	1	3	4 of 20	0	1	1 of 20
	right	1	2	3 of 20	0	0	0 of 20	1	2	3 of 20	0	0	0 of 20

Table no 2, including the results to the technical trials and control norms, confirms an improvement of the technical level for each trial, from the initial to the final testing, which allows us to conclude that the recommended and applied acting systems were well selected and accompanied by an accurate level of effort.

The way of registering the data is objective and points out somehow the abilities of the sportsmen, who knowing themselves followed and evaluated, manifested spontaneously their abilities. As well, lacking of an evaluation system of standards recommended by the tennis federation, the results were written down as such, the individual progresses being recorded.

Two sportsmen have achieved satisfactory results to the serve shots I and II, as well as to the forehand along the line and diagonally. Data resulting from the last testing recommends more practice for the backhand, volley and smash shots. These trials prove improvement opportunities for all sportsmen. The individual general progress mean between the two testing was +2 successful shots.

#### Conclusions

An analysis of the training evolution and results of sportsmen, by means of the suggested acting systems and training methods, as well as the contribution of the

experiment to the optimization of the technical-tactical content of the singles game to children, we may notice that the report between the successful matches and the lost matches on age categories is favorable to those successfully won:

8\* to the 8-10 age category all the performance goals were achieved.

Through the selection of these parameters, the experiment constantly aimed at the stage selection, the learning of the game technique and strategy, and, in the end, determining, in a temporary shape, those individuals who guarantee a successful performance in tennis.

The values of the testing confirmed the optimization of the education process, and the competition game was technically, tactically, physically and psychically outlined.

#### References

- [1] Brett R., Brusseau T., Hannon J., (2013), The Whys of Teaching Tennis, *Journal of Physical Education, Recreation & Dance* 84.4:13-15
- [2] Pankhurst A., (2006), The progressive development of a high performance tennis player. *USTA High Performance Coaching* 8(4): 1-9.
- [3] Ochi, S., Campbell, M., (2009), The Progressive Physical Development of a High-Performance Tennis Player, *Strenght and Conditioning Journal* 31.4: 59-68

# EXPERTS' OPINION CONCERNING THE ROLE OF AEROBICS ON KANGOO-JUMPS BOOTS

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**Abstract:** The research objective is to conduct a survey to determine the degree of Kangoo Jumps, and the need of introducing a new discipline, in physical education classes, intended to students in the non major physical education faculties. Therefore, we have applied the questionnaire-based inquiry to experts in gymnastics and to doctors and kinetotherapists in order to identify their opinions concerning this new form of the aerobic training, considering the fact that it became a very popular practice in gyms and sports clubs. Responders' opinions reveal that the use of these boots may improve the female students' quality of life, on condition that certain recommendations are followed, namely, the position on Kangoo-Jumps boots and a constantly surveyed practice.

**Key words:** *students, inquiry, physical education, lessons*

## Introduction

Physical and sports education is a pedagogical approach involving all age categories and covering a double service: an individual and a social one, namely: the human body health condition, its normal development and the extension of the individual's lifetime.

Within the value system of a society, the biological health and its indices – tonus and physical force, body balance and beauty, bio-psychical energy and psychosomatic balance – represent vital values which correlate with the nature health (environment) and with the individual's mental health.

Lately, the interest granted to the aerobics, the objective requirements for a continuous improvement of this activity among students, as a friendly and efficient means in the multilateral training meant to educate the young generations, constitute sufficient reasons which place the aerobic training in the top, becoming, thus, one of the students', particularly female students, favorite activity during the physical education classes. [1] Nowadays, there are new forms of aerobic training and we may mention the newest one, that on Kangoo-Jumps boots.

For the past few years, many researches studied the issues of aerobics on kangoo-jumps boots[2], due to its growing popularity.

Training with Kangoo Jumps TM provides an effective means of improving aerobic capacity, and reducing the rate of injury when compared to training with normal running shoes.[3]

There are studies which showed that through a good supervision, patients could achieve self-management in rebound exercise without any risk of injury. [4]

## Material and methods

Due to the variety and intensity of the scientific research approaching the human activity of physical education and sport, the inquiry methods have recently gained a special interest, particularly, due to the

investigations developed in social science and education areas. Among the total number of responders (40) submitted to the questionnaire, 20 (50%) are experts in gymnastics, 20 (50%) work in the health scientific field (sports doctors, kinetotherapists, medical specialists within the Faculty of Physical Education and Sport).

This is one of the reasons why we have chosen this research method meant to determine the most relevant information provided by the specialists, concerning the ways of elaborating working programs focused on the improvement of the quality of life of female students attending faculties with a different major field of study. For the elaboration of the working programs, we have considered as appropriate the application of an inquiry by means of the interview and the questionnaire, an efficient way of collecting accurate and right information from the experts in gymnastics.

The questionnaire addressed to the medics tries to identify recommendations and contraindications for a safe practice of aerobics on kangoo-jumps boots by the female students. Our research is mainly focused on two basic scientific areas, namely, health and, physical education and sport. The experts involved in the research are physiologists, gymnasts, kinetotherapists, whose opinions count for the elaboration of working programs needed for the following stage.

The inquiry lasted 3 months and included the elaboration, application, analysis and evaluation of the results achieved.

## Results

### a. Centralization of the answers given by the experts in the health area

The group of 20 subjects working in the health field includes 7 kinetotherapists, 6 experts in sports medicine and 7 specialists, biochemists and physiologists, of the Faculty of Physical Education and Sport of Craiova.



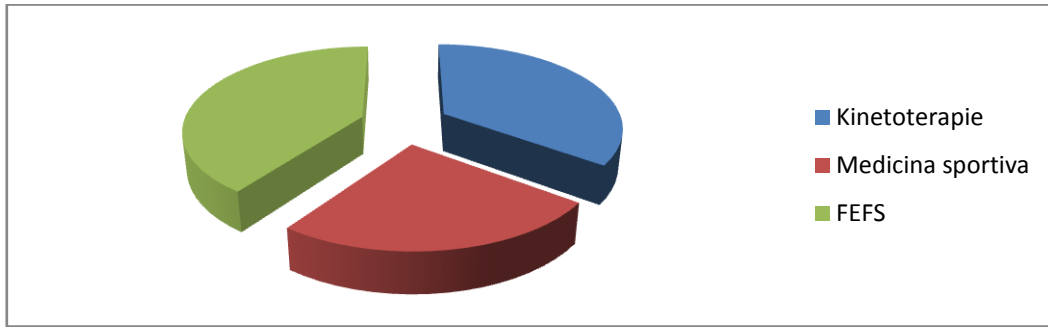


Chart no 1. Distribution of responders according to their working field

The first question points out the action of encouraging the individuals to practice one of the forms of the physical activity; all the specialists agree on recommending the practice of the physical exercise.

To the question referring to the recommendation of medical specialists and kinetotherapists concerning the optimum frequency of the physical exercise practice, 19 of the responders suggest a daily practice, while 1 responder recommends it weekly.

Table no 1. Answers to the question concerning the need for a medical exam for the physical activity practice

Need for the medical exam	No	%
Yes	20	100%
No	0	0%
TOTAL	20	100

All the responders consider that it is highly important that a medical examination should be undertaken before starting a physical exercise program, guiding them to make the right selection of the working programs.

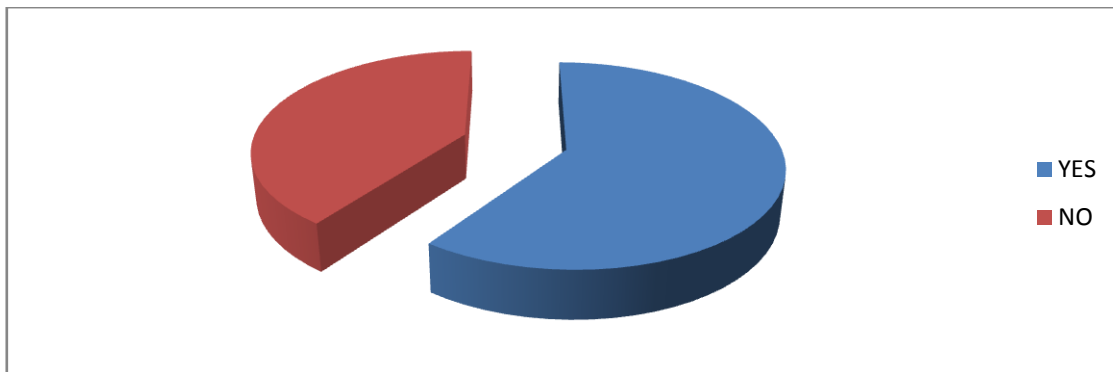


Chart no 2. Responders' knowledge concerning the aerobics on kangoo-jumps boots discipline

60% of the interviewed persons know the activity consisting in aerobics on kangoo-jumps boots, while 40% have no knowledge about it.(chart no 2)

Table no 2. Answers to the question concerning contraindications for the practice of aerobics on kangoo-jumps boots

Contraindications in the practice of aerobics on kangoo-jumps boots	No	%
Joint problems	2	10%
Disorders at the level of the spine	8	40%
None	10	60%
TOTAL	20	100

Though 60% of the interviewed persons consider that there are no contraindications in the practice of aerobics, 40% agree on the fact that the individuals registering disorders at the level of the spine should avoid this kind of activity and 2% of them do not recommend aerobics on kangoo-jumps boots for those individuals suffering from joint disorders. All of them sustain that aerobics on kangoo-jumps boots positively influence the quality of life and contribute to an active life style through movement.

Among the 9 basic components which provide the quality of life, the specialists consider that three of them may be highly influenced by the practice of aerobics on boots equipped with leaf-shaped spring. These components are:

- The health condition (physical and psychical)
- Family life – due to the health condition improvement



- Social life – the change of the individual's perception of his own body and people's opinion about the physical changes.

About 100% of the responders belonging to the health domain agree with the present research, being willing to elucidate the issues concerning the ways of improving the quality of life through means specific to the aerobics, particularly, to the aerobics on boots equipped with leaf-springs.

#### b. Centralization of answers given by the experts in gymnastics

Among the specialists of the Physical Education and Sport area, 70% are qualified in gymnastics and 15% are experts in fitness.

Table no 3. Answers concerning the knowledge of the aerobic activity

Knowledge of working principles specific to aerobics on kangoo-jumps boots	No	%
Yes	19	95%
No	1	5%
TOTAL	20	100

95% of the specialists in gymnastics possess an adequate knowledge of the working basic rules of aerobics on kangoo-jumps boots as a branch of gymnastics. All the responders qualified in gymnastics as their basic major field of study, encourage the practice of this new form of aerobics placing it along other branches of the gymnastics.

Table no 4. Answers to the question concerning the opportunity offered by this discipline

Reason for movement	No	%
Variety	10	50%
Fun	2	10%
Essential for individuals with joint problems	8	40%
TOTAL	20	100

Most of the responders (50%) consider that the introduction of this form of aerobics offers a variety of options of physical exercise practice, 10% think that it is fun, while 40% value its role in supporting individuals with joint problems due to the fact that it reduces the impact felt by joints during traditional aerobic workout. All the interviewed specialists (85%) recommend the doctor's examination before the beginning of classes of aerobics on kangoo-jumps boots, 5% consider that anyone could practice it and 10% think that it is not designed for everybody, they exclude the individuals suffering from spine affections. 90% of the responders applaud the introduction of the aerobics on kangoo-jumps boots practice within the physical education activities developed by students attending faculties with different major field of study, considering that it may highly contribute to an increased interest for these classes.

#### Discussions

Kangoo jumps may not be seen as an independent form of aerobics, its role being to transfer all the exercises specific to the classical aerobics, on boots equipped with springs, generating, thus, more fun, increasing the efficiency by avoiding the monotony during the aerobic sessions.

Therefore, the enthusiasm for motion is no longer only a matter of fashion, the motor activities refine the movement and transform the need for motion into inner motivation, generating, thus, an activity which provides intense emotional states.

The social practice proves that the young generation develops an increased appetite for relatively new sports

branches (kangoo-jumps, zumba, tae bo, pilates, skateboard, dance etc.) and we conclude with the importance of the aspect according to which school should meet all the students' demands providing new study contents against an organized background.

As a general observation for all the trainees, the specialists in the areas of Health and, Physical Education and Sport, recommend avoidance of any hyperextension at the level of the lumbar area, their recommendation being considered for the organization of the working programs.

All the interviewed specialists state the fact that the means specific to aerobics, namely, aerobics on leaf-spring boots, may successfully contribute to the achievement of an improved quality of life through their influence on the whole human body from the biopsychosocial point of view.

#### References

- [1] Nanu C., (2009), *Gimnastica aerobic-mijloc de optimizare a condiției fizice*, Universitaria Publisher, Craiova.
- [2] Prodea C., Giurgiu A., (2013), Physical activity styles practiced in gyms, *Studia Universitatis Babeș-Bolyai, Educatio Artis Gymnasticae* . Jun2013, Vol. 58 Issue 2, p87-100.
- [3][http://kangoojumps.co.za/Kangoo\\_jumps/Kangoo\\_jumps/Marketinginfo/aerobic\\_training\\_kangoojumps\\_poster.php.pdf](http://kangoojumps.co.za/Kangoo_jumps/Kangoo_jumps/Marketinginfo/aerobic_training_kangoojumps_poster.php.pdf)
- [4] Zolaktaf V, Ghasemi GA, Sadeghi M, (2013), Effects of exercise rehab on male asthmatic patients: Aerobic verses rebound training. *Int J Prev Med* 2013;4 (Suppl 1):S126-32.

# COMPARATIVE STUDY OF SOMATIC AND MOTOR CHARACTERISTICS OF THE ATHLETES WHO HAVE NATIONAL AND WORLD RECORDS IN THE DISCUS THROW

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**Abstract:** An overview of global and national athletes at the middle of the Olympic period, is welcome, as it helps in detaching certain key elements in the selection and preparation of our athletes. In this study we envisaged test discus throw that is performance level, age, height and weight of athletes. There was a longitudinal study on these indicators, aiming especially performance rate of progress. This paper presents the development of national and world records and some of the athletes concerned somatic data (where they could be found). On this basis it could extract stable elements and exceptions in performance and somatic data. Material interest mainly specialists in the field, and future graduates with deepening athletics. This paper aims to purpose separation of essential data for the selection and training of high performance athletes in major international competitions perspective. In this study we left the following hypotheses to be tested:

- The rate of progress overall performance did not differ by more than 10 m. both men and women and between national and world records;
- Annual performance progress rate does not differ by more than 10 cm. seconds both men and women and between national and world records;
- Mode Romanian and foreign athletes age does not differ by more than 1 year;
- Mode Romanian and foreign athletes height do not differ by more than 5 cm.;
- Mode Romanian and foreign athletes weight do not differ by more than 5 kg.

**Keywords:** athletes, performance, statistics

## Introduction

An overview of global and national athletes at the beginning of the Olympic period, is welcome, as it helps in detaching certain key elements in the selection and preparation of our athletes.

The effort provided by the discus throw, is a type of anaerobic alactacid. The small phosphocreatine (PC) deposit is that who supplies power for muscles for 7 to maximum 10 seconds.[1]

In evaluating athletes we must always take into account two fundamental components of human performance in general: the biological and psychological.

In this way the body composition corresponds to the structural components of the human body composed of elements of very different nature

and density (bone, fat, water, protein), maintained in constant proportion and functionally integrated.[2] In this way the precise knowledge of the athlete's height and weight and is welcome framing it in a test pattern.

Many times in the sport's practice, While coaches respected the specific training method's guideline, worked with athletes selected by the constitutional model, they did not achieved the expected performance, because they neglected psychological component.

The goal of mental preparation for competition, consists in forming for athletes, of a system of attitudes and behavior, with operational and regulative character through which it is flexible and adapts to contest's situations and opponents actions.[3]

In this study we envisaged test discus throw that is performance level, age, height and weight of athletes. There was a longitudinal study on these indicators, aiming especially performance rate of progress.[4]

This paper presents the development of national and world records and some of the athletes concerned somatic data (where they could be found). On this basis it could extract stable elements and exceptions in performance and somatic data.[5] Material interest mainly specialists in the field, and future graduates with deepening athletics.

## Materials and methods

This paper aims to purpose separation of essential data for the selection and training of high performance athletes in major international competitions perspective.

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- Mode Romanian and foreign athletes height do not differ by more than 5 cm.;
- Mode Romanian and foreign athletes weight do not differ by more than 5 kg.

As research methods I used case study, observation and statistics

They were compiled of 44 athlete's holders of world records and 25 athlete's holders of national records.[6] Following data collection resulted in 201 performances, 144 data on age, 153 data on height and weight discus throw athletes.[7]

There have been collected worldwide data on nationality of athletes (44) place of competitions (201) and the date when the record was made (201).

## Results and discussions

The following is the summary tables of performance and somatic indicators:

Nr.	Name and Surname	Nat.	Result	Place	Data	Age	Height	Weight
1.	Jurgen SCHULT	GDR	74,08	Neubrand	06.06.1986	26	193	110
2.	Wolfgang SCHMIDT	GDR	71,16	Berlin	09.08.1978	24	199	115
3.	Jay SILVESTER	USA	68,40	Reno	18.09.1968	31	191	114
4.	Edmund PIATKOWSKI	POL	59,91	Warsaw	14.01.1959	23	182	90
5.	Fortune GORDIEN	USA	56,97	Hameenli	14.08.1949	27	184	104
6.	Willi SCHRODER	GER	53,10	Magdebur	28.04.1935			
7.	Paul JESSUP	USA	51,73	Pittsburgh	23.08.1930	22	198	97
8.	James DUNCAN	USA	47,58	New York	27.05.1912	25	178	86

Table no.1 Indicators of the worldwide athletes of discus throw men

The overall progress is 26,50 m., resulting in an annual rate of 0.3581 m. progress.

Mode of the age is 24 years with a frequency of 6.

Mode of the height is 191 cm. with a frequency of 6.

Mode of the weight is 114 kg. with a frequency of 5.

Nr.	Name and Surname	Nat.	Result	Place	Data	Age	Height	Weight
1.	Gabriele REINSCH	GDR	76,80	Neubrand	09.07.1988	25	185	88
2.	Maria VERGOVA-PETKOVA	BUL	71,80	Sofia	13.07.1980	30		
3.	Liesel WESTERMANN	FRG	63,96	Hamburg	27.09.1969	25	172	78
4.	Tamara PRESS	URS	57,15	Roma	12.09.1960	23	180	102
5.	Nino DUMBADZE	URS	53,25	Moskva	08.08.1948	29	178	82
6.	Nino DUMBADZE	URS	49,54	Tbilisi	29.10.1939	20	178	82
7.	Halina KONOPACKA	POL	39,62	Amsterda m	31.07.1928	28	180	65
8.	Yvonne TEMBOURET	FRA	27,39	Paris	23.09.1923			

Table no.2 Indicators of the worldwide athletes of discus throw women

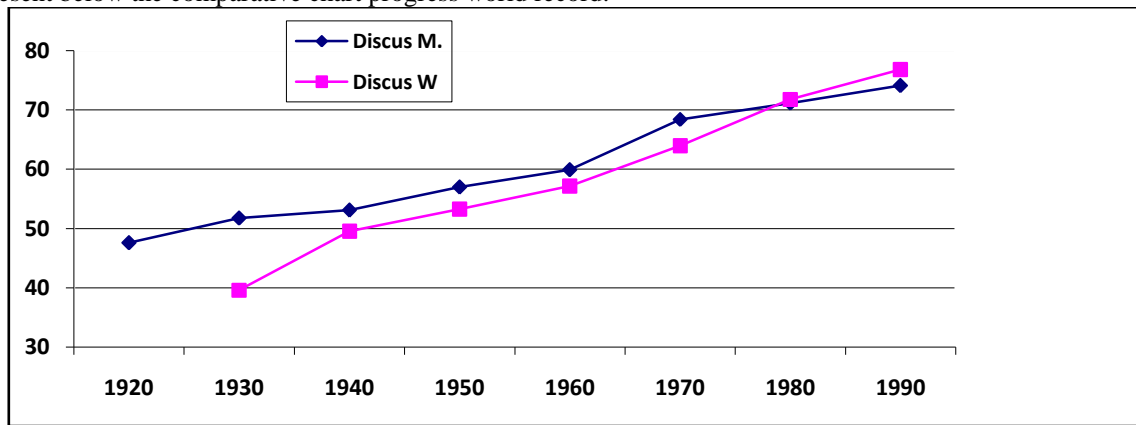
The overall progress is 49,41 m., resulting in an annual rate of 0,7601 m. progress.

Mode of the age is 22 years with a frequency of 11.

Mode of the height is 180 cm. with a frequency of 12.

Mode of the weight is 88 kg. with a frequency of 12.

We present below the comparative chart progress world record.



Graphic no.1 Evolutions of world records to discus throw

Nr.	Name and Surname	Nat.	Result	Place	Data	Age	Height	Weight
1.	Iosif NAGY	ROM	68,12	Saragoza	22.05.83	37	180	99
2.	Iosif NAGY	ROM	65,80	Bucureşti	01.06.80	34	180	99
3.	Iosif NAGY	ROM	59,96	Tg. Mureş	06.04.68	22	180	99
4.	Virgil MANOLESCU	ROM	50,21	Bucureşti	04.05.58	--	--	--
5.	Mihai RAICA	ROM	48,48	Budapest	16.07.49	--	--	--

				a				
6.	Petre HAVALET	ROM	47,17	Predeal	19.08.34	25	--	--
7.	Ion DAVID	ROM	46,46	Vulcan	03.10.26	26	--	--
8.	Rudolf UITZ	ROM	43,80	Arad	26.10.19	27	--	--
9.	D. SĂVULESCU	ROM	25,84	Bucureş ti	18.05.14	--	--	--

Table no.3 Indicators of the Romanian athletes of discus throw men

The overall progress is 42,28 m., resulting in an annual rate of 0,6127 m. progress.

Mode of the age is 21 years with a frequency of 5, insignificant having regard to the 17 cases whose values remain unknown.

Mode of the height is 180 cm. with a frequency of 20, insignificant having regard to the 24 cases whose values remain unknown.

Mode of the weight is 99 kg. . with a frequency of 20, insignificant having regard to the 24 cases whose values remain unknown.

Nr.	Name and Surname	Nat.	Result	Place	Data	Age	Height	Weight
1.	Daniela COSTIAN	ROM	73,84	Bucureş ti	30.04.88	23	182	84
2.	Argentina MENIS	ROM	67,96	Bucureş ti	15.05.76	28	171	85
3.	Lia MANOLIU	ROM	59,48	Bucureş ti	29.08.70	38	179	85
4.	Lia MANOLIU	ROM	53,21	Varş ovia	12.06.60	28	179	85
5.	Lia MANOLIU	ROM	41,44	Bucureş ti	22.10.50	18	179	85
6.	Frederika ONGERTH	ROM	33,24	Sibiu	03.09.39	--	--	--
7.	Berta JIKELY	ROM	31,88	Braş ov	05.10.28	17	--	--
8.	Kilici	ROM	21,47	Braş ov	03.10.25	--	--	--

Table nr.4 Indicators of the Romanian athletes of discus throw women

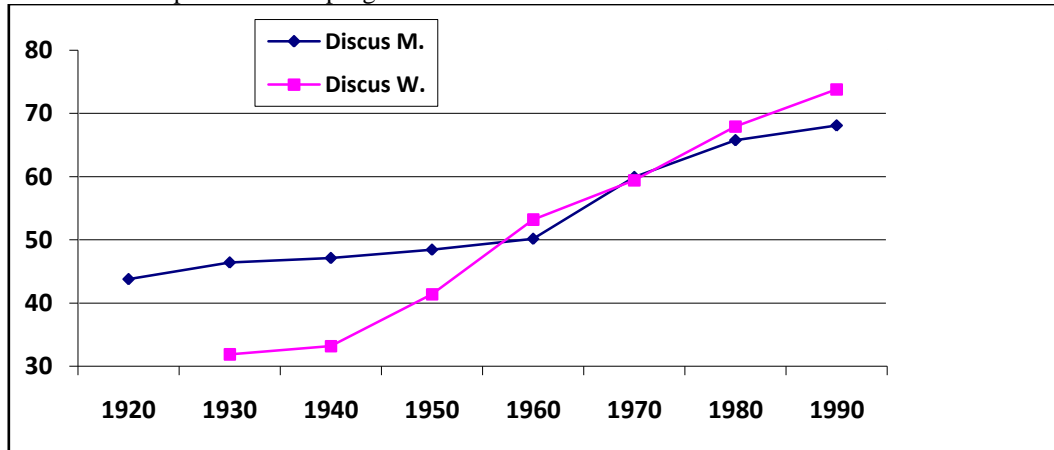
The overall progress is 52,37 m., resulting in an annual rate of 0,8312 m. progress.

Mode of the age is 24 years with a frequency of 9.

Mode of the height is 179 cm. with a frequency of 26.

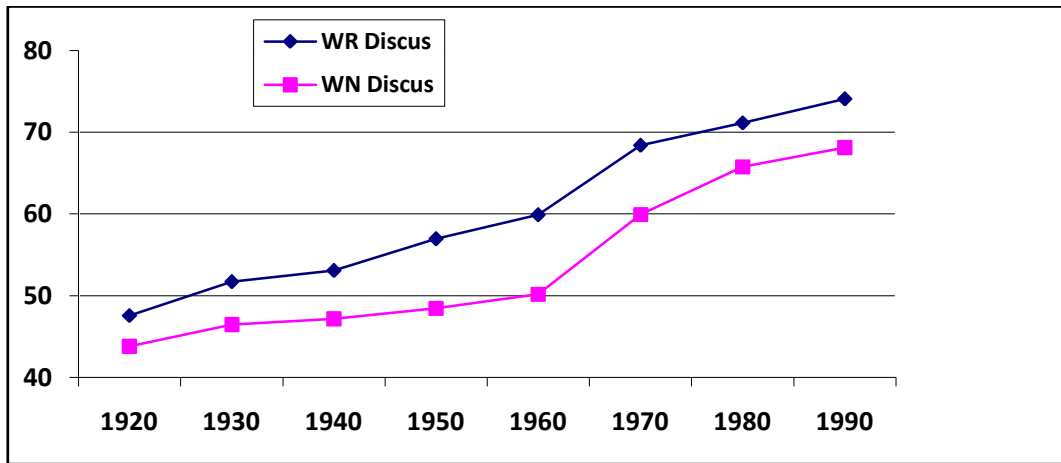
Mode of the weight is 85 kg. with a frequency of 35.

We present below the comparative chart progress national record.

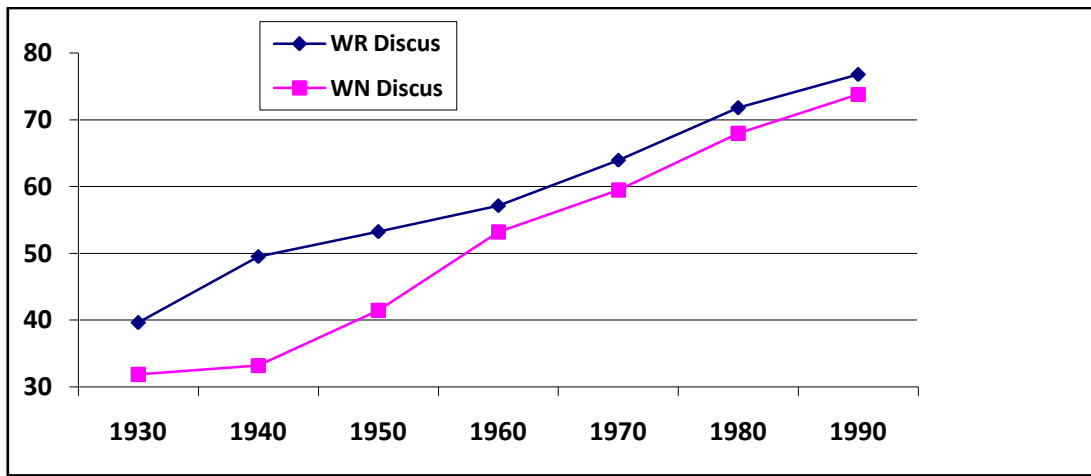


Graphic no. 2 Evolutions of national records to discus throw

Below we present evolution of comparative graphics world and national records.



Graphic no. 3 Evolutions of records discus throw man



Graphic no. 4 Evolutions of records discus throw woman

### Conclusions

- The rate of progress overall performance is increased by more than 20 m. between world and national record in men, the first hypothesis remains unconfirmed;
- The difference in the rate of annual performance improvement was confirmed to be less than 0.25 cm. with one exception in world record;
- Mode of the Romanian and foreign athletes ages differ by more than 1 year, the third hypothesis remains unconfirmed;
- Hypothesis on height and weight of Romanian and foreign athletes could not be calculated because lack of data on Romanian athletes.
- For the final selection of high performance sport in order to obtain comparable results with at least one European final, athlete must constantly throw over 63 m. for men and women.
- Model in terms of age, height and weight should be as follows: age 22-23 years, height 185 cm., weight 105 kg. at men and 23 years, 180 cm., 86 kg. at women.

### References

- [1]. Bompa, T.O., 2001, Teoria și metodologia antrenamentului sportiv. Periodizarea, C.N.F.P.A., București, 17-22.
- [2]. Cordun, M., 2011, Bioenergetică și Ergometrie în Sport, Editura CD Press, București, 87-110.
- [3]. Holdevici, I., Epuran M., Tonița F., Psihologia sportului de performanță. Teorie și practică, Editura FEST, București, 244-270
- [4]. Petrescu, T.; Sabău, E.; Gheorghe, D., 2006, Atletism curs de bază, Editura Fundației România de Mâine, pag. 35-40; 54-60; 129-133.
- [5]. Gheorghe, D., 2005, Teoria antrenamentului sportiv, Editura Fundației România de mâine, pag. 119-130
- [6]. [www.iaaf.org](http://www.iaaf.org)
- [7]. [www.sports-reference.com](http://www.sports-reference.com)

# STUDY ON POTENTIAL MOTOR SKILLS PHYSICAL EDUCATION AND SPORTS, 1 YEAR STUDENTS, COMPARED WITH STUDENTS OF THE 1 YEAR PHYSIOTHERAPY STUDENTS

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**Abstract** We wanted this study to emphasize the differences in motility plan the two of our faculty study programs (Physical Education and Sports, Physical Therapy and Special Movement). We were more interested and if discipline curriculum Athletics (especially practical lessons) may lead to the development of students physical capacities given, and differentiations within teams starting from 1 year. For this, after initial testing, students going through practical lessons in the curriculum, we proceeded to a final test at the end of browsing discipline. The two datasets were compared and the resulting analysis and conclusions.

**Key words:** *Motor skills, Speed, Somatic, Strength.*

## Introduction

We questioned college students testing our willingness to check their level of physical training which have proposed to address the two programs of study. Of course it was interesting to find out how discipline changes produced Athletics bodies, most of them in the process of growth and development [1]. Samples proposed to be taken have focused on driving qualities, which are only part of the complete evaluation of exercise capacity, which should add some field samples and laboratory [2] particularly relevant for proper full image exercise capacity.

Assumptions:

- " *There are marked differences between general physical training of students at the Physical Education and Sports program and Physical Therapy program, differences are found in the General Plan of Movement* "

- " *Despite Athletics discipline curriculum is different in content and requirements, this contributed to improvement them movement opportunities for both programs students.* "

## Materials and methods:

*Material conditions:*

As mentioned above, the samples were simple and therefore investigative equipment was also common. Thus, we used the electronic timer, metric tape, and 2 kg medicine balls. Data recording for data storage and for interpretation and graphical representation [3], etc., were also used in the fitting software and personal computers.

*Research methods used:*

We began our study with a careful study of the bibliography (literature review), which allowed us real data reporting different patterns of age subjects. Then we applied direct testing method were produced concrete data with which to operate later. The next method used was the method we conducted comparative study with a comparison between the initial and the final tests. Statistical and mathematical methods and I.T. led to the revealing of results that will be communicated in the future.

## Conduct of the experiment:

To reveal the assumptions we considered testing a large number of students (about 300) of the first year of

both programs of study in particular. We decided to test all first year students with athletic exercises as control samples exercises that we think are relevant to overall driveability students. Thus, we proposed that the test to be conducted over two years of study, during which Athletics is reflected in the curriculum (first and second year Physical Education and Sports , and the first year Physiotherapy.)

## Place:

To ensure optimal and equivalent test, data collection was performed at the sport of Physical Education and Sports Faculty where lessons were held and the related program of study. This location allowed us to establish continuity between preparation during practical lessons and tests themselves.

## Control samples:

Control samples were determined of the simplest, with a low tech, and does not require special materials or conditions prior learning and data collection to be performed easily without the use of sophisticated equipment. Choice tests can be part of your luggage whenever testing physical education teacher, and a coach [4], regardless of physical education or training that they are subjects.

### To test the speed of movement:

- *Running speed 30 m free standing home. (X, XX sec.)*

### To test the speed force regime (expansion legs).

- *Jump to length on site. (X, XX m)*

### To test the speed force under the upper limbs (strength flinging higher).

- *2 kg medicine ball throw. two hands by flinging overhead. (XX, XX m)*

## Conduct of the study:

As time duration were required four semesters and test periods were included in Modules 1 and 4 of those years of study, modules that allow working outdoors. The samples were carried out every day by one set at the end of the teaching lessons. Along with the indicators described above we have interested subjects age, sex and their membership Physical Education and Sports study program or Physiotherapy.

According to data collected were able to ascertain the following:

Memberships curricula (Physical Education and Sports or Physiotherapy)



Thus, 120 subjects were from Physical Education and Sports. 87 boys and 33 girls, 72% and 28%, respectively (Chart 1)

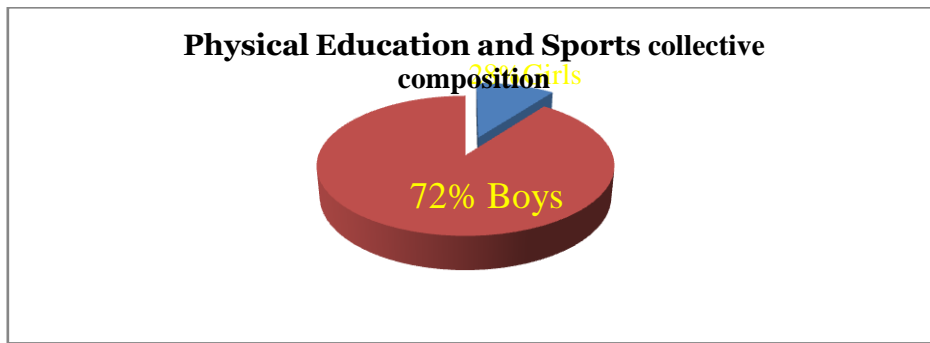


Chart No. 1 Percentages boys / girls Physical Education and Sports

180 subjects were from physiotherapy and Special Motion, 65 boys and 115 girls, 36% and 64% respectively (Chart 2)

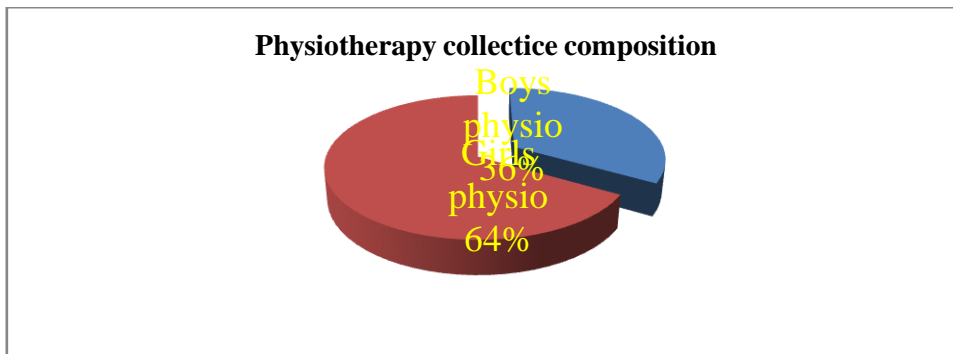


Chart No.2 Chart Percentage Percentage of girls / boys Physiotherapy

Sex of subjects:

153 boys and 147 girls, 51% and, respectively 49%. (Chart 3)

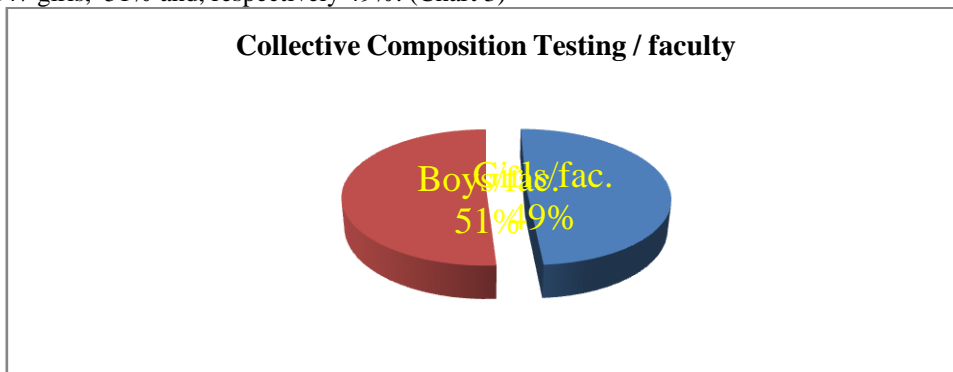


Chart no. 3 percent boys / girls / college

Age of subjects

Ranging between 18 - 42 years

Running speed 30 m with free standing start (sec.)

**INITIAL TEST**

Saved times was from:

**3.77 to 4.98** Physical Education and Sports boys and

**3.88 to 5.79** boys Physiotherapy

**4.26 to 5.88** Physical Education and Sports girls and

**4.64 to 6.75** Physiotherapy girls

**FINAL TEST**

Saved times was from:

**3.70 to 4.18** Physical Education and Sports boys and

**3.38 to 5.00** boys Physiotherapy

**4.12 to 5.23** Physical Education and Sports girls and

**4.64 to 6.11** Physiotherapy girls

*Jump to length on site. (X, XX m)*

**INITIAL TEST**

Lengths of jumps were performed from:

**2.77 to 1.92** Physical Education and Sports boys and

**2.62 to 1.50** boys Physiotherapy

2.27 to 1.40 Physical Education and Sports girls and  
2.22 to 1.02 Physiotherapy girls

#### FINAL TEST

Lengths of jumps were performed from:

2.82 to 2.02 Physical Education and Sports boys and  
2.50 to 1.95 boys Physiotherapy

2.20 to 1.68 Physical Education and Sports girls and  
2.22 to 1.45 Physiotherapy girls

*Throwing Medicine Ball (2 kg.) Before flinging  
overhead by two hands (m)*

#### INITIAL TEST

Throws lengths ranged from:

15.32 to 9.15 Physical Education and Sports boys and  
from 16.45 to 6.68 boys Physiotherapy

9.90 to 5.83 Physical Education and Sports girls and  
12.40 to 4.46 Physiotherapy girls

#### FINAL TEST

Throws lengths ranged from:

15.00 to 11.05 Physical Education and Sports boys and  
from 16.54 to 8.78 boys Physiotherapy

11.95 to 8.13 Physical Education and Sports girls and  
12.40 to 7.76 Physiotherapy girls

#### Analysis and interpretation of data:

The sample 30m. speed running, the boys at Physical Education and Sports were presented better than peers Physiotherapy (from 3.77sec. to 3.88sec.), and girls also better, (4.26sec. to 4.64sec.). In the final testing on the same sample, boys Physical Education and Sports progresses from 3.77sec. to 3.70sec. and the Physiotherapy colleagues from 3.88sec. to 3.38sec. At the same sample were girls from Physical Education and Sports progress from 4.26sec. to 4.12sec. and that of Physiotherapy stagnating at 4.64sec.

Continue to test the long jump place Physical Education and Sports boys progress from 2.77m. to 2.82 m. is more obvious than those of the Physiotherapy of 2.62m. to 2.50 m. un even record a setback.

At the last stage, that of throwing a medicine ball 2 kg. overhead boys Physical Education and Sports decrease from 15.32m. to 15.00 m. and Physiotherapy boys increased from 16.45 to 16.54 m. The girls of the Physical Education and Sports increases they performance from 9,90m. to 11, 95m. and in the Physiotherapy it stalled at 12.40 m. The cause of the stagnation and decrease has emerged from different content of practical lessons from the two programs of study.

From data centralization as well as their interpretation, have revealed the following:

- Physical Education and Sports subjects had initial testing devices than the best results from Physiotherapy (except throwing medicine ball).

- Final testing they brought individual progress of the bottom of the ranking, the peaks remain constant.

#### Discussion:

Following those findings, we can say that the physical training of students from the two programs which we studied was a mid-level as shown in the initial tests.

Later, during the cycles of lessons followed, the situation has improved properties due to athletics exercises, and of athletic events with particularly formative [6], but also due to browsing and other practical disciplines of plan education.

Athletic exercises are valuable and useful in the development of basic movement skills, contributing substantially to the health and strengthening the body[7].

#### Conclusions:

In the light revealed above, we can say that indeed:

- "There are marked differences between general physical training of students at the Physical Education and Sports and Physical Therapy program, differences are found in the General Plan of Motricity."

- "Despite Athletics discipline curriculum is different in content and requirements; this contributed to improvement them movement opportunities for both programs students."

#### References:

- [1]. Ifrim, M., (1996), Antropologie motrică, Publisher Științifică și Enciclopedică, București, p 26-30,74-79
- [2]. Drăgan, I., și Colab. (1994) Medicina sportivă aplicată, Publisher Editis, București, p 251-269
- [3]. Nicu, A., (1994), Antrenamentul sportiv modern, Publisher Editis București, p.318-321
- [4]. Plocon, E., Tatu, T., (2001), Atletism, Publisher Fundației României de Măine, București, p 65-66
- [5]. Plocon, E., (2001) Metodica predării exercițiilor de atletism, Publisher Fundației României de Măine, București, p.71
- [6]. Roman, D., Rugină, G., (2003) Metodica predării exercițiilor de atletism, Publisher Fundației României de Măine, București, p.102.
- [7]. Petrescu, T., Gheorghe, D., Sabău, E., (2006) Atletism curs de bază, Publisher Fundației României de Măine, București, p. 27

# STUDY REGARDING COORDINATIVE SKILLS DEVELOPMENT IN THE GAME OF HANDBALL

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**Abstract:** This study reveals the importance of coordinative abilities in the game of handball and how they can influence athletic performance. The purpose of this study is to highlight the methods that were used to increase the level of coordinative capacity development in the game of handball, but also for their evaluation. In this study were involved a total of 30 athletes, handball players, aged between 10 to 12 years. Regarding the results interpretation it has been used the graphical method of analysis, and the classical method graphical representation. Graphical method of analysis involves the results graphical representation taking into account the two status indicators: the position relative to group average and the position relative to official standard. The results demonstrated the importance of coordinative abilities development regarding the increased performance in the game of handball.

**Keywords:** *coordinative ability, graphical method of analysis, handball, training*

## Introduction

Sport is considered one of the most dynamic social activities that has as its major objective the improvement of the human being. Regarding this aspect, different researchers conducted permanent analysis and prognosis to highlight its evolution trends. [1,2]

Sports science is constantly evolving. Scientific research results have a major influence on practice. In professional sports, physical training of athletes involves a long process that takes place throughout sport life. [3]

It is assumed that the evolution of sport will require more versatile players, which means that they will have to be able to perform two or more play posts. [4]

For the overall player quality it is very important how many and what kind of tasks s/he will be able to perform, less counting the primary position. Each individual contribution in a team is very important, but

beyond that, victory returns to well-composed team, as a whole group where collaboration is the key to success. [5]

## Materials and methods

It is assumed that the coordinative abilities of young athletes can make significant improvements regarding the quality of handball game, and also in terms of improving sports performance.

Research methods included in this study were: literature study, pedagogical observation, testing method, statistical and mathematical method, the method of graphical representation and graphical method of analysis.

Below is presented the analysis method that will be applied on a group of children which are included in handball selection group. This method will provide a chart with two status indicators for children: average position and RHF results position divide the section into from 4 quadrants:

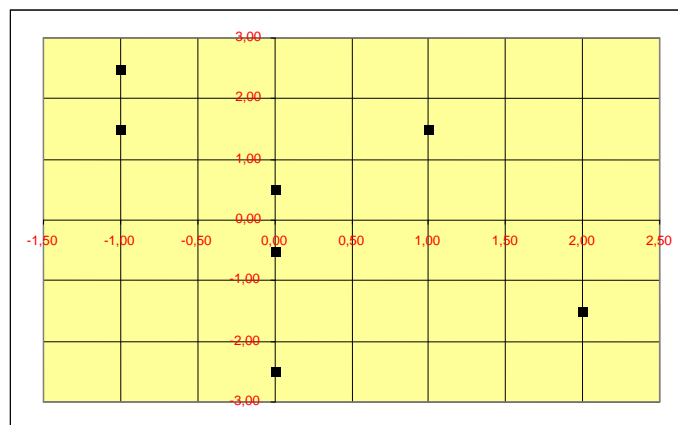


Image 1. Graphical analysis model [6]

- In the upper left quadrant will be represented children results situated above group average, but not enough for RHF standards;
- Upper right quadrant represents children results situated above group average and also equal to RHF standards;
- In the lower left quadrant will be represented children results situated immediately below the group average who failed to obtain the RHF standards;
- Lower right quadrant will represent children results who failed to achieve the group average any optimal outcome in any RHF given test. [7]

## Results and discussions

The table below shows the players results at the 7 tests.

Table 1. Results obtained for the applied tests

Nr. Cart.	Name and Prenames	HT (m)	Dribbling 30m (sec)	PCT (cm)	MT (grade)	BT (sec)	ST (sec)	DTC (sec)
1	I. A.	18,75	6"8	+48	200	6"5	21"82	7"15
2	S. A.	19,2	6"51	+25	250	7"5	21"00	6"88
3	T. G.	18,85	6"57	-32	240	6"8	21"48	7"15
4	P. I.	19,25	6"53	+28	250	7"2	21"83	7"19
5	D. O.	19,8	6"42	-10	320	9"2	21"39	7"10
6	A. D.	19,85	6"40	-7	330	9"6	21"40	6"93
7	P. S.	19,35	6"55	+15	270	8"	21"38	7"21
8	G. M.	19,4	6"45	-20	280	8"8	21"35	7"38
9	T. A.	18,8	6"75	+39	230	6"5	21"60	7"25
10	B. E.	19,35	6"44	+12	290	9"	21"00	6"89
11	R. M.	19,8	6"37	-5	240	9"9	21"84	7"18
12	A. R.	19,4	6"42	-13	280	8"9	22"10	7"35
13	A. C.	19,2	6"49	+18	270	8"3	21"70	6"95
14	M. A.	19,75	6"41	+5	320	9"7	21"84	7"32
15	T. I.	19,7	6"45	+3	340	9"9	21"71	7"20
16	S. C.	19,95	6"33	-2	340	10"	20"99	6"90
17	G. O.	19,3	6"46	+13	280	8"7	21"00	6"95
18	P. D.	19,5	6"4	+8	310	9"5	22"00	7"19
19	D. R.	19,4	6"42	-10	310	9"4	21"40	7"34
20	C. C.	19,1	6"51	+25	260	7"7	21"49	7"55
21	C. B.	18,85	6"7	+35	240	6"7	20"98	6"87
22	P. A.	19,5	6"45	-12	290	9"	21"88	7"33
23	G. S.	19,55	6"34	+8	330	9"8	21"30	7"50
24	R. C.	20	6"32	+2	340	10"	21"01	6"91
25	A. P.	19,4	6"39	+10	300	9"3	21"91	7"55
26	T. C.	19,5	6"43	+14	290	9"1	21"39	7"40
27	C. O.	19,35	6"48	-18	270	7"9	22"01	7"58
28	M. C.	19,25	6"60	+29	250	7"	20"99	6"89
29	J. M.	19,3	6"41	-13	280	8"9	21"28	6"92
30	E. I.	19,45	6"38	+7	300	9"6	22"02	7"50
Average		19,41	6"47	16,20	285,83	8"61	21,54	7,19
RHF values		20	6"30	*	**		21	6,90

HT = handball throwing, PCT = psychomotor coordination test, MT = Matorin test; BT = balance test; ST=Shifting triangle; DTC= dribbling through cones – 30meters;

\* 0-10 - very good, 11 to 30 - well, 31-50 - satisfying; 50 – unsatisfying

\*\*180-270 - satisfying; 270-360 - well, more than 360 - very good

Given graphics representation we can make an analysis of results obtained from initial subjects' tests, in order to classify future athletes as it follows:

- Athletes who have achieved results above group average and equal to RHF recommended standards are placed in the upper right quadrant. Those children are recommended for sport performance.

- Upper left quadrant represent the athletes that obtained results above group average but failed to obtain the results given by RHF. Those athletes will be tested in a further evaluation after a training period to see if the sports performance is increased.

- The lower left quadrant represent athletes who obtain lower results than the group average value. We will follow their evolution during their training period.

- In the lower right quadrant are represented athletes who failed to achieve results for sports access. For those children we recommend the sport, but not handball sport performance.

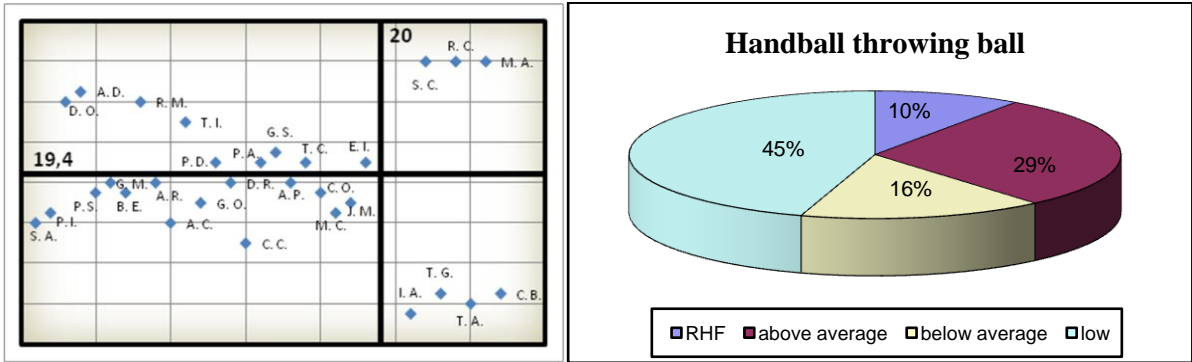


Image 2. Graphical representation for Handball throwing ball test

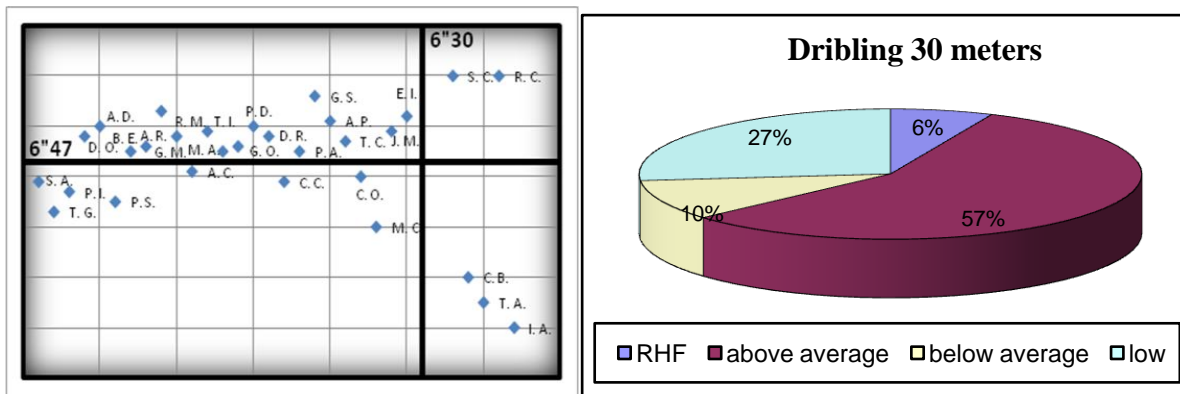


Image 3. Graphical representation for Dribling – 30 meters test

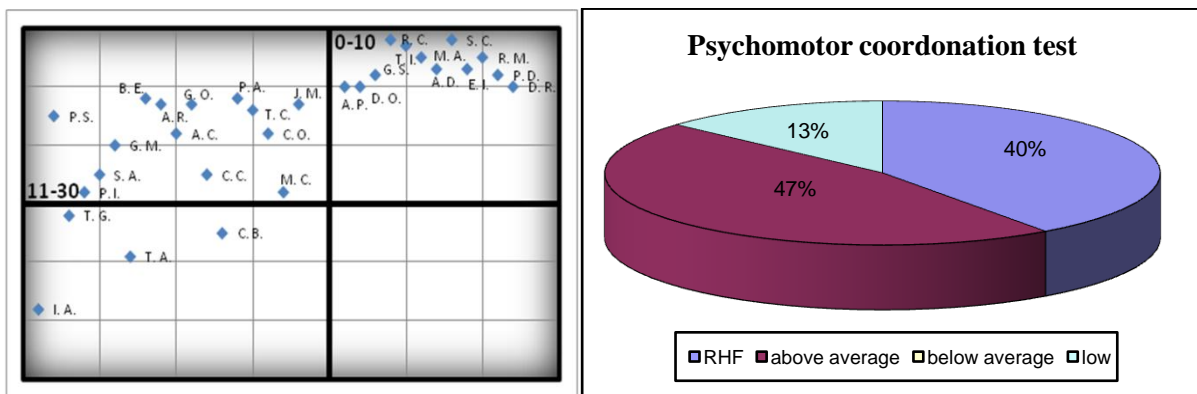


Image 4. Graphical representation for Psychomotor coordination test

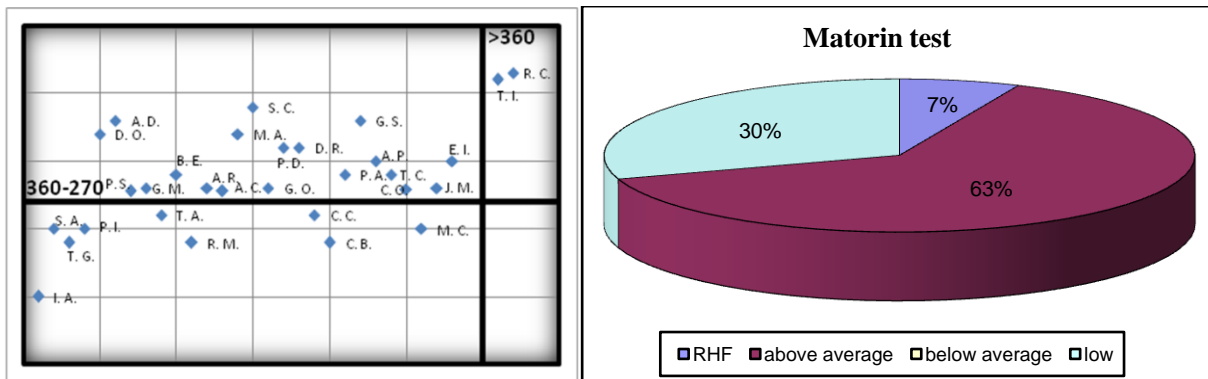


Image 5. Graphical representation for Matorin Test

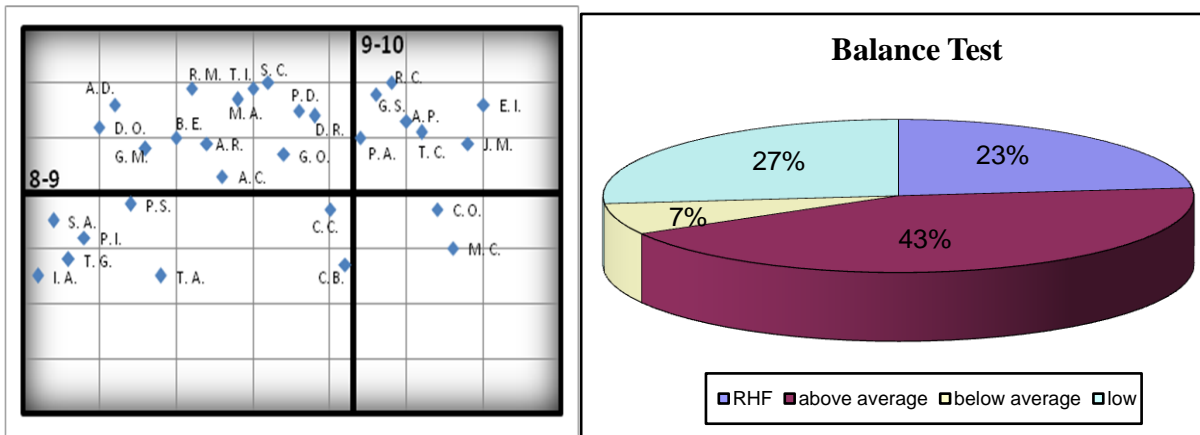


Image 6. Graphical representation for Balance test

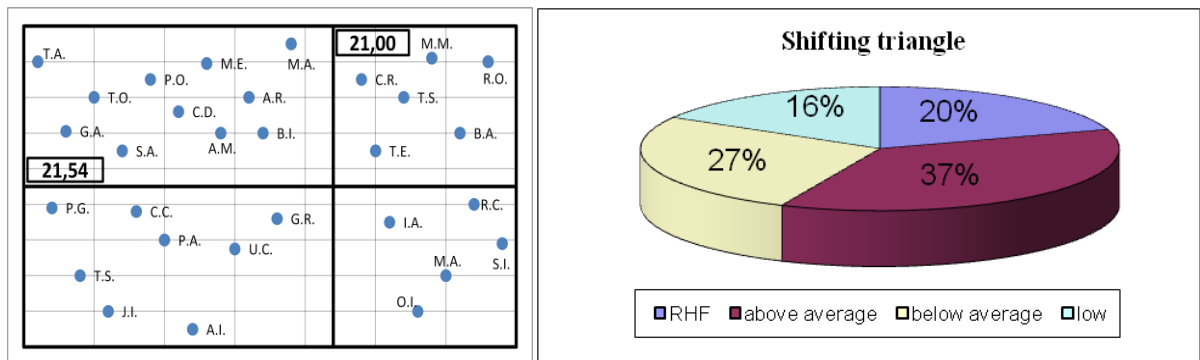


Image 7. Graphical representation of Shifting triangle test

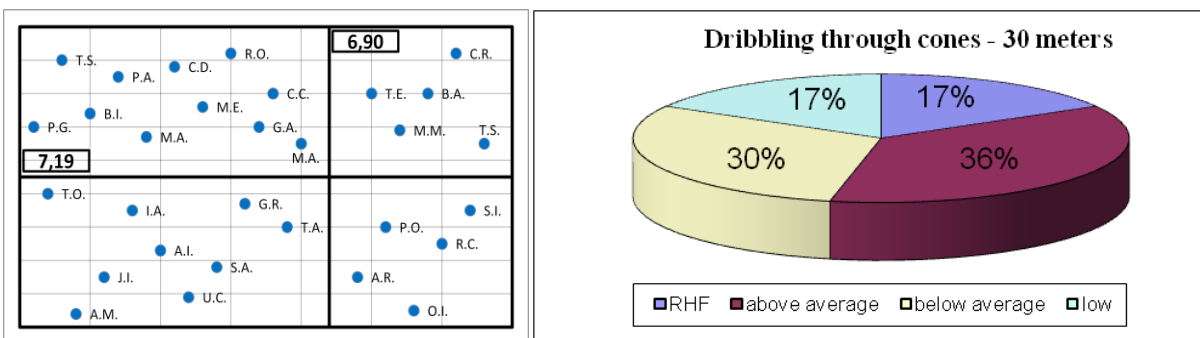


Image 8. Graphical representation for Dribbling through cones – 30 meters test

Based on results obtained in the table 1, we can make an analysis of the initial testing for primary children selection for handball in order to classify future handball athletes taking into account the coordinative abilities development level.

Athletes placed in the upper-right quadrant are those who achieved results above average, therefore they are children who can access the performance group.

For those athletes who achieved results above the average group and failed to obtain RHF results and are included in the left-above quadrant, we recommend another test applied after a certain training program, to see a further evolution of the sports performance.

The left - below quadrant represent athletes who failed to achieve extraordinary results and we will follow their progress during several training programs.

Right - below quadrant are athletes who failed to achieve results for sports access. For these children we

recommend the sport, but removed from group performance.

**Conclusion**

From the above represented graphs we can quickly highlight an athlete's performance on the tests that we and RHF proposed so that it can determine the training level of selected athletes from the perspective of obtaining sports performance regarding coordinative abilities development level.

The graphical analysis method can be repeated after a training period in order to highlight athletes' progress, but it can also be used to obtain a training evolution in order to select the most capable athletes.

Another advantage consists in classification of competitors for a particular test depending on their performances.



**References**

- [1] Dragnea, A., Teodorescu, S., M., (2002), Teoria sportului, Editura FEST, București;
- [2] Juravle I., (2012), Contribution Regarding Handball Selection Using Graphical Analysis Method, ANNALS OF "DUNAREA DE JOS" UNIVERSITY OF GALATI, FASCICLE XV ISSN – 1454 – 9832 – 2012, p. 82.
- [3] Juravle. I. (2013). Importance of the coordinative abilities development in optimizing the selection process for the elite athletes. Sport & Society / Sport si Societate. Vol. 13 Issue 1. p28.
- [4] Juravle. I., Rata E., (2012), The graphical analysis approach of selected results for handball athletes at the age of 9-10 years, PROCEEDINGS of the 5th ANNUAL INTERNATIONAL CONFERENCE: PHYSICAL EDUCATION, SPORT AND HEALTH, PITESTI, SCIENTIFIC REPORT PHYSICAL EDUCATION AND SPORT, ISSN:1453-1194, VOLUME 16(1/2012)
- [5] Trinić, S., Papić, V., Trinić, V., Vukičević, D., (2008) Player selection procedures in team sports games, Acta Kinesiologica, No. 2, pp. 24-28
- [6] Rață, E., (2007), Prognozarea pregătirii psihomotrice a sportivelor de 14 -16 ani specializate în proba de 50m craul prin aplicarea modelării matematice, Teză de doctorat, Chișinău.
- [7] Pentiuc Șt., Milici D., Pentiuc R., Milici M Unsupervised learning algorithms for decision making support in physical education, proceedings of the First European Conference on the Use of Modern Information and Communication Technologies ECUMICT 2004, Gent.-Belgia, 1-2 April 2004.

## SOCIOLOGICAL STUDIES REGARDING THE POSSIBILITY OF INCREASING THE ATTRACTIVENESS PHYSICAL EDUCATION LESSONS FOR THE STUDENTS OF THE NON PROFILE FACULTIES

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<sup>2</sup>University of Craiova

**Abstract:** The research purpose is to guide students of deadlock by an active lifestyle through movement, directing them and directing them to specific means bodybuilding to develop muscle strength, which will improve the physical condition and will be reflected in better quality of life. The views of students and specialists on the specific use of bodybuilding in physical education lessons can be identified by the questionnaire survey conducted. We developed a questionnaire with questions that refer to the current style of life of the students of the faculties of deadlock, their preferences in relation to specific sports and the possibility of introducing specific means bodybuilding and applied to 50 students. Investigation conducted revealed that the lifestyle of students is an active Tg-Jiu in terms of practicing physical exercise, even if they want to go down the gym more often. Unfortunately, the financial situation and lack of free time are the main reasons that hinder making the move.

**Key words:** *body-building, options, fitness*

### Introduction

Since ancient times, people were concerned about their appearance and have created harmonic and aesthetic ideals, and perhaps no other people like the Greek have not given much consistency and value. The models were for mythical heroes that could not be otherwise than beautiful and powerful, and who then have immortalized in artwork. Mentalities sports and sportsmanship as motivation was extended in many spheres of life, affecting all ages and social classes. The cultural background of these developments, it is understandable that sports today is not only a concern for athletes. He influences the behavior of those who are content to carry sports equipment. A practice your body is no longer considered - as before - just a stupid cult of the body, many studies revealing the benefits of the physical activities.

Examining some definitions, D. Salade,[1] (author emphasizes over 200), outlines some notes characteristic of education in which it differs from other social phenomena and the note, the specificity of physical education on what it is like: nurturing side biological personality, health insurance, quench and development body, protecting individuals from other harmful actions in the environment, the harmonious development of the body.

As the educational process organized nature, physical education is a bilateral process, in whose framework under management specialist subjects undergo systematic in permanent influences consistent with the goals of general education and on improving every stage of physical development and motric capacity. [2] For some, exercise means occupational, school, in the form of lessons and sports activities for others means recreational activities, compensatory restoration psycho-motor and neuro-psychological, optional activities, while others, most means entertainment, leisure, support, emotional participation, encouragement to sports competitions, but also in front of the TV. For other practitioners, exercise is movement as medicine, treatment, recovery, reconstruction, maintenance, paid and led most

specialized personnel. For another class, increasingly more practitioners, exercise means professionalism, business management, organization, training, etc. "[3] The research purpose is to guide students of deadlock by an active lifestyle through movement, directing them and directing them to specific means bodybuilding to develop muscle strength, which will improve the physical condition and will be reflected in better quality of life.

The views of students and specialists on the specific use of bodybuilding in physical education lessons can be identified by the questionnaire survey conducted.

### Methods

We developed a questionnaire with questions that refer to the current style of life of the students of the faculties of deadlock, their preferences in relation to specific sports and the possibility of introducing specific means bodybuilding.

In order to justify the introduction of specific means of bodybuilding in the physical education lesson students of faculty Tg.-Jiu deadlock, a survey found appropriate through conversation and questionnaire method that will provide useful information for good conduct research.

Thus, during May-June 2013 were interviewed and included in the sociological survey 50 male students from the faculties of deadlock, which have been trained to complete the questionnaire. Of the 50 students included in the survey, 35 (70%) were aged 18-20 years, 10 (20%) were aged 20-22 years, and 5 (10%) were over 22 years.

None of the students do not practice or have practiced any sport performance "no" answer is 100%.

- The question aimed priorities in an active life, students have ranked first entertainment, with 76 percent, followed by 12 percent of professional activities, sports activities 8 percent and 4 percent other.
- As noted, students do not consider sports as important in an active life, ranking them second to last in the rankings.

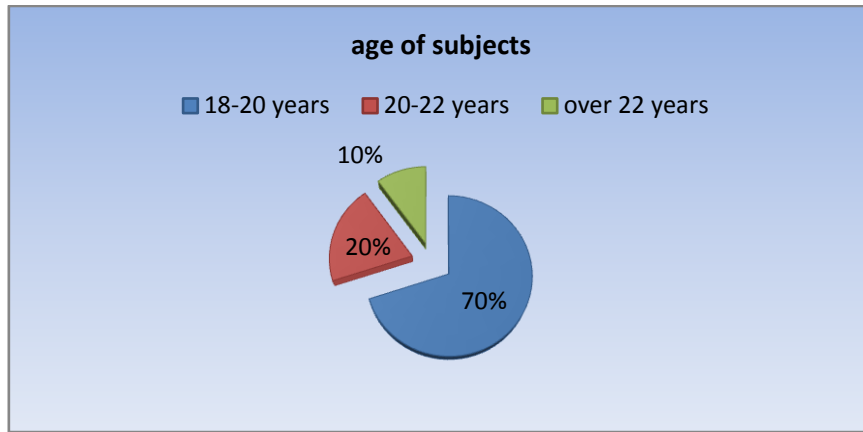


Chart 1. Priorities in an active life

Respondents who practice regularly exercise are the number of 18 (36%), while 32 students (64%) ticked the answer "no." Of the 50 students, 2 (4%) practical exercise daily, 16 (32%) weekly, and most (32) do exercise occasionally. As to why that would determine the practical exercise, the majority (64%) stated that a particular muscle shape would be a good motivation, 14% stated that physical and mental wellbeing should be a good reason 14% would make sport for socializing and another 10% have checked others.

Table 1. Students' motivation to practice exercise

No.	Questions	Ways of answer	Numbers of answers	Percentage
	What would motivate you to do exercises?	Physical and mental wellbeing	7	20%
		Socialization	7	14%
		A special muscle shape	32	64%
		Others	4	10%
	Total		50	100%

Ask the frequency of physical education classes, the majority (30) have a 80-100% attendance, 30 hour attendance below 50%, however 14% are medically exempted.

Students say that only 8 of them are in school holidays periods or in session, the rest of practicing exercise only in the classroom. Ask if you regularly attend a gym, eight said they could, while 42 say they do not go to such a room.

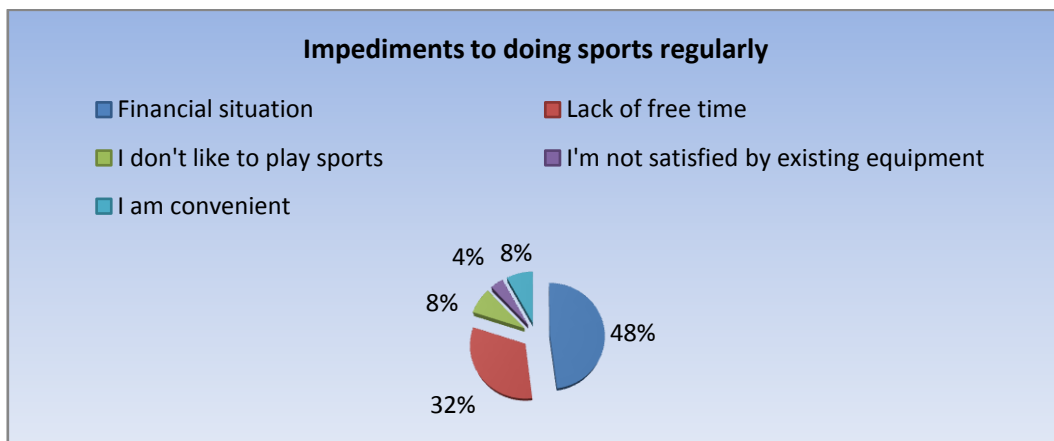


Chart 2. Impediments to doing sports regularly

Among the impediments encountered in the sport often the first place is the financial situation at 48% of students, followed by lack of free time for 32% of these, 8% are comfortable, 8% do not like to do sports and 4% did not are satisfied with the existing equipment.

Of the options presented to students regarding the introduction of new disciplines in physical education class, 80% preferred bodybuilding, tennis field and 12% 4% each dance, aerobics and chess.

Their options u probably influenced by the fact that the University has well equipped gym with professional equipment and this should resolve the burden of paying a subscription to another room.

Table 2. Students options regarding sports disciplines

No.	Questions	Ways of answer	Numbersof answers	Percentage
	Which of the following activities you'd like to practice in physical education classes, which are not currently practicing?	Dance	2	4%
		Bodybuilding	38	80%
		Aerobic	2	32%
		Chess	2	4%
		Ping-pong	6	12%
	Total		50	100%

Students believed that following the introduction of bodybuilding in physical education class, 34% will have a well-defined muscles, 22% will experience a decrease in body mass, 16% will have a better condition and 12% will be fun.

All students enrolled in the survey states that inclusion in physical education classes of her favorite disciplines can enhance the attractiveness of the lesson and thus his passion for movement can be improved.

#### Discussions

The overall objective of physical training is to develop skills and training biopsihomotrical students' ability to act on them in order to permanently maintain optimal health status, to ensure a harmonious physical development and manifestation of a positive driving ability and social insertion.

Most studies concerning the human body reshaping by means of physical education and sport mainly refer to females. Contrary to what is assumed that only they are interested in a pleasing physical appearance, social practice reveals a great attraction to a beautiful and healthy body especially among males who populate increasingly more maintenance halls and clubs body.

Investigation conducted revealed that the lifestyle of students is an active Tg-Jiu in terms of practicing physical exercise, even if they want to go down the gym more often. Unfortunately, the financial situation

and lack of free time are the main reasons that hinder making the move.

Introducing cultural disciplines to solve two of the impediments encountered by respondents in the practice exercise namely to facilitate your access to free fitness and physical education lesson solving tasks simultaneously. Also, according to the results of the questionnaire, subjects will outline a well-defined muscles, which will increase their self-confidence, with implications for the whole of them.

Students will gain practical experience to support this belief leisure activities safe and strong incentives that will contribute to the systematic and sporadic no means suggested. They will realize that only through constant practice of lifelong exercise can get all the other benefits of movement - health, a particular posture, good humor, "wellbeing", an optimal weight.

#### References

- [1] Salade, D., 1998, Dimensions of Education, Didactic and Pedagogical Publishing R.A. București, p.25
- [2]Cârstea, Gh., (2000), Teoria și metodică educației fizice și sportului, An-Da Publishing, București, p.198
- [3] Balint Gh., (2009), Sinteze conceptuale în cercetarea științifică din domeniul fundamental de știință: educație fizică și sport,, PIM Publishing, Iași, p.7

## WAYS OF IMPROVING PHYSICAL TRAINING IN TABLE TENNIS

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**Abstract:** The paper aims at confirming certain working programs focused on the force development to tennis players through non-specific means, applying loads equal to the weight of their own body, the partner's strength or light objects. The subjects submitted to the research were tennis players aged between 11 and 12 years. After 3 months, the force at the level of the upper and lower limbs was improved, confirmed through the tests; the differences between testing being statistically significant, to a threshold  $p < 0.001$ .

**Key words:** *table tennis, force, children*

### Introduction

The physical training is an inseparable part of the training process to tennis players regardless the stage of their sports accomplishment. For each period of the year, the main tasks and strategies are set following the multilateral development and determining the premises for the improvement of technical-tactical methods and actions. The physical training represents a complete system of measures meant to provide a high functional ability of the body through a high level of development of basic and specific motor skills, optimum values of the morphofunctional indices, full control of the exercises applied and a perfect state of health.[1] In sports activity, the development of the general motor level is given by the level of physical training which basically indicates the sportsman's potential of completing motor actions on different stages of speed, force, flexibility, endurance etc., achieving thus individual and group actions which belong to the sports technique.[2]

There is a firm interaction in the development process of motor skills. This interaction is positive only when the improvement of a skill influences the improvement of another one. This interaction may also be negative and this is the case when the development of a motor skill blocks another skill. The positive interaction frequently appears during the basic physical training.

The negative interaction is present in the superior stage of the physical training when its specific needs are defined. For example: in table tennis, the force development through free exercises and exercises using dumbbells and reduced weights, positively influences the speed, on the other hand, force exercises employing heavy halteres weighting over 50 kg and gymnastics to different apparatus develop the muscle mass and the tonus to a level meant to limit the speed and the control. The motor abilities specific to the table tennis are: the speed under all forms of manifestation, the control and the endurance. The force is the motor skill which, not so long ago, was considered an important means contributing to the improvement of speed and impulse. The current requirements of the table tennis indicate the need for the development of this motor skill, particularly, when dealing with an evolution of the table tennis which has determined the transformation of force in an essential motor skill (table tennis is considered a sport of speed and coordination) and this fact is due to the current game technique relying on continuous movement and on

more and more powerful strikes, as well as on the fact that force development leads to the improvement of the other skills, and above all, of speed.

Force is considered as one of the most important skill which **highly influences the manifestation of all motor components**. At the level of the body, it is defined as its ability to achieve **efforts based on muscle contraction**.

It represents the ability of overcoming an external resistance or of opposing it by means of the muscle contraction.[3]

In the Physical Education and Sport Encyclopedia [4], the force is defined as "the motor skill able to change the inactivity or the movement state of certain segments of the body or of the whole body". Dragnea A.,[5] considers that force is basically the ability to achieve efforts of overcoming, maintaining or submitting beside an external or internal resistance through the contraction of one or several muscle groups.

### Material and Methods

The optimization of the physical training to tennis players through the force development at the level of the upper and lower limbs. In order to accomplish the research goal, we have submitted the C.S.S. Craiova team to a 3 month experiment; the tested group was made up of 12 subjects (male) aged between 10 and 11, all of them table tennis sportsmen, who performed certain programs focused on force development three times per week.

During the experiment, we have introduced exercises applying weights equal to their own body weight (jumps, pushups, genuflexions, pullups, climbing, exercises for abdominal muscles); - exercises applying external resistance by means of object weight (paddles, rackets, halteres, medicine ball, sand sacks), object resistance (extenders and rubber bands), partner's weight and resistance (in pairs).

The teste performed consisted in:

#### a. Standing long jump

Only one arm balance is allowed for the take off. Two shots are granted and the best shot is registered. The distance between the toe tips (start position) and the heels (landing position). The jumping surface should be smooth and nonslippery. The sportsmen will wear tennis shoes. The result will be written down in centimeters.

#### b. Distance oina ball throwing

The oina ball will be thrown with one arm above the head. Two shots are granted and the best is registered.

**c. Flexed-arm hang on a fix bar**

The bar is grabbed with both palms, arms are flexed at the level of elbows, the chin above the bar, the feet being initially placed on a chair. The chair is removed and, at the same time, the chronometer is set. The trainee should hang, his/her arms being flexed and his/her chin above the bar, as long as possible. If his/her chin touches the bar or falls below its level, the

performance is completed and the chronometer will be stopped. The trainee's head should touch nothing during the performance. For this exercise, there is only one shot and the result is expressed in minutes and seconds.

**Results**

The subjects were tested before and after their participation to the training program, during the general physical training and the pre-competition period.

Table 1 Statistical parameters for the elaborated tests

	Long legs force T1	Long legs force T2	Oina ball throwing T1	Oina ball throwing T2	Flexed-arm hang on fix bar T1	Flexed-arm hang on fix bar T2
<b>Average</b>	193.08	195.08	30	31.91	1.19	1.23
<b>Standard deviation</b>	5.71	5.50	1.41	1.50	0.11	0.12
<b>Variation Coef.</b>	2.95	2.82	4.71	4.71	9.65	9.70

As we saw in Table 1, the force of the lower limbs improved from 193.08 cm to 195.08 cm, the exercise used in our program being very efficient.

As well, one may see an improvement to the oina ball throwing test, the subjects' progress being about 2m. A progress of 5.88 percentages is registered by the force at the level of upper limbs, proved by the arms maintained during the isometric contraction. The group is homogenous, the variation coefficient indicating low values to both testing.

The exercises applied had an influence on the force at the level of both upper and lower limbs, the final testing revealing better results as compared to those achieved during the initial testing.

Table 2 Pair Simple Test

Pair Sample Test	Pair Differences					t	df
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference			
				Lower	Upper		
length1 - length2	-2.00	.996	.287	-2.71	-1.4	-9.38	11
ball throw1 – ball throw2	-1.91	.668	.193	-2.0	-1.1	-9.93	11
hang1 - hang2	-.039	.009	.002	-.04	-.03	-14.16	11

Applying the Ttest (table 2), we may notice the t values (-9.38, -9.93, -14.16), the freedom degrees (11) and the bidirectional level of significance ( $p < 0,001$ ). As the significance level is 0.000, the difference between the two testing is highly significant. The trust interval does not pass through the 0 point, the difference is statistically significant for a bidirectional level of significance of 5%.

**Discussion**

During the table tennis player's physical training, one may observe not only the improvement of the force to the level of muscle groups directly involved in the performance of technical elements, but also the body balanced development, therefore, the arm and the unskilled half of the thorax whose muscles are less demanded during the specific effort.

The table tennis player's physical training is focused on dynamic exercises applying low or average load, the method involving repeated effort being highly applied. The isometric exercises are used as an additional means, being performed under the form of maximum constriction lasting between 5 and 6 seconds.



**Conclusions**

Force development became an essential aspect in the table tennis performance, seen as a sport of speed, skill, flexibility and mobility. The evolution of the table tennis determined the transformation of force into a basic motor skill due to the current game characteristics involving continuous movement and more and more powerful strikes, as well as due to the fact that force development generates premises for the improvement of other motor skills.

**References**

- [1]. Dragnea A, (1996), Antrenamentul sportiv, Didactică și Pedagogică Publisher, R.A., Bucharest, p.163
- [2]. Simion, Ghe., Mihăilă I, Stănculescu G., (2011), Antrenament sportiv. Concept sistemic, University Press Publisher, Constanța, p.118
- [3]. Rață, G. Rață, (2006), Aptitudinile în activitatea motrică, EduSoft Publisher, Bacău, p.183
- [4]. MTS, (2002), Enciclopedia educației fizice și sportului din România, Aramis Publisher, Bucharest, p.176
- [5]. Dragnea A, (1996), Antrenamentul sportiv, Didactică și Pedagogică Publisher, R.A., Bucharest, p.202

# PARTICIPATIVE MANAGEMENT WITH APPLICATIONS IN SPORT

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**Abstract:** Participative management is a modern management system consisting of exercising the specific management processes by attracting some participatory governing organisms and / or a large number of people: employees, partners and volunteers.

Participative management involves the implementation of collective leadership as a result of the significant changes that have occurred in the last period of time, especially in the economic sector but also in other fields of human activity.

One of these areas is the physical education and sport where the participatory management application is different from the case studied extensively, that of the organizations specific for the economic sector [1,2].

This paper presents the concept of participative management in the first part and, in the second part, an analysis of participatory management applied in the field of sports and recreational sporting, namely public sports events.

**Keywords:** *participatory management, sports, recreational sports events.*

## 1. The concept of participative management

Management has crystallized as a science with the development of competitive company generated mainly by globalization and technological progresses that have led to the increase of complexity and modern enterprises and organizations' size [3].

Într-un astfel de context, pentru abordarea și dezvoltarea unei activități care să devină competitivă este necesară mai întâi formarea unei viziuni, a unei strategii de dezvoltare și conducere a activităților, ceea ce face obiectul managementului strategic și mai departe de punere în practică a strategiei, ceea ce aparține managementului operational.

In such a context, in order to approach and develop an activity able to become competitive, it is necessary at first to form a vision, a development and leadership strategy, which is the subject of strategic management and on the implementation of the strategy, which belongs to operational management.

Management as a whole can be defined as "the science of management techniques" and until recently it was

regarded as the attribute of the managerial team of a company.

As a result of the increasing complexity of economic factors and of the components of human relationships between members of an organization, in recent years has been felt the need for implementation of the participative management that can be consultative, when using a wide consultation of personnel on various decisional matters, or deliberative, when decisions are made in groups with respect to organizational goals, business and law. [4]

Deliberative aspect of participative management is formal and is ensured by participatory bodies defined by law no. 31/1990, which have well-defined status and tasks, while the advisory (consultative) aspect is informal nature and consists of practices of consultation of staff on decision-making acts initiated by managers at different hierarchical levels. [5]

The rules of implementation and benefits of participatory management are summarized in the representation shown in fig. 1.1.

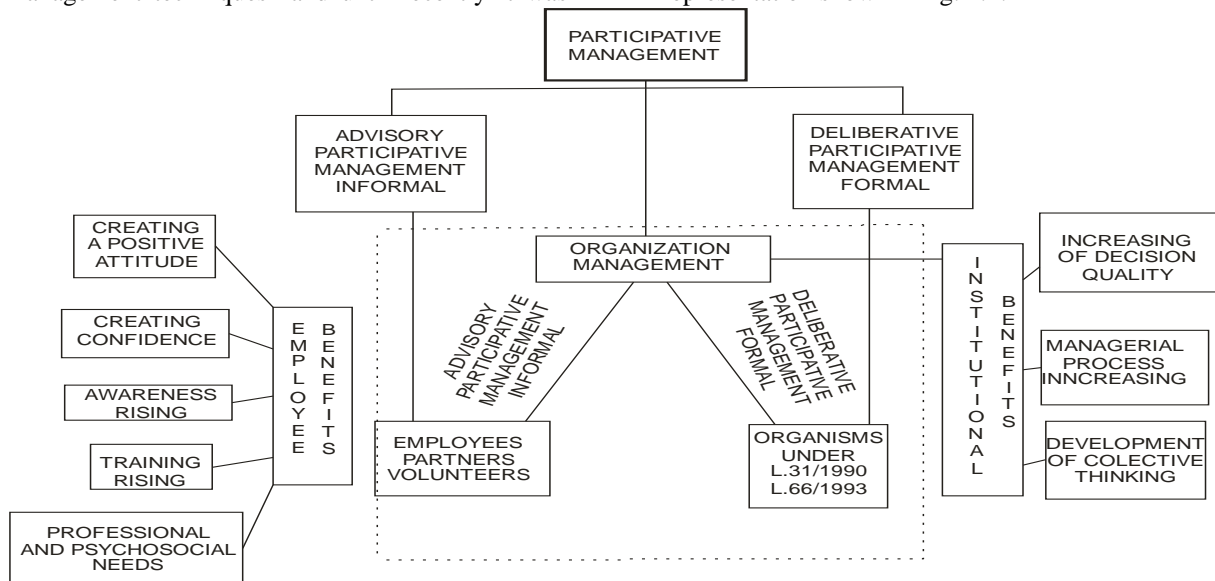


Fig. 1.1 The rules of implementation and benefits of participatory management

As can be observed participative management brings multiple benefits to both institutions and actors participating in collective decision-making. However, there are difficulties materialized mainly in the fact that it is quite difficult to get a common denominator due to the increasing number of participants in decision making process.

## 2. Participative Management in Sport

Sport is one of the areas where participative management may find wide application, some sporting events being impossible to organize without a participative management.

If we consider the typology of sports events shown in Table 2.1, it can be seen that participative management can not be avoided in the case of recreational sporting events.

Tab. 2.1. Tipologia evenimentelor sportive

TYPE OF SPORTS EVENT	PERFORMANCE SPORT		RECREATIONAL SPORT	
	INTERNATIONAL SPORTS EVENTS	NATIONAL SPORTS EVENTS	PUBLIC SPORTS EVENTS	RECREATIONAL SPORTS GAMES
CRITERIA OF DIFFERENTIATION				
TYPE OF COMPETITIONS	OLYMPIC GAMES, WORLD CHAMPIONSHIPS	NATIONAL CHAMPIONSHIPS AND CONTESTS	COLLECTIVE TOURNAMENTS OF CYCLISM, RUNNING ETC	VOLLEYBALL, HANDBALL, FOOTBALL, BASKETBALL
PERFORMANCE LEVEL	HIGH PERFORMANCE	PERFORMANCE AND HIGH PERFORMANCE	NO PERFORMANCE	
PARTICIPANTS	SPORTSMEN IN REPRESENTATIVE TEAMS	SPORTSMEN IN NATIONAL TEAMS	POPULATION OF DIFFERENT AGE	POPULATION WHO PRACTICE SPORT AS ENTERTAINMENT
ORGANIZATIONAL LEVEL	INSTITUTIONAL (FEDERATIONS, NATIONALE AND INTERNATIONALE COMMITTEES)		COUNTY OR MUNICIPAL LEVEL	
METHOD OF ORGANIZATION	UNDER THE PROVISIONS OF REGULATIONS DEFINE BY NATIONAL AND INTERNATIONAL FEDERATIONS		UNDER THE PROVISIONS OF OWN REGULATIONS	
AUDIENCE	ATHLETES SELECTED, LARGE AUDIENCE		VOLUNTEERS	
TYPE OF MANAGEMENT	STRATEGIC MANAGEMENT	OPERATIONAL	PARTICIPATIVE MANAGEMENT	

The participative management applicable for organizing recreational sports events in the two categories listed in Table 2.1 has a number of features, compared to the same type of management practiced within economic-commercial organizations.

It should be borne in mind that the decision for the organization of recreational sporting events is taken at a time (usually around a specific event) by a local body (primary) or county organisms (county council) and the participation several factors belonging to different entities is necessary for achieving the sports project. In this context it is necessary to create participative bodies usually in the form of commissions or committees. Therefore, unlike economic bodies, the status of these organisms is regulated by Law 31/1990 and, in the case of recreational sports events, these bodies must be constituted.

We must also consider that in such a case, the participative management is of deliberative type, without having many legal regulations. The deliberative nature of participative management in the administrative activity during recreational sports events is determined by the fact that participatory bodies involved are mostly commissions or committees rather than individual participants.

For example, in Figure 2.1, is outlined the organizational chart of a virtual recreative sporting event.

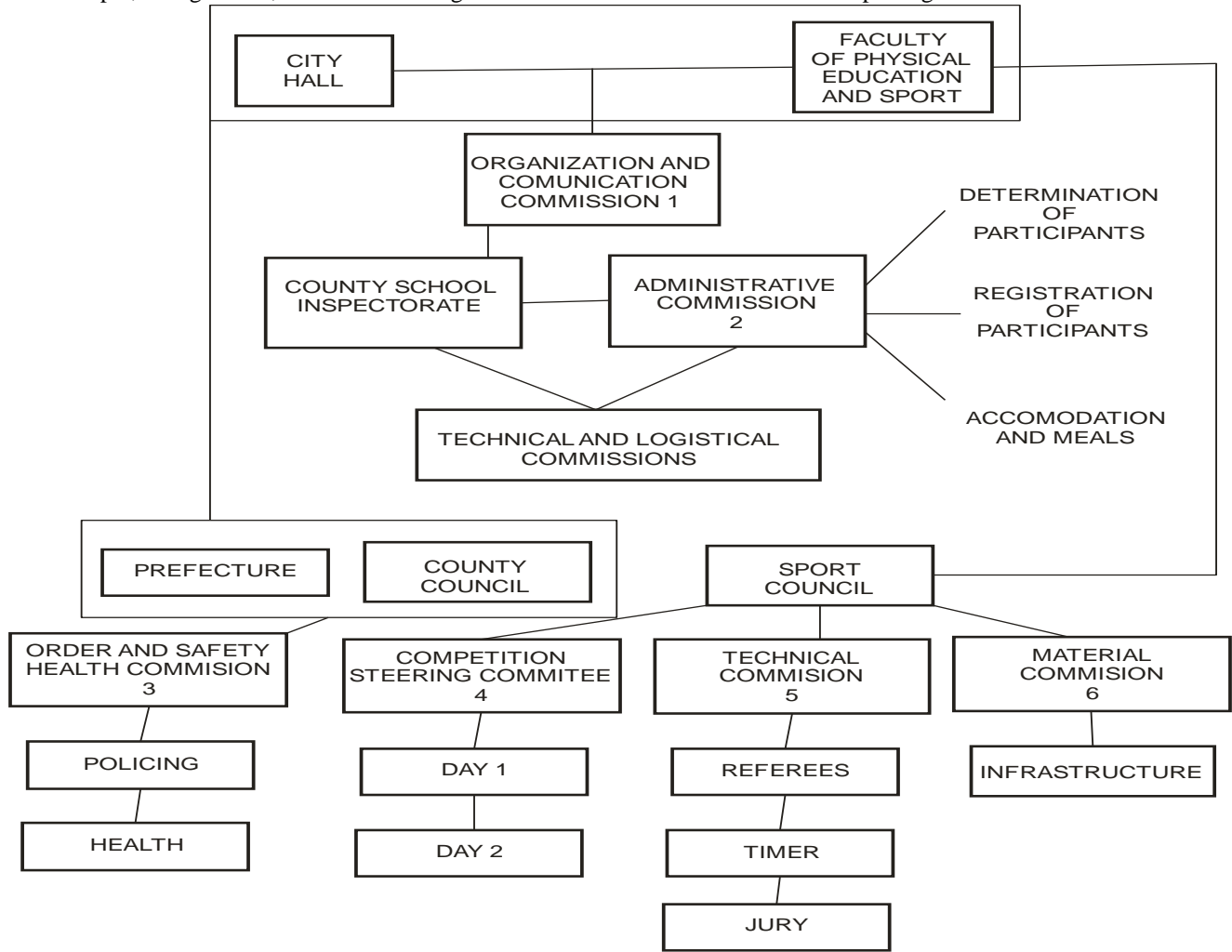


Fig. 2.1. Organizational chart of a virtual recreative sporting event

From the organizational chart we find that six institutional organizations are collaborating for organizing and conducting a sporting event, of which two are designed as organizers, namely the mayor and the local university. The participative bodies are committees made up of participants belonging to the six organizational entities.

In Figure 2.2 is outlined the manner of elaboration of the draft (project) for recreational sports events.

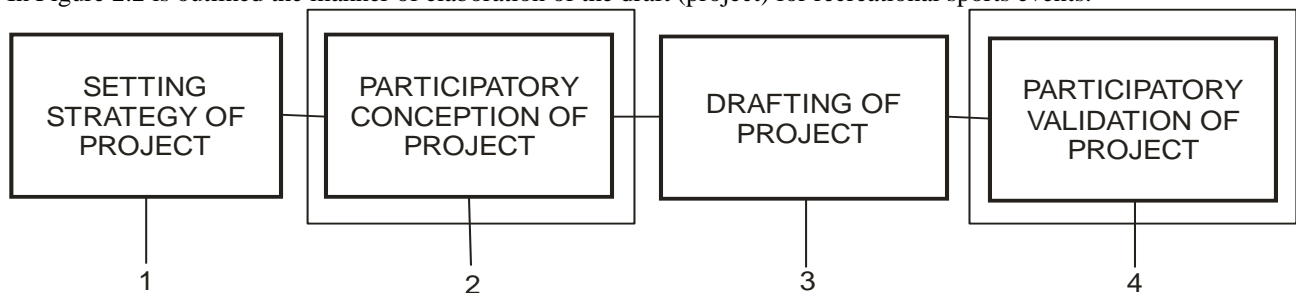


Fig. 2.2. Elaboration of the draft for the recreational sports event

We find that the main role in carrying out the activities during recreational sports events belongs to participative management.

Given the importance of participative management as part of the system of management in sport is useful to introduce in master courses held at the faculties focused on sports this subject for participative management is an important part of management.

**References**

- [1] Lacroix G., Waser A.M. (1999) – *Le management du sport*, Editions d'Organisation Paris, p. 6
- [2] Loret A. (1993) – *Sport et management*, Edition Revue EP.S, Paris, p. 24
- [3] [\\*\\*\\*www.scntube.com](http://www.scntube.com)-management – *Management participative*
- [4] [\\*\\*\\*www.integratedeconsulting.ro](http://www.integratedeconsulting.ro) – *Participative management*
- [5] [\\*\\*\\*www.flowmanagement.net](http://www.flowmanagement.net) – *Participative management advantage*

## PSYCHOMOTRICITY AND ITS ROLE IN PREPARING BEGINNER FENCERS

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**Abstract.** This paper aims to highlight the possibilities of optimization of beginner fencers' training by introducing the games of attention, of segmental and overall coordination to develop their psychomotricity. Thus, for three months, the experimental group (n = 10) had, within each training, work programs of 15 minutes in the structure of which, there were found motion gaming. By applying the program, there were noticed improvements in the execution and reaction speed and as well as the dexterity, certificated by the value of  $p < 0.05$ . So, the use of the the interdisciplinary means in the training process led to better optimize the preparation of junior fencers.

### Introduction

The physical demands of fencing competitions are high, involving the aerobic and anaerobic alactic and lactic metabolisms, and are also affected by age, sex, level of training and technical and tactical models utilized in relation to the adversary.[1]

Harkins, C. developed in 2008 the work "Psychological Skills Manual" which highlighted the role of the fencers' psychomotor training in the use of strategies to be the winner. The work is a manual for coaches and athletes, necessary to the mental skills development.[2]

In 2006, ALBU C presents the psychomotor education that has as orietation the accumulation of behaviors, on which the basic components are built gradually, belonging more or less on instincts, which contribute to a more accurate representation of body movements. They also present action means for education and rehabilitation of psychomotricity through games. [3]

S. Poenaru, recommends a "hierarchy of factors that can affect sports performance achievement" dividing these factors into three categories: important, relevant and less important, the components of psychomotricity belonging to the first category [4].

Fencing is a ballistic dynamic activity requiring both analysis of the trajectory and spatial position of the weapon – foil, épée or sabre – with dynamic balance management based on unceasingly moving situations of high-speed attacks forcing opponents to constant spatial, temporal and situational adjustments. The fencer must manage a double constraint, reacting to the adversary and retaining balance during offensive and counter-offensive actions. [5].

### Material and Methods

The current trends in sports performance show that the specialists in the field are always in search of new means or improving the existing ones, in order to increase sports performance, providing new horizons and more efficient operational strategies based on interdisciplinary research. Therefore, this paper aims to validate certain work programs, with finality in the optimization of the beginner fencers' training by

applying physical and psychomotor training means, specific and nonspecific motion based games to improve the athletes' performance in competitions.

Thus, 20 subjects were selected between the ages of 11-12 years old, who were divided into two groups (experimental and control). The control group was trained as planned with the specific training, the training subjects in the experimental group using multilateral and specific training, with specific means of fencing and means of aerobics and specially selected motion games. The time allocated to the application of the programs was 15 minutes in each workout and was kept constant during the 5 week training conducted.

### The „Ruler to the Wall” Test

There is measured the reaction rate of the dexterous arm, the athlete sits against the wall, with the elbow bent at 90 °, the forearm is horizontal with the thumb toward the wall at a distance of 5 cm. A 40cm ruler is attached, with the graduation from the thumb up. The ruler is supported on the wall and sustained by the examiner, who, in this position, releases the ruler, the athlete having to stop it from falling, as fast as possible, by pressing the thumb on it. The difference in the zero mark of the ruler to the point reached by the ruler will be read. Among the tests, the best result in centimeters will be recorded.

### The Pieron Test

Material:

a) Pieroni Dexterimeter. The device is made up of a metallic maze -shaped rod, the ends of which are fixed in a holder of iron. At one end of the rod, there are lined 10 coins.

b) Timer. The instructions given to the subject: you need to move the 10 coins on the metal maze from the far right to the left. You do the movement of the coins only with the right hand (or left for the left-handed persons), the left hand helping you to fix the holder. You will work as quickly as possible.

Examination procedure: the subject has to work with one hand. Start the timer at the command "Start". There is measured the time for each test. The amount of these records gives the total time.



## Results

### a. Reaction and execution speed (cm)

Parameters	The experiment group		The control group	
	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
The arithmetic mean	18,7	14,9	19,5	17,7
The standard deviation	3,86	2,23	3,47	3,3
Maximum	25	18	25	23
Minimum	14	13	15	14
Amplitudine	11	5	10	9
Coefficient of variation	20,64	14,97	17,79	18,64

Table no. 1. Statistical parameters for reaction and execution speed

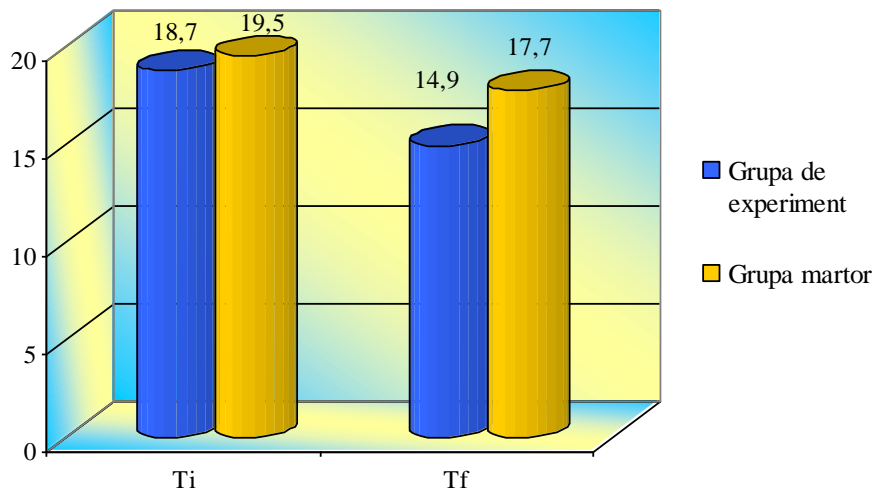


Chart no. 1. Reaction and execution speed - averages chart

*The experiment group* – at the final testing, there is a decrease of 20.32% (3.8 cm) from the initial testing. Applying the Wilcoxon, the test shows that there are significant differences between the averages of two trials ( $N = 10$ ,  $z = 2.81$ , two-tailed  $p = 0.005$ ).

*The control group* – at the final testing, there is a decrease of 9.23% (1.8 cm) from the initial testing. Applying the Wilcoxon, the test shows that there are significant differences between the averages of two trials ( $N = 10$ ,  $z = 2.88$ , two-tailed  $p = 0.004$ ).

Both groups are relatively homogeneous in the final testing, the coefficient of variation with values below 20%.

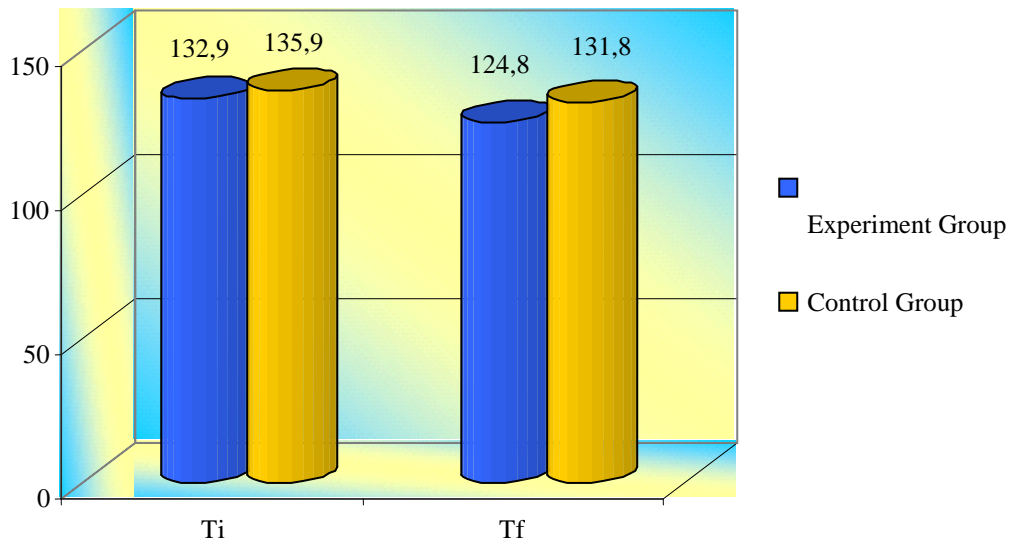
By comparing the arithmetic averages of the two groups, it appears that, in the final testing, the average of the experimental group is lower with 15.82% (2.8 cm) than in the control group, while, in the initial testing, the difference is 4.1% (0.8 cm). Applying the Mann-Whitney in the initial testing, it appears that there are significant differences between the averages of two groups:  $U = 41,5$ ;  $N_1 = N_2 = 10$ ;  $z = 0,65$ ; two-tailed  $p = 0,517$ . In the final testing  $U = 22,5$ ;  $N_1 = N_2 = 10$ ;  $z = 2,1$ ; two-tailed  $p = 0,036$ , it follows that there are significant differences between the averages of the two groups.

### b. The Piereon Test

Parameters	The experiment group		The control group	
	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
The arithmetic mean	132,9	124,8	135,9	131,8
The standard deviation	4,86	4,92	8,21	7,5
Maximum	139	131	150	144
Minimum	126	115	122	120
Amplitudine	13	16	28	24
Coefficient of variation	3,66	3,94	6,04	5,69

Table no. 2. Statistical parameters for the Piereon Test





*The experiment group* – at the final testing, there is a decrease of 6,09% (8,1s) from the initial testing. Applying the Wilcoxon, the test shows that there are significant differences between the averages of two trials ( $N = 10$ ,  $z = 2.81$ , two-tailed  $p = 0.005$ ).

*The control group* – at the final testing, there is a decrease of 3,02% (4,1s) from the initial testing. Applying the Wilcoxon, the test shows that there are significant differences between the averages of two trials ( $N = 10$ ,  $z = 2.88$ , two-tailed  $p = 0.004$ ).

Both groups are homogeneous, the coefficient of variation with values below 10%.

By comparing the arithmetic averages of the two groups, it appears that, in the final testing, the average of the experimental group is lower with 5,31% (7s) than in the control group, while, in the initial testing, the difference is 2,21% (3s). Applying the Mann-Whitney in the initial testing, it appears that there are not significant differences between the averages of two groups:  $U = 38,5$ ;  $N_1 = N_2 = 10$ ;  $z = 0,83$ ; two-tailed  $p = 0,406$ . In the final testing  $U = 22$ ;  $N_1 = N_2 = 10$ ;  $z = 2,079$ ; two-tailed  $p = 0,038$ , it follows that there are significant differences between the averages of the two groups.

#### Discussion and conclusions

In terms of the *reaction and execution speed*, by comparing the results of the two groups, there is shown that the average of the experiment group in the final testing is lower than in the control group 15.82% (2.8 cm), while, in the initial testing, the difference is only 4.1% (0.8 cm), the differences are statistically significant at the threshold of 0.05.

Significant differences for the experimental group were also observed at the Pieroni Test - 5.31% (7s) in the final testing.

The use of interdisciplinary means in the training process led to better optimize of the beginner fencers' preparation, as observed from the results of the tests and motor examinations applied.

The training in fencing becomes truly effective if it permanently attains the two aspects: it forms the physical qualities, the technical and tactical combat skills and constantly improve them; it educates mental qualities and gradually forms the athlete's personality. These two main issues must be considered at each training session when the instructor or coach sets the training goal and objectives and chooses exercises that attain these goals.

The level of psychophysical development, at this stage of age, allows the formation of new motor skills, improving the coordination and speed, providing a fundamental luggage of specific techniques in fencing - this technical training is slowly improved over time if based on a good physical training and on the athlete's skill.

#### References

- [1] Roi, G., Bianchedi D., (2008), The science of fencing, Sports Medicine, vol.38, Issue 6, pp.465-481
- [2] POENARU S., (2001), *Pregătirea fizică a scrimerilor de performanță*, Edit. Printech, București, p.273
- [3] [www.fencing.net/training-tips/mental-training-for-fencing/psychological-skills-manual.html](http://www.fencing.net/training-tips/mental-training-for-fencing/psychological-skills-manual.html) - accesat in data de 14.02.09
- [4] ALBU C., ALBU,A., VLAD T., IACOB I., (2006), *Psihomotricitatea – Metodologia educarii si reeducarii psihomotrice*
- [5] Hepin G et all, (2010), Sensorimotor specificities in balance control of expert fencers and pistol shooters, Journal of Electromyography and Kinesiology, Volume 20, Issue 1, pp.162-169

# ECONOMIC CONCEPTS APPLICABLE TO THE ROMANIAN SPORT INTEGRATED IN THE INTERNATIONAL SPORTS STRUCTURES

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**Abstract:** This paper presents the sports institutional structures, the coexistence between the commercial and non-commercial sector, the state's role in the public funding of sport, and the strategy and decision on this subject in the context of Romanian economic policies. Our country was among the first who joined the international sports structures, while being a founding member of some international sports organizations and federations. Sport at European and global level is coordinated by: the International Olympic Committee, the Association of National Olympic Committees, International Sports Federations and the numerous European Unions of each type of sport.

**Keywords:** *decision, structure, strategy, economics, sport.*

## Introduction

In Romania, sport has its roots deep in history and has undergone influences due to the evolution in cultural, economic and political aspects of society. The great abilities that our athletes have demonstrated over time led the foundation for the development of relations between Romanian sports organizations and international bodies, through these relationships being realized the adhesion of our structures at international sports federations. Romania joins the international sports structures as consequence of the emergence in the twentieth century of international sports organizations and federations. As Gasparini highlighted, in the current state of organization, the sport would somehow be a "product" of the previous successive states. Its configuration contains not only traces of its history ingrained not only in sporting structures (institutions and organizations), but also in the memory of those who participated in its creation (leaders, practitioners, organizers, educators). Schematically, we can consider that sport system includes: private sports organizations (companies, clubs, associations, physical education halls) and public sports organizations (associations, clubs, youth movements, school sports federations), in their organization and management being observed the state's intervention.

## Sport structures

In Romania, before 1989, there was great interest from companies for sports, on the one hand to occupy their workers' free time and on the other to have their own clubs. After 1990, public and private structures coexist and amateur sport is experiencing a downward curve for professional sports. Coverage of sporting events and the multitude of ways that some companies use in acquiring a better image by the help of sport stars cannot however mask the reality, namely that sport remains largely dominated by the public sector. In 2000, Romanian organizations and federations were affiliated with more than 180 international and European organizations and federations and about 30 regional sports organizations (Balkan and Black Sea countries). Also, several Romanian specialists were members individually in more than 10 international professional sports organizations [1]. Our country was among the first who joined the international sporting structures, while being at the same time a founding member of some international sports organizations and

federations. On the other hand Romanian institutions in this domain were affiliated to international scientific organizations: International Council for Physical Education and Sport Science, International Health, Physical Education and Recreation Council, International Society of Sport Psychology, International Association for Sports Information etc.

After the World War II, Romania accedes to the United Nations for Education, Science and Culture, a bridge between us and UNESCO being realized. Democracy won after 1989 has brought along great achievements regarding Romania's relations with international bodies, the Ministry of Youth and Sports being invited to various conferences of European Sports Ministers.

Romania's alignment to international sporting structures has required training specialized personnel to operate according to international rules, and competitions to be conducted according to international regulations in force, while the material base should be in accordance with European and international standards. Regarding the Romanian legislation in the field of sport, the ministry seeks permanently to fulfill the requirements of the European Council and is participating along with ministries from other countries to the adoption of different conventions at European level. Romania had over time an active and constant involvement in the improvement of international sports organizations, in particular through the Romanian Olympic Committee that have made proposals for introduction in the Olympic Games of new branches of sports. The prestige of our country has increased by our athletes attending in international competitions, national sports organizations participating to actions initiated by international bodies, our specialists participating in international congresses, appointing the representatives of our country in the various committees of international sports organizations, and it can fairly be said " We went to Europe" from the sportive point of view. The sporting activity is coordinated by the International Olympic Committee, National Olympic Committees Association, International Sports Federations and the European Union by sport at European and worldwide level.

*International Olympic Committee (I.O.C.)* leads the Olympic Movement in accordance with the provisions of the Olympic Charter. International Olympic Committee was formed in 1894 at the initiative of Baron Pierre de Coubertin and has currently its

headquarters in Lausanne, being a non-profit association with legal status and perpetual succession.

*Olympism* is a philosophy that combines qualities of human body with those of character and spirit, associating sports with culture and education, aiming to impose a way to live in a perfect union of exercise with education of good example and respect for fundamental principles. The Olympic Movement arises from Olympism with the sole aim to forge a more peaceful world, better educating young practitioners in the Olympic spirit which means solidarity, friendship and fair play. *Olympic Solidarity* operates through programs that address:

- Promoting the fundamental principles of the Olympic Movement;
- Developing the technical knowledge of athletes and sports coaches;
- Improving through scholarships of the technical aptitudes of athletes and coaches;
- Training sports administrators;
- Working with various committees of the International Olympic Committee.

Olympic Solidarity is also assisting National Olympic Committees that require support. Olympic Games are competitions for individuals or team and not between countries, and consist of the Summer Olympics and Winter Olympics. *Olympic Congress* is organized by the International Olympic Committee every eight years. It is chaired by the President of the International Olympic Committee and is composed of members and honorary members of the International Olympic Committee, delegates representing the International Federations, National Olympic Committees and organizations recognized by the International Olympic Committee, athletes and various personalities. The purpose of I.O.C. is to promote Olympism by:

- Encouragement, coordination, organization and development of sport and sports competitions;
- Collaboration with public and private organizations and competent authorities to put sport at the service of humanity;
- Ensuring the regular celebration of the Olympic Games;
- Fight against any type of discrimination affecting the Olympic Movement;
- Support and encourage the promotion of sports ethics, the spirit of fair play and the eradication of violence and doping.

*Association of National Olympic Committees* (A.C.N.O.) is a consultative body whose duties relate to the Olympic programs, bringing together Olympic Committees in all countries. *General Association of International Sports Federations* (A.G.F.I.S.) includes 75 International Sports Federations and other international sports organizations and has the following objectives:

- Discussion of sport matters;
- Selecting and disseminating information to member organizations;
- Providing services to interested organizations;
- Provide advice on matters of sport;

- Publishing newsletters, status, technical regulations and so on;

- Coordination of to international sporting competitions, editing a biannual sporting calendar.

*Steering Committee for the Development of Sport* (C.D.D.S.). Sport, as a branch of culture, occupies a prominent place in the Council of Europe for which there is a division of Sport within the the General Secretariat, a part of the Directorate of Education, Culture and Sport. However, for the proper course of European integration in sport to be achieved, the Executive Board for the Development of Sport was created, which meets annually for the audit of the previous year and approval of programs for next year. In order to take the most important decisions, a conference of sports ministers is convened every two years. Thus, over time, various documents were adopted at these conferences:

- European Convention on combating violence in sport (1985);
- Anti-Doping Convention (1989);
- European Sports Charter (1992);
- Sports Ethics Code (1992).

*Steering Committee for the Development of Sport* has its own database - Clearing House, a non-profit organization, which works with a "software" search system - SPORT database. Clearing House includes information on sports organizations, professionals in the field, funding, planning, campaigns like "Sports for All", "Sport for People with Disabilities" etc.

*European Community and Sport*. European Forum was established in December 1991 when the Sports Ministers were meeting in Rome, where was established the creation of a consultative forum with the following objectives [2]:

- Informing sports authorities on regulatory activities relating to sport;
- Better information to the Commission on specific sports world;
- informing the Commission on areas of action of maximum effectiveness in sports.

*European Sports Conference* (C.S.E.) is a consultative forum for European non-governmental sports organizations that has a number of programs in derulation: Changing World, Changing Europe, Women and Sport, Youth and Sports, Social integration of sport.

*International Council for Physical Education and Sport Science* (C.I.E.F.S.) includes academic and scientific research units and government organizations and represents the coordinator of research in physical education and sport. International Council for Physical Education and Sports Science is managed by an executive committee and the general assembly. It elaborates the calendar of international scientific events and also publishes the newsletter through which aspects of physical education and sport are made public.

*Center for Law and Economics of Sport*. This center was established in Limoges, its principal objective being to train university sports managers. It does

collaborate effectively with Sports Development Committee of the Council of Europe [3].

### **Economic concepts**

*A plurality of sports.* Sports organizations likely to respond to the complexity of the application are different. Organization of sport in our country occupies a specific place because is based on a system where public organizations are prevalent.

*Private non-commercial sport sector* comprises a plurality of associations of different nature: multisport associations, schools, universities, federations, unions, youth movements and even companies with sports object.

*Commercial private sport sector* includes sole proprietorships, limited liability or anonymous companies, economic and public interest groups. These organizations may have as main activity sports services, sports goods' production or an activity unrelated to sports (e.g. a hotel).

*Public sector* includes public enterprises, state and territorial administration, with different legal statuses (central or decentralized administration) or with a different geographical spread. These structures have a mission of control, management and classification of physical activities and sports. Being specified through the special ministry and by either local or national sports policy, the sports structures mission is supported and implemented by services and civil work of the Ministry of Youth and Sports, or by schools and universities (for physical education and sport) or by county or municipal sports services.

*Predominance of the non-commercial sector.* Professionalization and relatively recent media coverage of sport, involving a massive injection of money into sport circuit, made sport structures evolve considerably. Even if professional sports is still clearly dominated by the commercial sector, amateur sport and mass public sport, which comprises the largest number of the participants, the associations or clubs remain under the influence of state and local authorities. As in other sectors of the Romanian economy, sports is subject to a minor guardianship of the state and local authorities are gaining increasingly more the responsibility of the organization and regularization in terms of direct or indirect financing.

If mass public sport can not live without the state's support, professional sports is tutored by it, even if not by receiving public financial aid. But mass public sport does not receive subsidies, or they gradually decreased and sometimes disappeared altogether. Who can take on the obligation to remunerate certain sports (e.g. football) when local authorities can not substitute financial support of the state and it can not justify the educational and social role sports play? It is normal for a private club to be master of its management and not to appeal to the municipal budget. However, some sports have often been used as a political or media showcase. The ministry has only a limited budget. The financial effort at the state level is supported by the Ministry of Education as well which devotes significant amounts of money to sports especially for specialized teacher training and pay to finance sports

facilities in schools. Public funding of sports comes from local authorities, enshrining a budget for the construction, renovation and operation of sports facilities which it owns. These local authorities are concerned with local sports animation, supporting various events, sometimes with the help of high-level athletes. In the absence of clearly prerogatives defined by decentralization law or sports law, each local authority focus mainly on developing mass public sport, but supports also some sports events, sometimes helps high level sport [4]. It is difficult to characterize sports policy by the political color of the mayor, because in sports there is a not a primary belonging to right or left, what matters is his sympathy, affection for the sport, the desire to make known through sports the town.

*The recent emergence of the commercial sector.* Commercial sector tends progressively to occupy the place of the non-commercial one, emerging as a pillar of the present day sport. Two elements of a financial nature, are thus contributing to strengthening the position of the sector: the right to retransmit through television and massive development of sponsorship.

Given the competition between television channels, major sports federations as imposing tariffs today in order to maximize revenue, considering that cultural events are increasingly competed by the sport events.

Sports marketing is closely linked to the sponsors' strategy since they sell products through sport image (cigarettes, alcohol) even though it is now clear that it will target a particular audience. [5]

Development of physical and sporting activities and even high-level sports are the responsibility of the state, sports movement and local authorities. Role of the state remains sometimes ambiguous: on the one hand, it does not allow local communities to fund professional clubs, leaving sport to free private funding. So transformation of clubs in joint stock companies occurs, companies listed on the Stock Exchange, distributing dividends, as in many countries (England, Spain, Italy). On the other hand, the state does not take hands off sport by virtue of how the institutional structure of the sport must function.

### **Conclusions**

Considered both an instrument and an object of relaxation, strongly publicized, sport is a special case in economic policy. Political and economic contexts do not provide satisfactory solution, at least at this time, to sports domain in order to overcome financial difficulties. A rigorous management of funds, a substantial subsidy, a new type of management may, in the future, serve to orientate towards a new conception of the organization of sport.

### **References**

- [1] \*\*\**Enciclopedia educației fizice și sportului din România*, Ed. Aramis, vol. II, București, (2002), p. 213
- [2] Lăzărescu A. (1999) - *Management în sport*, Editura Fundației "România de mâine", București, p.54
- [3] Voicu A.V. (1998) - *Managementul organizațiilor și activității sportive*, Editura Risoprint, Cluj-Napoca, , p. 64

[4] Todea S. F. (2000) - *Managementul educației fizice și sportului*, Editura Fundației "România de Mâine", București, p. 145

[5] Mangra G. (2004) - *Managementul sportului*, Ed. Universitaria, Craiova, p. 27



# STUDY ON THE TYPES OF JUMPS SPECIFIC TO THE VOLLEYBALL GAME

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**Abstract.** The jump is the most important thing in the volleyball game. It represents the principal way to perform the actions of this beautiful game. Through this study we aimed to show the importance of the technical execution of the vertical jumps specific to the volleyball game. We intended to show that the type of vertical jumps differ from one level of training to another, from one playing level to another one, although the basic mechanism of performing the jumps is the same. The research was carried out by recording the types of jumps during a workout and the game immediately following the training, involving a junior girls volleyball team. There have been recorded the jumps performed by six athletes during a two-hour workout and during a three-set official game.

**Keywords:** vertical jump, game action

## Introduction

In modern volleyball game, the vertical jump is an integral part of the game. Speaking of the vertical jumps in the volleyball game, we refer to the moments of intervention to the ball, when the athlete has no contact with the ground yet he/she has contact with the object of the game.

During a volleyball game, regardless of the position held in the team, every athlete has his/her moments of intervention to the ball while jumping. When we assert that, we mean also the Libero, whose activity is only in the defense area. During a game, the players of a team perform, each of them, an average of around 200 vertical jumps, most of them being carried out in the vicinity of the net.

Depending on the phase of the game, the vertical jumps are mainly performed with two-foot kick, but also with one-foot kick.

The vertical jumps specific to the volleyball game have a special technique, being totally different to vertical jumps performed in other sports disciplines.

Thus, there are several types of vertical jumps:

- ❖ Two-foot kicks and landing in the same spot,
- ❖ Two-foot kicks and landing far from the kick spot,
- ❖ Running jumps,
- ❖ Standing jumps,
- ❖ Double-kick jumps,
- ❖ One-foot jumps.

## Results

Types of jumps recorded

	2-foot/standing	2-foot/running	1-foot	Total
Training	80	980	20	1080
Official game	35	684	7	726

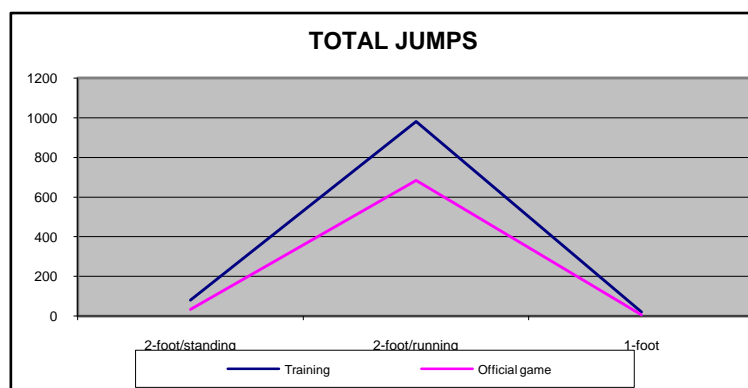
During the volleyball game, all these types of jumps can be found in various proportions and in various moments of the game.

The type of jump performed, depending on the skills and the technical training of the athlete, can contribute to increasing the efficiency of the execution of the game element, and to increasing the game's spectacularity, and thereby it can contribute to the achievement of the goal of the game, to win the match.

## Material and method

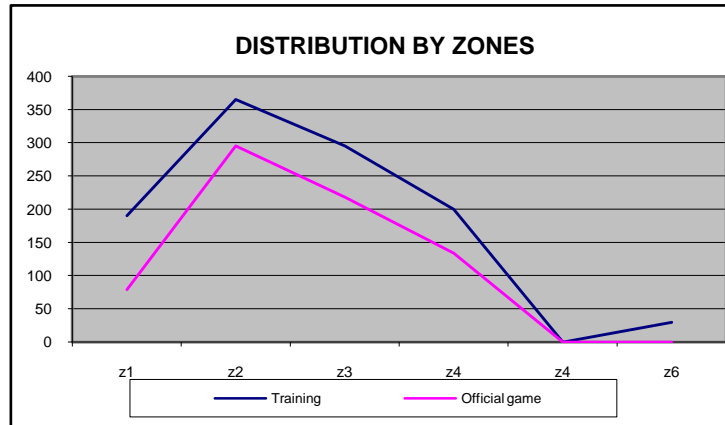
Through this study we aimed to show the importance of the technical execution of the vertical jumps specific to the volleyball game. We intended to show that the type of vertical jumps differ from one level of training to another, from one playing level to another one, although the basic mechanism of performing the jumps is the same.

The research was carried out by recording the types of jumps during a workout and the game immediately following the training, involving a junior girls volleyball team. There have been recorded the jumps performed by six athletes during a two-hour workout and during a three-set official game. There have been recorded the jumps performed at serving, setting and attacking. The number of analyzed jumps comprised all the types of jumps.





	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Training	190	365	295	200	0	30
Official game	79	295	218	134	0	0



### Discussion and conclusions

From the analysis of the data obtained, we were able to conclude the following:

- The number of jumps carried out during a workout is about 20 percent greater than the total number of jumps carried out in a three-sets game.
- Approximately 90% of them are running jumps, during both the game and the training.

- 90% of the kicks that precede the jump are made on two feet.

### References

- [1] Bălăiș F., Păcuraru A. - *Volei de la selecție la performanță*, Editura Academică, Galați, 1997.
- [2] Dăian G., Dăian I. - *Volei. Elemente de tactică*, Editura MJM, Craiova, 2003.

# STUDY REGARDING EVOLUTION OF THE MODEL PARAMETERS ON BASKETBALL GAME AT THE WORLD CHAMPIONSHIPS

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**Abstract:** Basketball is a sport game that has one of the richest ranges of techniques, technical – tactical actions, from the simplest to the most complex. The great discovery of the last decades of the last century and the beginning of the 3rd millennium is engaging in performance sports of some echelons of younger generation who are of tender years/young. Amazing is that great performance in most branches of sport, prove accessible to this age, if is carried out a special training, conducted scientifically, at least 6-8 years.

We are witnessing nowadays to an "atomization" of world records at short intervals in most trials, and sports industries. The multitude and variety of the succeeding phases of the game, quickly alternating with defensive and offensive situations, the opportunities it offers players to display their imagination and their ability inventive, acrobatic throws and subtlety of passes executed with great finesse, all offers both players, but especially the audience, moments of great spectacle. When we talk about the game model, we consider the optimal model for optimal sports performance. It is defined as "motor performance, achieved in objective conditions of competition." Model parameters of the game have changed from one stage to another competitive. The study of bibliographic material, statistical and mathematical method and graphical method. Statistical processing parameters play the game confirms that parameter: hoops percentage improved. phase.

**Key words:** basketball, evolution game model.

## Introduction:

Basketball appeared in 1891 in the United States in Massachusetts State, where a young assistant at Springfield College, trying to do various physical education classes for students without special material conditions, replaced the gate with a suspended basket on a wall and some rules of football combined with 13 new rules. Later the sport was called "Basketball". [1]

In the beginning, the teams were formed of 50 players, then, over time passed, gradually reduced the number to reach in the end of teams formed of 5 players on the field.

Classic Basketball was a slower basketball played with simple attacks, positional; players respecting tactics, prepared by the coach. The difference between winning and losing is made on the technical - tactical base rather than power and speed. Players of previous generations had a perfect individual technique, creativity in the field, playing both to win and to feel good and do a show on the field.

Performance sports especially in the current stage, is one of the fields in which international cooperation has increased greatly and has become a systemic character. Basketball has become a sport in which technical executions at high sports excellence are not enough to ensure victory. A specific multilateral physical training is required; condition in providing great constancy performance must address the peculiarities and specific somatic effort of the body in top competitions. Incentive competition is fashionable in the modern world. In professional sports competition is widespread.

It also tends monopolizing the sport as spectacle. In contemporary professional sports can speak of a true sports performance industry, binomial pro-amateur is also a consequence of the spectacular.

Unlike basketball played 20-30 years ago, the game is now more dynamic, players are much faster, better-trained, because new methods of training. Players now tend to approach a situation as simple to add 2 points at the break/scoreboard, but to execute complex technical and tactical action that would stand up stands.

Research purpose: Through the statistical model parameters of the game I watched the parameters of what changes have had the game over the years in major international basketball competitions.

Three years ago, on October 1, 2010, in Puerto Rico, there were few major changes in the Rules of the Game of Basketball. 3-point line has moved from 6.25 m to 6.75 m, the restriction has been transformed from a trapezoid to a rectangle, increasing in this way, the area where players are not allowed to stay more than 3 seconds with or without the ball. Following these changes in regulation, the coaches had to find new ways to deal with training and emerge victorious at the end of the match.

Major international competitions demonstrates the fast rhythm of the game, the dynamics of alternating phases of attack and defence, driven mainly by increasing the speed of execution of structures techniques, basic individual tactics and actions specific to the job in attack and defence. Behaviour in different game situations must be valuing personality of player (creativity, boldness, resistance to stress, anticipation, control, tactical thinking).

**Research Methods:** The study of bibliographic material, statistical and mathematical method and graphical method.

Referring to international basketball, being standard of highlighting characteristics known to be experts in all levels of the sports, we present briefly the main features of the current game of basketball after Predescu, T., Ghişescu, G.[2]:

- fight for printing rhythm and tempo of the game, rhythm variations depending on the evolution score;
- increasing importance and growing use of air play in the fight for a rebound, driven by increased gauge, stature and detent players;
- appearance of "couples" stable 2 and 3 players;
- Completion of direct combat with the opponent (the relation of one against one and doubling the striker)

- accelerating the execution of the action in the final stage of completion;
- generalization throwing the basket jump and completion rate of 3 points;
- increasing defence efficiency by combining defence systems through permanent aggression, pressing temporarily generalization, increasing the share of interception and closing entry, special tactics against great players and leaders opposing team
- Following a permanent and continuous process of selection, training and education, conducted on scientifically bases, rigorous increasingly, we are witnessing today to a growing skill levels, both individual gamblers and collective teams practice competitive game. From this we could draw the following development trends, their actual basketball game, manifested more strongly today internationally:
  - increase in the average height of the team by generalizing component team at a minimum of 3 players over 2 meters (1.88 in women), whose qualities biometrical skill, mobility and speed are developed in the medium sized players;
  - complex tasks required by the current game will be made as a result of a harmonious combination of features technical, tactical and psychological temperament of each player as an individual, with the general and specific training;
  - due to the strong development of technical and tactical actions of individual and collective attack, the defence to counteract the offensive, borrowed a character becoming more active and aggressive;
  - through collective tactical team harness at the highest level of each player's individual potential, taking into account the interaction of the nearest teammate and without impeding in general, the quality and character of collective game;[3]
  - mobility adaptability of training of each team to these trends in relation to their own possibilities, remains a major factor in the orientation training, beginning with the initiation stage of children;
  - Manifestation of an attitude becoming more aware to training, often taken to sacrifices and a fair

held outside it, to the requirements of the competitive game at the highest performance level. [4] .

- Modern basketball is characterized by speed and strength. In essence, modern tactical attack, covers counterattack and attack quickly made of any situation to get possession of petting. Coaches aim shorten attack completion after 2-3 passing, offensive rebounds with the participation of attacking without doing steady defensive attack. The defence is based largely on the system pressing man to man or zone.[5]

- Achieve performance, subject to the parameters in major competitions highlighted trends basketball game:

- High speed tactical deployment of attack and defence actions.
- Increased efficiency in completion /ending actions.
- Sustained rhythm in their attacks.
- Ball game.
- Increasing number of game action that creates favourable conditions for completion.
- Use of active defences, pressing.
- high technical mastery in executions carried out at high speed and conditions of adversity, with fluency ensuring game with simple and effective actions
- Use game parameters as a factor in conducting sports training.

- Prospective models of the game are determined by statistical and mathematical calculations on the model showing the value of the main parameters of the game of basketball practiced on international plan. These occurred as a result of constant research and investigations conducted at major international confrontation by FIBA basketball.

**Results:** Statistical processing parameters play the game confirms that parameter: hoops percentage improved.

We will present the statistical parameters of the model of attack and defence game from World Championships.

Table 1 Points marked

Year	Team Name	G P	MPG	PTS	FGM-FGA	FG%	3PM-3PA	3P%	FTM-FTA	FT%
2010	USA	9	40.0	835	215-379	56.7	92-239	38.5	129-176	73.3
2006	Spain	9	88.6	797	22-38.7	56.8	8.2-22	37.3	19.9-28	71.1
2002	Yugoslavia	9	40.0	831	222-444	50.0	89-227	39.2	120-191	62.8
1998	Yugoslavia	9	41.1	698	180-324	55.6	60-139	43.2	158-238	66.4

[www.fiba.com](http://www.fiba.com) [6]

Table 2 Recoveries

Year	Team Name	GP	MPG	OFF	ORPG	DEF	DRPG	REB	RPG	RP40M
2010	USA	9	40	117	13	258	28.7	375	41.7	41.7
2006	Spain	9	40	86	9.6	249	27.7	335	37.2	37.2
2002	Yugoslavia	9	40	125	13.9	221	24.6	346	38.4	38.4
1998	Yugoslavia	9	41.1	89	9.9	211	23.4	300	33.3	32.4

[www.fiba.com](http://www.fiba.com)[6]

Table 3 Caps and misconduct

Year	Team Name	GP	MPG	BLK	PF	BLKPG	BLKP40M	BLK/PF
2010	USA	9	40	36	171	4	4	0.2
2006	Spain	9	40	26	150	2.9	2.9	0.2
2002	Yugoslavia	9	40	53	195	5.9	5.9	0.3

[www.fiba.com](http://www.fiba.com)[6]

Table 4 Interceptions and lost balls

Year	Team Name	GP	MPG	STL	STPG	STP40M	TO	TOP G	PF	STL/ TO	STL/ PF
2010	USA	9	40	94	10.4	10.4	108	12	171	0.9	0.5
2006	Spain	9	40	88	9,8	9.8	129	14.3	150	0.7	0.6
2002	Yugoslavia	9	40	83	9,2	9.2	101	11.2	195	0.8	0.4
1998	Yugoslavia	9	41.1	58	6,4	6.3	118	13.1	178	0.5	0.3

[www.fiba.com](http://www.fiba.com)[6]

Table 5 Legend

Legend	
Year	Year
Team Name	Team Name
GP	Games played
MPG	Minutes played per game
PTS	Points Scored
FGM-FGA	Throws of field-testing in the field marked
FG%	Percentage of field throws
3PM+3PA	Throws of 3 points scored -Trying of 3 points
3P%	Percentage throws 3 points
FTM-FTA	Free throws marked-throws attempts
FT%	Free throw percentage
OFF	Offensive Rebounds

ORPG	Offensive Rebounds per game
DEF	Defensive
DEFG	Defensive rebounds per game
REB	recoveries
RP40M	Rebounds per 40 minutes
BLK	Covers
PF	Personal Foul
BLKPG	Covers per game
BLK40M	Covers per 40 Minutes
BLK/PF	Covers / Personal Foul
STL	Steals
STPG	Steals per game
STP40M	Steals per 40 Minutes
TO	Lost Balls
TOPG	Lost Balls per game
PF	Personal Foul
STL/TO	Steals / turnovers
STL/PF	Steals / Foul

From the above statistics, it appears that the throw percentage increased from 55.6%, percentage managed to Serbia in 1998 to 56.7% failed the U.S. team at the World Basketball Championship in Turkey in 2010. In contrast, the percentage throws 3 points decreased from 43.2% (Serbia) to 38.5% (USA). Although the percentage throws rose only 1 percent, the number of points scored per game has increased considerably, namely: World Championship 1998, hosted by Greece, Serbia team, scored 698 points in nine games played, to become champion, 12 years later, the U.S. team also 9 games, scoring 835 points.

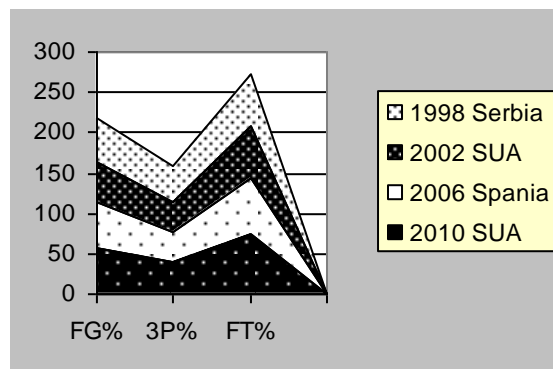


Chart 1 Percentage throws

In the attack, the game has evolved a lot, players are much faster, considerably taller and better developed physically. Thus the leaders of the game and extremes, equipped with motric qualities - speed - strength were individual actions based intrusion basket whatever direction the opponent defence. Following the missed throws occur around the basket for offensive or defensive recoveries, almost all players due to motor skills that help them to jump.

So there are many differences between the winner of the World Cup in 1998 and 2010. In 1998, Serbia has managed a total of 300 rebounds including 89 offensive rebounds and 211 defensive rebounds and the U.S. team, which was made up of some of the

extraordinary American players such as LeBron James, Kobe Bryant, Kevin Durant, Kevin Love has managed a total of 375 of which 117 offensive rebounds and 258 defensive.

And chapter covers is a difference big enough between basketball 10 years ago and the current basketball, this time in the benefit to the old basketball. In 2002, Yugoslavia team managed 53 caps, averaging 5.9 per game caps in 2006, the Spanish team managed just 26 caps with an average of 2.9. U.S. team that won the 2010 World Championship managed 36 caps with an average of 4 caps per game.

### Discussion and Conclusions

Predescu T Ghițescu, G. [2] think that performance is dependent on the total capacity of the player, the bio-psycho-social system result of improving regulatory enforcement functions, systems of morphological, physiological, informational, decisional, psycho regulator.

Negulescu, C. [7] argues that training athletic players, focusing on power-speed capability, the ability of players to participate in different regimes and increased physical stress and increasing sports mastery accuracy increased the number of points scored per match.

Individual technical and tactical actions such as "cover" are becoming increasingly rare in the modern game due to the increasing aggressiveness defence actions.

### References

- [1] Popescu, F. (2010). Baschet. Curs de bază., Publisher Foundation România de Mâine, București p. 18org
- [2] Predescu, T., Ghițescu, G. (2001). Baschet. Pregătirea echipelor de performanță., Editura SemnE, București, p 15
- [3] Porfireanu, M.-C., Baschet. (2013).Teoria și practica jocului, Publisher ASE, București, p. 30
- [4] Popescu, F. (2010). Baschet. Curs de bază., Publisher Foundation România de Mâine, București, p. 49
- [5] Popescu, F. (2008). Baschet. Aprofundare, Publisher Foundation România de Mâine, București, p. 8
- [6] retrieved from [www.fiba.com](http://www.fiba.com)
- [7] Negulescu, C. (2001). Baschet.Baze generale ale teoriei și practicii jocului. București: Editura Fundației România de Mâine, p. 41



# THE INFLUENCE OF AEROBIC GYMNASTICS ON RHYTHMICITY AND COORDINATION

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**Abstract:** The objective of the study was to determine the role of aerobic gymnastic on improving the rhythmicity and coordination of 58 female students (age 19±1.5) after practicing 9 months weekly on physical education lessons. They were tested pre and post program and their results were compared with a control group (n=52). The differences between the means of the two tests were significant, with progresses of over 25%, which demonstrate that the specific structures applied to subjects within the training process were highly effective. Also, for the test group were detected higher results than for the control group, with significant statistical differences (p<0.001).

**Key words:** students, gymnastics, female

## Introduction

Nowadays, the woman gains not only her rights but also her good presence, dignity, self-confidence, having more qualities which created a new basis to distinguish herself, and the concernment for their intensive development represents an indebtedness to herself, required by her being required to act in different situations. Youth, health, beauty are qualities desired by each of us. To be born with them is a great advantage for humans, to obtain and maintain them represent a difficult task, depending on our will and tenaciousness that we all possess. A means provided to everybody in order to obtain those qualities, but implying documentation and implementation, is represented by the physical exercises united in an *aerobic gymnastics complex*. Many researchers studied the impact of aerobic gymnastic on students, some of them covering its influence on both the physical and mental components.

Zaharia states the interest of the subjects to be fit, by a dynamic activity and brings arguments for the practice of aerobic gymnastics during their entire life, as an ideal means of maintaining youth and beauty. [1] Appropriate aerobic gymnastics can effectively promote mental health of female university students and simultaneously increase their euphoria from sports.[2]

## Material and Methods

The physical development of young people is a strictly present-day issue, focusing on the undergraduates, the biological importance of determining indications and parameters for a good state of health, therefore we intend to prove the necessity of practicing aerobic gymnastics, form of maintenance, as a selective influence of the locomotive apparatus.

By approaching with discrimination the means and methods proposed to achieve somatic and functional indexes, actuating capacity and to prevent physical deficiencies or correct the unhealthy posture, we wanted to prove the efficiency of this program which receives an equal time in the session according to its main themes and if necessary, the increase of the assigned working time.

The research was performed for 9 months, the subjects of the test group (n=58) being students of the University in Craiova (age 19±1.5) who attended

aerobic gymnastics programs on a weekly basis, the sessions lasting for 50 minutes. The registered results of the tests performed before and after those persons attended the sessions, were compared with the results of the control group (n=52, age 19±1.5) whose subjects attended to activities specific to the athletics.

During the experiment two tests were implemented: the rhythmicity test – melodiousness test and the coordination test.

By implementing the pedagogic experiment we noticed improvements as regards the performance of tasks presented during the session by verbal and non-verbal methods contributing to the aesthetics of movement.

The music was used for the effort dosing, to increase the bodily expression, to achieve a better precision in movement – regarding the direction and plans of movement, the rhythm of movement. The favorable influence of music on the movement depends on providing an harmonic discipline between the strength and resources of the musical expression and those of the movement. The complete harmony between movement and music contributes to a faster learning of motor skills, to the development of the motor ability, to the improvement of the cultural and spiritual life of trainees. [3]

## Results

When passing the **rhythmicity** test, in the initial phase we noticed a low artistic training level. This test consisted in the direction, adjustment, organization and creation of movement structures.

The references concern two lines of action:

- a) compliance with the performance requirements, relating to :
  - the dynamics of rhythm and tempo display;
  - compliance with the coordinates of intensity and pitch of sounds;
  - compliance with the conformity to the features of music beats and phrases of the pattern
- b) compliance with the composition requirements, relating to:
  - method of elaboration of choreography construction, in the sense of unity between movement and music;
  - highlighting the emotional color;

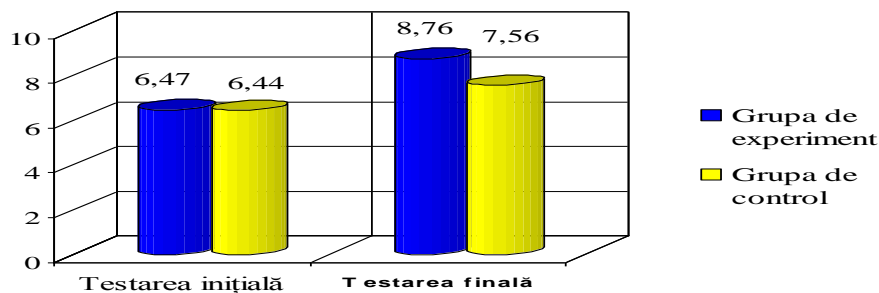
- highlighting the melodic lines.

Table 1. *Statistical parameters of the rhythmicity test*

Parameters	Group	Test group		Control group	
		T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
Average		6,47	8,76	6,44	7,56
Standard deviation		1,52	0,84	1,96	1,95
Maximum value		10	10	10	10
Minimum value		4	7	4	5
Amplitude		6	3	6	5
Coefficient of variation		23,49	9,59	30,43	25,79

*Test group* - at the final test we detected an increase of 35.39% (2.29 points) compared with the initial test. The group is homogeneous at the final test, the coefficient of variation having values below 10%. By applying the Student test we obtain  $t_{\text{calculated}}=14.92 > 2.977$  ( $t_{\text{table}}$ ),  $p < 0.001$ , out of which we concluded that there are significant differences between the means of the two tests.

*Control group* - At the final test we detected an increase of 17.39% (1.12 points) compared with the initial test. The group is heterogeneous, the coefficient of variation having values above 20%. By applying the Student test we obtain  $t_{\text{calculated}} = 15.746 > 2.57$  ( $t_{\text{table}}$ ),  $p < 0.001$ , out of which we concluded that there are significant differences between the means of the two tests

Fig. 1. - *Rhythmicity-musicality – arithmetic mean chart*Table 2. *Differences between the arithmetic means of groups*

Group and differences	T <sub>1</sub>	T <sub>2</sub>
Test group	6,47	8,76
Control group	6,44	7,56
Test - control	0,03	1,2
%	0,47	15,87

At the final test, the arithmetic mean of the test group is 15.87% (1.2 points) higher than the control group average. By applying the Student test for the results of the final test, we obtain  $t_{\text{calculated}}=.,259 > 2.57$  ( $t_{\text{table}}$ ),  $p < 0.01$ , out of which we concluded that there are significant differences between the means of the two groups.

## 2. Coordination (grades)

The coordination test aimed at certain aspects:

- exercises should have a higher degree of difficulty, demanding the executant a high level of overall and segmental coordination, balance, rhythm and tempo sense, spontaneity, creativity.

In this test were checked the following:

- the student (psycho-motor) ability to communicate, to express in a plastic, suitable and suggestive manner by gesture, attitude, mimics, by body movement as a whole, to produce various moods, emotions and messages;
- if the aesthetic attribute of the body movement, the attire and artistic execution, flexibility, harmony of movements, rhythmicity and motor musicality, the technique itself exude sensitiveness, grace, emotion, beauty.
- gesture, attitude, gestures, by moving the body as a whole, produces various moods, emotions and messages;

Table 3. *Statistical parameters of the coordination test*

Parameters	Group	Test group		Control group	
		T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>
Mean		6,71	8,69	6,17	7,83
Standard deviation		1,65	0,86	0,88	0,38
Maximum value		10	10	7	8
Minimum value		4	7	4	7
Amplitude		6	3	3	1

Coefficient of variation	24,59	9,9	14,26	4,85
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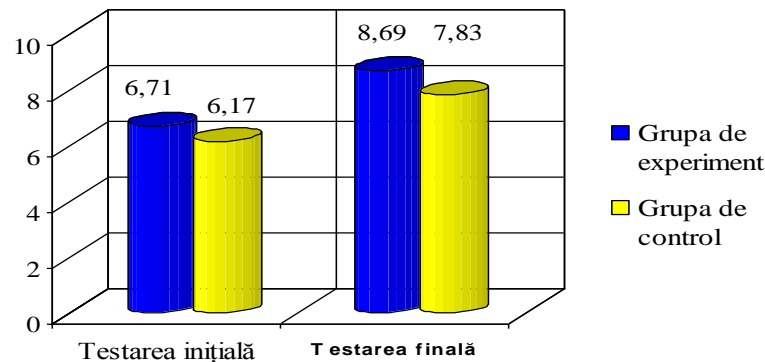


Fig. 2. Coordination – arithmetic mean chart

*Test group* - at the final test we detected an increase of 29.51% (1.98 points) compared with the initial test. The group is homogeneous at the final test, the coefficient of variation having values below 10%. By applying the Student test we obtain  $t_{\text{calculated}}=10.45 > 2.977$  ( $t_{\text{table}}$ ),  $p < 0.001$ , out of which we concluded that there are significant differences between the means of the two tests.

*Control group* – At the final test we detected an increase of 26.9% (1.66 points) compared with the initial test. The group is heterogeneous, the coefficient of variation having values above 10%. By applying the Student test we obtain  $t_{\text{calculated}} = 18.254 > 2.57$  ( $t_{\text{table}}$ ),  $p < 0.001$ , out of which we concluded that there are significant differences between the means of the two tests.

Table 4. Differences between the arithmetic means of groups

Group and differences	T <sub>1</sub>	T <sub>2</sub>
Experiment group	6,71	8,69
Control group	6,17	7,83
Experiment - control	0,54	0,86
%	8,75	10,98

At the final test, the arithmetic mean of the test group is 0.268 % (0.5cm) higher than the control group mean. By applying the Student test for the results of the final test, we obtain  $t_{\text{calculated}} = 6.649 > 2.57$  ( $t_{\text{table}}$ ),  $p < 0.01$ , out of which we concluded that there are significant differences between the means of the two groups.

Table 5. Tests for testing rhythmicity, musicality and coordination – summary

Testing Probe	Group	T <sub>1</sub>	T <sub>2</sub>	D <sub>21</sub>	D <sub>21</sub> (%)	Student correlated samples		Student uncorrelated samples	
						t	p	t	p
1. Rhythmicity – musicality (grades)	E	6.47	8.76	2.29	35.39	14.92	0.0005	4.259	0.0005
	C	6.44	7.56	1.12	17.39	15.746	0.0005		
2. Coordination (grades)	E	6.71	8.69	1.98	29.51	10.45	0.0005	6.649	0.0005

## Conclusion

Within the experiment, the students' interest to have an active, effective, aware participation provided some of the best results in terms of the work. All teaching methods have been determined on the one hand, by the structure and cohesion of the group, and on the other hand, by the organization terms and the appropriate preparation of the work. The artistic training is a difficult aspect of aerobics training, the research has demonstrated the need of using the communication means, the movement aesthetics for educating attire and artistic execution, educating rhythmicity and musicality, developing segmentary coordination and increasing body expressivity. The testing of rhythmicity, musicality and coordination was done by two tests, and the assessment was made by grades from 1 to 10. The differences between the means of the two

tests were significant, with progresses of over 25%, which demonstrate that the specific structures applied to subjects within the training process were highly effective. Also, for the test group were detected higher results than for the control group, with significant differences.

## References

- [1] Zaharia A.M., Rață G., (2012), Ways to improve the physical fitness through aerobic gymnastics means, *Sp Soc Int J Ph Ed Sp*, Volume 13, Issue 1, p.63-66
- [2] Zang, C., Ji L, Xu B., (2006), Research of Influence of Aerobic Gymnastic on Mental Health of Female University Students, *Journal of Tianjin*, University of Sport, 2006-05
- [3] Cosma G., Orțănescu D., Păunescu M., (2013), Rhythm Development Through Means Specific to Rhythmic Gymnastics to Female Students Attending Physical Education and Sport Faculty, *Journal of Sport and Kinetic Movement*, vol.1, nr.21, p.49-51

# PROFESSIONALIZATION OF HUMAN RESOURCES MANAGERS IN SPORT ACTIVITY

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**Abstract:** In the field of sports organizations is imperative to a professionalization of managers which generates the ability to have a vision of the organization, adopting appropriate strategies, orientation towards performance of employees and athletes in a context of fierce competition, a performance-oriented organizational behavior. Professionalism allows daily sports managers to make decisions, and for decision to be correct is required thorough know sports program. In defining the roles of various individual will identify the persons involved in setting minimum performance standards for coaches, too. Based on surveys and consultation representatives, opinion makers will be required, coaches, trainers and other staff. Responsibility will examine the head coach and assistant coaches and will determine the minimum acceptable level of competence for each. An effective evaluation system is developed with the participation of all staff. This issue will be discussed again in the section about evaluation of personnel .Next, set the number of programs and persons which must be evaluated and to what extent should apply evaluation. To this end, we will proceed to identify needs assessment. An effective program evaluation is an ongoing process, however, every year, sports manager and members can work towards greater practical application of the concept underlying the sports programs offered. Therefore, the manager will have to reflect on all manner of conducting the evaluation process completed and prepare a new evaluation in order to start a program for athletes participating better and better led.

**Key words :** sport managers, evaluation, assessment, professional

## Introduction

In the field of sports organizations is imperative to a professionalization of managers which generates the ability to have a vision of the organization , adopting appropriate strategies, orientation towards performance of employees and athletes in a context of fierce competition , a performance-oriented organizational behavior.[1]

Professionalism allows daily sports managers to make decisions, and for decision to be correct is required thorough know sports program.[2]

Managers and coaches addressed directors from schools , sports managers in the organization sporting bodies and National Olympic even those who are preparing for becoming organizers or administrators sports programs , as well as other staff of field. They trace the outline of the process of preparing effective assessment of sports programs focus on evaluation of personnel, dealing with the assessment base materials, equipment and activities witch offer sports program. Outside checklists and global assessments are proposed methods of organizing, recording and determining the cost effectiveness of a sports program.[3]

## Materials and Methods

In addressing a sports program evaluation will take into account both the personal needs statement and the sports organization considered . Choosing the best assessment tool will be based on objectives. Although the tools provided by this paper were conceived as a whole, in practice they can be adapted to specific situations. Regardless of the instrument used for a more efficient evaluation of the sport program will go through several stages.

A. The evaluation of actual sports programs requires good planning of the whole process. The following six (6) basic steps ensure the success of the evaluation.

1. Identify design manager and sports organizations ;
2. Identify key roles ;
3. Identifying needs assessment ;

4. Develop an evaluation plan ;
5. Implementation of evaluation;
6. Review and revision of the evaluation

As shown, there is much to be done before proceeding to the implementation of an evaluation plan . Going through the first 4 steps carefully, planning, avoid situations " unexpected " and review and revision of the evaluation program provides evaluation process improvement from year to year.

In this context it is necessary to identify the conception of the manager and the organization , identifying personal conception of sports managers , identifying compatibility between organization design and personal concept sports manager , developing a definition or currencies .After clarifying the concept , you can proceed to define the competence field in evaluating the program.[2]

Staff assessment may be the main task of a sports manager. Similarly, it may be that a manager does not have a formal role in evaluating personnel only unofficial role of mentor or observer. Regardless of the role owned, sports manager must collaborate with other members of the administration staff in the evaluation process , the material base and program . Even when he has a lead role, organizer must involve others in its work which is normally extremely rich . For example, sports manager will require coaches to complete supply inventory and inspection equipment bases, examining the conditions of storage, identification and elimination of outdated equipment. Auxiliaries can multiply, distribute and collect survey forms, financial reports and information about participation in the sport schedule. Staff engaged in sports activities can help the manager in his work provided it correctly identify the tasks that can be better fulfill by others.

In defining the roles of various individual will identify the persons involved in setting minimum performance standards for coaches, too . Based on surveys and consultation representatives, opinion makers will be required , coaches , trainers and other staff .

Responsibility will examine the head coach and assistant coaches and will determine the minimum acceptable level of competence for each.

An effective evaluation system is developed with the participation of all staff. This issue will be discussed again in the section about evaluation of personnel. Next, set the number of programs and persons which must be evaluated and to what extent should apply evaluation. To this end, we will proceed to identify needs assessment.

Sports manager will seek support staff carried out the evaluation. If the organizer activates in the school system, he will have to consider an additional element: staff engaged in sport activities can be in the same time teachers.

For example, a sports director in a school gymnasium or sports higher education wishing to evaluate staff finds that 80% of members are teachers and, as such, simultaneously applies and the evaluation of the teaching staff. To assess these individuals as coaches is necessary administration collaboration with school or university.

If evaluation of the teaching staff includes coach activities, 20% of the coaches who are not teachers and will not be included in the evaluation of school. In this case, sport director will check if all the coaches - whether or not they are members of the teaching staff - they operate safely and at a certain level of professionalism.

For coaches who are members of the teaching staff, powers of the sport may be limited to certain clauses in the collective agreement which specifies the person who has the right to assess the conditions under which staff can carry such assessments.

After completing the above steps can proceed in developing an evaluation plan. It will establish a calendar to conduct evaluations, specifying the contribution of the sports director, technicians, administrative staff, athletes and parents. It will be use the information to determine the number of persons, materials, equipment and program offers that need to be evaluated. It will also determine which is the best time to evaluate each item in a sports program, depending on the season.

If he planned activity, delegated responsibilities properly and has been known targets, sports manager can perform an effective and realistic evaluation.

#### B. Staff assessment

Staff evaluation is a sensitive issue. Both sport directors in schools and at the National Olympic Committee and the simply sports organizer have a duty to verify if coaches, technicians and there staff meet certain minimum performance requirements. Furthermore, it is desirable that staff not only operate at a minimum level of performance. Sport director has the responsibility to educate and motivate staff, for it to reach a higher performance level.

Working tools needed for an effective assessment of staff are generally summative.

The main term designating typically forms -based observing how a person performs the tasks in order to receive a grade for a certain period - can nevertheless

achieve objectives. With their help sports managers can quickly get informed about key aspects of the individual work of the coach with athletes. Based on this information, one can then ascertain whether the conditions of safety, service obligations are met and properly interact with others. Summative well-designed instruments include observable behaviors and suggestions from the evaluators. In such work lists the difference from the coach with a good and a very good qualifies is clear, it being made on the basis of specific observable behaviors.

But in the case of summative instruments very well designed not pay enough attention to professional development, as well. Typically, each case is assigned with a number which appreciates the work of the coach. Coach receives a score of 0-5 for each of the 20 behaviors. At the end of the form it is left a space for the calculation of the final score. Based on this score is given to coach one of five ratings. Coaches who receive low marks are either redundant or are retraining courses. Those receiving high marks are encouraged to place greater emphasis on areas that have not achieved the maximum score, the objective being to achieve a 5 to each item on the list with a total score of 100. Professional development is determined by the coach's ability to get a higher score in its efforts to improve those areas of activity for which originally received a very good rating.

Unfortunately, the scores are different depending on time when it is conducted and the person that makes the assessment. Also, rarely works with coaches to identify strategies that lead to professional development. Most often coaches are communicating assessment results and given the freedom to decide whether and what changes to operate in work style.

No wonder that these tools work summative applied with the best intentions, it rarely produces an increase in professionalism and motivation of staff. Instead, often conflicts regarding the granting of "good" and "very good" or of low scores that for the coaches don't describe his professional performance is due to a timing inspection uninspired choices. Even in the absence of any conflicts during process development surrounding a general feeling of distrust. Most coaches and sports managers hardly accept the idea that a brief inspection of a training session can lead to an accurate assessment of the work that coach. Few coaches and organizers can easily make the connection between a form of summative assessment descriptors and professional or intrinsic motivation. In general, most of the organizers and coaches believe that summative personnel evaluation tools are necessary, but not very effective.

Fortunately, once identified the key issue of the summative assessment, you can proceed to a solution. Manager Sport checklist is an important element of the evaluation. But for efficiency, must be regarded as a simple component.

Imagine that someone wants to put a picture on the wall. Has two screwdrivers, pliers and an adjustable wrench, but not a hammer. The person will try to beat the nail with a screwdriver handle, but fails to hit



straight and with enough power to dig pretty deep nail in the wall. After many nails bend and crush his few fingers, screwdriver handle breaks . What good would be a hammer !

Sports managers that approach the staff evaluation without proper instruments are in a similar situation . Summative instruments - are very useful in identifying those coaches who does not pay attention to ensuring safety or who fail to fulfill their duties . However, they do not provide a motivation to coaches . The end result is not bent nails or fingers crushed, offensive coach and a high percentage of replacement staff . By using the wrong tool produce that feeling of disbelief that makes the evaluation is an unpleasant task and inefficient , not a means of improving the program.

Staff assessment came to the attention of experts in education from the early years of the new decade. It has become increasingly necessary to check the performance difference between ( professional tasks and ensuring safe ) and improve performance ( stimulate development and professional development ). In the following we try to draw on the work of education researchers who have developed, implemented and studied approaches to assessment personnel managers not only provide means for checking the minimum degree of competence and ensure safe conditions , but also to increase intrinsic motivation and promote development and professional development of staff members . Implemented correctly, these approaches helps managers determine the improvement work staff both professional competence and the motivation.

Many approaches to evaluation and growth performance of category known as formative assessment, which involves an interaction between the individual and the bosses noticed his superiors to establish objectives and cooperation in order to determine whether these objectives can be achieved, as well as that of finding the path to success. Formative assessment does not start from the checklists, as summative evaluations, but from a set of objectives. If a person sets its own goals, it is expected that it will make efforts to meet them. In the context of a well-designed system of formative assessment, the assessor / observer helps the subject to accurately define objectives and to set priorities, the two continued working together to achieve them.

Although formative assessment tools are not effective in all cases, they are far superior in terms of summative instruments to promote professional development .How

fulfilling various objectives in personnel evaluation involves the use of specialized tools will still call both systems evaluation, summative and formative . The following is a personnel assessment tools.

Sports manager will choose the instrument to the objectives and the information it intends to achieve.

Specific instructions for the assessment of staff are provided below, and Table 1 reviews the tools discussed, designed to help coaches and managers to assess the achievement of five objectives:

1. Safely work with athletes;
2. Proper performance of the duties of the coach ;
3. Administrative competence ;
4. Promoting professional development ;
5. Promoting intrinsic motivation.

Finally, to achieve goals related to further training and development of self motivation elements of formative assessment are: identification teams, establishment of common objectives, joint analysis of the evaluation. These elements help the manager to go through step by step stages of formative assessment, from setting objectives and to analyze progress in achieving them.

After completion of the evaluation of staff with the tools chosen by the manager and coaches committee will be filled - Centralizing evaluation results based on the forms for each person assessed. Filling in this form, will review the results based on staff evaluation forms already filled throughout the year and will get an overview of the strengths and weaknesses that characterize the work of the staff. All this information can be used to improve the program next year.

Through collaboration with the coaches committee to determine the minimum level of competence for coaches and organizing meetings with them and with other members of staff involved in the sports program, to stimulate intrinsic motivation and professional, sports manager can create a group knit together which to operate in accordance with the general ideas underlying the sports program of the organization.

C. Evaluation of the material, equipment and software.

For a good check out the material and equipment, sports manager must delegate some responsibilities and communicate effectively with staff. With specific tools is to achieve a four crucial goals: • to ensure security; • providing spaces for training , competitions and storage, • providing the necessary quantity of equipment • Ensuring an efficient data records and records; • ensuring cost effectiveness .

The main specific database management tools materials and equipment are synthetic data table.

Objectives	Source of information	Gathering tools
- Security - Provision of accommodation - Providing the necessary quantity	Sporting directors Coaches and trainers base form inspection sports	Coaches and trainers base form inspection sports Equipment inspection form
Efficiencyof evidence - Cost effectiveness	Sporting directors Sporting directors Coaches and instructors	Verification system records form Analysis of the base form matter Form Analysis equipment Questionnaire based and equipment
All objectives	Sporting directors	Synoptic assessment base materials and equipment

Table 1Assessment tools and equipment base



After evaluating staff, the material and equipment will go through a final stage, the bid evaluation programs . We present a series of tools that allow achieving four objectives:

- security;
- cost effectiveness;
- variety of programs;
- acceptable levels of access to programs.

Before starting the evaluation program, a sports manager in Romania need to reflect on aspects of national legislation ." Education Law " provides protection of persons and prohibits sex discrimination in schools nationally funded or sports clubs .

Sports manager must know the mechanism of sports programs offered , the number of participating athletes and gender composition . For this purpose it is necessary : to identify the status of programs, programs for analysis . Finally sports manager will centralize revenue and expenditure for each sports program . The course is laborious , but the manager must be familiar with programs that involve cost before proposing any changes .

Outside the budget data are of course many other issues to be considered.

The Sports Manager will report all issues and recommendations mention about the programs offered in accordance with the general conception about the role of sport. When the manager is faced with intractable problems, this guidance can help you make the best decision.

Planning and implementation of any changes will be made in collaboration with coaches. Port director will inform based on the Centralizing data analysis programs that would allow any changes to be made by mutual agreement. Always there will be complaints. But if the manager has established general design decisions about the role of sport, their validity can not be questioned.

### **Discussions and conclusions**

In conclusion, we can say that after going through all stages of the evaluation, including the safety and effectiveness of the base and equipment, sports director will speak with more confidence about how programs offered meet the needs and interests of athletes, coaches, technicians, parents and other members of staff involved in the sport. An effective program evaluation is an ongoing process, however, every year, sports manager and members can work towards greater practical application of the concept underlying the sports programs offered. Therefore, the manager will have to reflect on all manner of conducting the evaluation process completed and prepare a new evaluation in order to start a program for athletes participating better and better led.

Professionalism responsible athletes as human resources efficiency factor , in our view materializes :

a) developing programs consistent with the realities and needs of the moment , to assist sports organizations to overcome certain moments of impasse by identifying problems and setting priorities; b) complex programs on short and medium term promotional activity; c) service package that meets consumers sporting sports; d) packages deprogrammed the managerial functions to promote the image of sports organizations or large sporting action interest; e) promoting managerial culture to develop managerial skills , to broaden the scientific horizons of sport managers; f) organization of seminars on topical sports management ; g) organizing national and international conferences in communications and works scientific contribute to an exchange of knowledge and ideas; h) production of publications - yearbooks , newsletters and magazines - that treats sports management i) development of trainings in sports management to develop managerial skills of administrators sport , based on case study competitions , simulations, and other enterprise; j) professional community development and institution building k ) extending the collaboration with academic institutions (Faculty of Physical Education and Sport, Faculty of Management) in order to specialize young people in sport management - developing superior learning programs based on interdisciplinary studies that will be a strong trainer who will lead the profession of manager training in sport as a profession independent; l) developing collaboration with the Romanian institutions specialized foreign management to ensure an exchange of experience and ideas , and the joint programs integrating; m) conducting management centers and local offices within the County Sports to provide advice and assistance to sports organizations in the territory.[3]

All these matters related to professional managers would concur in a great matter to the development of human resources , especially top managers in sport, by highlighting promote professionalization of management, which will result in a higher recovery of their capabilities and whose intellectual products will result in the development and improvement of sport in Romania .

### **References**

- [1]. Armstrong, M., (1984), Handbook of Personnel Management Practice, London, p.15-27
- [2]. Stroe, C.A., (2008), Organization and management of sports structures in Romania, Craiova University Publisher, Craiova, p.58
- [3]. Popescu, M.C., (2010), Methods and strategies for human resource management in the economic efficiency of sport activities, Phd Thesis, Craiova, p.105

# THE IMPORTANCE OF EXTRACURRICULAR MOTOR ACTIVITIES IN THE STRENGTH DEVELOPMENT OF CRAIOVA FACULTY OF LAW STUDENTS

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**Abstract:** In modern societies, sport is becoming more important given that more and more people practice it, the future lawyers of Craiova, having as models the great universities of the world that put an emphasis on extracurricular sports activities. The aim of the study is to determine the impact of physical activity on the fitness level of extracurricular law school students.

Thus, following the selection of 20 students (age  $20 \pm 1.5$ ), they participated for 6 months, twice a week to exercise programs that included football, basketball and table tennis, sitting with a duration of 60 minutes. In order to monitor and evaluate physical condition, tests that focused on the development of lower limbs strength, strength in the abdominal muscles and at the back level were applied. Following student participation in the extracurricular programs, there have been improvements in the level of strength, values statistically significant ( $p < 0.001$ ).

**Key words:** *physical activities, students of Law Faculty, strength.*

## Introduction

The university is where they form, set up, disseminate values, but also where they discuss a range of values that do not agree with some commands social, ethical, scientific, political, ideological. In the White Paper on Sport (2007 EU), the participation in physical activities is defined as any physical movement that consumes energy, including sports. The policy towards physical activity is defined as any movement that requires some knowledge of the rules and certain skills: soccer, basketball, jogging, dancing, wrestling, cycling, athletics, etc.[1] Sport attracts citizens, most of whom regularly participate in sports activities. It generates important values such as team spirit, solidarity, tolerance and fair play, contributing to personal development and fulfillment. It also promotes the active contribution of citizens to society and, in this respect, to foster active citizenship.[1] According to a Eurobarometer survey conducted in November 2004, approximately 60% of the European citizens regularly participate in sporting activities within or outside some 700,000 clubs they belong to, in turn, a number of associations and federations.[2] Becea L and Gregory V. (2010) finds that students investigated in a study on a non major physical education faculty believes that the practice of "body motor activities" contributes to the restoration and improvement of intellectual potential, mainly by eliminating tensions and relaxation, the optimal exploitation of the intellectual potential, as a result of eliminating stress, increases self confidence, optimizing the qualities of thought and intellectual efficiency gains, reflected in assimilating new information.[3] Păunescu M., referring only to the young, says that sport participation in family, cultural and artistic activities and the social contacts with friends, are regarded as having a positive effect on their development; human, social and cultural capital accumulation, constitutes an important feature of the transition to adulthood.[4]

## Results

In a study from Romania, the results showed mean vector scores of physical education in the following scales: physical activity; global physical; competence; sports; strength; endurance and flexibility were significantly ( $p < 0.05$ ) higher than that of non-physical education major students. Also, the results shows that mean vector scores of male in the following scales: health; coordination; physical activity; body fat; global physical; competence; sports; global physical self-concept and global esteem were significantly ( $p < 0.05$ ) higher than female.[5]

Another study that's aim was to identify dynamics of level of physical health and physical training of students of higher educational establishment during education. The analysis of the results of medical examinations using documentary techniques: processing and systematization of medical and health records of students and third-year students. The presence of negative dynamics deterioration in their physical health and pronounced trend annual increase in the number of students assigned to special medical groups is considered. Found that the incidence among students is growing in parallel to reduce the physical health and "low" level of health of students leads to an increase in the number of students in special medical groups.[6]

## Material and Method

The aim of the study is to determine the impact of extracurricular physical activity on the fitness level on the law school students. Thus, following the selection of 30 students (age  $20 \pm 1.5$ ), they attended twice a week exercise programs, that included football, basketball and table tennis, the session having a duration of 60 min. The work programs shall last for two months, the subjects participating in the 16 sessions of training. In order to monitor and evaluate the physical condition tests that focused on the development of lower limbs strength, strength in the abdominal muscles and at the back level were applied.

Following the first and the final test of the subjects, the following data, which were analyzed statistically were recorded (Table 1).

Table 1 Statistic parameters

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Legs1	1.558	30	.256	.0467
	Legs2	1.612	30	.256	.0468
Pair 2	Back1	32.000	30	9.29	1.696
	Back2	33.966	30	8.20	1.498
Pair 3	Abd.1	19.066	30	2.87	.5250
	Abd.2	21.266	30	2.58	.4725

Students participation in extracurricular activities led to an improvement in lower limb force by 4 percent, the students managed to jump the 1.55m final testing. Regarding the strength in the back, the progress is 6 percent, with two better executions, after participating in the sports programs. At the level of abdominal strength, the progress was 2 executions on average, progress in the final test being 11.54%, the subjects managed to run 21.26 trunk lifting from lying. The standard deviations are small in all three tests, which means that the arithmetic means are representative. The group is relatively homogeneous, the coefficient of variation values falling between 10 and 29.05, the high values being recorded at the initial testing. Applying the Paired Samples Test (Table no.2), at the lower limbs level, a value of t (-11.16) is obtained, the degrees of freedom (29) and the bidirectional significance ( $p < 0.001$ ). As the significance level is 0.000, the difference between the two tests is very significant. The confidence interval ranging between -0.06 and -0.04 and since it does not pass through 0, the difference is statistically significant at the bidirectional significance of 5%.

Table 2 Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Legs1 - T2	-.053	.026	.004	-.0635	-.0438	-11.16	29	.000
Back1 - T2	-1.96	1.401	.255	-2.490	-1.443	-7.68	29	.000
Abd.1 - T2	-1.70	.651	.118	-1.943	-1.456	-14.29	29	.000

At the back strength level, we get a value of t (-7.68) the degrees of freedom (29) and the bidirectional level of significance ( $p < 0.001$ ). As the significance level is 0.000, the difference between the two tests is very significant. The confidence interval ranging between -2.49 and -1.44 and since it does not pass through 0, the difference is statistically significant at the 5% bidirectional significance level. Within the force of the abdomen, we obtained a value of t (-14.29) the degrees of freedom (29) and the bidirectional significance level ( $p < 0.001$ ). As the significance level is 0.000, the difference between the two tests is very significant. The confidence interval ranging between -1.94 and -1.45 and since it does not pass through 0, the difference is statistically significant at the 5% bidirectional significance level.

### Conclusions

The need for a display of physical conditions in everyday life, both in aesthetics and in terms of health, are important issues for the young generation. Education shall be directed to the full development of human personality and the sense of dignity, and shall strengthen the respect for human rights and fundamental freedoms. Through sports people develop physically and intellectually. Participation in sports activities increase self-confidence, provide opportunities for personal achievement, and respect for others. The students involvement in extracurricular activities has led to an improvement in the strength

indices, which contributes to an improvement in the physical condition of the subjects.

Gradually, the habituation of the people with the systematic practice of exercises and movement outside imposed working hours means modeling programs, awareness and active participation. Thus physical education acquires a projective- formative character, which along with other educational factors (family, youth organizations) make their actions converge.

### References

- [1] [http://ec.europa.eu/sport/documents/white-paper/whitepaper-short\\_ro.pdf](http://ec.europa.eu/sport/documents/white-paper/whitepaper-short_ro.pdf)
- [2] Eurobarometru special (2004): Cetătenii Uniunii Europene și sportul.
- [3] Becea L., Grigore V., (2010), *Considerații privind impactul activităților corporale asupra potențialului intelectual al studenților*, Conferința Științifică Internațională în domeniul Științei Sportului „Exercițiul fizic și calitatea vieții”, p.19
- [4] Păunescu M., 2012, *Concepte privind calitatea vieții populației active din România*, Editura Printech, București, p.81
- [5] Arazi, H., (2013), A comparison of physical self-concept between physical education and non-physical education university students, *Timisoara Physical education and Rehabilitation Journal*, p.6-13
- [6] Blavt, O., (2012), Informative indicator of physical health and physical fitness of university students, *Pedagogics, Psychology, Medical-Biological Problems of Physical Training and Sports*, ISSN 1818-9172, 12/2012, Volume 11, pp. 14 - 18

## GAME FLUENCY AND SPORTS PERFORMANCE IN JUNIOR LEVEL MODERN FOOTBALL

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**Abstract:** In this research, we conducted a study on a total of 18 athletes, aged 17 to 18 years, all components of "A" republican junior team of the 'Gica Popescu' football school. The study was conducted on a number of 10 official games, during which we followed the fluency of games, that have made up the 10 matches, which is a particular advantage in preparing and building an attack that leads to victory, actually, the aim of any match.

**Keywords:** *football, sport performance, efficiency, fluency.*

### Introduction

The concept of fluency means the quality of a football team to solve the ball transport from defense to completion, with as little disruption, caused by the opponents, as possible.

In football, the improvement of game relations is crucial, as well as the mutual understanding between players, the judicious use of their possibilities, each sport activity being consciously subordinated to the primary objective: victory. Also, very special attention should be paid to improving athletes collaboration under weariness.[1]

Thus, by increasing the volume of training work effort, along with the gradual decrease of intensity, improves the effort capacity, thereby, influencing the players' physical and technical-tactical expression in the field, knowing that the technical and tactical expression level decreases in the moments of prolonged effort and towards the end of the half, while the number of errors increases with the fatigue.

To eliminate this kind of situation, athletes should improve their tactical capabilities under weariness. [1]

Given that a football player is participating in over 60 actions in a match with maximum intensity, with about 110-120 ball possessions, the majority of the racing rhythms being high, in football the increased share of working with maximal and over-maximal intensity has become the main factor of progress or performance capacity maximization. This increase is the result of games dynamics conduct, a major aspect for the training of a team to play, in that: all matches are means of training, operational models reflecting the essential features of competition. [2]

In this sense, football teams which are ensured a superior ability in terms game fluency, perform a better ball possession, through the applied technique and tactics and, through the ball dispossession and interception techniques, interrupt the game fluency of the opponent team.

The sport practice has shown, however, that tactical skill is an attribute, pertaining not only to the skilled athlete. It must be learned and improved throughout the sports careers, as initiative and creativity are the result of a strong and lasting training, summarizing the development of basic and combined motor skills, the improvement of technical elements and procedures, as well as the education of mental qualities, for their efficient use during competitions.[3]

Given that football game claims a complex manifestation of all physical qualities, infinite skills and motor skills, which are the basis of technical procedures, a prompt thinking, varied, doubled each time by fantasy to solve each tactical moment, qualities of will and theoretical knowledge, and that all this can be formed only by educating a multilateral player, combined organically with the development of the aforementioned qualities towards the requirements of the game, [4] the fluency of the game becoming in this respect, a pragmatic expression that translates the degree of physical, technical, tactical and psychological training of a team compared to the opponent team.

The more tactically justified (conceived) the speed and accuracy of passes, the speed (rhythm breaks) and the direction of players movement will be, the faster the team in ball possession will get to action completion,, exceeding or scattering and surprising the defense of the opponent team.[5]

So far, there have not been elaborated studies on the fluency of the game, as determining element of game organization, of good ball possession and performance. We, in what follows, based on the football team games, performed during the tournament of the 2013-2014 season, are trying to demonstrate that the teams that reveal a superior game fluency have a superior sports performance.

In the literature we find few works, mostly adjacent to the subject. Among them we mention: "A first step for a pedagogy of competition" (Arnd Kruger), "We need a theory of competition" (Gunther Thieb), "Sports training" (A. Dragnea), or "Fluency, essential characteristic of the modern football game model", authors: Stefan Covaci and Egon Horn.

According to specialists, Stefan Covaci and Egon Horn, fluency is a qualitative criterion, because it is a positive attribute, characterizing a certain team, it is a relative criterion, it is considered in relation to some opponents, it is a synthetic criterion, because achieving fluency requires mastery of physical, technical, tactical and psychological means, which are superior to the opponent's.

### The research hypothesis

If a football team achieves a fluency superior to that of the opponent team, it also records a better sports performance (result), better than that of the opponent team.

### The purpose of the research



The research purpose is to provide the football coaches with the research results, which, if they confirm the hypothesis, may lead to the modeling of the game and to getting superior sports performance.

#### **The research subjects**

The research subjects were represented by the "A" republican junior team of the 'Gica Popescu' football school as well as by players used in 10 championship matches of the competition partner teams. In the 10 matches 'Gica Popescu' football school used 18 players who entered the game either as representatives/non-reserves or as reserves, where they performed in the second halves of the games. The other teams, in their turn, have used reserves, in the game, too, in general, three each. Thus, in the matches performed by the 'Gica Popescu' football school team, the competition partner teams used a total of 140 players.

#### **The methods used in research**

##### **The Interview Method.**

We had discussions with the coach of Craiova team on whether they prepared the team for achieving the game fluency. The answer was largely positive, but being the first year of participation for the junior republicans, the game relations have not yet been improved and the team has little competitive experience at this level. From discussions we realized that it was actually the means used for keeping the ball and not the game fluency which requires that each ball or ball driving to get at least 5 meters in the opponent's court. For this reason we have extended the discussions with other coaches, from some centers of children and juniors in Craiova (Craiova CSS., Univ. Craiova, Craiova CSU) the result being the same.

##### **The Recording Method.**

In order to have a safe collection of indices under investigation, we recorded the 10 video football matches of the 'Gica Popescu' football school, then we centralized the data in Tables 1 and 2, for their analysis and interpretation.

##### **The statistical and mathematical method**

All data collected concerning Gica Popescu football school team and the teams they played with, in the 10 matches, have been recorded in the tables, under the headings concerned in view of their ordering, processing and interpretation. This method helps us to establish more precise conclusions, to be able to show the future development of the phenomenon, the game fluency and the sports performance.

Further we shall make some remarks and delimitations of the elements making up the game fluency and their value for athletic performance.

##### **The fluency index.**

It is the ratio of interventions in attack, ie the number of players included in those attacks and the number of attacks initiated. This index is higher as the number of players involved in ensuring the fluency in that attack is higher.

The fluency index expresses significantly the game fluency and efficiency due to the following reasons:

- the team that can focus and provide more players in the attack, can provide longer ball possession and has more initiative in the game;
- can impose its rhythm and style of play;
- can create more completing game situations ;

To check the fluency of the attacks and their effectiveness in the 10 games watched we made the game fluency index formula:

interventions in attack Fluency index = -----  
initiated attacks

The initiated attacks are operations carried out by a team, from taking possession of the ball and the first in depth pass given to a partner of at least 5 meters. The interventions in attack are the participation in attack of a partner, regardless of the ball control duration (number of kicks).

##### **The efficiency index expresses:**

-The number of balls won (whatever the procedure used), plus the number of decisive passes, plus --the number of goals scored from free kicks and actions related to the number of lost balloons, plus -the number of missed opportunities in the act of completion.

The efficiency index was calculated using the formula:  
number of balls won + the number of decisive passes +  
goals number from actions and free kicks

Efficiency Index = -----  
number of balls lost + the number of missed  
opportunities in the completion action

Following the analysis of the games played by the Gica Popescu Football School team in the 10 matches, won, ended in a draw or lost, we established the mathematical value of this report.

1 – 1,15 unsatisfying.

1,16 – 1,30 satisfying

1,31 – 1,45 good.

over 1,46 very good.

We mention that these delimitations values were determined for Gica Popescu Football School team, referred to the value of the team of players provided for the 10 matches. A neglected factor was that over 75% of the basic fund of players were in sport fitness at that time.

In table no. 1 we present the data collected from the 10 matches played by the Gica Popescu Football School team, the average of goals scored and received, as well as, the index that determines the fluency the game.

Table no. 1

The game and the teams					The score		Attacks initiated		interventions in		fluency index	
Experiment Group		Control Group			Gr. E	Gr. M	Gr. E	Gr. M	Gr. E	Gr. M	Gr. E	Gr. M
1	Football School	G. C.S.U. Craiova			2	1	105	95	283	196	2,69	2,06
2	Football School	G. C.S.M. Rm.Vâlcea			3	3	107	105	294	242	2,74	2,29
3	Football School	G. C.S. Mioveni			1	1	98	91	276	203	2,81	2,23
4	Football School	G. Alro Slatina			2	1	101	93	296	238	2,93	2,55
5	Football School	G. Minerul Motru			2	0	111	89	291	202	2,62	2,26
6	Football School	G. L.P.S. Târgu Jiu			6	2	125	90	301	180	2,44	2,00
7	Football School	G. L.P.S. Viitorul Pitești			2	1	110	96	303	219	2,75	2,28
8	Football School	G. L.P.S. Slatina			4	2	115	102	295	214	2,56	2,09
9	Football School	G. C.S.S. Craiova			1	3	104	124	268	340	2,57	2,74
10	Football School	G. C.S.S Tr. Măgurele			6	0	128	103	301	185	2,35	1,79
The average of the results					2,9	1,4	110,4	90,6	290,8	191,8	2,912	2,229

Table no. 2 shows the average of the efficiency index and the factors that determine it

Table no. 2

The game and the teams				The score		The results obtained by Gică Popescu Football School							
Experiment group		Control group		Gr. E	Gr. M	Recoverd balls	Decisive balls	Marked goals	Lost balls	Missed oportunities	Efficiency index	qualifier	
1	Football School	G. C.S.U. Craiova			2	1	103	23	2	78	11	1,43	good
2	Football School	G. C.S.M. Rm.Vâlcea			3	3	93	29	3	82	13	1,28	Satisfying
3	Football School	G. C.S. Mioveni			1	1	91	25	1	81	12	1,27	Satisfying
4	Football School	G. Alro Slatina			2	1	107	26	2	86	16	1,32	good
5	Football School	G. Minerul Motru			2	0	99	27	2	77	18	1,34	good
6	Football School	G. L.P.S. Târgu Jiu			6	2	118	32	6	66	14	1,95	Very good
7	Football School	G. L.P.S. Viitorul Pitești			2	1	102	29	2	76	21	1,37	good
8	Football School	G. L.P.S. Slatina			4	2	106	25	4	80	17	1,39	good
9	Football School	G. C.S.S. Craiova			1	3	71	22	1	75	17	1,02	unsatisfying
10	Football School	G. C.S.S Tr. Măgurele			6	0	120	35	6	68	13	1,98	Very good
Total							1010	273	29	769	152	14,35	
The mean of the games							101	27,3	2,9	76,9	15,2	1,43	good

### The analysis and interpretation of data.

#### Athletic performance.

In the 10 matches recorded by us, the Gica Popescu Football school team won seven, lost one and two ended in a draw. From Table 1 we can see that only in the lost match with Craiova Sports School, the juniors of the experimental group had a fluency index, lower than that of the opposing team (2.57 versus 2.74) and an efficiency index (see tab. 2) 1.02 unsatisfactory, in fact, observable also through the "performance" sports (score 1-3).

In the two games ended in a draw 3-3 with CSM Ramnicu Valcea and by 1-1 with C. S. Mioveni, we

can see from Table 1 that the team from Craiova had higher fluency indices (2.74 versus 2.29) in the game with the Vâlcea team (2.81 versus 2.23) in the game with Mioveni. Also the Gica Popescu Football school juniors, in both games, (see tab. 1) had superior indices in what initiated attacks are concerned (107 to 105) in the game with those from Vâlcea (98 to 91) and the one with Mioveni. In terms of efficiency index for the two games ended in a draw, they are satisfying (see Table 2).

In the other seven games, the victory belonged to the Gica Popescu Football team, scoring 29 goals and receiving 14, with higher fluency indices to the



opponents' in all 7 games (see Table 1). In terms of the efficiency indices of the 7 matches won, these were between 1.32 and 1.98, that is between good and very good (see Table 2). This means that achieving game fluency is a determining factor in obtaining sports performance.

#### **Attacks initiated.**

Gica Popescu Football School team had an average of 110.4 attacks initiated and the remaining teams an average of 90.6 (see tab. 1). The difference between the average of Craiova team and the other teams does not seem very high 19.8, but, as we analyze the heading 'interventions in the attack', the team played a more organized game, a more collective, constructive play, which enabled it to get closer to the goal.

#### **Interventions in attack.**

Craiova Juniors had during the 10 matches, an average of 290.8 interventions in attack, by far superior to the average of other teams, that averaged 191.8. This proves that most Craiova footballers have had a top possession of the ball, which allowed them to approach the goal for completion.

#### **The fluency Index.**

And in terms of interventions in with initiated attacks attack, that is of the fluency index, Craiova team presents better average results, that being 2.91 for Craiova and 2.22 for the other teams. This difference means that, compared to the number of ball recovered by various procedures had more opportunities to approach the goal, to initiate through various forms of attack (counter attack simple attack, but particularly through the attack combination) the actions completion.

#### **The Efficiency Index.**

The Juniors of the experimental group scored 29 goals and received 18, 152 missing opportunities to complete, thereby being able to conclude that in Craiova players there is a poor accuracy in shooting to

the goal. We could base the imprecision of the goal shooting, on the ground of the so called 'stage fright' that a national competition of "A" Republicans juniors gives to the athletes, on the lack of experience at this level of competition and, why not, the fear of committing errors.

If, as shown in Table 2, out of 1010 balls recovered, only 273 were to be decisive passes, which means that the team prepared too much the pass for completion. From the same table, where it appears that the Gica Popescu Football School juniors lost 769 balloons, during the course of the 10 games, or an average of 76.9 missed balls per game, we can conclude that the game relations within the team are not yet consolidated.

#### **Conclusions.**

In the seven won matches, the Gica Popescu Football School team had a game fluency average, superior to those of other teams, which confirms the hypothesis stated. If we make an analysis of the game fluency indices in the match played with Craiova School Sports Club team, a match lost by a score of 1-3, we can see that Gica Popescu Football School team has a lower fluency index, than that of the opponent team, which strengthens the hypothesis of the paper.

#### **References:**

- [1]. Dragnea A, Teodorescu –Mate S., (2002), Teoria Sportului, Editura FEST, București, pag. 317.
- [2]. Călinescu G., (2007), Fotbal –Teorie și Metodică, Editura Universitaria, Craiova, pag. 191.
- Teodorescu S., (2009), Antrenament și competiție, Editura ALPHA MDN, Buzău, pag. 162-163.
- [3] Cernăianu C-tin., (1997), Fotbal – Teoria și practica jocului și antrenamentului sportive, Editura Fundației "România de Măine", București 1997, pag 36.
- [4] Motroc I., Motroc Fl., (1996), Fotbalul la copii și juniori, Edizura Didactică și Pedagogică, București, pag. 198-199.

# STUDY ON THE EFFICIENCY TREATMENT OF ANKYLOSING SPONDYLITIS

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**Abstract.** Ankylosing Spondylitis has a severe functional action, due the frequencies of spinal and peripheral joints. A significant number of people, especially men, are affected by this disabling disease, restricting the ability to perform usual gestures, to practice their profession and also perform any activity, becoming dependent society people. The attitude in ankylosing spondylitis is characterized by the projection forward of the head and neck, progressive kyphosis low back and decrease lumbar lordosis. Purpose of this paper is to present the most common resources of treatment for recovery of people affected by this disease. Once the diagnosis was established, clinical examination of the patient came to the fore in terms of the clinical indication and the degree of damage, in terms of functional segments involved in the chronic inflammatory process. Also by clinical examination we obtain information regarding the evolution of the disease and with laboratory examinations dates, the opportunity to assess the effectiveness of therapeutic means applied. The clinical examination of the patient with ankylosing requires: - general clinical examination on equipment and systems; - examination of the spine as a whole and by segments, as shoulder joints, hip and peripheral joints; - establishment of functional rest (segments unaffected, that must be maintained and toned with therapeutic and prophylactic means we have); - dynamic registration in sheet placement of patient, data osteoarticular and muscular balance, for affected segments and for the free ones, to catch early signs of disease extension.

**Keywords:** *ankylosing spondylitis, antigen, sacroiliitis, HLA-B27, glucocortizon.*

Ankylosing spondylitis (pelvispondylitis, spondylitis) is a inflammatory proliferative disease, chronic, progressive, tendency Spondylitis with spine, of unknown origin, but having a genetic immune and substrate, predominantly at young man with sacroiliac joints and debut with the extension of the lumbar spine in the neck.

The onset of disease is characteristic by low back pain and sciatalgi without the effort, with nocturnal intensity and prolonged morning stiffness.

May begin through a peripheral arthritis in order of frequency: coxofemoral articulation, knees, shoulders, tibiotarsi.

Presence of sacroiliitis revealed on conventional x-rays or early through imaging exploration with increased sensitivity such as nuclear magnetic resonance or computer tomograph, establish the diagnosis of ankylosing spondylitis.

Presence of inflammatory low back pain associated with at least two characteristic manifestation of spondyloarthropathy such as enthesitis and uveitis are high predictive for precocious ankylosing spondylitis as well the presence of leukocyte antigen HLA-B27, inflammatory cell infiltrates, proinflammatory cytokines such as tumor necrosis factor alpha and interleukin 10 and genetic and environmental factors [1].

## **Treatments applied in the case of disease**

If spinal mobility is reduced due to changes in the soft tissue structural (ligaments, muscles) or bone (vertebral body), or both, the patient is prevented in the full and correct postural recovery.

Mobilization shall be performed only in corrective way. Are recommended secondary prevention methods by avoiding vicious positions, respiratory gymnastics, static avoid and walking on rough ground. Recommended sport is swimming: back, breaststroke and butterfly.

## **Hygienic-dietary treatment**

Requires a sufficient caloric intake with a high proportion of animal protein, in order to reduce dystrophic disorders and anemia. Also, diet will include additional vitamins, in special vitamin C but also vitamins from the group B, A and D.

## **Medication treatment**

Substances anti-inflammatory nonsteroidal. Are used glucocorticoids. Medication that is used in ankylosing spondylitis dosed as follows:

Drug anti-inflammatory nesteroidian [2]:

- Acetilsalicylic acid
- Indomethacin
- Tolmetin
- Phenylbutazone
- Oxifenilbutazone
- Ibuprofen
- Piroprofen
- Naproxen
- Diclofenac
- Felden

## **Orthopedic treatment**

For force dorsal kyphosis correction, sometimes are inserted pieces of felt between corset and sternum.

For the prevention and correction of cervical spine flexion and previous projection head is added a chin support.

## **Surgical treatment**

Surgical treatment in ankylosing spondylitis is restricted to special cases when impaired peripheral joints is intense aggression or when deformities and ankylosis are so pronounced that make difficult or impossible self-service activity for the patient.

- Synovectomy, preferably early;

- Vertebral osteotomy, indicated those with fixed and large deformity of the spine in flexion;

- Arthrodesis a large joints;

- Prostheses.

## **Physical therapy goals [3]:**

1. Correction/maintain correct body alignment.

2. Recuperation/maintaining supple joints.
3. Recuperation/paravertebral maintain muscle tone.
4. Maintaining the amplitude of respiratory movements.

#### **Principles and objectives BFT treatment**

Thermotherapy is a basic procedure of physical therapy in ankylosing spondylitis.

Importance lies in:

- general applications of heat.
- local application of heat.

General applications of heat are divided into wet and dry applications.

#### **Hot baths**

Hot baths, depending on water temperature, considered these:

- at indifference temperature (36°C).
- hot (37°C).
- baths at 38°C for 10 minutes before physical therapy session.
- in baths at 40°C and over, heat flow is very intense.

We will avoid general thermotherapy at treated patients, with conditions associated, cardiovascular and respiratory, which prefer a mild general or local thermotherapy.

During therapy aims pulse, which increases with 10-20 beats per minute, for each degree of central temperature. Procedure may be followed by sedative massage or wash with cold shower at 20°C/20 seconds.

#### **Steam bath**

In full steam bath, water vapor has a temperature of 50°C.

#### **Light bath**

Is an intense thermo therapeutic procedure due to the direct action on skin of infrared.

#### **Sauna**

Is performed in a room with pine walls. Air temperature rises to 80°C-100°C but humidity is very low.

#### **Full bath sand**

Is indicated in the treatment of coastal.

#### **Paraffin wraps**

Applied correctly, is the best procedure for local thermotherapy. Paraffin have a melting temperature of 50°C-60°C. Apply liquid or semi-liquid by brushing, bath or pouring in a cuff around the joint.

#### **Treatment by electrotherapy**

Uses electricity for therapeutic purposes in different aspects. Is a passive method, be able.

#### **Galvanic baths**

Using polarization effects and modification of tissue permeability of the galvanic current, we can introduce, through the skin pharmacologically active substances.

#### **Ultrasound**

Ultrasonic waves are mechanical oscillations of matter with higher frequency than the human ear sounds perceived. Is a mechanical energy obtained from electric energy.

#### **Massage**

Is performed a sedative massage. Run on regions: cervical, lumbar and peripheral joints. Before massage can run a warming procedure for muscle relaxation. Massage can be preceded by physiotherapy. Fundamental goal of ankylosing therapy maintaining mobility of unaffected segments. There is good that individual sessions of physiotherapy to be preceded by the practice of relaxation techniques and respiratory gymnastic exercises. Aims to increase chest.

#### **Occupational therapy**

Is represent extended and specialized forms of physiotherapy. Occupational therapy uses the entire range of equipment and systems in order to improve performing some works or the habit of entertaining games.

#### **Conclusions**

The most effective means of treatment for the recovery of people affected by this disease, has been shown to balneofiziokinetics therapy, which relieves pain by decreasing inflammation functional status of the joints, a slight increase in osteoarticular mobility restoring the patient better and greater confidence in the recovery process. Well tolerated by patients and does not cause significant side effects that require discontinuation of therapy.

#### **References:**

- [1] Cerbulescu C., (1983), *Atlas de anatomie umană*, Editura Științifică și Enciclopedică, București, p.157
- [2] Sbenge T., (1987), *Kinetologie profilactică, terapeutică, de recuperare*, Editura Medicală, București, p.243
- [3] Sidenco E.L., (2003), *Coloanavertebrală și membrul inferior. Evaluare mioarticulară în kinetoterapie și în medicina sportivă*, Editura Fundației României de Măine, București, p.87

## ETHICS OF SPORTING CLUBS MANAGER

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**Abstract** In this paper we have tried to present a few of the many ethical dilemmas faced by the managers of sports clubs in their relations with the athletes, the coaches, the referees, the athletes' parents, the fans in the process of staff recruitment, of selection of athletes, of organization of sports competitions, etc. In our opinion, the ethical issues that the sports manager must face are: discrimination, violence in sport, doping, exploitation of the athletes, faking of results, hiring on criteria other than competence, verbal or physical harassment, financial engineering, etc.

The sports club manager is judged and appreciated by employees and athletes, both in terms of professional competence and ethical valences. The manager's actions and decisions are dependent on his/her own values and beliefs. Thus, the recruitment of an athlete belonging to another club may be regarded by some as being immoral, while at the same time the manager can ethically justify it through the interest of the club he manages.

**Keywords:** *ethics, sporting clubs, manager*

### 1. Introduction

According to *Robinson*, there are matters that do not have a wrong or right answer, but the manager's way of acting in a particular respect provides a clear picture on his/her ethical profile [1]. *DeSensi* and *Rosenberg* highlight the following factors which have led to an increase in the non-ethical attitudes and behaviors among managers of sports clubs [2]:

- *overrating of the success*, measured by extrinsic rewards (trophies, scholarships, rising income). In order to achieve this objective, some managers encourage non-ethical behavior (faking of results or the use of banned substances by athletes).
- *search of prestige and material rewards*. Success leads to image, prestige, recognition. A successful sports club can attract more and better players, growing sponsorships, improvement of the facilities offered. Not only the manager stands to gain but also the coaches, the athletes, their families and the other employees.
- *own interest*. The decisions are taken by non-ethical managers to better serve their own purpose. This behavior may become a habit in the club managed by them as the manager is a model for employees, even in matters of morality. Perpetuating the attitude and behavior of the leader, athletes can leave the club in favor of another, without taking into account loyalty and other ethical principles. In a similar way, coaches, referees or even managers of sports clubs can orient toward those organizations which provide more benefits and higher income.

This pressure of inner impulses requires an ethical training for managers of sports clubs, so that they have an ethical behavior, understand and assimilate the moral principles and know what to do and what decisions to take when faced with an ethical dilemma.

A good sports manager must have vast knowledge of sports, educational training, in particular in the field of sports administration, professional attitude, in addition to personal attributes, such as intelligence, fairness, flexibility, integrity, honesty, leadership qualities and a sincere interest in sports management.

### 2. The purpose of the research

The purpose of this paper is to highlight the unethical situations in which a manager can learn, with special emphasis on the sports betting industry.

### 3. The research methodology

We analyzed the critical literature, seeking to bring a series of personal contributions, using case studies to support argumentation.

### 4. Ethical issues frequently encountered

One of the ethical issues in sports management refers to *violence, abuse or exploitation of underage athletes*. The manager's responsibility refers not only to his behavior directly toward athletes, but also to the surveillance of other employees who work with youth athletes (for instance, coaches). The existence of violence in sports represents a failure of leadership, correlated with lack of will, rather than a lack of awareness of the seriousness of the phenomenon [3].

The activity of a sports club manager is assessed in the light of the measures taken to prevent and, in the case of infringements, to penalize violence, harassment, discrimination, doping or pressures put on the athletes. The Manager must encourage and promote the principle of sportmanship, fair-play, as well as equality between athletes, regardless of gender, age, ethnicity, religion or health problems.

The club manager must provide *equal opportunities in employment, without using criteria other than competence and professionalism*. Experience has revealed the occurrence of numerous cases in which preferential recruitment is done, in favor of acquaintances or some people who in turn may provide advantages and privileges.

*A stringent problem in sports is that of pressures put on athletes to make performance*. These pressures made by the manager, directly or indirectly, may lead the athletes to adopt a wrong moral behavior and to resort to prohibited substances in order to increase their potential.

*The use of these substances or of prohibited methods* is risky not only as they decrease the ethical level of the sports club, but also by its impact on the physical and mental health of those who resort to them. An even more serious problem is the emergence of new substances and new methods that contribute to



increasing performance, yet they're not listed internationally.

The manager must provide a free, open and transparent climate in the club he/she manages, that would not encourage such methods. He/she should take the necessary steps to educate and inform the athletes about the risks of doping and to intensify anti-dope tests in addition to those mandatory at national level.

***The frequent cases of young people who die suddenly while practicing a sport*** must be a warning sign for managerial activity and must determine the manager to provide the necessary framework for periodical medical checks of both physical and mental health of the athletes of the club.

Another important issue with profound ethical implications on sports competitions is represented by the recent amplitude of ***the sports betting industry***. Sporting bet consists in placing a sum of money on an anticipated particular result of the competition. Often, this universe of the bets exceeds the limits of the legal framework, gaining impressive financial dimensions. Gains involved are very large, although, in reality, the value of the black market of betting is difficult to estimate.

That is the justification why the competitions results are influenced by the huge sums invested in the bets. The betting industry is also interconnected with the development of specialized sites, and of theme books aimed to help gamblers to multiply the money invested or, better said, played.

At the same time, diversified strategies that can be used in the sports betting industry gained momentum, strategies adapted to various sports (soccer, handball, boxing, martial arts, etc.). Worldwide, there are bodies empowered to monitor the evolution of sports betting and the related gains. They must find solutions for the implementation of effective measures so that the integrity of the sport activity would not be impaired.

Gamblers must understand that sports betting market is very complex, and it can bring both significant gains and important losses. In order to avoid a financial drama, players (gamblers) have to study in detail all the aspects involved, to analyze the odds and to invest only amounts that they own or can get in safely.

At EU level, there is no harmonized legislation in the field of gambling industry in general, or of sports betting, in particular. Each Member State has its own legislation, which can be applied independently of the Community legislation, unique in the region. Harmonization at European level could be useful for better monitoring, regulation, implementation, and, possibly, penalization.

In the literature, **the following typology of bets** is known:

- ***live bets*** - they are placed during the effective duration of a particular sporting event. They are a new type, used at a few bookmakers in the world, and they are also difficult to monitor.
- ***classical bets*** - they can be placed only before the effective start of the sporting event. They can be placed online or at betting agencies, and the stake for a simple

bet may be much greater than in the case of live betting.

In recent years, online sports betting market has reached an increasingly higher amplitude, with a value closing to that of the traditional market. Online market has a number of advantages offered to bettors: time-saving, extended accessibility, necessity to only have a bank card, and access to the Internet in order to place bets or to cash out the gains obtained, as well as a high possibility of choosing the bookmaker that offers the best conditions for this purpose.

***Sports betting market in Romania*** has become increasingly more attractive to the multinational companies in the trade. Therefore, sites with Romanian-language interface of major international bookmakers have expanded increasingly, offering opportunities to the numerous bettors from Romania.

The offers and bonuses received by the bettor in the online environment are possible as online bookmakers do not pay the taxes to which the activity of a traditional agency is subject to, under the legislation on gambling. In our country, football is the sport on which bets are placed at the rate of approximately 90% [4].

In Romania, legislation includes sports betting in the gaming category, being taxed excessively, in comparison with other countries (United Kingdom), where they are associated with entertainment. This is why sports betting market in other countries is at a very high level compared to our country.

On January 16<sup>th</sup>, 2012, Romanian Bookmakers (the Association of Betting Organizers from Romania) met at the ReUnion of Professionals in Gambling to address the impact that sports betting industry has on community, in the conditions in which there still is a negative perception of this reality. The participants show that this industry contributes to the increase in budgetary revenues, to the creation of jobs, to enjoyable leisure and socializing, as well as to the development of sports through sponsorships of various teams or competitions. They stress that there is no local operator of online gambling market, dominated by large international companies [5].

#### ***5. Ethical implications of sports betting industry***

As sports bets are considered gambling, they can lead to corruption and to affecting the integrity of the activity of the athletes and its participants, those being the main criticisms to the field. There is fear that the athletes, teams, referees, sports competitions can be manipulated so that to lead to the prediction made by certain groups of bettors.

The consequences are the decreasing confidence in sports and in sponsorships given by companies to teams and players, who do not want to associate their name, their brand with a possible scandal. The scale of online betting market led to increased corruption, to increased tax evasion and to increased stake for bettors. From this reality to faking match results in sports is but a step, a very important one though, that makes the transition from moral to immoral and even from legal to illegal.

The ethical dilemmas of sports betting arise when moral values such as honesty, justice and responsibility

are violated, and various people are suffering as a result of non-ethical actions [6]. The authors emphasize the importance of sport in the ethical education of the participants: the role of team solidarity, self control, discipline, fair-play, respect for the letter and spirit of the law and the rules of the game.

**Bodin** and **Sempe** approach in *Ethics and Sport in Europe* the ethical implications inevitable in the business of sports betting: match-fixing-, corruption and illegal betting [7].

Fixed matches are a fictional competition, whose final goal is to achieve a predetermined result, with high stakes on the betting market. Sometimes, for strategic reasons, matches are lost intentionally, with the complicity of a player, an entire team, or even of the referees, the coaches or the managers of the organization involved. Morality interferes when the results are being rigged because behind this scenario huge profits are hiding.

A major challenge for Sports Ethics is the illegal bets, used as a means for money laundering or organised crime activities. These practices constitute a direct threat to fairness, to honesty. Fixed matches offer a false result, inconsistent with reality, which eventually delude the entire sports community. In parallel with the illegality and immorality of this phenomenon, which is increasing, there is also arising an industry of those who sell tips for such fixed matches. The online environment and, generally, the technological progress contribute to the increasing difficulty to monitor these activities.

According to a Mediapax article of January 6<sup>th</sup>, 2012, FIFA will work with informants inside organized crime networks in the fight against match-fixing betting, the main targets of the body being the competitions in the qualifiers for the World Cup 2014 and the national teams with small chances of qualification for the competition in Brazil [8].

The international casuistry is full of examples where the sports betting industry affects the integrity of the athletes, coaches, or sports clubs. The principle of sportmanship is basically violated, the financial gains becoming the sole objective. The justifications of those caught having participated in match-rigging relate to the players' revenues being too small.

Governments must adopt a series of *measures* and to set *clear goals* in order to ensure compliance with the law, and also with the ethics in the sports betting industry:

- minimization of the social impact of pathological (addicted) gamblers, which draw significant amounts from the health care system of a state
- careful monitoring, prevention, fight and penalization of criminal activities
- promotion of ethical practices in decision making
- educating the population in the spirit of respect for the law and moral principles, regardless of the activities carried
- maximization the quality of life of the society
- minimization of taxes, in order to reduce the black market of sports betting

Publishing information about placing bets for the support of a team or an athlete in the media is also dangerous and non-ethical, as it may lead to arranging the results of sports matches in the most advantageous way. Globally, there are networks of organized crime, which develop on the basis of alluring athletes or other sports personalities, which they eventually blackmail, further creating a vicious circle for the latter.

A strong ethical implication of sports betting and not only *iscreating a dependency of individuals* passionate about these activities. Like any addiction and pathological condition, it has adverse consequences on the family, society and finances, and it may even lead to other ethical issues: theft, lying, deception, violence, etc.

Online sports betting generates a series of disputes, being an environment accessible to addicts and thus increasing the ethical and social negative impact of this controversial industry. The comfort and ease of use make it difficult for addicts to resist the temptation to bet significant amounts of money. Statistics show that the number of addicted gamblers is superior to those who bet in traditional operators on the offline markets.

Many sports leagues around the world prohibit bets made by athletes, coaches or managers, considering that a conflict of interests. The problem is not the sports betting itself, but the effects it generates on the individuals involved, and on the integrity of the game and the integrity of the sport in general.

Sports clubs must avoid situations in which they are sponsored by bookmakers, which can thus influence the results obtained. This can offer a greater confidence in the fairness and morality of the management of the respective club and, implicitly, in the scores achieved at various competitions.

As a result of the development of online bookmakers, a globally integrated market has formed, which increase the competition in this domain and may reduce the funds for sports activities. It is necessary that sports organizations realize the risks involved and the dynamics of sports betting industry and not to fall into the trap of compromise, immorality and financial gains to the detriment of sportmanship and ethics.

Regulations at governmental level in the sports betting industry represent a first solution for ensuring the compliance with a legal and moral framework in the sports world. The expansion of the industry in the online environment makes this regulatory measure to become difficult and with a weak impact.

The main initiatives must come from the sports bodies, which, through actions taken, can contribute to reducing corruption and matches arranged according to odds fixed by bookmakers.

Such measures may include banning sports personalities to bet on their own games, promoting the principles of transparency and continuous monitoring of irregularities observed on the betting market, as well as the harsh sanctioning of instances of circumvention of results or of sale of information in this regard.

## 6. Conclusions

In conclusion, we cannot say that sport is corrupt. There are numerous examples of corruption in the



sport, but at the same time, there also are measures adopted to combat or to prevent such situations. Sports activity can attract organized crime groups, precisely because revenues in sports are considerable.

The awareness of these risks is important, because it represents a first step in ensuring an ethical education for all participants, in the implementation of strict rules, and in promoting transparency and harsh punishment of those found guilty of corruption or illegal betting.

In order to create a solid ethical environment in the sports club, the manager must demonstrate ethical leadership (this is considered the basic tool in the management of ethics), to ensure the transparency in decisions, to facilitate the ethical education of employees and athletes, to provide the creation of a code of ethics and its implementation.

Social responsibility and involvement in social projects should be encouraged by sports management, which understands the importance of solidarity with the members of the community in which they operate. Environment protection is also important, and the manager should take action so that the athletes or the fans taking part to a competition do not destroy nature.

It is necessary that the manager of a sports club realizes that his/her goal is not performance with any cost and by any means. His/her moral duty is to ensure the optimal carrying out of the sports activity, in accordance with the legal regulations and the moral principles, in a healthy ethical climate in which

sportsmanship matters more than the victory at all costs and at all risks.

**References:**

[1]Robinson, M.J. (2010). *Sport Club Management*. Human Kinetics.

[2]Desensi, J.T., & Rosenberg, D. (2003). *Ethics and Morality in Sport Management*. Fitness Information Technology.

[3]Brackenridge, C.H. (2001). *Spoilsports*. Routledge, London.

[4]Cum se câștigă Pariul cu criza. (2010). Retrieved March 12, 2013, from [http://www.sfin.ro/articol\\_19338/cum\\_se\\_castiga\\_pariul\\_cu\\_criza.html](http://www.sfin.ro/articol_19338/cum_se_castiga_pariul_cu_criza.html)

[5]Probleme de actualitate în domeniul pariurilor sportive. (2012). Retrieved Aprilie 20, 2012, from <http://www.romanianbookmakers.ro/noutati/560/probleme-de-actualitate-in-domeniul-pariurilor-sportive/>

[6]Lumpkin, A., Stoll, S.K., & BELLER, J.M. (2011). *Practical Ethics in Sport Management*. McFarland.

[7]Bodin, D., & Sempe, G. (2011). *Ethics and Sport in Europe*. Council of Europe.

[8]FIFA va folosi informatori în lupta împotriva meciurilor aranjate. (2012). Retrieved Aprilie 20, 2012, from <http://www.mediafax.ro/sport/fifa-va-folosi-informatori-in-lupta-impotriva-meciurilor-aranjate-9130987>

## ASPECTS OF TECHNIQUE AND TACTICS OF BEACH TENNIS

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**Abstract:** Beach Tennis relatively new game brings together elements from elements of tennis and beach volleyball. It is a fast growing sport that attracts a number of increasingly large following around the world. This growth trend is expected to continue into the future by practicing this sport in as many countries around the world. Being accessible to all ages, it contributes to the strengthening and preservation of health, harmonious development of body, mental and motor skills development.

Sport can be practiced as a complementary or pleasant way to spend free time with friends and family.

**Keywords:** beach tennis, history, technique, tactics, game, health.

### Introduction

Beach tennis game that takes place between 2-4 players or players who send the ball over the net with blades.

### HISTORY

2008 - ITF Beach tennis tournaments held around the world.

2009 - The first European Championship Beach Tennis Rome, Italy.

2010 - European Championships tennis beach, Turkey.

2011

- Orange ball (stagi2 play @ stay) replace the green (stage 1 play @ stay).

- European Championship Tennis Beach, Albena, Bulgaria.

2012

### EQUIPMENT:

The blades were rigid structure, uniform surface without hitting the ropes, handy for all ages (fig. 1).



Fig.1 Pallets beach [1]

The ball is orange specific level program approved by the ITF Play @ Stay. 50% is decompressed to the yellow, which causes slowing the game, the spectacular growth of the game for players and spectators (fig. 2).



Fig.2 Beach Ball [1]

The clothing consists of shorts, t-shirt, shirt, be chosen so as not to disturb the movements and made of absorbent material to prevent sweating (fig. 3).



Fig.3 Beach equipment [1]

- 19 June 2012 launch of the new site.

- The first World Championship Beach Tennis Team Moscow, Russia.

- European Championship Beach Tennis Borgo Maggiore, San Marino.

- World Burgas, Bulgaria.

2013

- The first Pan American Championship, Porto Seguro, Brazil.

### Material and Methods

**TECHNIQUE**

After George Daniel "The technical tests which means all movements, assembled a rational motive structure allow us to successfully conduct that test".[2]

Adapting this definition samples of beach tennis technique of the sport include the following elements and processes which we present below. From the technical elements used in beach tennis are similar to those used in tennis as fundamental position, outlet, training, impact and end strike.

Service execution following processes: - over the shoulder, under the shoulder, attack at the net (fig.4,5).



Fig.4 Service tennis[3]



Fig.5 Service beach tennis [1]

Volley following methods of execution: - blocked, decisive, preparatory, right, left (fig.6,7).



Fig. 6 Volley tennis [4]



Fig.7 Volley beach tennis [1]

Smash following methods of execution: - the place, the jump (fig.8,9).



Fig. 8 Smash tennis [4]



Fig.9 Smash beach tennis [1]

Lobe with the following processes running: - defense, right, left (fig.10,11).



Fig. 10 Lobe tennis[4]



Fig.11 Lobe beach tennis [1]

### TACTICS

After Marius Baciu "The notion of tactics mean: all player actions rationally organized and coordinated, within the provisions of regulation play and the spirit of sportsmanship, for the purpose their own qualities and deficiencies in preparation of the opponent".[5]

Adapting this definition samples of beach tennis, play this sport has two components: simple (single) and team (doubles).

Phases evidence disputing the point beach tennis game are similar to those of tennis, the difference occurring in the technical elements and the placement of players, the players on the field in both samples see table 1.

Single Tennis	Beach Tennis	Double Tennis	Beach Tennis
F1-Se, Re	F1-Se, Vob	F1-Se, Re	F1-Se, Vob
F2 – Ldr, Lst	F2- Vodr, Vost	F2 – Seat, Rel, Vp	F2- Seat, Vp
F3- Lat	F3- Vp	F3-Vd	F3- Vd
F4- Vd,Sm	F4- Vd, Sm	F4- Vd, Sm	F4- Vd, Sm
F5-Pa, Lo	F5- Lo	F5- Pa, Lo	F5- Lo

Table 1. Phases and technical elements specific evidence in tennis and beach tennis

### Legend:

#### Single-Tennis/ Beach Tennis

- F1- Start disputing the point (Se-service, Re-return; / Se-service, Vob- blocked volley);  
 F2- Exchange of hits (Ldr-forehand, Lst- backhand, /Vodr- forehand volley, Vost- backhand volley);  
 F3- Hitting the net (Lat- shot attack, /Vp- preparatory volley)  
 F4- Completion point (Vd – decisive volley, Sm-smash)  
 F5- Defense (Pa-passing-shot, Lo-lobe,/ Lo-lobe).

#### Double Tennis/Beach Tennis

- F1- Start disputing the point (Se-service, Re-return;/ Se-service, Vob- blocked volley);  
 F2- Hitting the net (Seat –service attack, Rel- hit return, Vp- preparatory volley,/ Seat – service attack, Vp- preparatory volley);  
 F3- Playing at the net (Vd- decisive volley);  
 F4- Completion point (Vd – decisive volley, Sm-smash);  
 F5 – Defense (Pa-passing-shot, Lo-lobe,/ Lo-lobe).

### GAME :

Beach tennis is played on sand ground.

Single court has the following dimensions: - width 4.5 m, length 16 m, height 1.7 m grid (fig. 12).



Fig.12 Single Court [1]

Double court has the following dimensions: - width 8m, 16m length, height 1.7 m grid (fig.13).



Fig. 13 Double Court [1]

### Structure:

A tennis match is played beach after system: 2 out of 3 sets, or 3 out of 5 sets.

- 2 of 3 sets match is won by the team that first or 2 sets;
- 3 out of 5 sets match is won by the team or taking the first 3 sets.

Set consists of 6 games, one that arrives first wins set from 6 to difference of two games.

Tiebreak game runs when the score reaches "six games equal" in a set.

Score using the same scoring system as tennis (15,30, 40), except for permanent use without scoring lead with equality.

Service-there is only one service as beach volleyball, net of the service is not available.

Samples:-Singles, Doubles, Mixed Doubles.

#### HEALTH

To protect health and prevent discomfort induced by high temperature corresponding season we recommend the following rules:

- hydration by drinking over 2 liters of fluid enhanced with minerals;
- protect joints legs with instep protectors;
- preventing sunburn by wearing sun hats, white equipment;
- protect the skin by using sunscreen creams;
- ensuring optimal play by:
- leveling, cleaning, watering the sand.

#### Results and Discussion

The literature on beach tennis is relatively modest.

*Tennis Beach mix volleyball world in an exciting sport. Since beach tennis began in the United States as a recreational and professional sport, because it is very simple to play, was played by athletes of all ages and not only.[6]*

*By understanding all the technical tests that movements assembled in a motor rational structure enable us conducting that test successfully.[2]*

*The notion of tactics mean : all player actions rationally organized and coordinated , within the provisions of regulation play and the spirit of sportsmanship , for the purpose their own qualities and deficiencies in preparation of the opponent.[5]*

Beach Tennis is a relatively new sport that has become the sport of recreational sport competition.

In terms of technical, tactical elements used in beach tennis are similar to those used in tennis.

The game is played on sand volleyball court with specific dimensions for the singles and the doubles.

Most matches are played at extremely high temperatures.

#### Conclusions

*Beach tennis game that takes place between 2-4 players or players who send the ball over the net with blades.*

From the historical point though is a young sport tends to become a global phenomenon being practiced by a growing number of people around the world.

From the technical elements used in beach tennis are similar to those used in tennis as fundamental position, outlet, training, impact and end strike.

From a tactical perspective, point of disputing phases in samples of beach tennis game is similar to tennis, the difference occurring in the technical elements and the placement of the players, the players on the field in both samples.

The game is played on sand volleyball court size and specific rules for the singles and the doubles.

The game helps to strengthen and preserve health, harmonious development of body, mental and motor skills development.

To protect health and prevent discomfort induced by high temperature, recommend specific compliance practice exercise in summer.

Beach Tennis is accessible sport in terms of technical, tactical, the game for all ages and levels of training.

#### References

- [1] <http://youtu.be/pEupr8mPOII>
- [2] George, D. (2002). Athletics. Technical evidence Bucharest: Publisher Alexander, page 24.
- [3] <http://www.itftennis.com/home.aspx>
- [4] Brown, J. (1997). Tennis Steps to success. Bucharest: Publisher Theory.
- [5] Baci, M. (2008). Training in lawn tennis. Cluj Napoca: Publisher Napoca Star, page 26.
- [6] [www.vilarocco.ro](http://www.vilarocco.ro) / leisure-the-seaside / beach tennis



## STUDY CONCERNING THE ROLE OF PHYSICAL TRAINING IN ACHIEVING SPORTS PERFORMANCES IN BASKETBALL TO JUNIOR LEVEL (U16)

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**Abstract.** The research aims at identifying the basketball coaches' opinions concerning the level of physical training to junior basketball players performing in Dolj county. Material and Method. A questionnaire including 13 questions was elaborated and applied to a group of 22 coaches. Results. Most of the responders consider the fact that the relative importance of the training factors involved in the performance of junior basketball players is given by their physical condition and that they should continue to be focused on this aspect of the training to the level of junior basketball players. Conclusions. Though most of the coaches regularly test the sportsmen's force, none of them do not apply neuromuscular evaluations; the testing relying on the recommendations of Romanian Basketball Federation (RBF). That is the reason why they consider the possibility/ the need for sportsmen's evaluation by means of modern equipments investigating the level of physical training.

**Key words:** basketball, junior players, physical training.

### Introduction

The improvement and the refinement of the physical training involved more and more experts (dieticians, masseurs, physiologists, organizers, referees, journalists and – of course – psychologists), directly assisting the coach's activity. Nowadays, sports performance represents the result of the collaboration of several sciences dedicated to the study and to the application of various techniques and methods meant to increase the potential of the human being considered as a psycho-physical unit whose strength is not protected by the modern technique, on the contrary, it is submitted to greater demands.

The performance sport constitutes a limitation activity of physical and psychical abilities of the individual. The limitation of the human abilities is individually considered, and, by social norms and in time, these limits are continuously pushed further. The training is a difficult, long-term task of high intensity, submitting the sportsmen to exceptional efforts, to severe life and work conditions, demanding a high level of focus, reasoning and imagination, a long-term and hard practice of technical and tactical learning and special physical and psychical demands. During the sports training, the focus is on the elaboration of new methods meant to extend the body functional activity, of new strategies and adjustment systems, as well as, on the update of testing and evaluation instruments in sport.

The sports performance determines both the process and the result of an action which, set as a norm, represents the ability of fulfilling a task as well as possible, depending on the interrelation of endogenous factors (natural tendencies, skills) and exogenous factors (environment) being expressed in the quality of the training process, in material and practical conditions, in the motivation level and in the influence of social factors [1].

Presently, the evolution of the sports practice, seen as any other activity involving interdisciplinary characteristics, is continuously submitted to an alert dynamics, rejecting certain techniques and means

applied in the sports training which no longer comply with the high performance requirements [2].

One may notice an obvious tendency of grading the technical-tactical value in high performance sport which is due to the spread of training methods, reproducing the initial dimension of the physical value being the only feature which makes the difference. The specific content of the sports training relies on the sportsmen's physical condition. Upon its real orientation, the physical training represents a process involving the education of physical abilities required in a sports activity. At the same time, the sportsman's physical training is correlated to the increase of the general level of body functional abilities and to the multilateral physical development.

The physical training is one of the most important factors, and in certain circumstances, an essential ingredient of the sports training in achieving high performances. The main objectives of the physical training involve the increase of the sportsman's physiological potential and the development of the psycho-motor skill to the highest level.

The physical training – the support for the technical-tactical training – represents one of the basic components of the sports training in basketball and the search for certain ways meant to improve it constitutes a permanent concern.

### Method

The research aims at identifying the basketball coaches' opinions concerning the level of physical training to junior basketball players performing in Dolj county, as well as, the possibility/ the need for sportsmen's evaluation by means of modern equipments investigating the level of physical training.

Therefore, a questionnaire including 13 questions was applied to a group of 22 coaches, each question having a precise objective, namely, the acquiring of real data concerning the evolution of the physical training to the level of junior basketball players.

Considering the 22 interviewed coaches, 2 of them register a working activity below 5 years (9.1%), 4 coaches have a working experience between 5 and 10

years (18.2%), 12 registering 10 to 15 years of training (54.5%) and 4 indicating an activity of over 15 years (18.2%).

#### QUESTIONNAIRE

No	Question	Alternative answers	
1.	Have you ever achieved special sports performances with the teams you have trained? If yes, to which level?	YES - nat. champ. to juniors - nat. Champ. to seniors - internat. champ. to juniors - internat. champ. to seniors	NO
2.	Which is the frequency of applying the training factors in high performance basketball to juniors, during the precompetition period?	- general physical training - specific physical training - technical training - tactical training	
3.	What about the competition period?	- general physical training - specific physical training - technical training - tactical training	
4.	Do you consider that the physical training has a key role in the training of junior basketball players?	YES NO	
5.	What is the physical training level of your sportsmen?	- very good - good - average - low	
6.	Do you achieve together with your team trained by you focused physical training?	YES NO	
7.	Do you apply specific or non-specific means during the physical training sessions?	Specific Non-specific	
8.	Do you regularly test the level of physical training of your players?	YES NO	
9.	Do you apply control tests for the evaluation of the physical training level?	YES NO	
10.	What kind of physical training evaluation means do you apply?	- standard - methods, means, equipments and modern device	
11.	What modern means for the physical training evaluation do you know?		
12.	In the case of junior basketball players, which muscle group do you consider as prior in the introduction of neuromuscular evaluations?	- upper limb muscles - lower limb muscles	
13.	Do you consider as necessary the evaluation of your sportsmen's physical condition by means of modern investigation?	YES NO	

● To the first question, referring to the performances achieved by their teams up to present, 77.3% of the responders have registered performances on national level, the junior league, 4.5% (1 single coach) succeeded with the senior league, on national level, and the rest of 18.2% was equally divided between those who have succeeded on international level and those who have not achieved such results so far.

Exceptional results achieved by the trained teams	Number of answers	Percentage
- national juniors	17	77.3%
- national seniors	1	4.5%
- international juniors	2	9.1%
- international seniors	-	-
- no results	2	9.1%

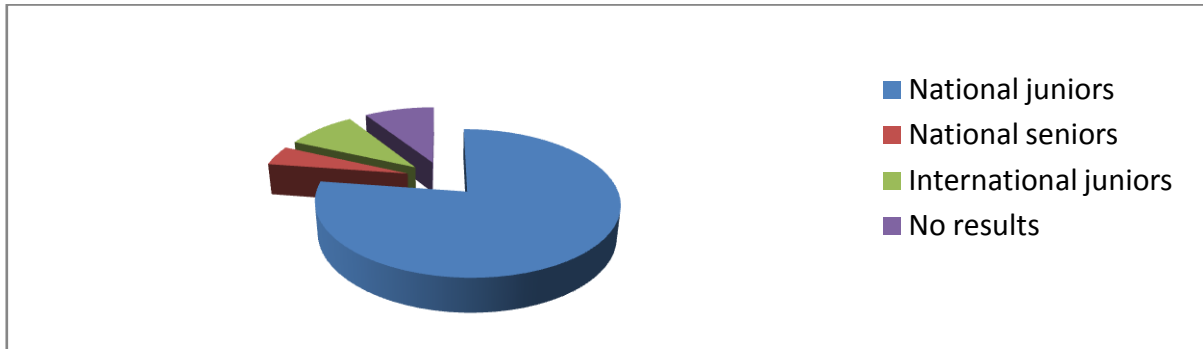


Fig. no1 Sports results achieved by the teams trained by the interviewed coaches

- To the question concerning the frequency of the training factors in high performance basketball to juniors, the answers were as it follows: general physical training 63.6% during the precompetition period and 0% during the competition period, specific physical training 22.8% during the precompetition period and 9.1% during the competition period, technical training 9.1% during the precompetition period and 36.4% during the competition period, tactical training 4.5% during the precompetition period and 54.5% during the competition period.

Frequency of training factors in basketball, to junior level	Number of answers		Percentage	
	PCP	CP	PCP	CP
- general physical training	14	-	63.6%	-
- specific physical training	5	2	22.8%	9.1%
- technical training	2	8	9.1%	36.4%
- tactical training	1	12	4.5%	54.5%



Fig. no.2 Frequency of training factors during the precompetition period

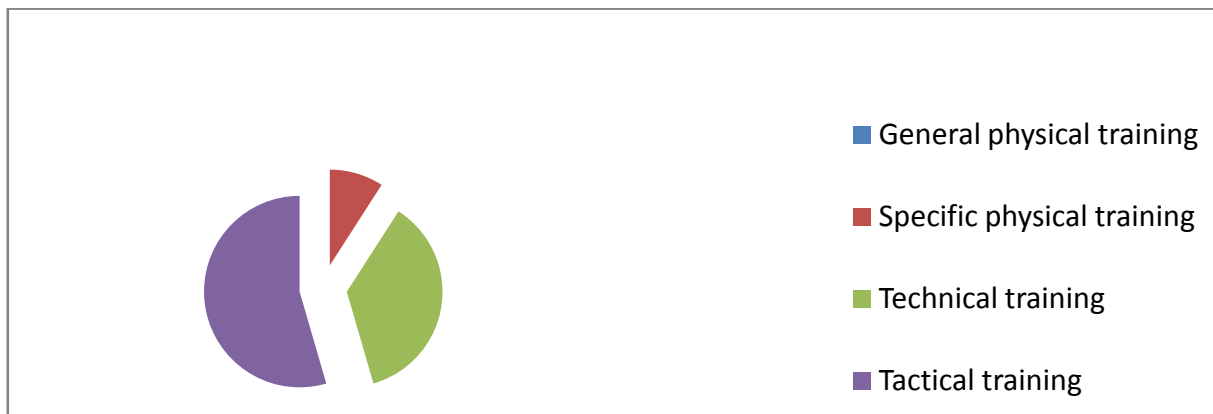


Fig. no.3 Frequency of training factors during the competition period

- Though most of the responders (91%) consider that the physical training has an important role in the junior basketball players' training, not all of the coaches manage to organize together with their trainees periodic sessions of focused

training (only 77.3%) and, of course, not all of them assign the necessary time for regularly testing the level of physical training register by their sportsmen (86.3%).

- Questioned about the level of physical training registered by their players, 68.2% of the responders consider that they have a good level, 18.2% find it ordinary, 9.1% consider it very good and 4.5% of the coaches confirm a low level.

Level of physical training of their own sportsmen	Number of answers	Percentage
- very good	2	9.1%
- good	15	68.2%
- average	4	18.2%
- low	1	4.5%

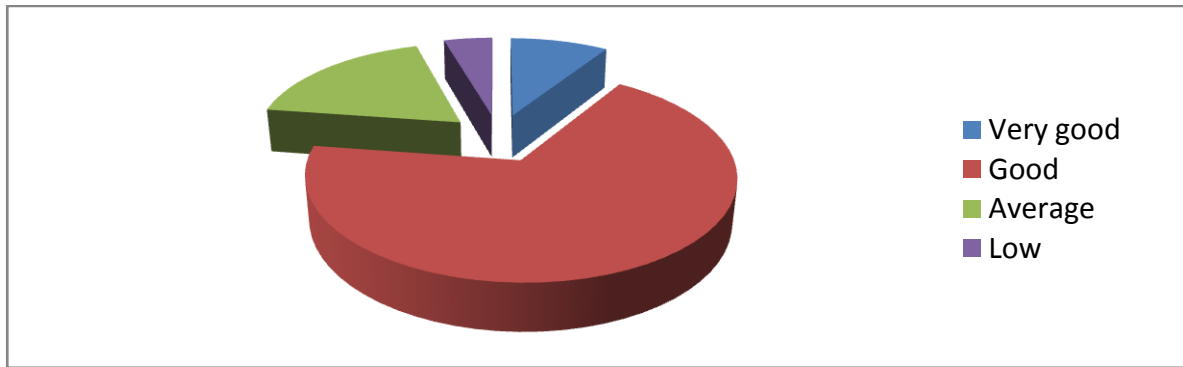


Fig. no. 4 Level of physical training of their own sportsmen

- Another question refers to junior basketball players' muscle groups which should be first evaluated from neuromuscular point of view. Therefore, 45.5% have chosen the lower limb muscles, only 4.5% the upper limb muscles and 50% consider that the neuromuscular evaluation of both upper and lower limb muscles, is highly important.

- Concerning the applied means during the physical training sessions, all the coaches admitted that they use only specific means. Regarding the evaluation means of the level of physical training, besides the standard means, only 2 coaches (9.1%) have also tried other evaluation methods and modern devices. The last question aims at stirring up coaches' interest for investigating the level of physical training of sportsmen by means of modern equipments. 81.8% of them were responsive to this opportunity, and 18.2% (4 coaches) preferred to stick with classical methods and means.

#### Discussions

An appropriate physical training provides the right development of all motor skills determined for the value achievement of the future basketball player. At first, the specific motor skills will be developed through means of multilateral and specific physical training, according to the movements required during the game. It is recommended that most of the physical training means should be focused on the structure of the specific performance or on elements close to it. The coach should first develop those muscle groups required by the basketball game, but in a differential manner according to the needs mainly determined by the sportsman's evolution in time.

A basketball player should possess all motor skills harmoniously combined or balanced. This aspect is

closely followed all along the training process. When time is too short or the sportsman lacks certain motor skills, then the focus will be on the improvement of control and speed closely related to the ability of learning the motor skills required by the game (technical nature).

The physical training becomes thus concerned uniquely with the development of what J. Weineck [3] defines as "conditional and coordinating physical factors of performance"<sup>1</sup>. This expression simply and exhaustively designates real situations and different parameters which should be developed for the improvement of the individual's physical potential and for the exercise of this potential.

#### Conclusions

Following the analysis of the questionnaire, we may conclude that the investigation reflects the competent opinions of the coaches charged with the junior basketball players' training, who address a special interest for the physical training in achieving sports performances to junior level (U16) and consider sportsmen's physical training evaluation by modern investigation means as being opportune.

#### References

- [1] Dragnea, A., Mate-Teodorescu, (2002), Teoria sportului (Sport Theory), FEST Publisher, Bucharest, p.27
- [2] Simion, G., Mihăilă, I., Stănculescu, G., (2011), Antrenament sportiv. Concept sistemic Sports Coach: Systemic Concept, University Press Publisher, Constanța, p.118
- [3] Weineck, J., (1994), Entrenamiento optimo, Editorial Hispano Europea, Barcelona, p.52

# THE INFLUENCE OF THE VOLUME OF TRAINING MEANS ON THE PERFORMANCE OF ATHLETES IN ORIENTEERING

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**Abstract:** The present paper aims to analyze the impact that different groups of training means – component parts of the training system – have on the performances in sports competitions for long and middle distances. The analysis was performed on statistical information with regard to the sportsmen that belong to Romania national team, during the season 2005-2006.

**Key words:** performance in sports orienteering; volume of means; regression;

## 1. Introduction

Most endurance athletes use high-intensity training to prepare for competitions. Carl D Paton[1] looked the effects of high-intensity interval and resistance training on endurance performance and related physiological measures of competitive endurance athletes. Effects of some forms of high-intensity training on performance or physiology were unclear. Fiskestrand, A., and K.S. Seiler quantified changes in training volume, organization, and physical capacity among Norwegian rowers winning international medals between 1970 and 2001[2].

We shall analyze the manner in which a group of training means influences the performance obtained by runners in competitions.

## 2. Methodology and data source

The analyzed data set is based on the measurements performed by the coach and by the author<sup>[3]</sup> on national 2005-2006 teams of athletes, of different gender and ages. Thus, the result is a database with 40 registrations. The independent variables for which information was collected: sex, test (in kilometers), maximum heart rate, average heart rate, as well as 25 training means from which we selected:

- Endurance running (Long-distance running) Km (X3)
- Tempo run (repeats of 1000m...5000m) Km (X4)
- Running with intervals (repeats of 200m...800m) (X5)
- Variable running (variable tempo / variable slope / variable coverage) Km (X6)
- Uphill running (km) (X7)
- Downhill running (km) (X8)

To these initial variables some derived variables were added, concretized in the speed of completing the test

distance, measured in meters per second. We used this process in order to achieve a relative standardization of the information.

The present study will begin with the presentation of the correlation matrix between the analyzed variables. The next section will be devoted to the construction of some regression patterns, illustrating the (the lack of) impact of different training means on the obtained performances. For the statistical analyses, the software package SPSS was used.

## 3. Data analysis

### 3.1. Descriptive elements

In this section, we will present the main sportsmen's features according to which the database was made.

From the perspective of the distance raced, we find that the overwhelming majority (over 90% of cases) ran on lesser distances of at most 8 km (4 km – 6,1%, 6 km - 30,6% and 8 km – 54,1%).

### 3.1.2. Correlation method

For the combination of independent variables, coupled with dependent variables, a graphical analysis was performed.

In order to test the modality in which the analyzed variables interact with each other, in a first stage, the correlation method was applied. Thus, a correlation matrix was created. Due to the fact that the variables involved are mainly quantitative, we opted for the simple linear correlation coefficient of Pearson ( $r$ ). The default thresholds of statistical significance were set at 1 and 5%. In the correlation table, we shall retain the attention in this analysis only on how performance variables (speed in test 1 - X9 and speed oin test 2 - X10) correlate (or not) with the training means. This information is available in the correlation table, the last 2 lines.

**Table 1. Correlations**

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
X1	1	0,86**	0,87**	0,62**	0,72**	0,69**	0,63**	0,64**	-0,6**	-0,69**
X2	0,86**	1	0,87**	0,62**	0,72**	0,69**	0,63**	0,64**	-0,6**	-0,69**
X3	0,86**	0,94**	1	0,87**	0,85**	0,93**	0,87**	0,84**	-0,82**	-0,84**
X4	0,62**	0,85**	0,77**	1	0,71**	0,87**	0,88**	0,89**	-0,85**	-0,83**
X5	0,64**	0,83**	0,72**	0,72**	1	0,85**	0,88**	0,83**	-0,69**	-0,77**
X6	0,8**	0,95**	0,9**	0,9**	0,82**	1	0,92**	0,88**	-0,79**	-0,83**
X7	0,69**	0,91**	0,85**	0,9**	0,83**	0,95**	1	0,88**	-0,86**	-0,87**
X8	0,55**	0,81**	0,7**	0,85**	0,84**	0,89**	0,93**	1	-0,83**	-0,84**
X9	-0,6**	-0,82**	-0,74**	-0,88**	-0,67**	-0,84**	-0,81**	-0,87**	1	0,91**
X10	-0,69**	-0,84**	-0,82**	-0,82**	-0,79**	-0,87**	-0,83**	-0,84**	0,91**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed)

### 3.1.3. Regression method

This stage consisted in constructing some linear regression models for each of the two dependent variables (speed of completing the test distance), in combination with groups of independent variables and a free time limit.

After analyzing the quality of the regression models obtained, we proceeded to eliminate from the model the independent variables, that didn't have a significant influence from a statistical point of view (basically, there were removed from the pattern those variables that registered regression coefficients that are insignificant from a statistical point of view). The significance threshold was set at 5%.

#### A. Application of the regression method for the dependent variable "speed of completing the test distances overall"

##### ITERATION 1

The initial independent variables included in the analysis identify with the group of the training means including in the research.

Two steps after, in which there were successively eliminated the non-relevant variables, the two regression patterns resulted:

#### A. Application of the regression method for the dependent variable "speed of completing the test distances overall"

##### ITERATION 1

The initial independent variables included in the analysis identify with the group of the training means including in the research.

Two steps after, in which there were successively eliminated the non-relevant variables, the two regression models resulted:

**Table 2.1. Model 1: The speed of completing the 2<sup>nd</sup> test distance according to the endurance running and to the downhill running. Regression coefficients: values, standard errors, t test, significance threshold.**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	480,504	17,582		27,330	,000
	Endurance running (Km)	-,149	,053	-,481	-2,831	,009
	Downhill running (Km)	-,555	,213	-,444	-2,608	,016

a. Dependent Variable: speed of completing the 2<sup>nd</sup> test distance (sec/km)

**Table 2.2. Model 1: The speed of completing the 1<sup>st</sup> test distance according to the endurance running, to the running with intervals and to the downhill running. Regression coefficients: values, standard errors, t test, significance threshold.**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	411,904	15,989		25,762	,000
	Endurance running (Km)	-,140	,037	-,583	-3,814	,001
	Running with intervals (repeats of 200m..800m)	,993	,341	,615	2,916	,007
	Downhill running (Km)	-,886	,197	-,915	-4,497	,000

a. Dependent Variable: speed of completing the 1<sup>st</sup> test distance (sec/km)

It can be seen that relevant and having a positive contribution to the final performance were the **endurance running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer in the contest test with values between 14 and 15 hundredths of a second) and **downhill running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer in the contest test with values between 56 and 89 hundredths of a second) for the second test and for the first test, besides these two, **trainings of running with intervals – 200m..800m** (each additional kilometer of training resulted in almost a second in addition in the completing of one kilometer of the test) (the statistical detail is available in Appendix 7.1.2 - Iteration 1)

#### B. Application of the regression method for the dependent variable "speed of completing the tests in uphill distances"

Two steps after, in which there were successively eliminated the non-relevant variables, the two regression models resulted:



**Table 2.3. Model 1: The speed of completing the 1<sup>st</sup> test according to the endurance running, to the running with intervals (repeats of 200m..800m) and to the downhill running. Regression coefficients: values, standard errors, t test, significance threshold**

Model		Unstandardized Coefficients <sup>a</sup>		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	623,198	30,525		20,416	,000
	Endurance running (Km)	-,200	,070	-,489	-2,841	,008
	Running with intervals (repeats of 200m..800m)	1,247	,651	,454	1,916	,066
	Downhill running (Km)	-1,383	,376	-,841	-3,676	,001

a. Dependent Variable: speed of completing the 1<sup>st</sup> test (uphill) (sec/km)

**Table 2.4. Model 1: The speed of completing the 2<sup>nd</sup> test according to the uphill running. Regression coefficients: values, standard errors, t test, significance threshold**

Model		Unstandardized Coefficients <sup>a</sup>		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	744,696	35,259		21,121	,000
	Uphill running (Km)	-2,554	,332	-,844	-7,697	,000

a. Dependent Variable: speed of completing the 2<sup>nd</sup> test (uphill) (sec/km)

It can be seen that relevant and having a positive contribution to the final performance were the **endurance running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer in the contest test with a value of 20 hundredths of a second) for the first test, and for the second, **downhill running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer in the contest test with a value of one second and 38 hundredths of a second), for the first test, and for the second one, **uphill running** (each additional kilometer at this training mean resulted in the coverage of one kilometer in the contest test in uphill areas faster with 2 seconds and 55 hundredths of a second). It can also be noted the negative contribution **trainings of running with intervals – 200m..800m** (each additional kilometer at this training mean resulted in almost a second and 25 hundredths of a second in addition in the completing of one kilometer of the test) (the statistical detail is available in Appendix 7.1.3 - Iteration 1)

### C. Application of the regression method for the dependent variable "speed of completing the tests in downhill distances"

Three steps after, in which there were successively eliminated the non-relevant variables, the two regression models resulted:

**Table 2.5. Model 1: The speed of completing the 1<sup>st</sup> test according to the tempo run (repeats of 1000m...5000m), to the running with intervals (repeats of 200m..800m) and to the uphill running. Regression coefficients: values, standard errors, t test, significance threshold**

Model		Unstandardized Coefficients <sup>a</sup>		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	564,744	20,179		27,986	,000
	Tempo run (repeats of 1000m..5000m)	-,557	,190	-,648	-2,931	,007
	Running with intervals (repeats of 200m..800m)	,939	,422	,448	2,226	,035
	Uphill running (Km)	-1,073	,454	-,630	-2,361	,026

a. Dependent Variable: speed of completing the 1<sup>st</sup> test (downhill) (sec/km)

**Table 2.6. Model 1: The speed of completing the 2<sup>nd</sup> test according to the endurance running (km). Regression coefficients: values, standard errors, t test, significance threshold**

Model		Unstandardized Coefficients <sup>a</sup>		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	606,985	22,978		26,416	,000
	Endurance running (Km)	-,320	,040	-,853	-8,000	,000

a. Dependent Variable: speed of completing the 2<sup>nd</sup> test (downhill) (sec/km)

It can be seen that relevant and having a positive contribution to the final performance were:

- for the first test:
  - **tempo run (repeats of 1000m..5000m)** (each additional kilometer at this training mean resulted in a reduction of the time for one kilometer in the contest test with a value of 56 hundredths of a second);
  - **uphill running** (each additional kilometer at this training mean resulted in the reduction of the coverage of one kilometer in the contest test with one second and 7 hundredths of a second);
- for the second test:
  - **endurance running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer in the contest test with a value of 32 hundredths of a second).

For the first test, in addition to the above mentioned, it can also be noted the negative contribution of **trainings of running with intervals – 200m..800m** (each additional kilometer at this training mean resulted in 94 hundredths of a second in addition in the completing of one kilometer of the test).

#### **D. Application of the regression method for the dependent variable "speed of completing the tests in flat distances"**

With a positive contribution to the final performance were:

- for the first test:
  - **endurance running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer with a value of 13 hundredths of a second);
  - **downhill running** (each additional kilometer at this training mean resulted in the reduction of the coverage of one kilometer in the contest test with 60 hundredths of a second);
- for the second test:

- **endurance running** (each additional kilometer at this training mean resulted in a reduction of the coverage of one kilometer with a value of 12 hundredths of a second).

For the first test, in addition to the above mentioned, it can also be noted the negative contribution of **trainings of running with intervals – 200m..800m** (each additional kilometer at this training mean resulted in 72 hundredths of a second in addition in the completing of one kilometer of the test) and the **variable running (variable tempo / variable slope / variable coverage) Km** (each additional kilometer at this training mean resulted in delays in in the completing of one kilometer of the contest test with 9 hundredths of a second).

**4. Conclusions.** It's obvious the fact that the four factors (independent variables) included in the analysis significantly influence the sportsmen performance. By means of this study is demonstrated that the augmentation of the volume of some training means has a positive influence on the final performance and the augmentation of the volume of other means has a negative influence.

#### **5. References**

- [1] Carl D Paton, Will G Hopkins 2004, *Effects of High-intensity Training on Performance and Physiology of Endurance Athletes*, Sports Science 8, pp 25-40, ([sportssci.org/jour/04/cdp.htm](http://sportssci.org/jour/04/cdp.htm))
- [2] Fiskestrand, A., K.S. Seiler. *Training and performance characteristics among Norwegian international elite rowers 1970–2001* Scand. J. Med. Sci. Sports 14, pp 303–310. 2004
- [3] Minoiu, V., *Optimizarea pregătirii fizice în disciplina orientare sportivă prin raționalizarea și standardizarea mijloacelor* PhD Thesis, pp 150-183, 2011

# KINETIC MANAGEMENT APPLIED IN FUNCTIONAL RECOVERY TO THE SUBJECTS WITH OSTEOARTHRITIS OF THE KNEE AFTER OSTEOTOMY FOR TIBIAL CORRECTION

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**Abstract.** Background. Gonarthrosis is a condition common in people older than 45 years, a consequence of cartilage degradation as a result of the influence on a number of factors in the knee joint. We believe that the high incidence of gonarthrosis motivates the need for surgical and kinetic treatment methods in the affected subjects. Aims. By introducing a kinetic program in subjects affected with gonarthrosis on whom corrective tibial osteotomy was performed, both functional recovery of the knee and, thusly, an increase their quality of life may be achieved. Methods. This study, based on the method of the experiment, was performed between September 2010 and June 2011 on a number of 22 subjects diagnosed with gonarthrosis in the intermediate stage. Results. From the obtained results, it is observed that knee joint pain has regressed. Comparing the initial and final value of functional parameters which were measured at rest indicates their improvement. Conclusions. In subjects aged 45-60 years, the values of clinical parameters followed over 6 weeks of application of kinetic program after tibial osteotomy highlighted the major role of functional recovery in surgery of moderate gonarthrosis.

**Key words:** gonarthrosis, tibial osteotomy, physiotherapy

## Introduction

Knee osteoarthritis is "a major global health problem" [1], which ranks second in the chronic diseases, representing "72-75% of all rheumatic" [2].

According to Lefter, V., Moroşanu, M., Marinescu, R. [3], gonarthrosis is present in individuals of all ages as follows: "2%, less than 45, 30% between 45-64 years old and 70% are over 65 years old".

The number of people affected is increasing as a result of such risk factors as: obesity, joint and muscle injuries around the knee joint and excessive load due to work or sport [4].

The arthrosis process' increased incidence in the knee joint determines medical experts to debate the issue from the point of view of etiology and in terms of therapeutic management.

According to Kiss, I. [5], the causes and mechanisms of cartilage degeneration are complex and incompletely understood. However, due to the wear of the articular cartilage, a surface misalignment occurs in the femur-tibia and femur-patellar joints.

The arthritic process causes a pathological mobility, limited range of motion in flexion and extension, as well as passive and active knee stability [6].

Corrective tibial osteotomy can be a surgical treatment of gonarthrosis, which is secondary to joint misalignment. Realigning the femur with the tibia can be achieved through both tibial osteotomy with either internal or external opening [7]. The procedure consists in

sectioning the bone tissue with the correction made by either removing a wedge of bone from the outside - the closure osteotomy technique - or by the internal addition of a bone fragment - the method being called the opening osteotomy technique - and after re-aligning the two fragments, they will be held together by plate and screws [8].

From the point of view of the results, studies support both techniques [9], but the internal opening tibial osteotomy is preferred [10,11].

Most specialists consider the tibial osteotomy with internal opening (of valgisation) a technique which "preserves metaphyseal bone stock and does not induce extra-articular malunion" [12].

According to Sbenghe, T. [13], corrective osteotomy improves intra-articular pressure distribution, relaxes the capsulo-ligament apparatus, but also has vascular effects by "hyperemia produced by removing metafizopifizare venous stasis and improving bone-cartilage nutrition".

In these circumstances, we believe that introducing the kinetic program as soon as possible after surgery in patients with osteoarthritis may increase functional capacity and quality of life.

## Hypotheses

An individualized kinetic program after corrective tibial osteotomy to people with osteoarthritis in the intermediate stage can lead both to functional recovery of the knee by a decrease in clinical parameters (pain, swelling, mobility) and to improve of quality of life.

## Material and methods

## Research protocol

### a) *Period of the research*

This study, based on the experimental method, was conducted during the period September 2010 - June 2011.

### b) *Subjects*

The study was conducted on a sample of 22 subjects, aged 45-60 years, patients of the Orthopaedics Hospital in Bucharest that were diagnosed with osteoarthritis in the intermediate stage. The selected subjects received corrective internal tibial osteotomy for the misalignments produced by the moderate osteoarthritis.

To achieve the basic objectives of the post corrective tibial osteotomy kinetic program, both accurate assessment of the subject and the exercises performed were set.

We mention that the subjects' consent concerning their conscious participation in this study.

### c) *Tests applied*

The subjects were evaluated in two test points: baseline (TI) immediately after surgery and final (TF), 6 weeks thereafter. The data were collected in tables and charts.

For monitoring and quantification the following results were used:

- Visual Analog Scale (VAS) for pain: patient places a cursor on a line that at its left end is marked by the absence of pain (0), and at its right end as the worst pain imaginable (10), depending on how intense the pain is felt. This was achieved by using the goniometer with pain scale (see Figure 1).
- Scale subjective assessment of quality of life, each subject to rate their state, with 1 being the lowest and 10 the highest.



Figure 1. Goniometer pain scale [14]

Swelling presence was appreciated by a careful assessment of the region over which the surgical treatment was applied.

The mobility parameter was evaluated on knee joint's flexion and extension with the goniometer, shown in Figure 1.

### d) *Studied moments*

The post corrective tibial osteotomy kinetic program, conducted over 6 weeks (between the TI moment and TF), aimed at achieving of the following goals on physical therapy (Smădu, N., 2010; Engrich, E., 2011):

- pain and inflammatory syndrome's relapse
- defying complications such as superficial and deep vein thrombosis
- ensuring joints and muscles stability
- improving joint mobility on physiological parameters
- Compliance with the prohibition of load bearing joints of the affected limb for 6 to 8

weeks, according to the orthopedist doctor recommendations.

The post corrective tibial osteotomy kinetic program, took place in two phases and the post corrective tibial osteotomy kinetic program's exercises were performed in positions from where the operated knee's joint was released from the body weight:

1. The first phase includes the first two weeks after surgery. To prevent pain and inflammation, thrombophlebitis, and for joint mobility and soft tissue's extensibility recover, were applied:
  - cryotherapy with medical device Aircast Cryo / Cuff IC Cooler presenting an automatic pump every 45 seconds achieved compression cold agent. The device is filled with water and ice and provides up to 8 hours of cold therapy (see Figures 2).



Figure 2. Aircast knee Cryo Cuff and Aircast Cryo/Cuff IC Cooler [17]

- improve mobility by continuous passive motion of the knee (MPC) on kinetec from 30 ° in the first three days to gradually achieve a 70-90 ° angle at the end of two weeks (see Figure 3).



Figure 3. Kinetec for MPC

- full extension through MPC and lower limb posture antideclive operated (it was applied a roll on the ankle).

- the use of a knee braces to immobilize the joint in order to maintain the correct position of the lower leg and knee muscles assist.

- exercises used were performed in supine and each exercise was repeated 6-10 times:

- Rhythmic movements of planting and dorsal flexion of the foot;

Rotate the leg in both directions by 6-10 repetitions on each side;

- Flexion / extension of the knee with the heel slipping on a flat surface (or role);

- Contractions of the quadriceps muscle by pushing the knee in a fixed roll under the operated knee, maintained the isometry for 6 seconds by pushing the heel into the floor for six seconds, the knee is flexed on the flexion angle that can maintain it;

- Flexion of the operated leg with the knee extended and the other leg flexed to 90 °;

- Extension and flexion of the leg, with a roll or a large pillow placed under the knees

2. Phase II of the program includes kinetic 2-6 weeks post-intervention surgery

- there are being used the same methods to defy the postoperative complications

- MPC gradually reaching a knee flexion and extension to 100° after three weeks and 120° to 130° after 6 weeks;

- the performed exercises are those of the first post-operative phase, to which is added:

- Knee flexion and extension in supine;

- Passive knee extensions, afterwards active-passive and active from sitting, with and without maintaining extension for 6 seconds;

- Knee flexion and extension, both alternating and simultaneous, while in prone;

- Ankle plantar flexion with low density elastic bands;

- Lifting the pelvian region in supine while using the unaffected foot for support;

- Isometric contractions of the quadriceps muscle in standing;

- Flexion / extension and adduction / abduction of the thigh of standing;

The number of repetitions of exercises in phase II recovery was 10-16 times.

During the six weeks, patients learned to walk without loading the affected foot, but reaching the ground with said foot, as well, insisting on a proper walking stride. When walking, patients were required to wear fixed knee braces. The kinetic program was run daily for the first 2 weeks and after release from the hospital for 4 weeks was performed in the hospital at a frequency of 1 session / day, 6 days / week.

*e) The statistical methods used*

The computer program used for statistical processing was Microsoft Excel 2007.

The followed statistical indicators were arithmetic averages and the difference between the functional parameters, initially measured on the first day after the corrective tibial osteotomy



and finally, after performing the kinetic program for six weeks.

### Results

After analyzing the initial and final values of the evaluated parameters, the following were observed:

- Of the 22 subjects, 14 were female and 8 male;
- VAS visual analog scale showed a mean baseline score of 0.9, while the average final score was 5.
- Knee swelling was initially present in 16 patients (72.72%), and finally, after 6 weeks, 21 patients (95.45%) no longer had swelling, which proves the effectiveness of the anti-inflammatory applied program;
- Scale subjective assessment of quality of life initially had the value of 6.09 for the average grades given by the 22 subjects in their well, and finally 7.8.
- Most of the patients obtained a joint amplitude progression of 90° (30° on the first day after surgery to 120°-130° at the end of six weeks), with the exception of 2 patients who have acquired a 100° , 105° respectively flexion amplitude in the 42th day after surgery.
- Mobility of joints in extension improved significantly, so that the end of recovery treatment, 90.90% of patients have gained full stroke extension mobility.

### Discussions

Analyzing the results, we see that the evolution of the parameters that influence knee function was favorable.

Significant improvement in both scales used for the 22 observed subjects, compared when testing TF to TI values express a benefit of the kinetic program on pain status and life quality.

The “Knee swelling” clinical parameter had a positive development parallel to that of pain.

The improvement of joint mobility in both flexion and extension certifies the kinetic program’s particular role when properly adapted and dosed on both knee joint functionality and life in patients with osteoarthritis.

The results correspond to data from the speciality literature, whereby application of a postoperative rehabilitation program improves the algo-functional status, as well as improving quality of life in patients with osteoarthritis.

### Conclusions

Practical application of the post corrective tibial osteotomy kinetic program for people with osteoarthritis in the intermediate stage is a key issue in recovery after surgery.

The kinetic program’s benefits are reflected by the lower pain, lower swelling and increased mobility on flexion and extension of the knee joint.

The systematically performed post internal osteotomy kinetic programs, both the regular and the individualized one provide a higher life quality in patients with osteoarthritis

The prognosis of post – surgery osteoarthritis patients depends very much on what we call therapeutical management.

### References

- [1] Trăistaru, R., Pătru, S., Popescu, R., (2006). *Terapia fizică și regulile de igienă în managementul gonartrozei*. Revista Română de Kinetoterapie, Editura Universității din Oradea, 18, p. 38-46.
- [2] Banciu, M., (2003). *Strategia terapeutică modernă în boala artrozică*. Revista Română de Reumatologie, 9, p. 5-8.
- [3] Lefter, V., Moroșanu, M., Marinescu, R.,(2008). *Rolul kinetoterapiei în recuperarea gonartrozilor din stațiunea Lacu-Sărat*. Gymnasium, Editura Pim, Iași, 12, VIII, p.222-227.
- [4]Toivanen, A.T., Heliövaara, M., Impivaara, O., (2010). *Obesity, physically demanding work and traumatic knee injury are major risk factors for knee osteoarthritis - a population-based study with a follow-up of 22 years*. Rheumatology (Oxford). 49, p. 308 - 314 .
- [5] Kiss, I. (2002). *Fiziokinetoterapia și recuperarea medicală*. Editura Medicală, București, p. 143.
- [6] Marcu, V., Dan, M., ( 2007). *Kinetoterapie/Physiotherapy*, Editura Universității din Oradea, p. 204.
- [7]Brinkman, J., M., ( 2013). *Fixation stability and new surgical concepts of osteotomies around the knee*, Utrecht, the Netherlands, p. 9, Available on [www.brinkman.pdf](http://www.brinkman.pdf)., Visited on 13.02. 2014.
- [8] <http://ortopediaonline.ro>, Visited on 15.02. 2014
- [9] Hassenpflug , J., Hahne, H., J.,(1998). *Langfristige Ergebnisse nach Tibiakopfosteotomie*. Z.Orthop Ihre Grenzgeb, 136, p.154-161.
- [10] Lobenhoffer, P., Agneskirchner, J., Zoch, W., (2004). *Die öffnende valgierende Osteotomie der Proximalen Tibia mit fixation durch einen medialen Plattenfixateur*.Orthopade, 33, p. 135-142.
- [11]Bonnin, M., Chambat, P., (2004). *Der Stellenwert der valgierenden, zuklappenden Tibiakopfosteotomie bei der medialen Gonarthrose*.Orthopade, 33, 135-142.
- [12][http://www.chirurgie-orthopedique-nice.com/osteotomie\\_tibiale\\_valgisation.html](http://www.chirurgie-orthopedique-nice.com/osteotomie_tibiale_valgisation.html), Visited on 10.02. 2014
- [13] S Benghe, T. (1981). *Recuperarea medicală a sechelelor posttraumatice ale membrelor*. Editura Medicală, București, p. 363.
- [14] <http://www.total-med.ro/2014/01/goniometru-cu-scala-de-durere/>, Visited on 21.02. 2014.
- [15] Smîdu, N., (2010), *Recuperarea prin metode fizical-kinetice a sportivilor cu gonartroză*. Anuar științific, Vol. II, Nr. 2, p. 121-125.
- [16] Engrich, E., (2011). *Kinetoterapia pe înțelesul tuturor*. Editura Medicală, București, p. 67.



## RECOVERY – MEANS AND COMPONENT IN PHYSICAL ACTIVITY

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**Abstract.** Recovery is a concept that belongs to both physical education and the sport as part of the same process of formative motor-competitive activity. Restoration is a complex, methodical, pedagogical, medical watched all planning structures, starting from lesson training (intervals between efforts), continuing with the restoration of weekly milestones, annual (planned transition period) and even recovery post Olympic cycle.

**Keywords:** education, effort, training, means, motor, fatigue, recovery.

### Introduction

Recovery is a concept that belongs to both physical education activity and the sport as an integral part of that formative process of competitive motor activity.

Restoration - the way physical education activity means are teaching tools, which apply to educational content in teaching, for physical education and sports activities, teaching resources translates into "tools" that the operation, acting lessons.

Means are designed, selected, directed by the head of the business and conducted by subjects (followers, students, athletes). Funds belonging to physical education and sport activities are presented in two categories: specific ways and means nonspecific.

Specific means - are the most effective tools that directly translate the content informative formative, they are:

- exercise - is the operational tool, designed and programmed to achieve their target area;
- equipment, facilities, specialty materials, which provides a more accurate positioning and fixing of segments and body movements;
- means of recovery of exercise capacity, resulting in a series of direct operational tools, addressing subjects who performed an exercise, have undergone biological aging, motor activity is supported by various systems that generate energy (in the form of effort) and the phenomenon is a result of fatigue.

The body of practicing physical education activity, effort, wear that occurs is bearable and reduced wear compared with the body to create athletes in training and competition.

Restoration - part of athletic training current reality of sports training, conducted with considerable psychophysical demands, requires a special concern in addressing the rebuilding, in this context, the recovery of exercise capacity or factor became part of sports training, competition with biological training, rehabilitation exercise capacity is joins other structural components of athletic training: physical training, technical, tactical, theoretical, psychological, biological competition (and restore exercise capacity). Restoration is a complex, methodical, pedagogical, medical pursued in all

planning structures, starting from training lesson (breaks between work), continuing with weekly recovery, the stage, annual (planned transition period) and even after recovery Olympic cycle.

### The concept of recovery

According to Dragan, I, [1] restoring it is a "form of training indirect energy (battery power) of the body, depleted fuel, either by excessive energy consumption, induced by exercise or by increased losses of biological agents" .

As part of training or physical education activities, rehabilitation measures to meet a series of courseware and acceleration applied to restore or restore the body's biological balance.

### Etymologically, the concept of recovery relates to:

- restoration;
- update to a previous state;
- strengthening recovery.

Synonyms concept of recovery are: rebalancing, reconstruction, regeneration biology. According to the Explanatory Dictionary of Romanian language [2] recovery is the act of (to) rebuild and its results.

To restore means:

- to do something again partly destroyed;
- to restore (a tissue, body);
- to regenerate, to bring back to the way it was before;
- to recover.

Specialized in foreign literature found that (remake, recover - engl.; Réfection - fr.; Reconstituzione - Italy.; Repuesta - sp.; Wiederherstellung - germ), the concept is generalized by the idea of restoring health.

More specifically, concerns a set of recovery media (natural and artificial, such as internal or external, who applied rational, aim to restore balance in the internal environment and operational parameters on the previous effort (homeostasis) and even exceeding this threshold (overcompensation).

Restoration, rebalancing is a phenomenon of reorganization and restructuring of the body as a result of the provision of considerable efforts.

Restoration aims to counter fatigue and biological rebalancing athlete.

To resume the optimal effort, but also to protect the health and extend longevity sports practitioners of sport require a rapid recovery.

The restoration is part of the sports training, which means using natural or artificial, the biological potential to restore the previous level (or exceeds it) - the recovery phase or component trophotropic.

Recovery capacity based successful release of energy in terms of effort demanding sports training and competition - the recovery phase or component ergotrope.

The restoration process is action-post-active laws (effort / fatigue, rest / recovery), the biological parameters is returning spontaneously, naturally, but in a certain order: functional parameters, metabolic, hormonal and enzyme in a time between several minutes and several days.

With contemporary sports (with 6-8 hours of daily training), rehabilitation, restoration of spontaneous biological nature is insufficient. An incomplete biological restoration can cause pathological fatigue (overtension, overtraining). To avoid these situations, in addition to specific methodological sports training, the intervention is directed to recovery, which aims to accelerate and facilitate natural recovery.

Directed restoration is divided into two chronological phases:

- biological reconstruction phase;
- phase functional economy.

Recovery process is sometimes accompanied by the recovery, between the two states which are generated by the sport, there are differences: restoring a healthy body is addressed, while the recovery effort is harmed their own bodies and they need to rebuild the integrity of the morpho-functional.

### **Recovery principles**

Conceptually, the principle is the idea or the basic law which is based on a scientific theory.

In sport, the theory and methodology of training and competition have clearly evolved, which led to deep studies on the theory of recovery, as a factor or component of training sports. In this respect, several laws have been developed, which respects the principles of value.

- The restoration is part of exercise capacity, essential component of the training process.
- Recovery is a process that addresses healthy athletes who have provided an applicant psychophysical effort, which affected some functional or biochemical parameters.
- Restoration is a natural process that is triggered spontaneously, immediately after cessation or reduction of effort parameters.
- Recovery systems and equipment is carried sporting effort required in a particular sequence, order:
- Recovery is individualized according to the particularities of nature athlete.
- Recovery is a process with two components.
- Restoring the natural complement to restore directed.

### **Taxonomy recovery**

In sport, the many ways in which we can intervene to restore exercise capacity can be ordered by following several criteria:

- according to the person who assists, directs the recovery process, the means is ordered: a specific means - directed by a doctor, psychologist, nutritionist, type:
- teaching (education) and business coach, teacher, who by the laws of logic and dosage adjustment effort, targets issues of restoring optimal capacity to resume the effort;
- hygiene - to the sport as a means of learning the sport.
- to achieve depending on how restore a spontaneous, natural, made without external intervention, the essence of this form of rehabilitation is to rebuild energy reserves consumed during sports benefit. After the effort, according to the request, that the degree of heterostazie the body, the athlete needs some rest periods, rest for quantitative recovery of energy deposits. This process is triggered spontaneously, naturally, Phase out, meaning that certain substances energogene order and recover after a specific time period: neuro-vegetative parameters (FC, FR, TA - a few minutes), metabolic parameters (several hours), hormonal and enzymatic parameters (several days). The principal means of spontaneous recovery (natural) is resting, the rest (break force) and sleep. Conducted a complete recovery and accelerate natural restoration, as required under a high-intensity sports benefits and inadequate breaks between work. By this form of rational and specific rehabilitation intervention was targeted by natural means and / or artificial, in order to restore homeostasis, balance, and exceeded its previous effort by shifting the phase of functional overcompensation.
- according when applying means of recovery
- - intra-effort, is during sports benefit:
- training: in-between repetitions of exercises that require effort conditional type (speed, strength, endurance), coordinative type (coordinative skills), intermediate type (mobility, flexibility), the breaks between series (repetition), the breaks of exercises, training breaks between lesson parts;
- competition: the breaks between innings, sets, game sites, series-tours (skill), tests.
- Post-exercise, or after workout or sports competition, according to the structure and preparation periods, the recovery can be:
  - one day (after each training lesson);
  - a week, one of the stage
  - one after a competitive
  - one year (after one year cycle);
  - one by one Olympic cycle (after 4 years of athletic training), depending on the influences induced into: a neuro-muscular system;

- a neuro-psychological system;
- an endocrine-metabolic system;
- a cardio-respiratory system.
- Depending on the ownership of the means, may be specific:
  - a spa-hydro-kinetic physio-therapy;
  - a psycho-therapy;
  - a diet;
  - a pharmacological
  - a passive and active recreation.
  - Means spa hydro-kinetic-physio-therapeutic
  - a hydrotherapy;
  - a thalassotherapy;
  - a sauna;
  - a massage, self massage, massage reflex
  - an acupuncture, acupressure, a natural oxygen / artificial;
    - an ionization natural / artificial.
    - Means psycho-therapy:
      - a suggestion, autosuggestion;
      - a simple relaxation, analytical, synthetic.
    - dietary means:
      - solid diet;
      - a liquid food;
      - a nutritional supplement.
    - Means pharmacology: medication
    - rest means:
      - a passive recreation (rest and sleep);
      - an active rest (breathing exercises, controlled, aerobic work, relaxing).
    - Means used to accelerate recovery of neuromuscular system:
      - a passive and active recreation;
      - a warm hydrotherapy (bath, shower, sauna, massage);
      - self massage and a massage (for recovery, reflex, vibration massage, ice);
      - diet (alkaline vitaminising) and fluid and electrolyte rebalancing;
        - a recovery Pharmacology (ATP, creatine, glucose, vitamins C, B, E, minerals C, Mg, K, Na, P, Selenium, Coenzyme Q10) simple relaxation and analytical;
        - Natural oxygenation.
    - Means used to accelerate recovery of neuropsychiatric system:
      - a passive and active recreation;
      - psychotherapy (psychological, suggestion, autosuggestion, relaxation plain);
      - a natural oxygen, a massage (for recovery, vibration massage, jacuzzi);
      - a warm hydrotherapy (baths - plants with showers);
      - pharmacology of a recovery with glucose, phosphorus and magnesium salts, vitamin B complex, lecithin, aspartame;
      - an acupuncture and acupressure.
    - Means used to accelerate restoration of endocrine and metabolic:

- pharmacology of a recovery with essential amino acids, vitamins, minerals;
- a rebalancing hydro;
- an active rest, oxygen and negative ion (Cure at 600-800 m)
  - muscle relaxation psychotherapy;
  - self massage a massage and recovery;
  - analytical relaxation (Jacobson method).
- Means used to accelerate recovery of cardio-respiratory:
  - a passive and active recreation;
  - a warm hydrotherapy (sauna, herbal baths, gas);
    - a reflex massage, rehabilitation;
    - a pharmacology of glucose, vitamin B complex, vitamin C and E, minerals, sodium, potassium;
    - synthetic relaxation (Schultz's method);
    - oxygenation and ionisation natural and artificial;
    - alkaline diet, and well mineralized hiperglucidică;
    - a pharmacology of ATP, CP, B and C vitamins, creatine, arginine, minerals Mg and K, coenzyme Q10.

#### **Recovery mechanism**

Natural recovery process arises naturally, without external interference, the ability for automatic adjustment mechanisms, information system and power up the human body.

During sports benefit after a certain time and a specific request, the amount of chemical energy produced by burning substances ingested and stored in biochemical substrates is reduced, sometimes to the thresholds exhausting, which is translated by the gradual installation of fatigue.

Immediately after stopping exercise, the body was in a state of heterostazie with troubled operating parameters, control mechanisms operate automatically, they intervene to bring within normal physiological parameters (the previous effort), is the natural state, balanced body, homeostasis.

The process of restoring the balance (homeostasis) affected due to the recovery effort is physically and mentally.

The motor activity, sport, natural recovery can deal depending on many factors, but most important is the size of the request, which explains the stages or levels of recovery.

Thus:

- a single request and that short and moderate exercise capacity is restored close to baseline levels (before application), in this case, biological parameters are close to values before exercise, the body being able athlete compensation, which translate into better earnings potential minimum of effort
- if effort resumed, while the restoration is a time almost equal to that of previous work capacity, for

maximum recovery of the previous level, is the state without compensation body, this condition does not mean the effort and improvement potential Athlete;

- if the resumption effort is being made between the biological balance is well below the initial level, the body is in a state of compensation of, or is still tired, multiplying this situation induces a continuous decrease in exercise capacity and installing state of overtraining;

- If the request is progressive in terms of volume, intensity, complexity, consume significant energy reserves, in these conditions, the resumption of the effort, at a time when the body is fully restored, will lead to a new state high (the original) of the biological potential, which is overcompensation. If the body's biological systems are required at maximum (overload principle), they tend, in the recovery phase to restore the more to overcome their initial level (according to the principle of specificity) to a genetically determined maximum.

*In conclusion*, the theory of Folbort [3] by recovery back to normal biological parameters, moreover, go beyond it, installing overcompensation, which results in a significant increase in exercise capacity of the athlete. As such, the state of overcompensation, the recovery has trofotrop character, becoming the biological support for future efforts, restoring the character ergotrope.

Recovery period, which is producing subcelulare repair and cellular accumulation of chemical indicators, hormones, vitamins are regarded as general recovery-called Hess - trofotrope-endorilactică phase.

The degree of recovery of the biological parameters is different depending on the systems required to restore order and physiological.

Restoring natural leaves its mark on all levels of body function, as follows:

Promotes muscle recovery:

- a muscle protein synthesis (regeneration trophic) a vascular flow, which increased 6 times compared with the rest;
- an elimination of metabolic waste;
- a reconstitution of glycogen deposits;
- Restoration of the central nervous system favors: neuronal and glial installation anabolic processes;
- Restoring nervous system promotes:
- a decreased heart rate;
- a reduction in blood pressure;
- a decrease in respiratory rate - Restoring the endocrine system favors:
- an elimination of stress hormones (epinephrine, norepinephrine, cortisol);
- Restoring the internal environment, by promoting:

- a restoration of the pH value;
- normalizes blood glucose;
- a fluid and electrolyte balance.

A fundamental effect of the natural recovery process is restoring the compounds energogene substances.

#### **Post-exercise recovery phases**

Restoring natural athlete or body to carry out Phase removes fatigue following genetically determined processes, systems and carried out certain points in time [4].

Restoring nature is complemented by guided rehabilitation, in order to accelerate the biological and psychological rebalance the athlete.

Structured Phase, restoration is ordered as follows:

Phase I - Rapid recovery - lasting 20 minutes, returning vital functional parameters (FC, FR, BP, body temperature, hormone concentration of effort), muscle begins recharging energy storage and disposal of accumulated toxins (lactic acid). Recovery can be accelerated by physical activity - or the practice of dynamic exercise, mild (mild or medium - 40-60%) for 5-10 minutes.

Phase II - intermediate recovery continues to 1.5 - 2 hours after exercise. In this phase, with significant loading occurs in muscle glycogen deposits and hydro rebalance the body. Also in this phase, there is a clear increase in insulin levels, it has special role in carbohydrate metabolism, which activates the intracellular transport of glucose and stimulates the conversion of glucose into glycogen.

In this phase sweetened beverages is recommended, which will accelerate the recovery of glycogen deposits, with positive effects on muscle and liver function.

Phase III - long recovery continues until 20 hours post-exercise. At this stage, continue filling in muscle glycogen storage and processes are carried out "repair muscle. For completion of muscle glycogen storage is recommended carbohydrate consumption (10-15 g per kg / body) contained pasta and vegetables, which complement constantly (but slowly) needs glucose.

To support muscle repair, which are changes occurring in the membranes of muscle fibers, actin and myosin of the miofilamentelor is required protein intake.

#### **References**

- [1] Drăgan, Ioan. (2002). *Medicina Sportivă*. București, Editura Medicală
- [2] DEX-Dicționarul Explicativ al Limbii Române
- [3] Folbort, G.V. (1955). *Fiziologia nervnkh protsessov*. Kiev
- [4] Bota, Cornelia. (2000). *Ergofiziologie*. București, Editura Globus



## MANAGEMENT - SYSTEM OF INFLUENCE ON BUSINESS SPORTS COMPLEX

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**Abstract:** "The need to improve management in sports is evidenced by modest successes of sport in Romania. The huge flood pervaded tech indices in sports related fields will lead research in sport to greater diversity to influence achieving superior performance. Use of management as applied sport science creates opportunities for rationalization and systematization of sports activity, based on knowledge and applicability of laws and principles that control the dynamics of phenomena."

Key words: education, management, performance, system, sport.

### Introduction

Economic, social and political life since 1989 has created important prerequisites for the development of sport. The transition from a centralized to a market economy has created a vacuum of ideas for those who responded to the destinies of Romanian sports. Identification of a possible national model organization of sport in Romania was slow.

In sport in Romania after 1989, management has become a magic word value, being seen as an opportunity to solve problems. The fact that it constituted more a myth than a profession explains why he was not the key to success. Lack of efficient management of education services, training and consultancy made the real possibilities of management does not bring the expected changes. Legislative void and void of ideas made the sports activity and performance levels to reduce them. Inefficient management of Romanian sport led to a slow adaptation to new socio-economic conditions in which the sport requires new guidelines. The transition period requires a cultural change in the extended professional communities, based on a system of values in the application of methods, techniques and management tools to increase efficiency at the organizational level. Thus, in Romania, the managerial capacity building imposes itself both among managers and among non-managers as a major socio-cultural problem that requires concerted action. Material and methods Scientific novelty of the results include:

- ✓ argumentation decisive role of management in the development of sport in Romania;
- ✓ highlighting successes weight management in sport;
- ✓ treating systemic problems in sport in Romania;
- ✓ modeling of interactions effectiveness - effort - Sport effect;
- ✓ develop a mathematical model which can be based on practical methods in sport management activities;
- ✓ highlighting issues of sport in Romania based on comparative analysis of the system of organization and functioning of sport in Romania and the one in some European Union countries;
- ✓ treat sport as a way to protect your work from Romania;

- ✓ addressing the transformation of Romania into a "profit center" by promoting sport and recreation;
- ✓ scientific argumentation by creating a need for sports facilities and professionalization of management performance.

To meet current promotion and development, sport requires dynamism and diversity in terms of socio-economic life, a comprehensive view of the processes and elements that interact in time and space through a systematic approach to ensure operational integrity mechanism. In these circumstances, leaders must learn sports that sports management system in Romania through its subsystems (decision, organizational, informational and human resources) becomes a set of management processes and relations in sport, which by their interaction leads to obtain an efficiency as high as possible.

HR subsystem troubleshooting is required to initiate a reform process based on scientification that will lead to achieve superior performance. Remodeling process requires a program to professionalize the management, covering general management and functional capacity, with a direct impact in improving athletic performance. Management professionalization is a solution to the institutional development of the sport, leading a revival of their ability to provide quality services to all who want a sporty involvement in the act. Also, to ensure human resources in sport is necessary to extend the learning process in physical education and sports as important prerequisite for maintaining a keen interest in sports training and sports that meet social needs in terms of alternative professional. Concurrently, economic exploitation of the potential of human resources and creating conditions for integration of voluntary work within a large number of platforms, including the elderly, to obtain a greater use of human potential. Sports development strategy in Romania has to undergo major changes by adopting a concept conceptual sociocentric and then anthropocentric. [1]

Within the sports organization there should be a continuous process of adaptation to the demands of environmental structures, aiming at efficient use of human, material and financial resources to meet the objectives of sport by engaging all stakeholders.

For the development of sports infrastructure is required as necessary to establish an Institute for Sport loan that will enable investors to obtain medium and long term loans for the construction or equipping of sports. Also, decentralization of the current structure, it requires the creation of a specialized body of the financial assistance to be given to professional sports and high performance, which would have a positive impact on the objectives in the programs and their development within the Federation Sports, National Sports Centers, Sports Science Institute. To stimulate business activity by sports organizations need to create some tax relief, beneficial for sports organizations to finding as many sources and types of revenue for its own activities which may constitute an important support for increasing the number of employment in the sports sector, with positive effects on the economy. To help the sport to assert its economic role have favored the development of sports participation for all, ensuring optimum sports facilities to enable the promotion of sports events (Grand Prix, European Championships, World Championships, World Cups, Olympic Games ) with high impact in terms of economic acceleration effect. This would open the prospect of Romania to become a "profit center" by promoting recreational sports. [2]

For sports management structures to be more effective they need to adopt marketing. Expanding the use of Romanian sports marketing is currently imposes stringent because, through his character will improve prospective sport organizations, sport allows knowledge of market developments and their potential in relation to it, resulting in a higher reaction rate in taking timely decisions in order to achieve success. Using management practices with marketing will make the Romanian sport know the planned development based on consistency and precision to ensure homogeneity, continuity and longevity sporting and economic performance sports structures. Promoting nationwide sports-tourism has real prospects of creating new jobs. [3]. Also, will lead to a diversification of professions and have positive effects in alleviating unemployment. Sport-tourism can stimulate the consumption of products and services with a positive effect on production training in the development of other economic sectors or areas, contributing to the diversification of the economic structure.

Currently, sport management information system improvement is necessary impetuous and extremely difficult on the organization and functioning due to the diversity of sources and means huge influx of data that requires further long (duration) or cumbersome if not using modern means hardware and software. [4]. Romanian sports system, management information subsystem requires consistent efforts in addressing deficiencies and

information for eliminating or alleviating distortions of redundancy or information overload circuits. Improving management information subsystem sport requires, in all its phases (design, development and design), the use of principles such as the principle of subordination, correlation principle, the principle of exceptions, the principle of efficiency, the principle of methodological unity and / or the principle analysis of the achievement of information system. Application and correct use, methodical and methodological lead to a rationalization of the computer subsystem, allowing sports managers face pace of information and information for using the most efficient methods and management techniques. [5]

In Romania, the development of rational decisions require expected performance prognostication and the models could provide a means for them, their use constitutes a scientific method underlying the decision. Using mathematical modeling could lead to an increase in confidence in the alternatives adopted and facilitate the possibility to optimize decisions. As you know, decision making in sports organizations is a creative process of developing new and valuable ideas. To do this, managers must look for new methods or approaches to problems and at the same time act in order to use creative methods to boost creativity. For solving the problems faced by Romanian sports are enforcing a core of generating ideas to find solutions to the pressing problems of the sport, and an improvement of communication systems to increase the rate of spread of intellectual products in the field.

Management methods should pursue the efficient use of resources and tools work, increasing efficiency of sporting achievement and equitable solution to human problems, personalities assertion employees, increase their integration in sport organization and increase job satisfaction. Using creativity in sport management will cause a number of effects, rapid and profound changes in sport. It's heady Romanian sport managers need to recognize that contribute to address a systemic management efficiency by creating a system of indicators to assess it. In this respect, by treating systemic and mathematical modeling proposed by us can determine the effectiveness of management in sport. Using cybernetic and mathematical methods require statistical database essentially new. In this context, it is necessary to refine the sports statistics in the country. [6] Also, we propose a mathematical model to determine the effectiveness of management in sport may represent a new support sports development methodology with direct impact in achieving better performance.

#### *Discussions and Conclusions:*

➤ From surveys we have resulted in a number of weaknesses in the sport in Romania. Deficiencies are linked to vision unintegrated sports leaders on the management system and effective sport



pragmatic approach in terms of its subsystems and their interaction.

➤ The low level of development of the national sport is caused by poor management, a managerial subculture in the field. Observe a small number of human resources working in sports and sports managers inefficiency. Uncertainty and scarcity of ideas have caused many problems to find solutions is not helpful, quick and efficient. Sport was promoted to Romania especially for young people, and its timing integrator-maker has been circumvented in promoting sports and other categories such as the elderly whose number is increasing and that not involved, become a disadvantaged category. These aspects of human resources subsystem, amid an environment unattractive and non-offered, led to a migration of specialists to bidding environments where professional achievement and performance is based on a more elaborate and more efficient support.

➤ In terms of organization, there is managerial deficiencies related to organizational processes, structures and relationships between sports structures and a reduced ability to resolve a performance-oriented organizational behavior. Decrease in sports for some sports fields has great impact on potential biomotor population and general health, as well, and the shortage of gyms in schools, especially in rural areas, made in the national physical education and sport to achieve a restriction of activity, rather than create new jobs. Although Romanian sport worldwide top positions in several sports in Romania were not organized enough to stimulate major competitions sports industry and related industries. Organizational system problems due to underfunding and national sports system was lacking real means to create a modern infrastructure. National programs and strategies reorganization and development of international sports system remained unrealized, and their goals have become a long line of failures.

➤ Within the sport in Romania there is a reluctance to marketing managers is insufficient adopted and applied. This creates harm in terms of promoting sports among the masses, a certain image of sport and sporting structures, valuable sports or athletes. To deprive sports managers in the use of knowledge to sports social requirements and unable to make decisions, strategies and programs, tailored to the sports market with its internal target financial and

material benefits from the services of sports or other activities sports.

➤ Subsystem management information lacks optimal information process to meet high dynamics of the flow of information from internal and external environments, which makes the data analysis to be inefficient in terms of time allocated to the unit. These information gaps and redundancies are distorting negative effects on performance management sports structures.

➤ Within the sports management subsystem shortcomings of the decision are observed, given the difficulty of major sports managers to make decisions to guide the management process to achieve economic efficiency of sporting activities and their social utility and a reduced capacity for solving creative current problems of sport.

➤ Management of current sports structures cannot be conceived without the use of scientific methods and techniques in order to enable effective knowledge and application of objective economic laws, and effective use of resources, stimulating creative use of employee staff and managers to accurately assess the results obtained, optimization of the decision and all management functions, integrating technical, economic, social, political dimensions and human sports structures. Determining the impact of management on the development of sport in Romania must be dealt with mathematical methods, to treating cyber (systemic).

#### Reference:

- [1] Burloiu, P. (2001), Managementul resurselor umane – Tratat Globală Interdisciplinară, Editura Lumina Lex, Bucureşti.
- [2] Mihail, A. (2002), Constatări privind Managementul Marketingului Olimpic, Simposia Professorum, Seria Economie, Ulim, Chişinău.
- [3] Lăzărescu, A. (1999), Management în sport, Editura Fundaţiei România de Măine, Bucureşti.
- [4] Mihail, A. (2002), Managementul informaţiei în organizaţiile sportive, Simposia Professorum, Seria Economie, Chişinău.
- [5] Tehnologia informatică în sport, B.I., 402-404. M.T.S., Centrul de cercetări pentru problemele sportului.
- [6] Constantin D., Ionaşcu, S. (2004), Managementul organizaţiei, Editura Cartea Universitară, Bucureşti.

## PHYSICAL ACTIVITY AS A METHOD OF TREATMENT FOR OBESITY AND DEPRESSION

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**Abstract:** Physical activity participates with diet in the control weight, contributes to increased muscle mass and abdominal adiposity lower. To obtain a decrease in weight equation is simple: you have to burn more calories than the total number of calories brought to the body through diet. Some intense sports, like jumping the rope, allow a rapid weight loss, but there are other activities less intense, that prove benefit if done with regularity. Numerous recent studies have shown that the practice of moderate intensity physical activity, but regularly, helps to reduce the symptoms by depressed patients. The practice in endurance exercise (in aerobics) has the same effect on depressive symptoms as in anaerobic exercise. Combination of the two types of exercises works much better on the symptoms of depression. Physical activity appears to have the same efficacy as conventional treatments used in treating depression- anti-depressive drug therapy, psychotherapy; on the other side, has not been proved preventive role of physical activity in depression

**Key words:** exercise, obesity, depression, prevention

### Introduction

Physical activity participates with diet in the control weight, contributes to increased muscle mass and abdominal adiposity lower.

For people with excess weight, physical activity allows:

- a moderate weight loss associated with diet- in this case the effects of physical activity on weight loss is modest but steady
- weight maintenance after weight loss -in this case the impact of physical activity is important
- improvement of co-morbidities associated with obesity
- psychological benefits

Duration and intensity of physical activity are important steps for weight loss or prevention of weight regain; recommended for adults/ 45-60 min of moderate intensity activity / day, under medical advice.

To obtain a decrease in weight equation is simple: you have to burn more calories than the total number of calories brought to the body through diet. Some intense sports, like jumping the rope, allow a rapid weight loss, but there are other activities less intense, that prove benefit if done with regularity.

The following activities allow the use of 300 calories:

- frisbee: 80 minutes
- less intense volleyball match: 80 minutes
- march: 60 minutes
- badminton: 54 minutes
- trimming the grass: 52 minutes
- skateboard: 48 minutes
- playing with kids: 48 minutes
- golf (carrying equipment): 44 minutes
- walk: 40 minutes
- rollerblade: 35 minutes
- outside domestic activities: 35 minutes
- cycling (moderate): 30 minutes
- jogging: 24 minutes

- jumped rope: 24 minutes

These values are based on data from the Harvard Medical School, the number of calories corresponding to a person who weighs 70 kg.

Consumption of calories in the daily activities:

- shopping: 250 - 350 calories / h
- vacuum cleaning: 100 calories/30 min.
- small repairs: 100 calories/30 min.
- gardening: 400 calories / h
- climbing stairs: 150 calories/15 min.
- 10 minutes walking: 50 calories.
- stair climbing by 2: 7 calories for 2 floors

Numerous recent studies have shown that the practice of moderate intensity physical activity, but regularly, helps to reduce the symptoms by depressed patients. [1,2] Depression is a prevalent disease, reaching about 10% of the population in Western countries; half of the people presenting depressive disorder receive treatment and only the third recorded show an improvement in symptoms.

Physical activity has a positive impact on depression- fact recognized and used in many specialty clinics; for the patients with depression is important to practice one or more physical activities aerobic- respiratory endurance activities such as fast marching, walking, biking, swimming. Recommended physical activity level is 5 sessions / week with a duration of 30-40 minutes each, or, 3 sessions / week with a duration of 50-70 minutes each.[3,4].

Intensity activity is established over time, depending on each person's own pace, leading to a regularity that works very quickly. No aerobic activity is better than another; favorite activities will be used, alternating different types of activities depending on the needs, of the clinic facilities and methods; it is necessary to maintain the interest and motivation of the patient:

- walks through the park,
- outside football-match less intense
- exercise room, aerobic stepper

- indoor table-tennis

Type of activity may be different, but more important is the regularity; practicing in a group or club can be beneficial because the benefits of physical activity are associated with human interrelationship. Practicing some types of gymnastics can also be positive.

The results of studies conducted in France in the last decades have shown that depression, like other mental disorders, originates in the hippocampus where neurogenesis processes are disrupted. Physical activity influences these processes by stimulating the secretion of neurohormones.

Physical activity leads to increased levels of endomorphin circulating; beta-endorphins are directly involved in the processes of neurogenesis; endorphins reduce pain levels and cause a euphoric state.

Phenyl ethylamine, which is an endogenous neuroamina, plays an important role in the well, attention and physical energy; it also acts on the euphoria sensation of long distance runners; before, this condition was attributed only to the endorphins. Exercises increase vascular endothelial growth factor which is also related to the activity of the hippocampus.

Always under the effect of exercises increases the secretion of neurotrophic factor BDNF which plays a major role in neuronal development and survival; this factor increases with treatment anti depressive and this increase is more rapid in those who practice physical exercise.

Serotonin is involved in the anti-depressive effects of exercise. Practice regular physical activity increases the synthesis of serotonin precursors and enzymes involved in the metabolism of serotonin.[5]

Also, as a consequence of the practice of physical activity is possible to note:

- stimulating cannabinoid system which acts on

analgesia, sedation and anxiety

- influence on hipotalo-pituitary-adrenal axis-norepinephrine levels is increased after exercise

The practice in endurance exercise (in aerobics) has the same effect on depressive symptoms as in anaerobic exercise. Combination of the two types of exercises works much better on the symptoms of depression.

To be effective in depression, a physical activity program must have a minimum of 10-16 weeks. A shorter schedule would be less effective; it turned out that it is not necessary to make long physical activity sessions- sessions lasting 30 minutes are effective for depression symptoms than sessions lasting over 45 minutes.

Physical activity appears to have the same efficacy as conventional treatments used in treating depression- anti-depressive drug therapy, psychotherapy; on the other side, has not been proved preventive role of physical activity in depression.

#### References

- [1]. De Matos MG. Effet de l'activité physique sur l' et la dépression. La presse médicale 38, 734-739. 2009
- [2]. DepressionNerveuse.fr 2014
- [3]. Rimer J, Dwan K, Lawlor DA, Greig CA, McMurdo M, Morley W, Mead GE., Exercise for depression. Cochrane Database of Systematic Reviews 2012, Issue 7.
- [4]. Scully, D., Kremer, J., Meade, M., Graham, R. et Dudgeon, K. (1998). Physical exercise and psychological well-being: a critical review. Journal of Sports Medicine, 32(2): 111-120.
- [5]. Wankel, L. (1993). The importance of enjoyment to adherence and psychological benefits from physical activity. International Journal of Sport Psychology, 24(2): 151-169.

## PROSPECTS FOR IMPROVING THE QUALITY OF LIFE IN CHILDREN WITH SPECIAL EDUCATIONAL NEEDS THROUGH DANCE

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**Abstract:** A utilitarian definition proposed by Revicki & Kaplan (1993) : Quality of life reflects preferences for certain health conditions that enable improvements in morbidity and mortality, which is expressed by a single weighted index - standardized life years, depending on quality of life . Promoting and supporting children with hearing impairments is a unique experience, a struggle against the refusal and rejection. These children despite weaknesses that have demonstrated that they can provide a successful path in life. At the school level I managed to form a modern dance troupe in classes V-VIII students were actively engaged, being particularly delighted. Leventhal (1981) argues that movement and dance therapy for a child with special educational needs begins with sensorimotor and perceptual development, and integration of this information, and then continues with the formation and development of the concept of body scheme itself.

**Key words:** quality of life, hearing impaired, special needs, dance

### Introduction

The concept of quality of life in political discourse occurs in advanced countries by mid-20th century, when the monopoly of the economic approach to development could not be kept, and the other sciences, especially sociology and environmental science, became more reliable in their criticism devastating side effects accelerated development, and destruction of the natural environment and social relations. Scientific discourse of quality of life is stated as a "corrective existing social relations" [1].

Quality of life is given by individuals perceptions of their social situations, in the context of cultural values systems in which they live and in dependence on their own needs, standards and aspirations. (OMS, 1998).

More specifically, by the „quality of life" we understand physical wellbeing, mental and social, as well as subjects capacity to perform common tasks, in their everyday existence.

A utilitarian definition proposed by Revicki & Kaplan (1993) : Quality of life reflects preferences for certain health conditions that enable improvements in morbidity and mortality, which is expressed by a single weighted index - standardized life years, depending on quality of life [2].

Studies on quality of life are particularly useful for medical practice, an assessment of the effects of physical, mental and social illness and medical treatment on the daily lives of the people; the analysis of the impact of treatment or disease, from the point of view of the patient, as well as in determining needs support patient mental, physical and social during sickness. Use instruments for the evaluation of the quality of life patients help medical personnel to choose between various treatments alternatives to inform patients on

possible effects of the various medical procedures, to monitor the progress treatment applied, from the point of view of the patient and, finally, allows healthcare professionals to design packages from medical treatment effective and efficient.

The concept of quality of life incorporates all the features of life, based on two variables which can be used as indicators: social variables, objectives represented by the environmental conditions which satisfy the basic needs of individuals and psychological variables, subjective, represented by satisfaction and happiness.

After Carr Higginson (2001) [3] quality of life shall determine:

- a. Extent to which their own hopes and ambitions are carried out in the daily life.
- b. Position sense in the life of the person, in the context of cultural and axiologic in which he lives and in relation to the aims, aspirations, standards and concerns.
- c. Assessment of their own health, by reference to a model ideal.
- d. Things which are regarded as important in the life of persons.

More defined, it is about the following dimensions of quality of life:

1. Emotional or mental wellbeing, as shown by indicators such as: happiness, satisfaction itself, the feeling personal identity, to avoid excessive stress, self-esteem, wealth intellectual life, the feeling of safety.
2. Interpersonal relationships, illustrated by indicators such as: to enjoy intimacy, affection, friends and friends, social contact, social support (dimensions social support).
3. Material wellbeing, as shown by indicators such as: property, the safety of the workplace, adequate

income, food, employment, possession of goods (mobile - buildings), houses, social status.

4. Personal affirmation, which meant: professional competence, professional promotion, exciting intellectual activities, skills/professional skills solid, professional accomplishment, adequate levels of education profession.

5. Physical well-being, which resulted in the health care system, physical mobility, adequate food availability, availability free time, the assurance of the medical care of good quality, sickness insurance, interesting favorite activities during leisure (hobbies and meet them), optimal physical form or fitness, which resulted in the four SECONDS, strenght - physical strength, Stamina - force or endurance, suppleness - streamlined physical and Skills Limited toward an expansion - skill or physical skill.

6. Independence, which meant autonomy in life, the ability to make personal choices, the ability to make decisions, personal self-control, the presence of some values and goals clearly defined, self-driving in life.

7. Social integration, which refers to the presence of one status and social role, the acceptance in different social groups, social support accessibility, a climate of work incentive, participation in Community activities, the work on non-governmental organizations, membership of a spiritual community-religion.

8. Ensure fundamental human rights, such as: the right to vote, the right to property, privacy, access to education and culture, the right to a fair and quick process.

Few experiences mesh so well person, as a whole, as well as the dance: body, emotions and his intellect.

Dance is the euphoria that not everyone feels, but one that invests passion in the joy of moving to music rhythms .

Those who can't hear these rhythms, simply live them, feel them vibrating in their flesh, in their mind, trying to develop by moving artistic skills. This talent helps to emphasize the beauty of his soul, even through dance. Share whole world need to encourage your own, to be valued, to be admired, cultivating skills that seem to some incredible, even impossible.

Movement together with others, at the same rate, usually, help in the formation of relations. Because of such communication in motion, the child becomes more aware of his own person and much more able to interact with others. Through the techniques used, therapist returns working on trust and relationships.

Leventhal (1991) [4] argues that movement and dance therapy for a child with special educationa needs begins with sensoriomotor and perceptual development, and integration of this information,

and then continues with the formation and development of the concept of body scheme itself.

Body schema is one of the fundamental concepts in human development. Schilder (1950) defines body schema as a three-dimensional image of our own body which we form in mind, the way we perceive our body. No body schema, mental structures necessary symbolic representation of other things can not form as long as they depend on previous purchases.

Schilder (1950) highlights the correlation between movement and body scheme, arguing that the move leads to a better orientation in relation to our own bodies. We do not know much about your body if you do not move, and the movement is a unifying factor between different parts of the body.

#### **Material and methods**

When working with deaf children and children with multiple sensory impairments, different methods depends on the need.

For deaf children sequencing complex movements is more difficult due to the specific characteristics of bodily ownership. We can suggest moves that are absent - effective way of increasing the repertoire of movements.

Furthermore, it can provide children the opportunity to experience different feelings in the body, which is associating with the movement in a different direction.

In addition to the tools available that uses the therapist, there are aspects of dance and improvisation, games, movement development.

Movement is a universal means of communication.

All children move in one way or another, and those with disabilities are no exception. Some of them have not developed an adequate verbal, maybe not, but have a true language of movement, so that non-verbal communication becomes an effective contact.

Children with multiple sensory impairments are interested in improvised movements in the form of play.

When a child begins to improvise dance development may indicate a therapeutic relationship and providing insight conscious and unconscious material that is emerging but not yet realized.

Promoting and supporting children with hearing impairments is a unique experience, a struggle against the refusal and rejection.

These children despite weaknesses that have demonstrated that they can provide a successful path in life.

At the school level I managed to form a modern dance troupe in classes V-VIII students were actively engaged, being particularly delighted.

The purpose of research is to implement training programs to enhance the artistic characteristics of motor movements in children with impaired hearing and will develop drive systems whose efficiency is objective evidence offered by industrial experiment.



In order to achieve the objectives proposed experiment research will be a longitudinal, under which it would be track progress of children going as far as case studies.

Longitudinal research involves repeated measurements, at specific time intervals on the sample of subjects.

Longitudinal research method constitute multi-some people, and the same persons in the course of a long time.

Research objectives:

- Develop one recovery program, enabling a significant change in quality of life and motor potential of children with hearing disorders and driveability, building on specific complex evaluations;

- Introduction of specific elements of dance as a means of improving the qualities biometric exercise capacity, functional performance and quality of life associated with traditional means of physical therapy;

- Training and development psychomotricity components (body schema and laterality);

- Promote the development of balance and coordination through dance;

- Objectiveness of results observed from the implementation by assessment dance complex.

Sample that will conduct the study consists of 3 groups of students with special needs, enrolled in preschool, primary and secondary Secondary School Special "Sf. Vasile" in Craiova.

The first group will consist of 6 students Langdon Down syndrome, aged between 6 and 12 years, enrolled in the school year 2013-2014.

The second group consists of 7 multiple sensory impaired students.

The third group consists of 25 students with hearing disabilities and special traction in primary and secondary school.

Subjects will be tested first, intermediate and final data were tabulated and statistically analyzed.

Chosen work programs will be implemented six months after interim testing will eventually change their content.

#### Research tasks:

a) study of the bibliography on conceptual and methodological issues concerning the means dance;

b) the design, implementation and tabulation sociological survey on the opinions of experts on the issues studied.

c) programs implemented, tests and assessment tests.

d) initial and final test will take place subjects in terms of motor, functional, biomechanical and to quality of life, and somatic measurements.

e) data obtained will be statistically processed, interpreted and represented graphically and based on their findings and recommendations will be made for large-scale implementation.

The battery of tests applied subjects consists of:

test for assessing balance, posture and motor control;

tests to assess motor function;

tests for static and dynamic balance - biomechanical tests;

tests for quality of life.

#### Results

Data recorded in the three tests (initial, intermediate and final) will be reported in tables and graphs will facilitate the understanding of changes. Besides the statistical parameters that characterize the trend we investigated phenomenon, we calculate the difference (in real terms and as a percentage) between the results of tests (intermediate - initial, intermediate - final and final - initial).

Further, if the preconditions are met, we apply Student test ( the preliminary investigation, where we have two tests ) to show that there are significant differences between the results.

We will apply the method repeated measures ANOVA (samples results in the actual experiment), which will measure the same dependent variable three times. Determine whether or not there are significant differences between the results. Finally, calculate the ratio F, which is higher than that of the table, then it is significant. To further maintain the precision of the experiment, we use a Newman-Keuls test control. It is applied after significant F was obtained. The difference obtained by this test should be greater than the value specified in the table.

To analyze the results of the sociological survey we use nonparametric statistical methods.

#### Discussion and conclusion

Music and dance can improve the quality of life for children with physical needs, emotional and psychological in a variety of ways.

When we speak of the therapeutic effects of dance we must understand that we are not referring to dance therapy or how often confused with these concepts, but the potentiation medical and psychological benefits of dance.

Implementation of the beneficial role of body movements, combined with elements of physical therapy, medical gymnastics and isometric exercises, and the acquisition of knowledge and mastery of dance choreography, are the basic elements when we want to actually get "medical" dance [5].

The student learns to dance as it is proposed and also enjoy all the therapeutic benefit dance.

Dance is an art, and that art is not only for people diagnosed with suffering physical and / or mental, but also healthy people for whom prevention is extremely important. Dance promotes body awareness - and the environment, developing ways of communicating - and release, very beneficial to human health .



Moreover, the man himself looking over his existence to express thoughts, feelings, and dance events. So here is the dance part of human life for so long - and specialists, researchers and doctors have learned to use this art on our behalf.

Dance is the most expressive way of showing injury involving both the driving capabilities of each message and expression of emotions, states. "Dance is the most beautiful art, because he is not a translation or abstraction of life, it is life itself " ( Havelock Ellis ).

Dance means excitement, dancing means the conquest of space, courage to overcome mobility. He is totally plastic movements, gestures and steps, which are executed sequentially in a specific rhythm music giving emotional content.

#### References

[1] Zamfir, C., (1990), Calitatea vieții ca obiectiv politic, în „Calitatea vieții”, nr. 1, , p. 5–20

[2] Kaplan R et al. The Quality of Well-Being Scale: Rationale for a Single Quality of Life Index. In: Quality of Life Assessment: Key Issues in the 1990s. Walker, Stuart R.; Rosser, Rachel M. (editors). Dordrecht, The Netherlands: Kluwer Academic Publishers 1993:65-94

[3] Higginson IJ, Carr AJ. Using quality of life measures in the clinical setting. *BMJ* 2001;322:1297-300.

[4] Leventhal, M. B. (1991). Moving Towards Health; Stages of Therapeutic Unfolding in Dance Movement, Abstract Proceedings of Medart International, First World Congress on Arts Medicine. Medart

[5] Moores, D. F. (1987). „Educating the Deaf - Psychology, Principles, and Practices”, Houghton Mifflin Company, SUA.

# THE PURPOSE OF DIAPHRAGM IN THE ACUTE AND CHRONIC LUMBAR BACK PAIN: POSSIBLE THERAPEUTIC IMPLICATIONS

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**Abstract:** this study evaluates the degree to which each posture disorder entails compensatory respiratory changes, visible in people affected by back pain either acute or chronic and comparing what changes occur when the respiratory demand is increased. The movement of the angles between the lumbar spine and hips and the movement of the centre of pressure (COP) were recorded based on imaging exams and in the respiratory phases at chest movements. With the subject standing in a relaxed position, there have been recorded peaceful breathings, observing the attitude of the patients to increase the amplitude of the respiratory movements in order to be able to track the expansion of chest.

The modifications appeared between the angles of the lumbar spine and hip in respiratory frequencies were evident in both groups of patients. However, even during the sitting posture, patients with back pains have an obvious discomfort when breathing, and breath becomes controlled by the patient. Research is oriented towards issues of the lumbar tract and of the relationship with the diaphragm function, the main respiratory muscle, as a strategy of innovative work that uses the device called "BANCAFIT", after Raggi method (overall decompensate muscular elongation), conducted on an experimental lot, can be compared to a kineto-therapeutic method which has proved to be effective-McKenzie method performed on a control group.

**Key words:** low back pain, diaphragm, postural control, bancafit.

## Introduction

The man is first of all a motor animal. Correct physical activity is of fundamental importance for physical and psychic well-being. Our physique developed for certain types of movements that we do in the natural environment. So physical activity will have to respect these trends of our genetic heritage, putting into play several muscles and joints, but in a moderate manner. In addition, it is important to be satisfying also from mental point of view (1). A good posture and proper physical activity fosters a proper breathing. Re-education of breathing should always be an integral part of any program of physical activity (2).

Living conditions of modern age creates inevitable adaptations of the human species. Postural adaptations so often are difficult to tolerate in terms of morphologically and functionally, being the origin of some real osteoarticular pathologies, with high incidence on the cervical and lumbar spine (3).

This study seeks to show how the diaphragm is involved in the control of postural stability during voluntary movements of the joints. The diaphragm contributes to postural stability through increased pressure in the abdominal cavity. The contraction of the pelvic and abdominal muscles, primarily the abdominal right is closely correlated with increased intra-abdominal pressure (4).

Seeking a balanced and comfortable posture, there are used as work strategies, different methods of stimulation: proprioceptive inner soles, mechanical or magnetic etc. (5). But the practice has shown us the importance of breathing and the way in which the natural breathing mechanism contributes to posture mechanism.

The diaphragm has a role in the mechanism of postural system, thanks to its central position, its hegemony and the links it maintains with the muscles involved in static and dynamic, identified as a functional unit in the muscular chain (4).

All muscle chains are "bounded" to the diaphragm and the phrenic centre is the meeting place, where all the chains are linked.

The aim of this study is to demonstrate:

1. How in a complex mechanism as the postural tonic system that can be affected in terms of morphological, structural and functional point of view, the diaphragm (6), the main muscle of the respiratory system can be affected.
2. How, by changing the diaphragm function in the context of the rebalancing objective of the functional affectations of the kinetic chains, "victims" of muscular retractions, it can be obtained:

- Improvement of postural alterations
- the reduction or recovery of the pain symptomatology in those body areas that are connected with the diaphragm function.

3. How a strategy of innovative work that uses the device called "BANCAFIT", after Raggi method (overall decompensate muscular elongations), conducted by an experimental lot, can be compared to a kineto-therapeutic method which has proved to be effective-McKenzie method –performed by a control group

## Material and method

This study was attended by 30 patients of both sexes, aged between 25 and 65 years (average 43,16), all with dysfunctions and/or lumbar tract pain in sub acute or chronic phase, to which osteoarticular problems of other areas are added. From these subjects, 15 were placed in the experimental lot and 15 in the control lot. The experimental lot has undergone a series of sessions, in number of 10, with individual character, lasting one hour, once a week. With these subjects has been worked specifically at the diaphragm level, after Raggi principle, using Bancafit.

The control lot was subjected to a number of 10 sessions, also with individual character, after McKenzie method, with duration of one hour, once a week.

Inclusion criteria: there were selected adult male and respectively female subjects, aged between 25 and 65 years old, active, working people, who were not practicing any sport activities on a regular basis. All reported pain and/or dysfunctions at different levels of the lumbar rachis and not only.

Exclusion criteria: there were excluded the subjects with cancers, with bronchial asthma, autoimmune diseases in the active phase, with rheumatic diseases in the acute phase, with osteoporosis in advanced phase with disc hernias operated either lumbar and/or cervical, pregnant women, patients with scoliosis of over 30 ° Cobb.

All subjects were undergoing screening phase, which included:

- Complete anamnesis;
- Postural exam;
- Evaluation of pain using the VAS scale (Visual Analogical Scale ), numeric subjective evaluation scale of the intensity of pain;
- Observation base don digital pictures;
- Radiographic exam and/or RMN of the spine;
- Orthopaedic and therapeutic evaluation.

**Results**

There were examined the results obtained following the analyses of the two groups of patients (Group A and Group B) separately.

The subjects of the experimental lot obtained net positive results in terms of postural balance and pain reduction.

In terms of postural modifications it is obvious the reduction of the deviation in the lumbar area, as can be seen in one of the cases, from 13,5 cm to 7 cm. For the ones who had a slight lordosis, the reduction of the

deviation was also obtained. It can be asserted that ot has been obtained in addition also an improved postural aspect of the subject.

With respect to pain symptomatology, it could be noted a reduction in VAS. At the beginning of the sessions, the patients have been reluctant, emotionally weakened. At the end of the sessions, all showed a positive reaction of relaxation. In terms of muscle, they often experienced uncomfortable sensations in the posterior region and in particular similar sensations to cramps in the coastal area, typical phenomenon of diaphragmatic unlocking.

We also used the plantogrames in order to be able to observe the plantar support and at the last evaluation it could be observed an improvement. The pain symptomatology decreased significantly.

Particular remains the case of a single patient to whom we were not able to obtain the reduction of VAS in the lumbar area, but it could be noted an improvement in symptoms in the epigastric area, consecutive of a hiatus hernia, previously diagnosed during an endoscopy.

In relation to the control group, the numeric data contained in the table demonstrates how it was obtained a loose reduction of the pain, while the lumbar spine deviation remained unchanged. The lumbar deviation was reduced from 8.6 cm to 7.8 cm.

The average percentage reduction of the VAS scale was 51% after the results of the deviations changes and after the results obtained as a result of plantar support at the plantogrames there have been no substantial changes noted in the global posture. The not very bright result of the McKenzie method in this case, derives probably from the particularity of the method itself, which requires constant practice of the learned exercises at home.

Table 1

Patients lot A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
VAS initial	5	5	8	7	7	4	5	5	4	6	5	8	6	4	5
VAS final	0	0	0	2	0	4	0	2	0	1	0	2	0	0	0

Fig. 1

Initial and final values of VAS for the group A

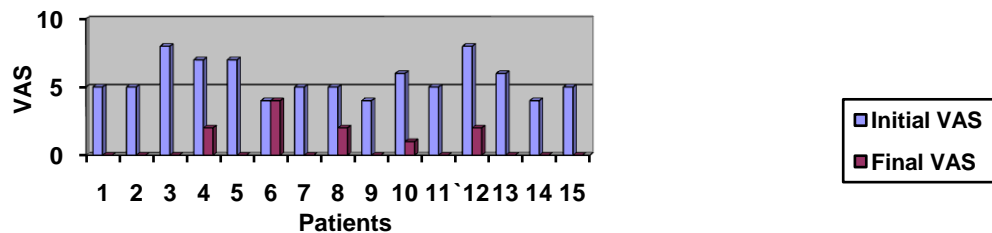
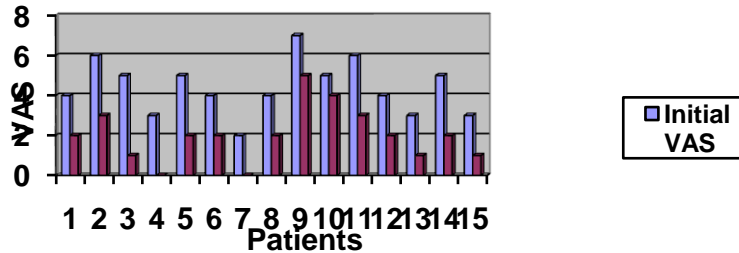


Table 2

Patients lot B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
VAS initial	4	6	5	3	5	4	2	4	7	5	6	4	3	5	3
VAS final	2	3	1	0	2	2	0	2	5	4	3	2	1	2	1

Fig. 2

## Initial and final values of VAS for the group B



With two sessions per week, without being possible to have a control of the therapist at home, the success for applying this method to this Lot B was not guaranteed.

#### Conclusions

From the data obtained from observations of this study results important information on examined pathology, as well as on the treatment method used for solving problems.

Observing the Bancafit treatment methods (Raggi method) and the McKenzie method, it emerged that these and in particular the Raggi method succeeded to determine, even if in a different manner, changes of the lumbar rachis-diaphragm-posture complex.

This demonstration has been provided based on analysis of the data from the tables, from where it results a significant variation of the numeric values of the parameters included in the examination. It can be stated that, due to the application of the Raggi method, a slight improvement of the alignment of the spine has been noted and consequently the postural attitude of the subjects and also a marked reduction of painful symptoms, highlighted through the reduction of the VAS with up to 88%.

The Bancafit method has been proved to be valid not only for therapeutic effectiveness in the broad sense, but also for ongoing treatment modality: 10 sessions of approximately one hour, with an obvious positive effect already noticed after 4-5 sessions.

The McKenzie method limitation stems from the following context: it is been talking about a method that gives a special importance of self-evaluation and participation of the patient in the management of the rehabilitative program (the patient is taught to treat and manage by himself the rahialgia) (2). So, this is probably one of the reasons explaining the reduced result, obtained with this method compared to the fairly new Bancafit method. It is important in this context to recall the results of several research studies on this method, in which certain batches of control have failed

to demonstrate the effectiveness of McKenzie method, but we must not deny either, the fact that the method offers a much satisfying result than applying some simple exercises.

In conclusion, we can say that there is a relationship between the diaphragm, the lumbar tract problems and a complex mechanism like the postural system (7), as we demonstrated through the results obtained in the present study, and that the Bancafit (Raggi method) demonstrated to be the most effective from the two methods applied, with the attainment of the prefixed objectives at the beginning of the study: pain reduction and the variation of postural parameters.

#### References

- [1]Chetta G. (2008) – Ginnastica posturale T.I.B. ( ginnastica di massima efficacia per l'uomo di oggi ), ed. 04/2008;5.
- [2]Hodges PW, Mc Kenzie DK, Heijnen I, Gandevia SC (2000) – Reduced contribution of the diaphragm to postural control in patients with severe chronic airflow limitation, Proc Thoracic Soc Australian and New Zealand, Melbourne, Australia;
- [3]Kapandji I. A. (2009) – Articular Physiology. Body and spine, Editura Monduzzi;
- [4]Gandevia SC, Gorman RB, McKenzie DK, De Troyer A (1999) – Effects of increase ventilatory drive on motor unit firing rates in human inspiratory muscles; Am J Respir Crit Care Med;
- [5]Konings L, Van Celst M. (2000) – Biometry in the Physic Medicine and Rehabilitation Treaty, Valobra G.N., Vol 1°, UTET;
- [6]American Association for Respiratory Care, AARC Clinical Practice Guideline (1991): Postural drainage therapy. Respir care;
- [7]Gagey PM, Toupet M (1997) – The posture ventilation mystery: amplitude of postural sway in the 0,2 hertz frequency band. Retrieved September 17, 2001 from <http://perso.club-internet.fr/pmgagey>;

# CONSIDERATIONS REGARDING THE INFLUENCE OF THE REHABILITATION TREATMENT ON THE NEURO-PSYCHO-MOTOR ACHIEVEMENTS OF CHILDREN WITH CEREBRAL PALSY

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**Abstract.** Background. Cerebral palsy combines a group of non-progressive chronic neurological disorders, influenced by the growth and development process, characterized by inadequate control of motility and posture due to damage to the central nervous system. In the recovery process, physical therapy is very important.

**Aims.** An accurate assessment of the level of motor development will lead to setting targets and therapeutic means necessary, and the application of the latter will be followed by results, showing such improvement, parking or aggravation of motor deficit.

**Methods.** This study was conducted during December 2009 - June 2013 on a total of 76 children aged 2 months - 4 years, diagnosed with cerebral palsy of different shapes.

**Results.** Motor functional level evolution and degree of spasticity was favorable to study subjects.

**Conclusions.** Recovery program, having physical therapy adapted to each subject in its center, helps to improve postural control, stability and static and dynamic balance to cerebral palsy subjects.

**Key words:** cerebral palsy, spasticity, neuromotor development.

## Introduction

Cerebral palsy is caused by damages of the central nervous system that may occur in the prenatal period, during birth or in the perinatal period and results in chronic disorders of posture and movement [1].

The presence of nerve injury at birth is not a guarantee of the manifestation and recognition of the disease in children under 1 year old. The irregular movements and delay of the age-specific neuro-motor acquisitions are noticed much easier in children between 1 and 3 years old.

Impairment of the central motor neuron is associated "with poor motor skills, sensory deficits, vegetative disorders, seizures, speech disorders under the form of apraxia or dysarthria or communication and even behavior disorders." [2].

According to Hagberg, B. and Hagberg, G., [3], the main reason for the increase of the number of children with cerebral palsy is represented by the factors that interfere in intrauterine development, while Yamada, K., [4] reports a percentage of the etiology of the nervous system damage in children of "20.5% for prenatal causes, 22.75% for the perinatal causes, 4.5% postnatal causes, and 34.1% unknown".

Depending on the morpho-functional structures affected, there can describe several types of cerebral palsy: spastic forms, dystonic dyskinetic, ataxic, atone and mixed [5].

Neurological examination of a child with cerebral palsy aims, on the one hand, to settle the level of neuro-motor development from the first months of life, in order to know the current functional diagnosis, and, on the other hand, to implement an early therapeutic education and a quantitative and

qualitative assessment of the movement disorders [6].

Fozza, C., Căciulan, E., Rock, D. and Gheorma, R., [7] states that "normal motor development of the infant is a continuous variation of pull-outs and attempts of maintaining the position, a succession of postures and movements that allow the infant to evolve from the supine position to standing and walking."

In this context, an accurate assessment of the level of motor development will lead to the setting of targets and the necessary therapeutic means, and the implementation of the latter will be followed by results. Thus, the improvement, maintenance or aggravation of the motor deficiency will be easily noticeable.

## Hypotheses

The introduction of a rehabilitation program for children with cerebral palsy and its adaptation to the motor potential of each contributes to the attaining of the maximum motor lever represented by the acquisition of walking. This essay aims to outline a recovery methodology based on kinetherapy intervention, important link in the activation of postural reflexes and balance.

## Material and methods

Research protocol

### a) *Period of the research*

This study was conducted between December 2009 - June 2013 and continues also today. It was based on the experimental method and the method of transverse and longitudinal observation.

### b) *Subjects*

The subjects of the present study have been 76 children aged between 2 months and 4 years old, hospitalized at the Centre for Neuromotor

Recovery Dr. Nicolae Robănescu in Bucharest, diagnosed with cerebral palsy of various forms. The criteria for selecting the subjects were: the perinatal cause of the occurrence of cerebral palsy and the motor age of less than 1 year old, accompanied by their impossibility of walking. The selected subjects have benefitted of a recovery protocol specific to their motor development.

Chronological age	Motor functional level
1-2 months	no control of the head
2-3 months	has the control of the head
3-4 months	acquires doll position
4-5 months	rolls
5-6 months	crawls, remains in sitting position without balance
6-7 months	Remains in sitting position with latero-lateral and anterior-posterior balance
8-9 months	reflex "ready to jump"
9-10 months	stays on all four
10- 11 months	goes on all four
11 months	goes on his knees and keeps orthostatism for a few seconds
12 months	walks independently

Table 1. Evaluation of the motor functional level

To determine the degree of spasticity it was used the modified Ashorth scale [10].

#### d) Studied moments

Subjects were analyzed throughout the study period, some of them having one hospitalization, and others two or more.

After the evaluation of the degree of spasticity it was chosen the method of therapeutic approach. It consisted in physical means of decontraction and correcting the posture using orthoses. It was also used the botulinum toxin injection.

After assessing the level of motor development it was established the treatment protocol that includes, in different proportions, depending on the case: kinotherapy, ergotherapy, electrotherapy (for selective decontractions, excitomotor, antalgic, sedative electromagnetic therapy) psychoevaluation, psychostimulation and speech therapy.

Patients received recovery cures of 12 days, during which they had two recovery sessions daily.

The purpose of rehabilitation therapy was to achieve the maximum motor level (acquisition of walking) and the therapeutic goals were:

#### c) Tests applied

Subjects were evaluated at hospitalization in terms of motor potential and degree of spasticity (Ashworth scale).

The items of the functional level were evaluated using the simple version, which included the main stages of neuromotor development, according to Robănescu, N., [8] and Tardieu, G., cited by Căciulan, E and Stanca, D., [9].

1. fighting the vicious attitudes by correcting the posture with orthotics and training the patients since hospitalization regarding the static attitudes to be avoid or adopted,
2. decreasing of spasticity and reducing its effects,
3. muscular toning of the entire body,
4. stimulating the equilibrium reactions
5. improving the coordination,
6. developing the motor skills specific to the age,
7. decreasing the motor retardation and attaining a balance between the motor and the chronological age
8. acquiring orthostatism and walking.

#### e) The statistical methods used

The computer program used for statistical processing was Microsoft Excel 2007.

#### Results

As a result of the evaluations, the followings have been notices:

- Of the 76 subjects, 22 were females and 54 males.
- The subjects have been diagnosed with various forms of cerebral palsy, according to the diagram 1:



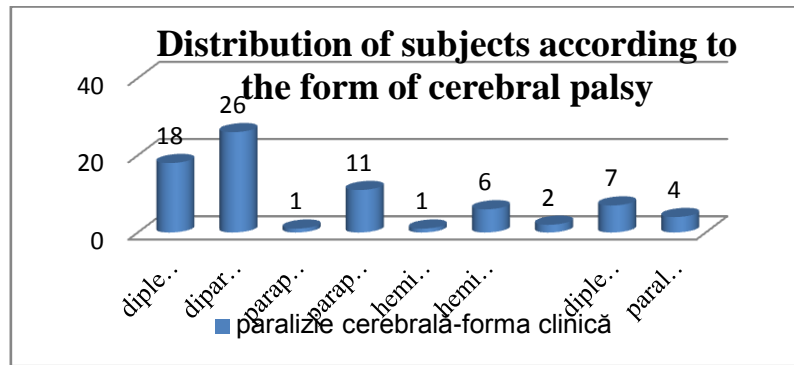


Figure 1: Distribution of subjects according to the form of cerebral palsy

- Of the 76 patients, 29 (38.15%) had a single hospitalization at the center, which is why we can not comment on their development, but 47 (61.84%) had more than two hospitalizations, the maximum number of hospitalizations of a patient being 15.
- The evolution of the 76 subjects in terms of neuro-motor acquisitions appears according to diagram 2. We mention that the study is dynamic, the subjects are under constant care and it is likely that, in the meantime, other subjects have increased their acquirement.

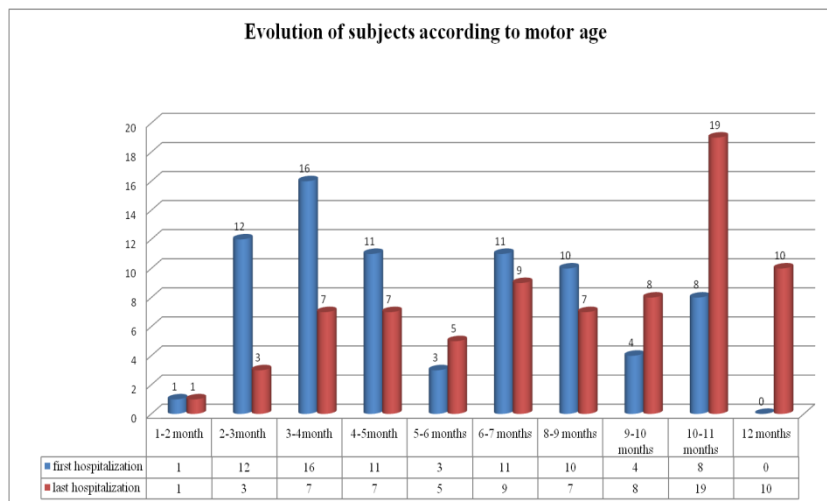


Figure 2. Evolution of subjects according to motor age

## Discussions

From the results obtained, we notice that the evolution of functional motor level and degree of spasticity is favorable and enables us to affirm that the recovery program, focused on kinetotherapy, contributes to the static and dynamic postural control.

We emphasize that only 10 subjects (13.15%) have acquired walking during treatment and evaluation, and two of them acquired it after the chronological age of four years old.

We conclude by noticing the role of kinetotherapy in the rehabilitation of cerebral palsy, certified by improving stability, coordination and balance.

## Conclusions

Acquirement of walking noticed at only 13.15% of the subjects of the study confirms that the recovery from the various forms of cerebral palsy involves a difficult and lengthy process.

Stimulation of postural reactions, decrease of spasticity, muscle toning of whole body obtained by means of kinetotherapy make the latter

responsible for maintaining stability and static and dynamic balance necessary for maintaining certain positions and performing activities that are specific to the stages neuromotor development.

Recovery program and hence the kinetic program with the necessary methods are selected according to the neuro-motor stage of development of the child.

## References

- [1] Albu, C., Gherguț, A. and Albu, M., (2007). *Dictionar de Kinetoterapie*, Polirom, Iasi, p 406.
- [2] Căciulan, E., Stanca, D., (2011). *Paralizie cerebrală infantilă. Infirmitate motorie cerebrală. Evaluare si kinetoterapie*. Moroșan Publishing, Bucharest, p. 17.
- [3] Hagberg, B., Hagberg, G., (1984). *Prenatal and perinatal risk factors in a survey of 681 Swedish cases*. In Atanley
- [4] F, Alberman, E.: *The epidemiology of the cerebral palsies*, Lippincott, Philadelphia, p 116-134.
- [5] Zoltan, P., (2004). *Kinetoterapia în neuropediatrie*. Publisher Arionda, Oradea, p. 87.

- [6] Yamada, K., (1994). *Incidates rates of cerebral palsy, mental retardation and Down Syndrome in Sodeguara City.Chiba Prefecture.* To Hattatsu No 26 (5), p. 4111-4117.
- [7] Stanca, D., Căciulan, E., Fozza, C., (2004). *Evaluarea corectă si completă a nivelului de evolutie motrică a copilului cu IMC-factor hotărâtor în stabilirea metodelor de recuperare.* In *Revista Română de Kinetoterapie*, 13, p 137-150.
- [8] Fozza, C., Căciulan, E., Rock, D., Gheorma, R., (2003). *Scheme de facilitare neuroproprioceptivă cu*

*rol important în reeducarea neuromotorie a copiilor cu infirmitate motorie cerebrală.* In *Revista Română de Kinetoterapie* 12 , p.32-37.

[9] Robănescu, N. (2001). *Reeducare neuro-motorie.* Medical Publishing House, Bucharest, p 45-57.

[10] Bérard C. (2008). *La paralysie cérbrale de l'enfant.* Sauramps med. p 79-81, Available on <http://www.snpcar.ro>, Visited on 27/02/2014.

## RESPIRATORY REHABILITATIVE TREATMENT FOR PATIENTS AFFECTED BY AMYOTROPHIC LATERAL SCLEROSIS (A.L.S)

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**Abstract:** It is often believed that the ALS patient can not be rehabilitated. Mistrust leads to waiver of recovery which unfortunately increases the patient's suffering. Rehabilitation of the patient with ALS is possible if we provide to the disable person new methods and we adapt them in order to serve as a substitute for the ones cancelled through illness.

The purpose of this study is to demonstrate the efficacy of the respiratory treatment, experienced by Bach protocol (Air-Stacking is Cough Assist) and the non invasive mechanical ventilation of the vital capacity of patients with ALS compared to using traditional methods of respiratory therapy (classical bronchial de-obstruction techniques vibrant-compressions, clapping, etc.).

Inspired by Dr. Bach method, we have proposed a protocol for rehabilitation of patients with amyotrophic lateral sclerosis, whose goal is to prevent deterioration of lung function and respiratory infections.

Great advances in scientific research and medical care have increased the chance of survival and quality of life of these patients. The intervention should be precocious, comprehensive and multidisciplinary.

**Key words:** Amyotrophic Lateral Sclerosis (ALS), protocol, air-stacking, cough machine

### Introduction

„ALS puts life at stake”.

**Amyotrophic Lateral Sclerosis (ALS)** synonymous:

- Motor-neuron disease
  - In France the Charcot disease
- In USA Lou Gherig disease (a famous baseball player dead at the age of 36 years due to this disease).
- Progressive muscular atrophy
- Amyotrophic Lateral Sclerosis (ALS).

In subjects with neuromuscular pathology, a ventilation deficit of restrictive type is often present with reduction of the total lung capacities or vital capacities. In addition, the reduced performance of the expiratory muscle makes the residual volume to be high, while functional residual capacity is often in the normal range or even lower. The breathing pattern is characterized by a frequent and shallow breathing (1).

When the respiratory muscles strength diminishes, the techniques used for achieving effective cough can keep airways clean and free. An effective cough requires a deep inspiration, the neck muscles coordination and a rapid expiratory airflow. If the maximum peak of the expiratory flow is relatively low, then some techniques for assisted cough are necessary, especially in the course of a respiratory infection (2).

ALS often causes the torsion of the pharyngeal-oesophageal muscles with the risk of developing pneumonia ab ingestis. An acute infection stimulates the pulmonary secretions causing atelectasis. So, it can cause imbalances and consequently respiratory failure. Prevention is essential because the intervention is more difficult when the lungs are completely obstructed by secretions.

The protocol proposed by doctor Bach is based on the observation that "in patients affected by any form of neuromuscular disease, the acute respiratory failure is followed by upper and/or lower respiratory tract infections"; "during these episodes, the already severe pulmonary dysfunction is further compromised by the accumulation of bronchial secretions and by the weakness of inspiration and expiratory muscles"; "such episodes can easily degenerate into recurrent

pneumonia, that results in hospitalization, intubations and possible tracheotomy or even death " (3).

### Material and method

The tools to apply the de-obstruction techniques are: oxygen saturation monitoring, stethoscope, Ambu balloon, In-Exsufflator or the cough machine.

When the breath-in phase is affected, positive pressure on the air ways can be applied. This type of operation is useful for patients with a VC of less than 1500ml. The manoeuvre called "Air-Stacking" in Romanian "air storage", gives the patient the opportunity to maintain an adequate respiratory rate, by infusing more air compared to the volume the patient normally can inhale and it can prevent the decrease of the pulmonary expansion (4).

Air-Stacking unlike the cough-assist method allows the patient cooperation, who will be trained by the therapist about the way in which the exercise will be performed. The manoeuvre is divided into three phases:

1. The therapist after he covered the patient's nostrils with a special pliers, asks the patient to keep between his tightly closed lips the opening vent applied on the Ambu balloon, in such a manner as not to lose air.
2. The patient is required to inhale while pumping air into the balloon, in a fractional manner, gradually increasing the pace and keeping it up to maximum insufflation capacity
3. Once the patient is no longer able to store air, the air hole of the balloon is removed and the patient is asked to exhale rapidly.

This exercise should be repeated 3 times a day, and any application in order to have the desired effect must be composed of 10 to 15 lung expansion. Thanks to this manoeuvre, the elasticity of the thoracic muscles can be maintained and the rigidity of the thoracic cavity can be avoided, which will result in progressive decrease in vital capacity and pulmonary complications due to stagnation of secretions (2, 4).

*Cough Machine or Cough Assist ( In-Exsufflator )*

*Insufflator* is passive filling of the lungs by means of a fan that pumps air under pressure, while exsufflator

provides for a negative airway pressure through mechanical machine that allows passive emptying of the lungs. Induced flows can reach 10 liters per second; they allow the movement of secretions from the airways in a similar manner with an effective cough (2,4).

Mechanical fan stimulates the respiratory muscles to induce coughing, reflex that in patients with ALS, which does not exist.

The device cough can be worn using an nose-mouth mask or at tracheotomy level or under endo-tracheal tube.

The first thing to be checked after the device was positioned is to control the negative pressure which must be -40. The pressures used must be -35/+ 35-40/+ 40. To print more force to the cough during the exhale phase, pressures under the diaphragm can be applied.

In-Exsufflator quickly alternates the positive and negative pressure, so that internal pressures and decompressions can be created, which mobilises secretions. It can also be used for vacuuming of food entering the trachea in patients with swallowing problems.

During the course of treatment we must not worry if the heart rate increases, because the heart develops a compensation action for the minor amount of oxygen carried by the blood, increasing the heart rate and cardiac potency in order to distribute more oxygen to tissues. Furthermore, we must be attentive to bradycardia, because it may indicate a serious pulmonary distress, an important hypoxia.

Using the In-Exsufflator, the oxygen saturation in the blood may decrease; this is normal as long as an internal decompression is created. Within 30-40 seconds after the application of the device, the saturation increases and stabilizes.

The aim of this study is to demonstrate the effects of physiotherapy treatment and non invasive mechanical ventilation on the vital capacity in patients affected by amyotrophic lateral sclerosis, thus avoiding tracheotomy (5).

The study was carried out on a number of 5 patients with the following characteristics:

- Average age 50 – 70 years
- Vital capacity inferior at 55% compared to normal
- SO<sub>2</sub> at rest in the ambient air higher than 95%
- Ineffective cough
- Pharmacological Treatment. The only approved medicine for ALS is riluzol.

In all patients were evaluated:

- Shortness of breath at the beginning of the procedure and after 3 months of experimental treatment "Bach" by using the modified Borg scale, which allows quantifying the severity of the dyspnoea.

0	NO SENSATION
1	VERY WEAK
2	WEAK
3	MODERATE
4	PRETTY HIGH
5	SEVERE
6	PRETTY SEVERE
7	VERY INTENSE

8 VERY SEVERE

9 ALMOST MAXIMAL

10 MAXIMAL

- The vital capacity with the help of pneumologist who provided spirometric data

Every 30 days the patients have repeated the spirometry evaluations.

**Clinical case 1** – 55 years, sex: male.

**First observation:** blood gas analysis: CO<sub>2</sub> > 38.9 mmHg, Rx thorax: the presence of atelectasis simple spirometry: The vital capacity reduced at 24%.

**Second observation** ( at a month after the beginning of the treatment): blood gas analysis: CO<sub>2</sub> > 41 mmHg, Rx thorax: visible improvement of the radiographic frame, simple spirometry: vital capacity reduced to 27%.

The Borg scale modified for evaluation of dyspnoea: the first evaluation: 6; evaluation after three months: 4.

**Clinical case 2** – age: 60, sex: male.

**First observation:** blood gas analysis: CO<sub>2</sub> > 49,5 mmHg, Rx thorax: the presence of atelectasis simple spirometry: The vital capacity reduced at 42%

**Second observation** ( at a month after the beginning of the treatment): blood gas analysis: CO<sub>2</sub> > 46,7 mmHg, Rx thorax: improvement of the radiographic frame, simple spirometry: vital capacity reduced to 53%

The Borg scale modified for evaluation of dyspnoea: the first evaluation: 6, evaluation after 3 months: 4.

**Clinical case 3** – 58 years, sex: male.

**First observation:** blood gas analysis: CO<sub>2</sub> > 37 mmHg, Rx thorax: the presence of atelectasis simple spirometry: The vital capacity reduced at 28%

**Second observation** ( at a month after the beginning of the treatment): blood gas analysis: CO<sub>2</sub> > 42,5 mmHg, Rx thorax: improvement of the radiographic frame, simple spirometry: vital capacity reduced to 33%

The Borg scale modified for evaluation of dyspnoea: the first evaluation: 6, evaluation after 3 months: 4.

**Clinical case 4:** age: 28, sex : female

**First observation:** blood gas analysis: CO<sub>2</sub> > 38 mmHg, Rx thorax: the presence of atelectasis simple spirometry: The vital capacity reduced at 24%

**Second observation** ( at a month after the beginning of the treatment): blood gas analysis: CO<sub>2</sub> > 42 mmHg, Rx thorax: improvement of the radiographic frame, simple spirometry: vital capacity reduced to 26%

The Borg scale modified for evaluation of dyspnoea: the first evaluation: 7, evaluation after 3 months: 5.

**Clinical case 5:** age: 63, sex: male

**First observation:** blood gas analysis: CO<sub>2</sub> > 44,2 mmHg, Rx thorax: the presence of atelectasis simple spirometry: The vital capacity reduced at 49%

**Second observation** ( at a month after the beginning of the treatment): blood gas analysis: CO<sub>2</sub> > 47,2 mmHg, Rx thorax: improvement of the radiographic frame, simple spirometry: vital capacity reduced to 57%

The Borg scale modified for evaluation of dyspnoea: the first evaluation: 7, evaluation after 3 months: 5.

## Results and discussions

### Case 1

- first evaluation: PaO<sub>2</sub> 68 mm Hg PaCO<sub>2</sub> 38,9 mm Hg CV 24%

- evaluation after 3 months: PaO2 68 mm Hg PaCO2 41 mm Hg CV 27%

- the Borg scale before and after: 6, 4

**Case 2**

- first evaluation: PaO2 59,8 mm Hg PaCO2 49,5 mm Hg CV 42%

- evaluation after 3 months: PaO2 70,1 mm Hg PaCO2 46,7 mm Hg CV 53%

- the Borg scale before and after: 6, 4

**Case 3**

- first evaluation: PaO2 95 mm Hg PaCO2 37 mm Hg CV 28%

- evaluation after 3 months: PaO2 78,8 mm Hg PaCO2 42,5 mm Hg CV 33%

- the Borg scale before and after: 6, 4

**Case 4**

- first evaluation: PaO2 100 mm Hg PaCO2 38 mm Hg CV 24%

- evaluation after 3 months: PaO2 94,9 mm Hg PaCO2 42 mm Hg CV 26%

- the Borg scale before and after: 7, 5

**Case 5**

- first evaluation: PaO2 57,5 mm Hg PaCO2 44,2 mm Hg CV 49%

- evaluation after 3 months: PaO2 85,2 mm Hg PaCO2 47,2 mm Hg CV 57%

- the Borg scale before and after: 7, 5

Chart 1

**Evaluation of dyspnoea**

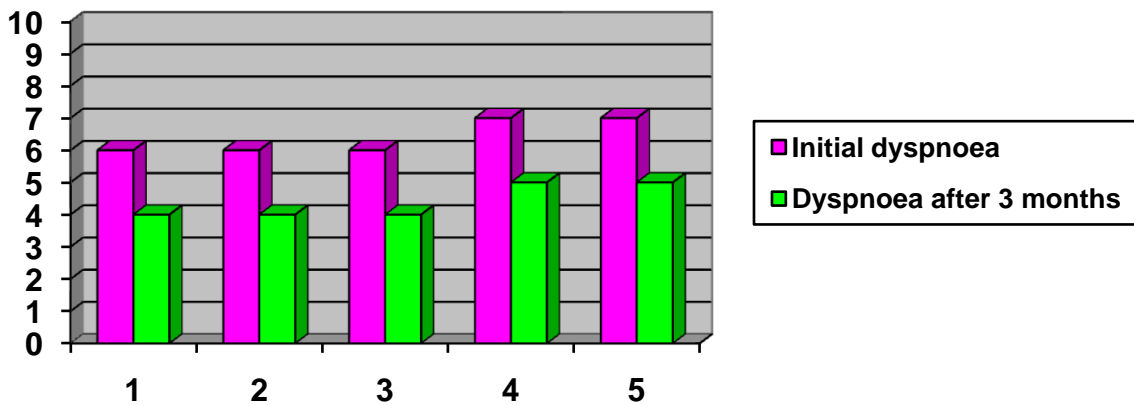
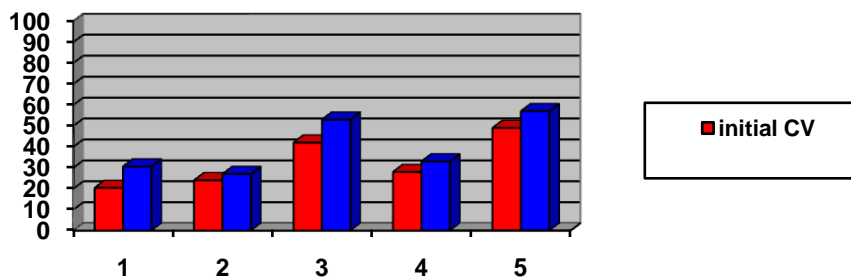


Chart 2

**CV evaluation after 3 months**



Also the spirometric values were analyzed and the vital capacity of the same patients who benefited before of classical respiratory treatment and then respiratory treatment according to Bach protocol for three months.

Fig. 1

**Patient**

Initial vital capacity	Vital capacity after the classic respiratory treatment	Vital capacity after 3 months of Bach treatment
<b>CASE 1</b>	24%	27%

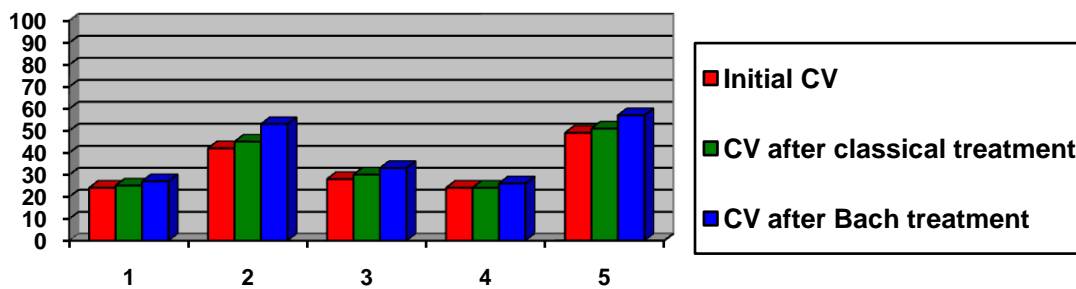
<u>CASE 2</u>	42%	45%	53%
<u>CASE 3</u>	28%	30%	33%
<u>CASE 4</u>	24%	24%	26%
<u>CASE 5</u>	49%	51%	57%

A gradual increase between 5% and 10% different from patient to patient is observed. The major growth refers to the experimental treatment of Bach as well as the initial vital capacity and classical respiratory treatment that present a variable increase between 1% and 3%.

Major increase in vital capacity is observed in patients who do not present medullar compression (case 2, case 5).

Chart 3

The values of CV % between classic treatment and Bach treatment



The „transitory” improvement of the vital capacity is linked to the fact that this apparatus, united to a type of non-invasive ventilation, accomplished using an interface (nasal, facial mask, etc.), manages to activate the micro -atelectasis, as is shown by the radiographic examination (6).

It was observed in all patients a slight improvement of postural level. It is true that in the patient affected by ALS, a global progressive deterioration appears, but it's also true that, because of these experimental techniques, we are able to give patients a better quality of life.

For example, patients in wheelchairs will no longer have that wrong and killer postural attitude, due to respiratory problems that will reflect on the spine, the thoracic cavity and on all the muscles of the neck-torso-lumbar chain. The same thanks to the muscular elongations, the patients will no longer indicate those feelings of "shingle" in movements and especially upon the profound neck muscles (7).

This study, contrary to the limitations of a poor case study, confirms the results described by Dr. Bach.

The increase of the vital capacity in some of the patients of this study, and taking into account the inexorable evolution of the amyotrophic lateral sclerosis, is for sure the result of combined treatment of mechanical ventilation, air-stacking and the drainage of the secretions mediated by the assisted cough device (cough assist).

This effect is due to the reopening of the micro-atelectasis of the lung parenchyma, formed as a consequence of the muscle atrophy characteristic to ALS, accompanied by the reduction of the pulmonary expansions (mostly basal) and finally, the formation of

secretions; such events produce a progressive reduction of the pulmonary compliance (8,9).

Air-stacking exercises, using high positive pressures during the first phase of the application of the assisted cough device, continuous positive pressure applied during the non invasive ventilation phase contrasts the tendency of forming atelectasis and reopening the old atelectasis areas.

These considerations lead us to think of the vital capacity measured prior to treatment, which is not, at least not on all patients included in the study, capable to mobilize the volumes.

### Conclusions

The results obtained confirm the importance of experimental respiratory rehabilitation protocol after Bach's method of improving vital capacity (VC) of these patients; but there are still some important remarks to be made:

- Independent of the damage of vital capacity is fundamental to offer patients a tool that effectively treats bronchial secretions accumulation which usually causes airway infection.
- Maintaining the elasticity of the thoracic cavity reduces effectively the dyspnoea and the feeling of choking; The dyspnoea evaluated using the modified Borg scale is reduced significantly.
- Patients report a feeling of wellbeing over the elongations of the osteo-articular structures artro-ligament and muscle, especially in patients with spinal disorders that are using the Air-Stacking method.
- The reduction of the dyspnea reduces also the damage in psychological plan, which is of great importance in a degenerative disease and which can worsen the quality of life.



The data obtained based on studies, indicates the possibility of patients with ALS to pursue an effective treatment for preventing and treating the agglomeration of the airways with secretions, dyspnea, respiratory muscle fatigue and the possibility to obtain a slowdown of the deficit and an improvement in the vital capacity; improvement that is able to offer the patient the ability to breathe (10).

The use of the In-Exsufflator has allowed extubation of a large number of patients being treated with non-invasive mechanical ventilation and improving autonomous ventilation. In addition, the cough assist device will avoid the emergency intubation, as well as tracheotomy.

After this treatment, the episodes of respiratory infections have decreased significantly and the compromised respiratory functions have become less frequent and less severe.

It appears so, a patient's comfort.

A lengthy trial study could verify whether it reduces the incidence of hospitalization of these patients being able to follow this innovative treatment at home, compared with the classical respiratory rehabilitation techniques, as well as the improvement of the quality of life.

The systematic use of cough assist is able to resolve the problem of dramatic de-saturation, which in reality is due to massive bronchial secretions gatherings, avoiding this way the emergency hospital admissions, with serious consequences for the individual and very high costs for the national health system.

It was pointed out, based on the scientific studies, the average growth of patients' life with up to 5 years, delaying the damage of the respiratory system (as respiratory function) and respiratory complications.

It is frequently seen the attitude of the patients with ALS, which express the desire, in case of worsening of the disease, to not to be subjected to a treatment in the intensive care unit, which provides intubation and

invasive mechanical ventilation (tracheotomy); from these decisions, a battle is born, that can be called "therapeutic rejection" of patients suffering from degenerative diseases and over the right/necessity to care for the terminally ill patients.

Our experimental protocol, compared to the traditional one, allows the management of the acute respiratory infections and can be possible even at home, where the patient will feel safe and will improve the psychic comfort being able to ensure a dignified quality of life.

#### References:

- [1]Perry JJP, Shin DS, Tainer JA (2010)– Diseases of DNA Repair, Amyotrophic lateral sclerosis, Editors Shamim I. Ahmad Bsc, MSc, PhD;
- [2]Bach J. R., Goncalves M (2006)– Expiratory flow maneuvers in patients with neuromuscular disease – American journal of physical medicine & rehabilitation;
- [3]Bach J. R. (2000) – Prevention of pulmonary morbidity for patients with neuromuscular disease – Chest Journal;
- [4]McGraw Hill (1995) – West: Pulmonary Physiotherapy – Annals of internal Medicine – V-th Edition;
- [5]Muir Robert (1997) – Non-invasive ventilation – Masson Editore;
- [6]Mora G (2000) – Vivere con la SLA: La vita quotidiana ( fisioterapia ed ausili ) – De Falco Editore;
- [7]Frontera (2009)– Decision Making in Neurocritical Care – Editura Medicală Callisto;
- [8]Shah Sid M., Kelly Kevin M.(2012) – Principles and practice of the emergency neurology. Manual for the emergency medicine doctors – Editura Medicală;
- [9]Torri, Calderini (2000)– Tecniche di ventilazione artificiale, Fogliazza Editore.
- [10] Bach J. R. (2003)– Mechanical insufflation/exsufflation: has come of age? A commentary – European Respiratory Journal;

# TREATMENT OF OBESITY THROUGH PHYSICAL THERAPY AND MOVEMENT

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**Abstract:** Obesity should be considered a health problem that entails medical complications, temporary or permanent disabilities, decreased service life and a high cost for society as a whole. Obesity is a disease affecting the health and can lead to many physical disorders: diabetes, hypertension, hypercholesterolemia, heart attacks etc., psychic-personal complexes, inhibitions, irritability, depression, and social advancement, discomfort in daily life, discrimination, isolation. The study group was composed of 25 obese patients, tracked for 6 months. Patients followed treatment consisting of kinetoterapeutic exercise and massage. The study was analyzed on the basis of age, gender, origin and degree of obesity. Exercise program has been carefully planned and permanently adjusted to physical condition and possibilities of each patient. Physical exercise is associated with an intended diet are important elements for long-term treatment of obesity. After physical therapy treatment were obtained the following results :

- weight loss greater than 10% was recorded in 64% of cases ;
- weight loss of less than 10% was registered in 24% of cases ;
- stationary weight was recorded in 8% of cases;
- 1 person, representing 4% of cases, has abandoned the program.

High calories and unbalanced diet, stress and physical inactivity are major causes of the rising number of obese in Romania. For the group studied, the incidence of obesity is dominant to women-60% vs. 40% males. Using the combination of caloric restriction and exercise is considered to be the most effective method to decrease the weight.

**Key words:** obesity, exercises, weight.

## Introduction

Obesity is one of the biggest problems facing modern society, whereas worldwide the number of people suffering from obesity is in continuing growth (1). Considering the current statistics, the endemic obesity is indisputable: 1.7 billion people overweight are scattered across the globe (1/3 of the world's population). From these large number, approximately 300 million are obese, and 100 millions are owed forms of morbid obesity and requires sustained treatment (2).

If in the course of its long history, humans have created specific systems to cope with the harsh living conditions and ensuring the minimum necessary day-to-day existence, at the present time, he is completely uncovered ahead of goodliving and behavioral changes of the new rhythm of life (3).

Obesity should be considered a health problem that entails medical complications, temporary or permanent disabilities, decreased service life and a high cost for society as a whole (4).

Often the question arises whether obesity is a disease. Yes, obesity is a disease affecting the health and can lead to many physical disorders: diabetes, hypertension, hypercholesterolemia, heart attacks etc., psychic-personal complexes, inhibitions, irritability, depression, and social advancement, discomfort in daily life, discrimination, isolation (3).

Is a chronic disease (i.e., an excess of 50 calories daily can increase weight 25 kg over a period of 10 years), genetic (each person has a body about 30-35 billion fat cells) and a major determining factor for a number of related diseases (diabetes, hypertension etc) (1).

One way of assessing the excess kilos is BMI-body mass index. It is calculated by dividing the weight by the height squared high (kg/m<sup>2</sup>) (5).

There are two basic patterns of distribution of adipose tissue from obese people (1):

-abdominal obesity (central, android) with its two components, the visceral and subcutaneous. Meets especially in men and is characterised by the body fat excess at abdominal level, in the cervical region and interscapulovertebral. Individuals with this type of obesity are more likely exposed to metabolic complications: atherosclerosis (coronary artery, which leads to ischemic heart disease), hyperuricemia, gout, hyperglycemia-DZ, dyslipidemia, gallstones, anti-thrombotic deficit with risk for fibrinolysis, endothelial dysfunction.

-gluteofemoral (ginoidă) obesity, more common in women, with fat willing to excessive tissue on hips, breasts and buttocks. In these patients, in particular mechanical complications arise like varicose veins hydrostatic, arthrosis.

It is known that the fat cells of the abdomen are more dangerous than the other from different areas of the body. Being crossed by a dense network of more vessels of blood vessels and nerves in the body are sent large amounts of hormones and neurotransmitters, which increase blood pressure, creates insulin resistance over time and increases blood cholesterol (6).

## Material and Method

The study group was composed of 25 obese patients, tracked for 6 months (01.08.2013-31.01.2014). Patients followed treatment consisting of kinetoterapeutic exercise and massage.

The study was analyzed on the basis of age, gender, origin and degree of obesity.

Exercise program has been carefully planned and permanently adjusted to physical condition and possibilities of each patient.

Physical exercise is associated with an intended diet are important elements for long-term treatment of obesity (2).

➤ **The distribution by sex of the patients studied**

Table No. 1 The distribution by sex

Sex	Number of cases	%
Female	15	60
Male	10	40
Total	25	100

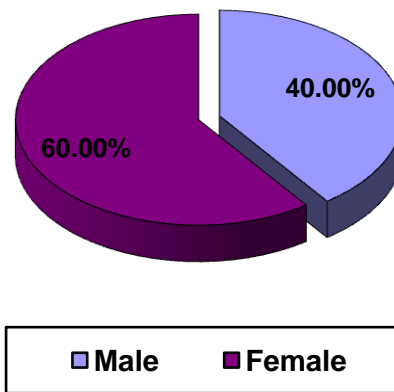


Figure No. 1. The distribution by sex of the studied lot

The data in Figure no. 1 and Table no 1 indicates the prevalence of the female sex subjects in the proportion of 60 percent, compared with 40% cases of male obese patients.

The components of the studied lot fall on the following age groups.

Table No. 2 Distribution of patients by age

Age groups	Number of patients	%
21 – 30 years	2	8
31 – 40 years	3	12
41 – 50 years	6	24
51 – 60 years	8	32
>60 years	6	24
TOTAL	25	100

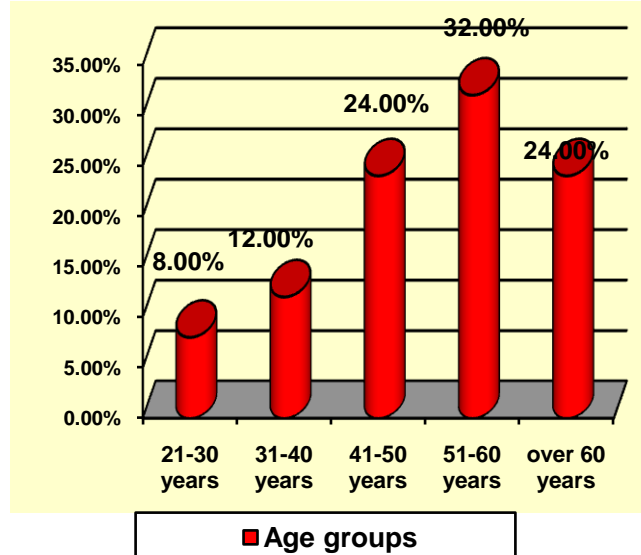


Figure No. 2 The distribution by age group of studied lot

Studing the figure 2 and table 2 it is observed that the morbidity of obesity presents a proportional increase with age until 60 years after registering a decline in the number of cases. Thus, most cases occur in the age group 51-60 years (32%) and a percentage equal to the age groups 41-50 years and over 60 years of age (24%).

After the environment and area of living, the distribution of the patients studied, is presented in table 3.

Table No. 3 The origin of patients from the studied lot

Area of living	Number of patients	%
Urban	20	80
Rural	5	20
Total	25	100

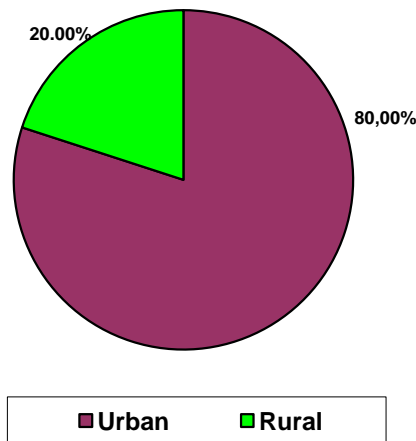


Figure No. 3 Percentage distribution of patients according to area of living

The incidence of patients is dominant in the urban environment (80%) compared to rural (20%), due to risk factors: diet, mental stress, physical inactivity.

Obesity complications encountered in the study are presented in table 4.

Table No. 4. Complications of obesity in the studied group

Encountered complications	Number of patients	Percent
Diabetes	3	12
Cardiovascular diseases	6	24
Dislipidemia	10	40
Atherosclerosis	4	16
Varicose veins in lower limbs	6	24
Psychiatric complications	4	16
Respiratory complications	2	8

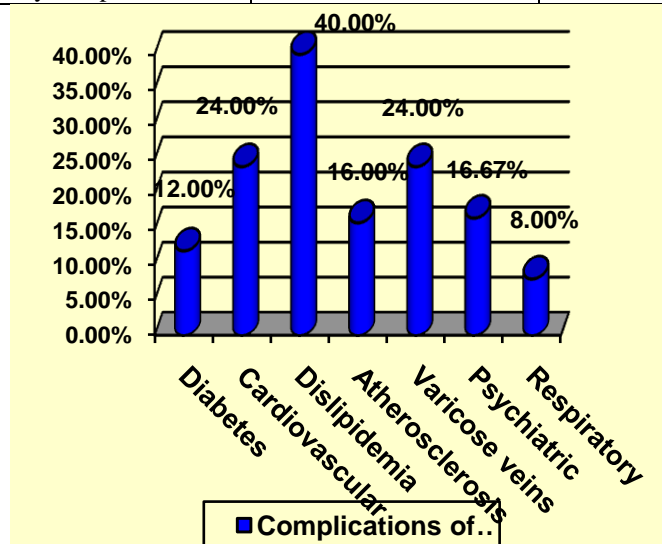


Figure No. 4. Complications of obesity in the group studied

Kinetotherapeutic program was divided into three stages. The first stage included exercises increasing intensity and duration, which will lead to the burning of fat deposits. The exercises have been conducted in ascending pace, interspersed with pauses. The exercises also included the larger muscle groups, being made of different positions which resulted in changing the center of gravity of the body. Otherwise, the short term loss of fat mass leads to the formation of wrinkles, creases since the enlarge skin may remain without the fat support. The second stage pursued the development of the back, abdomen, chest and limbs muscles. This phase included exercises with high amplitude, executed in slow pace and with final tension, isometric exercises, exercises in analytical positions with large support area and lasting outburst. The exercises were designed to strengthen muscles, to reduce the risk of unsightly wrinkles and enlarge skin. At this stage, even if the losses are not so obvious, stagnation can be false because the lost weight from fat mass is less compared to the the muscle mass gained. In the third stage was aimed keeping the results obtained in the first two stages and prevent recurrence of surplus weight gain. Exercises have been performed

maintenance on equipment and exercises, or practicing a sport, depending on each person's preferences. This step was important in order to maintain body weight and muscle tone. Exercise continued to stabilise results, being beneficial to both physical and mental. The effort has fallen gradually in this phase of maintenance, executing the breathing exercises and relaxation. In the maintenance phase were practiced walking long distances, hygienic gymnastics, respiratory exercises, cycling. For 3 times a week, gymnastics program was followed by a general massage sessions for 50-60 minutes. Physical therapy is one of the most indicated method of fat loss and maintaining ideal body weight, beneficial to both children and adults. **Results** After the physical therapy treatment, the following results were obtained: weight loss greater than 10% was recorded in 64% of cases; weight loss of less than 10% was registered in 24% of cases; stationary weight was recorded in 8% of cases; 1 person, representing 4% of cases, has abandoned the program.

Table No. 5. Results of the kinetic treatment of obese patients

Results	Number of patients	%
Weight loss >10%	16	64
Weight loss <10%	6	24
Stationary	2	8
Abandoning the programme	1	4
Total	25	100

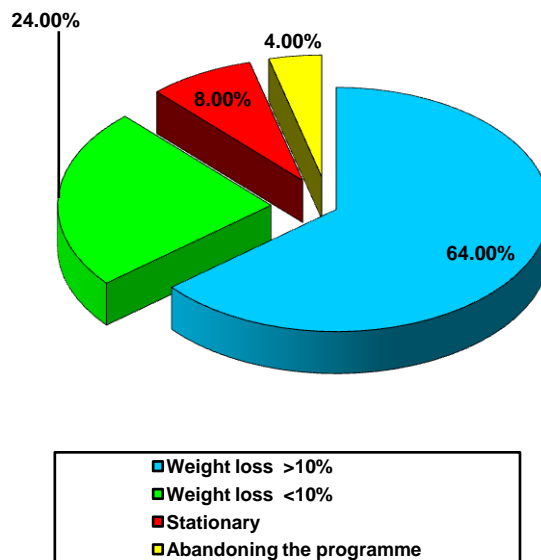


Figure No. 5 Results obtained following kinetic treatment

Returning to a normal body weight has beneficial effects for the relief of the following complications:

cardiovascular disease, dyslipidemia, mental, respiratory complications and diabetes.

**Discussions and conclusions**

1. High calorie and unbalanced diet, stress and physical inactivity are major causes of the rising number of obese in Romania.
2. In the group studied, the incidence of obesity is dominant to women-60% vs. 40% males.
3. Morbidity in obesity increases with age; for the group studied the increase incidence is presented after the age of 41 years.
4. The incidence of patients with obesity is higher in urban areas (80%) compared to rural (20%), due to risk factors: nutrition, sedentary lifestyle, mental stress.
5. For the group studied, the incidence of complications was: dyslipidemia 40%, hydrostatic varicose veins and cardiovascular disease by 24%.
6. Using the combination of caloric restriction and exercise is considered to be the most effective method to decrease the body weight.
7. Treatment of obesity is impossible to achieve if you remove the practice of physical exercises. Maximum efficiency of the deficit gain is achieved by daily workouts, practiced all his life.

**References**

- [1] Păun, R., (1997), Treaty of internal medicine Vol II (boli cardiovasculare și de nutriție), Ed. Medicală.
- [2] Ionescu, A., N., (1994), Medical Gymnastics, Ed. ALL, București.
- [3] Trăilă, L., A., (2008), Exercise and weight control, national scientific conference "Exercise -complex and modern means of health promotion", Craiova.
- [4] Drimer, D., Săvulescu, A., (1991), Hope for the elderly, Editura Tehnică, București.
- [5] Kiss, I., (1999), Fiziokinetoterapy and medical rehabilitation, București, Editura Medicală.
- [6] S Benghe, T., (1987), Prophylactic, therapeutic and recovery kinetologia, București, Editura Medicală.



## DIFFERENCES OF EDGE FREQUENCY AT ATHLETES

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**Abstract:** Edge frequency, one of the electroencephalographic (EEG) indexes characterizing most relevant the EEG modifications specific to each sportive discipline, is the frequency from which all inferior frequencies represent 90% of whole EEG line length.

Purpose of our study was to establish the neurophysiologic pattern characteristic to each studied sportive discipline (handball, fence and volleyball), by measuring edge frequencies to athletes and to statistically compare the obtained results, in order to point out the significant differences between the studied sports.

Study was performed on a lot of 31 professional athletes, girls and boys, homogenous regarding age, height, weight and training regime, which practice handball, fence or volleyball for at least 5 years.

For the EEG indexes analyze, was used the EEG MAPPING QP-220AK programme, applied to the studied sports during all test moments (R1 - initial repose, A- right hand contraction, R2 - repose after right hand activity, B - left hand contraction, R3 - repose after left hand activity, C - right hand contraction mental exercise, R4 - repose after right hand contraction mental exercise, D - left hand contraction mental exercise, R5 - repose after left hand contraction mental exercise).

Obtained average values of EEG edge frequencies for the studied sport disciplines were as follow: for volleyball group 14 Hz, for fence sportive 16 Hz and for handball players 18 Hz.

So, were emphasized significant differences between the three studied sports, depending on the activated cortical area specific to each sportive discipline and correlated with the test moments.

**Keywords:** edge frequency, EEG, athletes, sport disciplines.

### Introduction

Electroencephalography (EEG) represents the technique of cerebral electrical activity acquisition during a period time, through electrodes put on the scalp [1].

The used programme offered beside the frequencies spectrum, also synthetic indexes (peak frequency, median frequency, average frequency, edge frequency) suitable for the statistic study.

One of the mentioned electroencephalographic (EEG) indexes, the edge frequency, characterizing most relevant the EEG modifications specific to each sport discipline, is the frequency from which all inferior frequencies represent 90% of whole EEG line length.

The purpose of our study was to establish the neurophysiologic pattern characteristic to each studied

sportive discipline (handball, fence and volleyball), by measuring the edge frequencies to athletes and to statistically compare the obtained results, in order to point out the significant differences between the studied sports.

### Material and method

Study was performed on a lot of 31 professional athletes, girls and boys, 11 handball players, which use intensely both the upper limbs and the lower ones, 11 fencers, where the effort is sustained predominantly by one of the upper limbs and 9 volleyball athletes which use both upper limbs, active for between 5 and 12 years exclusively in either handball, fencing or volleyball, with average ages, heights and weights presented in Table 1.

**Table 1. Average ages, heights and weights for the studied groups of athletes**

	Whole group	Handball	Fencing	Volleyball
Age years	20.13	21.73	16.91	22.11
Height cm	177.96	181.25	171.00	182.21
Weight Kg	68.75	72.40	61.78	72.50

The age homogeneity of the group is remarked, by analysing the age histogram for the whole group.

Although there are characteristic weight differences between the selected sports, the analysed group is homogenous both from the point of view of weight and height and training regime. Taking into account the fact that the investigations took place in equivalent conditions for all subjects, we can state that the determining factor for the different behaviour of the

administered tests were the changes induced by the practiced sports for a long time [2].

The studied sports were chosed, taking into account the more extensive representation of the upper limbs in the motor cortex, thus, a higher number of plastic changes are possible to appear as a result of repeated complex movements performed during specific training [3].

Our studies aimed to compare the three groups of professional sportsmen without including a sedentary subjects sample group, as the motor cortex did not

display significant differences between professional sportsmen and sedentary groups [4], [5], [6]. The testing was performed under current ethical rules, each participant being informed of the experimental processes.

All the investigated athletes have been subjected to electric-neuro-physiological investigations by measuring the EEG edge frequencies using the EEG MAPPING QP-220AK programme of Nihon-Kohden EEG-9200 device.

The EEG response was registered with surface electrodes which have a letter to identify the lobe (F frontal, T temporal, P parietal, C central, O occipital) and a number to identify the hemisphere location (even numbers refer to electrode positions on the right hemisphere, odd numbers to those on left hemisphere), placed on the scalp according to the electroencephalography 10-20 system, bipolar acquisition, 16 channels, the reference being the two ears (A1, A2), using a time constant of 0,3 seconds and a filter below 50 Hz [7].

In consideration of the study purpose, we recorded the EEG line during some activities which can emphasize the possible characteristic cerebral patterns.

So, the moments (activities) followed during EEG recording were: first relaxation time ((R1), right fist contraction (A), left fist contraction (B), right fist

contraction order without performing the move (C), left fist contraction order without performing the move (D). After every mentioned moment was recorded a relaxation time (R1-R5).

The used EEG MAPPING QP-220AK programme offered beside the frequencies spectrum, also synthetic indexes (peak frequency, median frequency, average frequency, edge frequency) suitable for statistic study.

Because from the mentioned ones, the edge frequency characterizes most relevant the EEG modifications specific to each sport discipline, we choose to study this one.

Also, was used FFT (fast Fourier transformation) on periods of 10 seconds, for spectral analyze, thus, obtaining information about the whole frequency spectrum and synthetic indexes.

**Results**

Edge frequency index, seems to be the element which characterize best the neurophysiologic answer profile of the three studied sportive disciplines, as shown in Figure 1 and Figure 2.

The obtained average values of EEG edge frequencies for the studied sport disciplines were as follow: for handball players 18 Hz, for fence sportive 16 Hz and for volleyball group 14 Hz.

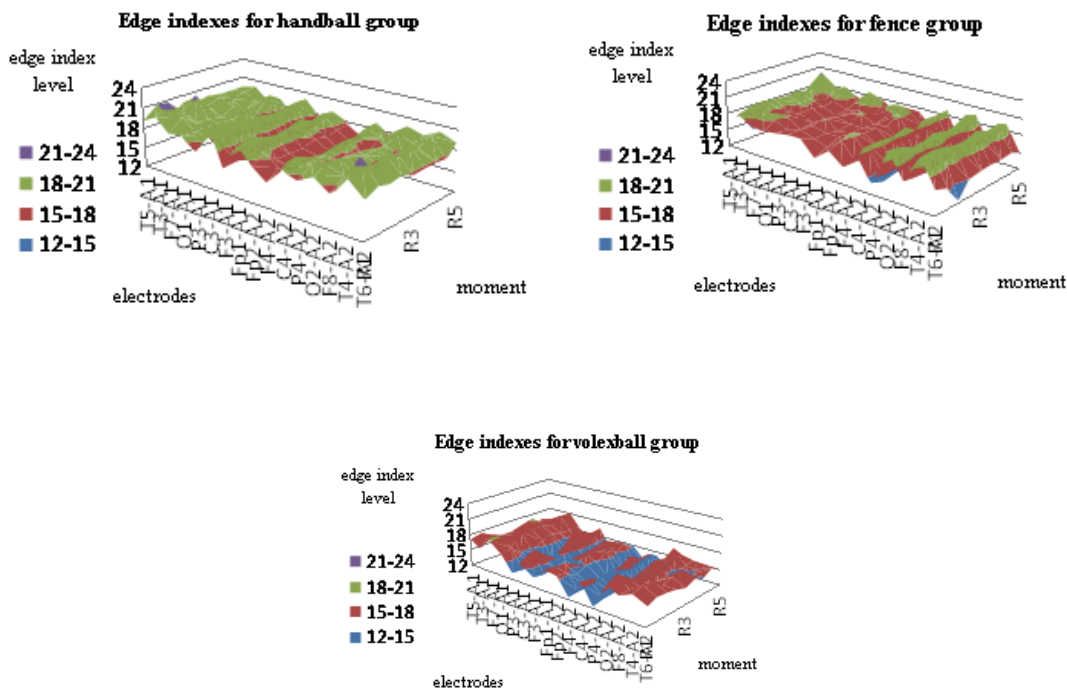
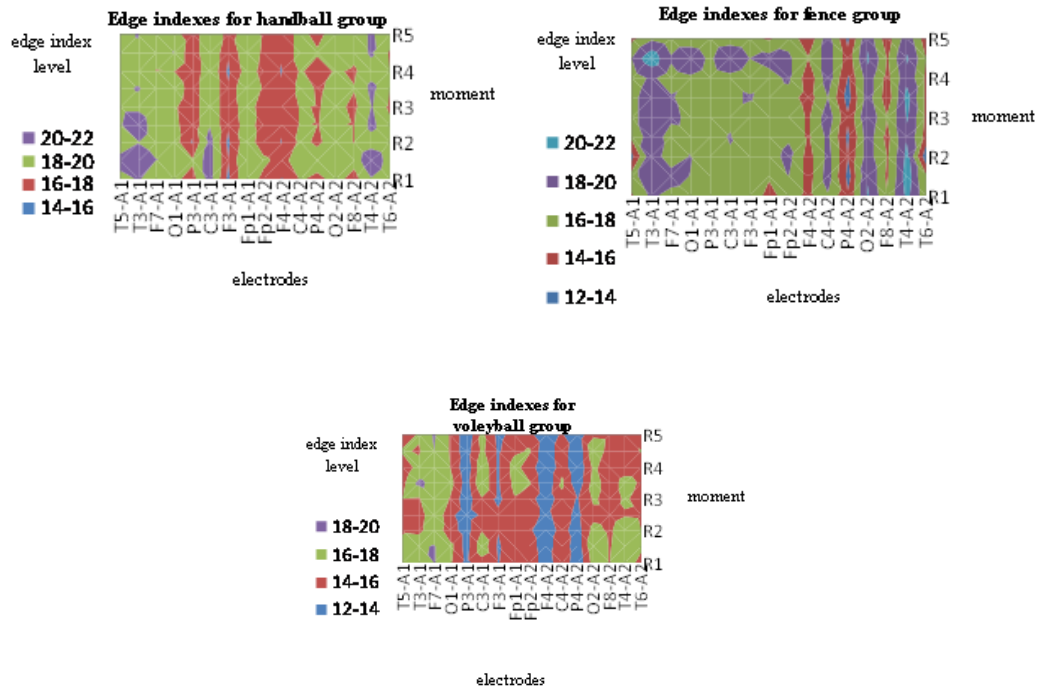


Figure 1. 3D graphic representation of edge indexes for handball, fence and volleyball groups



**Figure 2. Cerebral mapping graphic representation of edge indexes for handball, fence and volleyball groups**

Edge measure for handball group showed the highest condensation of border values, as presented in Table 2.

For fence group the variation period was very long, as in Table 3.

Edge index values area for volleyball, was lower than the one of the fence group, the period had a lower level of variability, as showed in Table 4.

**Table 2. Edge frequencies values for monopolar recording at handball group for all studied moments**

Edge h	R1	A	R2	B	R3	C	R4	D	R5
T5-A1	19.063	21.016	18.056	19.805	19.3	19.73	19.38	19.336	19.49
T3-A1	20.139	21.658	19.965	21.485	19.4	20.1	19.18	19.575	20.1
F7-A1	18.395	20.064	18.715	18.359	18.18	19.14	17.93	18.821	18.22
O1-A1	18.679	18.608	18.928	18.430	18.25	19.46	18.04	20.099	18.79
P3-A1	16.939	18.359	15.696	16.726	16.55	16.65	16.09	16.513	16.76
C3-A1	20.977	20.977	20.781	19.922	20.04	19.77	19.77	20.000	20.04
F3-A1	15.696	15.980	15.59	16.229	16.05	16.34	15.59	16.229	17.19
Fp1-A1	19.744	20.064	19.318	18.999	19.35	19.92	19	19.602	19
Fp2-A2	17.33	18.537	16.868	17.010	16.87	17.68	17.19	17.507	17.79
F4-A2	15.874	17.117	15.909	16.229	16.37	16.19	15.87	16.193	16.23
C4-A2	18.203	19.336	18.477	18.047	18.16	18.63	18.24	19.102	19.1
P4-A2	17.472	18.928	17.614	17.969	17.9	17.79	16.97	18.288	17.08
O2-A2	18.75	19.567	19.425	18.075	18.54	18.36	18.25	19.496	19.64
F8-A2	17.071	18.711	17.969	17.930	17.54	18.09	17.66	18.750	18.95
T4-A2	19.792	21.962	19.141	20.530	20.1	20.62	19.23	20.269	20.23
T6-A2	17.969	18.848	18.08	18.408	17.58	17.92	17.97	17.676	19.09

**Table 3. Edge frequencies values for monopolar recording at fence group for all**

## studied moments

Edge f	R1	A	R2	B	R3	C	R4	D	R5
T5-A1	15.772	17.188	13.215	16.553	17.38	17.43	16.75	18.067	15.35
T3-A1	18.408	19.287	19.531	18.945	18.99	19.14	18.31	21.436	17.47
F7-A1	17.236	18.897	16.602	17.383	18.26	18.16	17.14	18.311	16.63
O1-A1	16.944	17.969	18.066	17.627	17.72	17.38	17.68	19.629	16.74
P3-A1	17.188	17.236	16.357	16.699	16.46	16.5	16.75	17.578	16.18
C3-A1	17.774	17.920	17.725	18.164	17.48	17.53	17.43	20.02	16.85
F3-A1	17.823	17.041	17.09	16.602	16.8	18.26	16.5	17.969	16.52
Fp1-A1	15.235	16.260	17.139	16.846	16.85	16.75	17.24	18.799	15.74
Fp2-A2	17.188	18.067	18.604	17.725	17.77	17.14	18.41	18.408	17.24
F4-A2	15.332	15.283	15.039	15.674	15.63	14.99	14.75	16.065	14.73
C4-A2	17.773	18.848	18.604	18.457	19.04	18.07	19.04	18.848	18.97
P4-A2	14.258	13.281	13.965	13.574	14.31	12.89	13.82	14.795	13.39
O2-A2	20.166	19.873	19.141	18.994	19.78	18.99	19.19	20.361	19.53
F8-A2	16.211	15.625	15.772	15.430	16.06	14.8	15.38	15.918	14.9
T4-A2	20.703	20.898	20.459	19.873	20.07	20.51	19.63	20.215	19.2
T6-A2	16.455	15.674	12.681	15.039	15.53	15.43	15.58	15.967	14.68

**Table 4. Edge frequencies values for monopolar recording at volleyball group for a studied moments**

Egde v	R1	A	R2	B	R3	C	R4	D	R5
T5-A1	17.139	17.578	15.576	15.821	15.92	15.48	14.5	16.357	14.31
T3-A1	15.972	17.838	15.365	14.931	15.8	18.32	16.88	15.668	16.32
F7-A1	18.115	18.067	17.481	17.676	17.33	17.58	16.99	18.018	18.16
O1-A1	16.146	16.493	14.887	14.453	15.84	16.62	15.97	15.842	15.8
P3-A1	13.379	13.184	13.037	13.037	12.6	13.13	12.55	12.793	12.4
C3-A1	15.148	17.405	15.842	14.280	15.84	17.75	17.49	16.363	16.67
F3-A1	13.889	13.629	14.063	14.540	13.41	13.72	13.72	13.672	13.24
Fp1-A1	16.016	15.755	15.408	14.149	15.89	16.49	16.88	15.582	14.97
Fp2-A2	15.582	15.191	14.28	14.974	14.8	16.19	14.93	16.233	14.63
F4-A2	12.587	12.717	12.717	13.455	12.41	11.89	11.76	12.283	12.5
C4-A2	15.842	15.538	14.713	14.887	15.32	16.45	15.28	15.321	14.19
P4-A2	12.327	12.717	12.977	13.498	13.8	12.41	11.21	11.849	12.54
O2-A2	16.846	17.725	16.553	15.430	16.36	16.94	16.55	17.725	15.77
F8-A2	15.918	15.869	15.674	15.332	14.99	14.84	14.21	15.235	15.43
T4-A2	16.84	17.491	17.101	15.842	16.32	16.75	14.84	14.974	15.1
T6-A2	15.527	16.260	15.967	15.674	15.14	15.67	14.84	16.162	14.84

### Discussions

Due to our study purpose, the attention was directed towards athletes of whom the initial cerebral plasticity process stopped and the morphologic differences are born especially in M1 (primary motor) area.

Following the electroencephalographic activity of each studied sportive discipline, we observed different response patterns, but constant for the same group of athletes, specific changes being reported by Pearce in 2000, by using magnetic stimulation [8].

Because of the particularities of each sportive discipline, is outlining the idea of some athletes presenting a

### Conclusions

Different edge frequencies values remarked for each sport, emphasized the neurophysiologic pattern characteristic to each studied sportive discipline, pattern useful to appreciate the cerebral electrogenesis, the functional plastic cortical changes induced by specific sports training, so, to adapt the programme training, avowing over training and obtain an efficient one, in order to obtain sportive performance.

So, our study emphasized significant differences between the three studied sports, depending on the activated cortical area specific to each sportive discipline and correlated with the test moments.

Complex testing through EEG of athletes from handball, fence and volleyball, as well as the outlining of an EEG pattern, specific to each studied sportive discipline, characterized by different values of the edge frequency index represent an original aspect of this study.

### REFERENCES

- [1] Daly, D. D., Pedley, T. A., 1990, Current Practice of Clinical Electroencephalography, 2nd Ed. *New York: Raven Press*, pp. 535-560
- [2] Doppelmayr M.P., Doppelmayr H., 2008, Modifications in the human EEG during extralong physical activity, *Neurophysiology*, Number 1/January, Volume 39
- [3] Fattapposta, F., G., Amabile, M. V., Cordischi, D., Di Venanzio, A., Foti, F., Pierelli, C., D'Alessio, F., Pigozzi, A., Parisi

performed movement imagination bigger than the one of other tested sport, which is produced by structural changes, signaled by Pearce in 2000 [8].

The entire study aimed to emphasize the EEG modifications, produced by different orders (fists successively contractions, movement thinking without perform it), in comparison with the relaxation moments between actions.

The literature describes many observations regarding the motor memory, our purpose was to emphasize the differences inter-sports, an original aspect enough conspicuous, outlined by the previous studies.

and C., Morrocutti, 1996, Long-term practice effects on a new skilled motor learning: an electrophysiological study,

*Electroencephalography and Clinical Neurophysiology*, Volume 99, Issue 6, pp. 495-507

[4] Enescu-Bieru, D., Catalin, B., Georgescu, D., Cosma, G., Fortan, C., Popescu, C., Georgescu, M., Iancau, M., 2009, Aspects

of the analysis of the EEG spectrum for professional sportsmen, *Fiziologia – Physiology Supl.*, pp. 19

[5] Thomas N.G., Mitchell D., 1996, Somatosensory-evoked potentials in athletes, *Med Sci Sports Exerc*, 4(28): 473-481

[6] Babiloni C., Del Percio C., Paolo M., Rossinib D.F., Marzanog N., Iacobonig M., Infarinatoc F., Lizioc R., Piazzah

M.,Pirritano M., Berlutti G., Cibelli G., Eusebi F., 2009, Judgment of actions in experts: A high-resolution EEG study in elite

athletes, *NeuroImage*, Volume 45, Issue 2, pp. 512-521

[7] Tyner, FS., Knott, JR., Maye,r WB Jr., 1983, Fundamentals of EEG Technology, Basic Concepts and Methods, *New York:*

*Raven Press*, Volume 1:146-59

[8] Pearce, A.J., et al., 2000, Functional reorganisation of the corticomotor projection to the hand in skilled racquet players,

*Exp Brain Res* 130, pp. 238-24.

## CAN PHYSICAL ACTIVITY IMPROVE THE QUALITY OF LIFE FOR THE CANCER PATIENT?

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**Abstract:** The physical activity has the property to promote and maintain health and prevent some diseases. The activity is the characteristic of a human life and the benefits of physical activity is well known today are demonstrated by numerous studies. The physical activity not only control the weight by reducing the risk of cardiovascular disease or type 2 diabetes and metabolic syndrome, also strengthen the bones and muscles, improve the mental health and mood and it is also recognize that it reduce the risk for some cancers types and increase the chances of living longer with a good quality of life.

If the recommendation of being physically active on a daily basis were followed, there would be so many health problems and the costs and life quality would improve considerably.

**Keywords:** physical activity, cancer, rehabilitation

### Introduction

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells, if the spread is not controlled, it can result in death [1] According to recent World Health Organization (WHO) projections, cancer will have replaced ischemic heart disease as the overall leading cause of death worldwide in 2010 [2]. The American Cancer Society projects the numbers of new cancer cases and deaths expected each year in order to estimate the contemporary cancer burden, because cancer incidence and mortality data lag three to four years behind the current year. [1]

By 2030, the global burden is expected to grow to 21.4 million new cancer cases and 13.2 million cancer deaths simply due to the growth and aging of the population, as well as reductions in childhood mortality and deaths from infectious diseases in developing countries.[3]

In a growing body of research that has investigated exercise in cancer patients; dramatic improvements in physiologic and psychological functioning have been documented in patients participating in exercise programs. It has been reported the evidence of the benefits of exercise for cancer survivors in areas of psychological and quality of life (QOL) outcomes, cancers related fatigue, physical functioning, body weight and composition, muscle strength and endurance, immune function and cardiovascular fitness. It may reduce the risk of cancer recurrence, second primary cancers and other chronic diseases as well as prolong survival. Exercise may also reduce symptoms such as lack of appetite, diarrhea, paresthesia, constipation, physical and mental fatigue, treatment related fatigue, muscle pain, arthralgia and other pain, depression, anxiety and insomnia.[4]

The aim of this paper is to review the literature of physical exercise in preventing cancer, and also to provide guidelines for exercise prescription during cancer rehabilitation. The sources included references list of all relevant articles and reviews that have been published in English Language between 2000 to 2011.

Cancer treatment reduced cardio-respiratory fitness, cancer related fatigue, Quality Of Life (QOL) and suppressed immune function. Interest in physical activity as a means for primary prevention of cancer is increasing as the evidence for its protective effect is rapidly accumulating.

Physical activity is an attractive cancer preventive strategy because it potentially benefits many health's end points in addition to reducing the risk of certain cancers. Physical activity may have benefits throughout the spectrum of living with cancer, but cancer survivors are often at increased risk for becoming too sedentary for several reasons. Physical exercise has an important role in rehabilitation of oncological patients in general and also in palliative care.

Regular and vigorous physical exercise has been scientifically established as providing strong preventative medicine against cancer with the potential to reduce incidence by 40%. [5]

### Exercise for cancer prophylaxis

studies have examined the relation between physical activity and cancer prevention for some specific types of cancer and it seem that the risk of developing a primary cancer is reduce by practicing a some form of sport. These changes done by the exercises in the human body are especially recognized for sexual and metabolic hormone levels, growth factors, also decrease obesity and also can have possible changes of immune function.

### Exercise benefits in cancer survivors

A majority of studies tested interventions and most of these studies used supervised exercise programs. These studies have resulted in exercise being recommended to cancer survivors by American Cancer Society and also as a therapy for fatigue in cancer survivors. [1]

The general consensus of these reviews is that physical activity has modest positive effect on supportive care outcomes including aerobic fitness, physical functioning, muscular strength, fatigue and some aspects of quality of life but the results are not as strong as the post-adjunct setting. In the review study by L.M. Oldervoll reported that some promising effect of physical exercises on



overall Quality of life, fatigue, physical functioning, physical capacity and/or muscular fitness during and after cancer treatment.[6]

C. Anderson **et al.** concluded that a six-week exercise intervention for cancer patient with or without disease and who are undergoing chemotherapy could lead to a reduction in symptoms and side effects of chemotherapy. Physical activity may also help cancer survivors manage symptoms, improve mobility, slow functional decline and maintain quality of life at the end of life. [7]

In a prospective phase II study, Olderwall **et al.** showed that structured physical exercise program by physiotherapist is a promising intervention for palliative cancer patient with short life expectancy and after six weeks there was a significant decrease in physical fatigue and improvements in physical and emotional functioning and concluded that physical exercise (Resistance exercise) is a feasible intervention in a palliative care setting and may be beneficial. [6.]

Several studies tested aerobic exercise programs although combined aerobic and resistance exercise programs and they have consistently demonstrated that exercise has beneficial effects on a wide variety of physical fitness and QOL endpoints in cancer survivors including functional capacity, muscular strength, body weight and composition, flexibility, fatigue, nausea, diarrhea, pain, physical well-being, functional wellbeing, depression, anxiety, rigor, anger, mood, self-esteem, satisfaction with life and overall quality of life.

These studies suggest that physical activity may help cancer survivors live longer by: reducing the risk of cancer recurrence or slowing cancer progression and reducing the risk of other life threatening diseases including second primary cancers. The results generally show that the higher physical activity is associated with lower rate of breast and colon cancer recurrences, cancer specific mortality and all causes of mortality.

#### **Exercise program and prescriptions**

The American College of Sports Medicine (ACSM) recommends that an exercise prescription consist of five components: frequency, intensity, time, type (FITT Principle) and progression. [4]

For the **intensity**, the Karvonen formula is recommended:

#### **Karvonen formula**

Age predicted maximum heart rate (APMHR) = 220 – age.

Target heart rate range = [(APHMR – resting heart rate) × per cent intensity] + resting heart rate.

Lower range of intensity is recommended for older and debilitated survivors and higher range is recommended for apparently healthy survivors. Survivors who are confined to bed or who fatigue with mild exertion may not be candidates for recommended intensity aerobic training but they may benefit from low level of physical activity. These survivors require supervision in early stages of their recovery by a physiotherapist. These severely compromised survivors may benefit from range of motion exercises and gentle resistance training within their tolerance levels in early stage of rehabilitation. The low level training will allow them to

gradually build up their tolerance for activity. These survivors in early stages of recovery may later progress to short bouts walking or bicycling several times per day in order to gradually build endurance and allow them to advance to moderate intensity aerobic exercise. For persons undergoing chemotherapy or radiation treatment the goals of exercise is to maintain function and prevent loss of endurance and strength these survivors may be benefited from routine physiotherapy and occupational therapy. Brisk walking and static cycling are some safe mode of aerobic exercise. Machine resistance and or free weights are used for

#### **Exercise prescribed for the cancer patients.**

The following types of exercise can help cancer patients:

1. Flexibility exercises (stretching). Virtually everyone can do flexibility exercises that can maintain articular mobility. Flexibility training is defined as a method of maintaining or improving length of the muscle. If you're not yet ready for more vigorous exercise, you should at least stay flexible.

2. Aerobic exercise, such as brisk walking, jogging, and swimming. Aerobic training is defined as a method of improving cardio respiratory system.

3. Resistance training (lifting weights or isometric exercise), which builds muscle. Many people lose muscle, but gain fat, through cancer treatment. Resistance exercise is a potent physiological intervention to increase muscle mass, attenuate muscle wasting. Flexibility training is defined as a method of maintaining or improving length of the muscle.

The exercises recommended for cancer patients it has been a combination between aerobic exercise, stretching exercise and resistance training which improve physical functioning and quality of life.

#### **Frequency of the exertion**

However, a cancer patient may not have enough energy to do 30 minutes of moderate or vigorous exercise a day. If so, the patient could do 10 minutes of exercise three times a day to get the same effect.

American College of Sports Medicine recommends apparently healthy individual to engage in aerobic training 3-5 days/week and two to three non-consecutive days per week of resistance training.

resistance exercise of large muscle groups of lower and upper extremities.[4]

#### **Duration of exercise**

American College of Sports Medicine recommends that apparently healthy cancer survivors should exercise aerobically between 20-60 minutes, lower range for less fit and old and duration increases according to fitness and age. Resistance training should be less than 60 minutes for whole bodywork. Flexibility training is given for two to four repetitions with each stretch holding for about 15-30 seconds.[8]

#### **Contraindications to exercise**

General contraindications to exercises are cardiovascular insufficiency (e.g. uncontrolled symptomatic heart failure, acute myocarditis, and recent myocardial infarction), acute infectious diseases, metabolic diseases (e.g. thyrotoxicosis, myxedema), mental or physical impairment leading to inability to exercise.[8.]

Intravenous chemotherapy within previous 24 hours is also a contraindication for cancer survivors.[9] Survivors with anemia (Hemoglobin <8g/dl) should not exercise until anemia is improved (Hemoglobin >10g/dl), [10] acute onset of nausea during exercise and vomiting within previous 24-36 hours, unusual fatigability or muscular weakness, disorientation, blurred vision, faintness, pallor, night pain or pain not associated with injury are also signs of contraindication to exercise.[9] Survivors with immunosuppressants should avoid public gyms until their white blood cell count return to safe level, [9] survivors with significant peripheral neuropathies should avoid exercise of the part because of weakness or loss of balance, stationary bicycle may be used in this situation.[10]

The study by Pichett M *et al.* suggests that individual who lead sedentary lifestyle may benefit from structured exercise programs that include information and support related to exercise adherence strategy.[11] Counseling patients is one such strategy that effectively increased adherence to exercise and increased physical activity in general practice.[12] Most survivors preferred that their Oncologist initiate the discussion of exercise and such discussion also appears to increase exercise level during treatment.[13] Cancer survivors have unique and varied exercise counseling and programming preference. In the study by Jones W.L (307 survivors) 98% preferred recreational exercises, 81% preferred walking, 57% preferred unsupervised exercise.[14]

A point to be considered is transfer of local exercise training into activities of daily living for example, resistance exercise may improve muscle strength, endurance and physical functioning but it is known that without integration of functional training improved muscle strength does not result in improved functional task performance for efficient performance of activities of daily living.[15] An individual must be able to perform basic movement and also combination of these in order to accomplish more complex tasks.[16] sports may provide training in such complex tasks. Sports are

often included in exercise program to facilitate integration into daily life, as it is difficult to become physically active when sedentary.[17] Enjoyment of sports has also been reported to facilitate for adaptation of an active life style.[18] Sports might also have beneficial effect on physical activity level and physical health, develop sports specific skills, provide a sense of achievement and empowerment, develop self esteem and teach self discipline.[19] Preliminary trails on lifestyle intervention (incorporating short periods of moderate activity into their daily routine) are going on for cancer survivors and these studies have shown promising effect on improving physical functioning and quality of life and increasing physical activity.[20]

#### **Exercise and diet**

The expert group of WHO concluded that limiting weight gain during adult life, thereby avoiding overweight and obesity reduces the risk of postmenopausal breast cancer, colon cancer, endometrial cancer, kidney (renal cell), esophagus (adenocarcinoma) and thyroid cancer.[21]

The expert committee of American Cancer Society has concluded that increasing vegetable and fruits, increasing fiber, omega 3 fatty acid, soy and limiting total fat and saturated fat have possible benefit on preventing some cancer recurrence and overall survival [22.] but the information available is insufficient to conclude the benefits for some sites. Diet with this recommendation is recommended which dietitian must individualize as food intake may be compromised by the effects of disease or therapy and to achieve specific goals of individual exercise program. It should also be noted that benefits of exercise are independent of weight loss and diet.

#### **Discussion**

The physical activity has the property to promote and maintain health and prevent some diseases. The activity is the characteristic of a human life and the benefits of physical activity is well known today are demonstrated by numerous studies.

The physical activity not only control the weight by reducing the risk of cardiovascular disease or type 2 diabetes and metabolic syndrome, also strengthen the bones and muscles, improve the mental health and mood and it is also recognize that it reduce the risk for some cancers types and increase the chances of living longer with a good quality of life.

If the recommendation of being physically active on a daily basis were followed, there would be so many health problems and the costs and life quality would improve considerably.

The field of oncology will benefit from understanding the importance of physical activity both for primary prevention as well as in helping cancer survivors cope with and recover from treatments, improve the health of long term cancer survivors and possibly even reduce the risk of recurrence and extend survival after a cancer diagnosis. However, an understanding of the amount, type, and intensity of activity needed has not been fully elucidated for primary prevention and for patients at different stages of disease progression is still lacking.

There is sufficient evidence already to recommend that at least moderate intensity activity of 30 minutes/day

for five days/week or more than 45-60 minutes vigorous activities for some cancer site is given. [4]

## REFERENCES

- [1] <http://www.cancer.org/research/cancerfactsstatistics/index>
- [2] World Health Organization. *Ten statistical highlights in global public health. World Health Statistics 2007*. Geneva: World Health Organization
- [3] Ferlay J, Shin HR, Bray F, Forman D, Mathers CD, Parkin D. GLOBOCAN 2008, Cancer Incidence and Mortality Worldwide: IARC CancerBase No.10 [Internet]. Lyon, France: International Agency for Research on Cancer. 2010
- [4] Rajarajeswaran P., Vishnupriya R. (2009) Exercise in cancer, *Indian J Med Paediatr Oncol*. Apr-Jun; 30(2): 61–70. doi: [10.4103/0971-5851.60050](https://doi.org/10.4103/0971-5851.60050), PMID: PMC2885882
- [5] Newton RU, Galvao DA., Exercise in prevention and management of cancer *Curr Treat Options Oncol*. doi: 10.1007/s11864-008-0065-1. Epub 2008 Aug 13.
- [6] Oldervoll LM, Loge JH, Paltiel H, Asp MB, Vidvei U, Wiken AN, et al. The effect of physical exercise program is management palliative care. *J Pain Symptom Manage*. 2006;1:421–46.
- [7] Andersen C, Adamsen L, Moeller T, Midtgaard J, Quist M, Tveteraas A, et al. The effect of a multidimensional exercise programme on symptoms and side effects in cancer patients undergoing chemotherapy, The use of semi-structural diaries. *Eur J Oncol Nurs*. 2006;10:247–62.
- [8] ACSM's guidelines for exercise testing and Prescription Ed T. Philadelphia PA: Lippincott Williams and Wilkin; 2006. American College of Sport Medicine.
- [9] Winningham ML, MacVicar MG, Burke MB. Exercise for cancer patients: guidelines and precautions. *Physician Sports Med*. 1986;14:125–32.
- [10] Courneya KS, Mackey JR, Jones LW. Coping with cancer: can exercise help? *Phys Sportsmed*. 2000;28:49–73. [\[PubMed\]](#)
- [11] Pickett M, Mock V, Ropka ME, Cameron L, Coleman M, Podewils L. Adherence to moderate-intensity exercise during breast cancer therapy. *Cancer Pract*. 2002;10:284–92.
- [12] Elley CR, Kerse N, Arroll B, Robinson E. Effectiveness of counseling patients on physical activity in general practice: cluster randomised controlled trial. *BMJ*. 2003;326:793.
- [13] Jones LW, Courneya KS. Exercise discussions during cancer treatment consultations. *Cancer Pract*. 2002;10:66–74.
- [14] Jones LW, Courneya KS. Exercise counseling and programming preferences of cancer survivors. *Cancer Pract*. 2002;10:208–15.
- [15] de Vreede PL, Samson MM, van Meeteren NL, Duursma SA, Verhaar HJ. Functional-task exercise versus resistance strength exercise to improve daily function in older women: a randomized controlled trial. *J Am Geriatr Soc*. 2005;53:2–10.
- [16] Schwartz AL. Physical activity after a cancer diagnosis: psychosocial outcomes. *Cancer Invest*. 2004;22:82–92.
- [17] van der Ploeg HP, Streppel KR, van der Beek AJ, van der Woude LH, Vollenbroek-Hutten MM, van Harten WH, et al. Counselling increases physical activity behaviour nine weeks after rehabilitation. *Br J Sports Med*. 2006;40:223–9.
- [18] Lewis BA, Marcus BH, Pate RR, Dunn AL. Psychosocial mediators of physical activity behavior among adults and children. *Am J Prev Med*. 2002;23:26–35.
- [19] Jackson NW, Howes FS, Gupta S, Doyle JL, Waters E. Interventions implemented through sporting organisations for increasing participation in sport. *Cochrane Database Syst Rev*. 2005;2:CD004812.
- [20] Basen-Engquist K, Taylor CL, Rosenblum C, Smith MA, Shinn EH, Greisinger A, et al. Randomized pilot test of a life style physical activity intervention for breast cancer survivors. *Patient Educ Couns*. 2006;64:225–34.
- [21] McNeely ML, Parliament M, Courneya KS, Seikaly H, Jha N, Scrimger R, et al. A pilot study of a randomized controlled trial to evaluate the effects of progressive resistance training on shoulder dysfunction caused by spinal accessory neuropraxia, neurectomy in head and neck cancer survivors. *Head Neck*. 2004;20:518–30.
- [22] Brown JK, Byers T, Doyle C, Courneya KS, Demark-Wahnefried W, Kushi LH, et al. Nutrition and physical activity during and after cancer treatment: An American Cancer Society Guide for Informed Choices. *CA Cancer J Clin*. 2003;53:268–91.

## KINETIC TREATMENT OF MYOCARDIAL INFARCTION RECOVERY

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**Abstract:** Acute myocardial infarction is a necrosis with ischemic origin, massive and systematized on a section of the myocardium. It occurs most often in the case of a coronary occlusion or stenosis and produces an anoxia of myocardial. Heart attack is much more common in men (between 50 and 70 years old) and infrequently prior after menopause in women. The mobilization began early postinfarct, after 1-3 days, with passive and active mobilization of the limbs, but under the control of the pulse, blood pressure and respiration. At the end of the first week: the patient concentrate on the food and hygiene, walk 10 to 15 minutes, the trunk will be raised and the patient is encouraged to go out of bed and to walks through the room and to the toilet, and also to leave the room and to start staire climb.

A lot of 16 patients with myocardial infarction have been surveilled for 6 months by the Department of Cardiology from Drobeta Turnu Severin County Hospital and by their family doctors.

As a result of complex treatment, medication, hygienic-dietetic and kinetotherapy, were obtained the following results:

- 68.75% of the studied group, resumed activity within 3 months;
- 12,50% patients have recommenced changing the place of work;
- 12,50% patients from the studied group have been medically retired;
- 1 patient, representing 6.25% of the group studied, had a dismal and required hospitalization in a cardiac surgery clinic. Resuming activity is possible after 3 months of uncomplicated myocardial in forms and patients who do not place large heavy physical. Drug treatment and hygienic-dietetic should be monitored continuously .Training plays an essential role in assisting the early coronary condition, physical training, rehabilitation programand and physical activity are valid for life.

**Key words:** *myocardial infarction, heart, physical effort, pain.*

### Introduction

Myocardial infarction is one of the most common diagnoses in patients hospitalized in developed countries [1].

Acute myocardial infarction is a necrosis of ischemic origin, massive and systematized on a portion of the myocardium. It occurs most often in the case of a coronary occlusion on stenosis and produce a myocardial anoxie [2].

Heart attack is much more common in men (between 50 and 70 years old) and meets infrequently prior to menopause in women. It can be found in around 5% percents of subjects with ischemic heart disease [3].

Most often manifests itself through the pain: the brutal onset, outside of any effort, in the chest area and resistant to pain medication, long-lasting and unsteady fever (24-48 h), with associated signs: sweating, agitation, nausea and /or vomiting, etc.

Patients with increased risk of developing acute myocardial infarction are those with unstable angina or angina Prinzmetal's variant and those with multiple coronary risk factors. Essential medical conditions uncommon that predispose the patients to myocardial are the collagen vascular diseases, cocaine abuse and intracardiacs or tumors trombii that can cause coronary artery embolism [4].

In about half of the cases a precipitating factor seems to be present prior to myocardial infarction, such sustained physical effort, emotional stress and medical or surgical illness. Myocardial infarction may start at any time of the day or night, but the frequency is higher in the morning, in the early hours after awakening.. This circadian peak may be due to increased sympathetic tone combination and accented the thrombosis tendency between the hours of 6: 00

A.M. and 12 noon [1]. Pain is the most common simptom of patients with myocardial infarction, in some cases, the discomfort can be severe enough to be described as the most intense pain that the patient has ever felt. Pain in myocardial infarction is profound and visceral; commonly patient use adjectives to describe it like: heaviness, tightness and crushing, although it is sometimes described as a stabbing or burning. It is similar to the discomfort of angina, but is usually more severe and last longer. Typical pain is localized in the central region of the chest and /or epigastru and occasionally radiates to the upper arms. Less common localizations of irradiation are: abdomen, back, and neck of the mandible. The location of pain below the xifoid patients and refusing to accept that they may suffer a heart attack are primarily responsible for the erroneous diagnosis like indigestion. Pain in myocardial infarction can radiate up to superior occipital region, but do not lower the belly button it radiates. It is often accompanied by weakness, sweating, nausea, vomiting, anxiety and feeling of impending death. The discomfort may begin when the patient is at rest. When the pain begins during an effort, it is not abating at the usual termination unlike angina [5].

Painless infarct incidence is higher in patients even though the pain is the most common presentation, she accuses isn't necessarily always present, with diabetes and it increase with age. In the elderly, myocardial infarction may be as shortness of breath which appeared suddenly, which may evolve to pulmonary edema. Other ways of presenting less than usual, with or without pain, including loss of consciousness, sudden confusional, profound weakness, feeling of arrhythmias, peripheral embolism or unexplained fall

in blood pressure. Pain in myocardial infarction can simulate the pain of acute pulmonary embolism, pericarditis, acute dissection of aorta and costochondria. These conditions should be taken into account in the differential diagnosis. The EKG is the most important investigation for an more accurate diagnosis [2].

**Material and Method**

A lot of 16 patients with myocardial infarction have been study for 6 months by the Department of Cardiology from Drobeta Turnu Severin County Hospital and by their family doctors.

Group components studied were classified into the following age groups:

Table No. 1 Cases studied by age groups

Age groups (years)	Number of cases	%
21 – 30	1	6,25
31 – 40	1	6,25
41 – 50	3	18,75
51 – 60	6	37,50
61 – 70	5	31,25
Total	16	100

Study of the figure.1 and table 1. It appears that the group studied, myocardial infarction occurred more frequently in patients aged between 51-60 years old, respectively 37.50%.

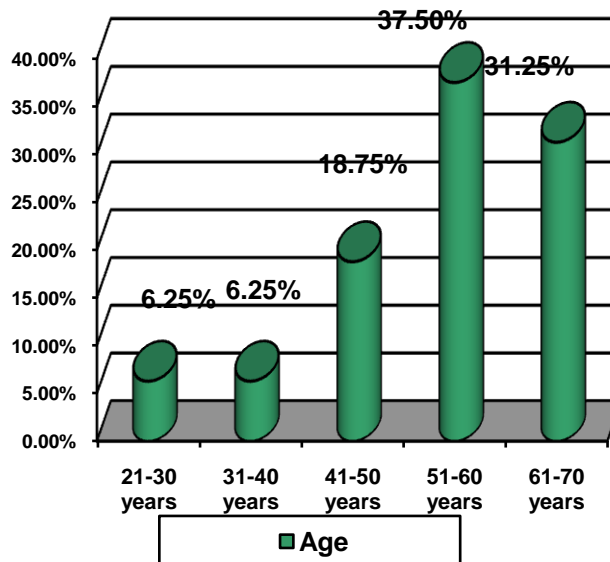


Figure No. 1 Distribution by age groups of studied lot

Analyze the distribution of the patients studied according to sex.

Table No. 1 Distribution from the point of view of patients ' sex

Sex	Number of cases	%
Sex masculine	11	70
Sex feminine	5	30
Total	16	100

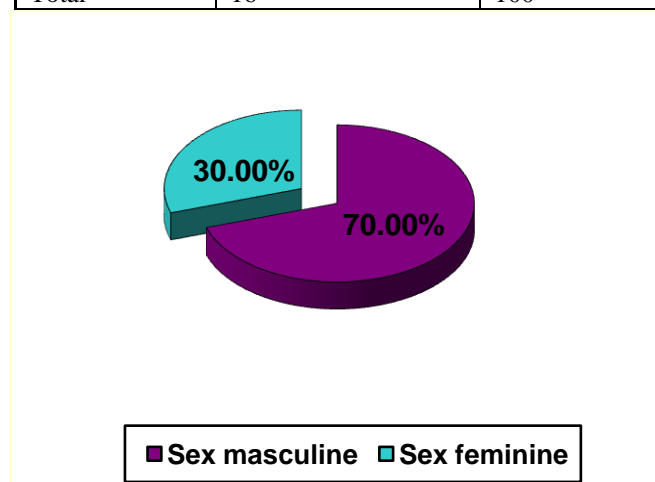


Figure No. 2 Distribution by sex of the studied lot



The data in Figure No. 2 and table 2 highlight the fact that myocardial infarction appears dominant in males, the percentage being 70%, while women accounted for 30% of the patients studied batch.

The risk meets ahead for studied patients.

Table No. 4 Risk factors operated at group studied

Risk factors	Number of cases	%
HTA	4	25
Ischemic heart disease	4	25
Smoking	4	25
Alcohol	3	18,75
Dislipidemii	5	31,25
Obesity	4	25
Family history	5	31,25
Psychosocial stress	6	33,33

Patients with myocardial infarction began treatment in the hospital, with the following measures

- Bed rest-binding in the early days (it was done gently massage, mobilisation of limbs and the medicine is applied to bed).
- Hyperbaric medicine-which is required initially.
- They administered painkillers and sedatives.
- Nutrition in the early days was composed of liquids with low caloric value, unsalty and unfermented.
- The mobilization began even in 1-3 days postinfarct, passive and active mobilization of the limbs, but under the control of the pulse, blood pressure and respiration, to be conducted.
- At the end of the first week: the patient attended a special diet, for 10 to 15 minutes the trunk was raised and supported removal of bed and walks through the room and the toilet, but also progressive outputs from the room and the progressive steps climb.

This period lasted for 3-4 weeks.

Postinfarct recomandations were:

- quitting tobacco;
- combating sedentary;
- decrease body weight;
- the austere diet;
- control problems of reactions;
- periodic checks.

For physical rehabilitation and combating sedentary training was instrumental in assisting the early borrowings: coronaries, physical training and rehabilitation program, and physical activity, these recommendations are valid for life.

Physical training in early stage of low heart rate and accelerating its effort, increased heartbeat, flow has increased blood circulation closed network, decreased cholesterol and excess of adrenaline and blood viscosity, but the effort must be well dosed.

The actual recovery

Phase I-hospital recovery:

The average hospitalization was 8-14-21 days. For the formation of myocardial proceeds are required 4-6 weeks.

Phase I objectives:

- limitation of the effects of decubit ;
- combating psychological repercussions ;

– functional cardiovascular training for the following stages-lies in the resumption of the patient assisted by doctor, physical therapist and teacher, self care, measures of small efforts in the upright position, walk up the stairs .

In the recovery phase I comprised 7 steps-each 3 days for each stage, some may be interwoven.

The phase I recovery started at the intensive care unit and was over at salon. The maximum frequency of sleep did not exceed 120 beats/minute and systolic blood pressure less than 90 mm Hg.

Treapta I – days 1-2:

- passive mobilisation of the limbs;
- picking up at 45 degrees with the bed;
- the patient sits upright on the edge of the bed, or in an armchair, once of twice a day;
- the fed alone twice a day .

Step II- days 3 -4:

He continued the program of the first stage at which have been added

- active movements of the limbs of 10-15 times a day;
- the Chair of State 2-3 times a day for 20-30 minutes;
- makes toilet alone;
- at the end of stage II of the sufferer was raised in upright position .

Step III- days 5-6:

- He continued the exercises in this step;
- He went into the room in his wheelchair ;

Step IV-days 7-8:

- stage III activities continued and in addition:
- the patient went alone to the bathroom;
- He has gone through a single 2-3 times a day:
- He walked down the Hall, assisted, 30 minutes, twice a day.

Step V begins from day 9:

- the exercises were performed 3 times a day;
- He walked alone and on the hospital 3 times a day;
- at the end of the step can make a shower .

Step VI:

- He continued the exercises in previous phases;
- the distance was increased from 250 to 400 meters
- descends and ascends a floor with elevator .

Step VII

The patient carry on all activities and additionally :



- climbs and descends alone two floors;
- browse the 500 m, 2 times per day .

At the end of the program each patient has undergone a test effort, preexternare, to see if they will be classified in risk class increased or decreased heart attack. The test was done with the treadmill..The maximum rate must not exceed 140 beats per minute.

#### Phase II

Was the recovery phase or the phase of convalescence. Be held for 12-21 weeks after hospital discharge, pending the resumption of normal activity including that professional.

This phase represents the recovery itself, in order to give the patient maximum possible physical capacity consistent with the functional condition of the heart.

The first week was considered the period of transition from phase I to phase II.

The recovery program was held in the Center hospitalized recovering and then outpatient, but it is important that it be the defibrillator for resuscitation.

Training program has been drawn up individually and consists of 3 phases: heating, proper training and cooling (annealing).

The training can be continuous or intervals. Whereas continuous training the patient both physically tired and mentally, I opted for a rest period of 2-3 minutes, to waive the body with peripheral mechanisms of adaptation to effort .

The types used in the recovery effort post heart attack are :

a. Isometric exercise-it was only introduced in the second part of phase II, avoiding weight lifting and pushing of heavy objects. Izometries have been introduced recently in postinfarct attacks and recovery is lifting weights of 1-2 kg at the beginning, this has now grown to a maximum of 3-4 kg and shall exercise or walk away with these weights.

b. Isotonic-effort was obtained with the help of: ergonomic, rowing machine, treadmill.

Special problems of recovery were encountered in phase II of the:

- old persons over 65 years;
- patients with myocardial ischemia on back order;
- left ventricular failure;
- heart rhythm disorders;
- people with diabetes

At the end of phase II patients:

- they were able to carry out normal activities, which do not require great efforts;
- were able to return to work;
- myocardial aerobic deficit was either as small.

#### Phase III

After 12 weeks post heart attack immediately after phase II, patients can reintegrate professionally and increase the capacity of effort is gradually.

In the first 4-6 weeks have practiced exercises in phase II, the meetings were done 2-3 times a week for an hour. As he advanced in phase III, the exercise is coming more and more to that of a healthy man. It was recommended that 10-15 minutes daily for help training effect, long walks on foot or cycling.

This phase III is extended for all his life. It is necessary to continue monitoring the patient recovery through the maximum TE at intervals of 3 months.

#### Results

As a result of complex treatment, medication, hygienic-dietetic and kinetotherapy, were obtained the following results (Figure 3):

11 patients, representing 68.75% of the studied group, resumed activity within 3 months;

12,50%, representing 2 patients from the studied group, have recommenced, changing the place of work;

12,50%, representing 2 patients from the studied group, have been medically retired;

1 patient, representing 6.25% of the lot, had a dismal and required hospitalization in a clinic of cardiac surgery.

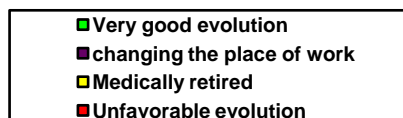
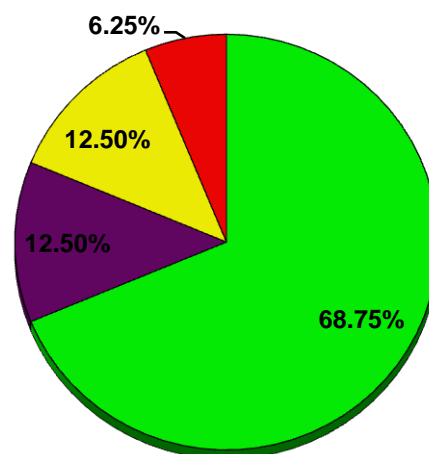


Figure No. 3 Results obtained as a result of the complex treatment medication and kinetotherapy

### Discussions and conclusions

1. Myocardial infarction is one of the most common diagnoses in patients hospitalized in cardiology.
2. The group studied, myocardial infarction occurred more frequently in patients aged between 51-60 years old, respectively, by following patients 37.50% aged 61-70 years of age, with a rate of 31,25%. The young patients, aged less than 40 years, infarct is more rarely encountered, 6.25%, and patients aged 40-50 years represented 18,75%.
3. Myocardial infarction is most commonly encountered in human males. Within the lot studied men accounted for 70% of cases, and 30% women.
4. Risk factors the encounter were: hypertension, ischemic heart disease, smoking, alcohol, obesity, Dyslipidemia, family history, stress.
5. Resuming activity is possible after 3 months of uncomplicated myocardial in forms and in patients who do not place large heavy physical.
6. Drug treatment and hygienic-dietetic should be monitored continuously.
7. The study showed the importance of physical kinetic treatment with drug treatment and hygienic-dietetic.
8. Training plays an essential role in assisting the early borrowings coronarienilor, physical training and

rehabilitation program, and physical activity are valid for life.

9. Myocardial infarction prevention lies mainly in the Suppression of risk factors: smoking cessation, treatment of hypertension, diabetes, obesity and hipercolesterolemiei.

### References

- [1]. Mogoș, V. (1990), Myocardial infarction and exercise, Editura Militara, București
- [2]. Zdrengea, D., Branea, I., (1995), Recovery of cardiovascular patients, Ed. Clusium, Cluj-Napoca
- [3]. Branea, I., Mancaș, S., (1989), Exercise and their role in the complex rehabilitation of patients coronarieni, *Timișoara Medicală*, Timișoara, XXXIV, 4
- [4]. Dennis, A. (1992) - Rehabilitation of patients with coronary artery disease In: Braunwald, E. Heart Disease, W.B. Saunders Company Fourth Ed.
- [5]. Mogos, Gh., (1988), Hypertension and exercise, Ed. Sport-Turism, București
- [6]. Bușneag Carmen, (2006), Recovery in cardiovascular diseases, Editura România de mâine, București

## THE INFLUENCE OF PHYSICAL EDUCATION LESSONS ON ADAPTIVE MECHANISMS OF THE PES AND NON PES STUDENTS

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**Abstract:** - Physical exercise can be done in various forms, to maintain a good physical condition, which does not necessarily require great athletic ability. The specific function and the fundamental physical culture is to develop a set of tools and conditions, put into action, determined optimize the development process and increase human physical fitness. The physical education activity has in last years a decrease regarding active participation of our students. From this point of view, we try to increase influence of physical exercises in all activity of the students. The purpose of research is the influence of the preparation observing teaching in the lessons with practical sports content on the adaptive mechanisms' optimization of the students. Research covers the dynamics of the indices and to surprises exercise capacity through significant tests in the teaching of physical education students during an academic year.

**Key-Words:** -Fitness exercise, Physiological changes, Body Mass Index, Monitor patient, Adaptive Mechanisms

We live in an era of deep social and political transformations in the era of technological and scientific revolution, when the grueling physical labor plays a role increasingly lower, its place being occupied by mechanical work in an increasingly important measure. During its evolution, humankind has never had so urgent a need of motion. A plausible explanation as possible is that 'the machine' is essential in everyday lives, increases productivity and efficiency and reduces stress. [1] The advantages are great, but there are hidden dangers, that of comfort and convenience, distress with serious consequences on quality of life in each component of it (physical, mental, social) [2].

Summarize movement exercise to practice various forms, in order to maintain good physical condition, which does not necessarily require special sports skills. The specific and the basic function of physical culture is to develop a set of means and conditions that put into action, determined to optimize the development process of human physique, based on its adaptive mechanisms.

After a long period in which man has neglecting health, the present years have witnessed a modern human awareness on the need to maintain life within certain health coordinates. The new image is due to systematic practice of exercise, the modern man has a great health and greater effort capacity [3]. There is no way for an athlete with valuable results, but a practitioner of physical exercises which making effort with joy and pleasure.

Like any human action, the educational situation is determined by a number of variables such as logic (purpose, tasks, goals), cognitive (knowledge-specific learning processes), affective and social (psychosocial) and technical material. Addressing the issue of teacher preparation for teaching physical education and sport must be conducted within a general concept that determines the teaching process, to be carried out not only by the knowledge provided theoretical, practical and methodical, but also through improvements of indices related fitness and exercise capacity.

Currently, the theory and practice of physical education pedagogy is gained some experience and many

scientific elaboration of the concept of scientific development on the issue argued quite prepare students for teaching, but is necessary to take into account factors in the integrity logic of that activity: in addition to accumulation of knowledge and specific skills, personality and character modeling, teaching technique, and the physical condition of prospective teachers [4].

Research goal is to observe the influence of the preparation teaching content in all practical lessons on effort capacity of Physical Education and Sport (PES) students and to determine an optimal level of physical conditions in the teaching to prospective PES teachers. Research subject is the evolution of the indices of exercise capacity and surprise them with a significant test in the teaching of physical education students throughout the study program.

Research hypothesis is based on the assumption that the educational process of training future PES teachers has positive impact on their physical condition, as evidenced by comparing results on different levels of the same program of study and by comparing results from different study programs, reported reference values for our field - values recorded by performance athletes.

For the aim and the formulated hypothesis was necessary to achieve the following objectives of research:

1. Study the volume of practical classes on physical education student and other education programs.
2. Findings of physical fitness levels of students from Faculties of Physical Education and Sport on all levels by analyzing the test results showed and their scaling according to our research interests.
3. Determine the structure and educational content of the training program on levels of future physical education and sport teachers.
4. Following the experimental approach to developing theoretical arguments regarding the influence of practical lessons in the program of study "Physical Education and Sports" and compared to other programs of study.

Addressing this scientific study was provided by the following research methods [5]:

1. Theoretical and generalization analysis of literature's data.
2. Training process analysis, documentation of student practitioners, working experience of university teachers.
3. Questioning sociology (talk).
4. Pedagogical observation.
5. Pedagogical experiment
6. Mathematical methods for processing and graphics interpretation of statistical data.

**Research structure.** Present scientific research was conducted during the academic year 2012-2013, with students at the "Constantin Brancusi" University of Targu-Jiu in various programs of study and focusing on Physical Education and Sport (PES) study program from Faculty of Physical Education and Sports.

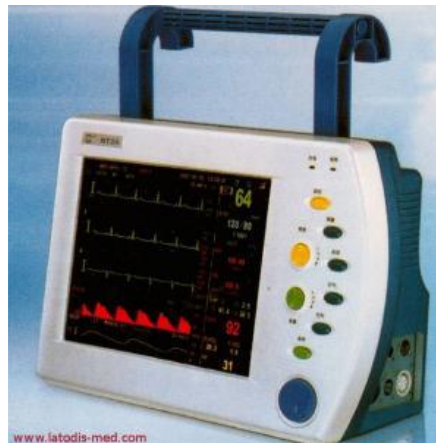
In a first stage has been achieved analyze and generalization of specialized data based on relevant

literature scientific topics of our research. Results of investigations have enabled us to determine and to argue on theoretical basic components, contents and specific features of teaching physical education teacher. Also, arrangements have been determined to highlight the level of physical, condition confined to one of our most simple tests, but good for educational activities -Ruffier test. It supposes the execution of 30 squats, done in a minute and monitoring the heart rate during recovery, that has a total duration of one minute [6].

Then were analyzed and collated the traditions and training requirements of PES students for practical lesson and extent of those activities in the curricula.

The next step was dedicated to assessing the physical condition of students from several programs of study and resulted in the systematization and generalization of experimental data.

**Figure1. Pacient Monitor NT3A**



Scientific innovation in this research is the manner of implementation in practice of this test by using modern technological equipment. To eliminate subjectivity and lack of precision determinations classical arrangements, we brought into a funding project for equipment research a performance medical device which monitoring vital functions, along with appropriate informatics tools.

What was done? Pulse was measured at rest (P1) through NT3A patient monitor device, then the subjects made the 30 squats then shown to follow the pulse of the device after 15 seconds (P2), and after a minute of recovery (P3). The values obtained are replaced in the formula:  $((P1 + P2 + P3) - 200) / 10$ .

Obtained index is assessed as follows:

- values less than 0 (negative) = very good;
- values between 0-5 = good;
- values between 5 to 10 = average;
- values between 10 to 15 = satisfactory;
- values over 15 = unsatisfactory values.

As a result of processing data recorded from the application Ruffier we list the following mean values in the tables below.

The tables presented are apparent that the population of subjects to which we refer in this research is around 20-21 years of age. Population values we have broken down by sex and study programs. When including a sub-subsection you must use, for its heading, small letters, 11pt, left justified, bold, Times New Roman as here.

TABLE no. 1 - Values obtained from Ruffier test - girls

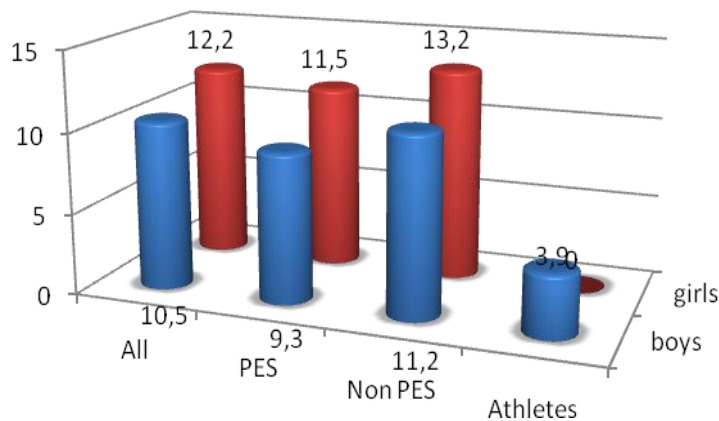
No.	Category subjects	No. of subjects	Age (years & months)	Weight (kg)	High (cm)	Pulse at rest	Ruffier index	Discussion
1.	All	31	21 and 1	59.6	163.9	77.7	12.2	Satisfactory
2.	PES	14	21 and 4	58.3	165.2	78.7	11.5	Satisfactory
3.	Non PES	17	20 and 9	61.0	162.7	76.8	13.2	Satisfactory
4.	Athletes	0	-	-	-	-	-	-

TABLE no.2 - Values obtained from Ruffier test – boys

No.	Category subjects	No. of subjects	Age (years & months)	Weight (kg)	High (cm)	Pulse at rest	Ruffier index	Discussion
1.	All	42	20 and 4	70.6	173,8	75.2	10.5	Satisfactory
2.	PES	27	20 and 5	69.1	175,6	74.8	9.3	Average
3.	Non PES	15	20 and 3	71.8	172,3	76.5	11.2	Satisfactory
4.	Athletes	5	20 and 5	67.4	176,0	60.4	3.9	Good

Thus, for girls, category includes subjects PES values obtained by students in Physical Education specialization, obtaining an "Satisfactory" index of 11.5 compared to a "Satisfactory" 13.2 Non-PES subjects, students at other curricula (especially in programs of study at the Faculty of Economics and Faculty of Law). There is a slight difference in terms of physical condition, date of test values recorded by Ruffier to the female population, the average values fits also into indicate "Satisfactory" near 12.2 index value, obtained by the whole female population of the 'Constantin Brancusi' University of Targu-Jiu subject to our investigation (Chart 1).

Chart 1 - Evolution Ruffier's index on categories of subjects to girls and boys



In boys, it is noted values recorded by a specific subject's population, i.e. athletes (students involved in the process of preparation of at least five workouts per week in an organized manner). Distinguish a significant difference of physical condition, date of test values recorded by Ruffier, reported the average values obtained in the entire male population of the University 'Constantin Brancusi' of Targu-Jiu, subjects to our investigation. So, the athletes obtain 3.9 - index with grade "Good against the index by 10.5 - "Satisfactory" of All (Chart 1). Also, PES students index of 9.3 or the Non PES index of 11.2, leads to different grades "Satisfactory" in Non PES and "Average" to PES, the values are very close, so we cannot categorically stated that PES students are superior fitness of the Non PES. We have to consider the fact that the five students in the class of subjects Athletes are in PES category. As girls, Non PES subjects are students to other programs of study at the Faculty of Economics and Faculty of Law.

Of study curriculum (those of PES specialization and other programs Non PES) showed a significantly higher share of practical lessons with topics of physical education and sports at PES specialization vs. Non PES, into a year of study (specialization Non PES was taken into account only for the 1st year of study in which physical training is included in the curriculum). Thus, the PES average was by 177 hours per year of practical study against by 28 practical hours a year of study to Non PES.

### Conclusion

Present scientific research sought to validate through a simple pedagogical experiment the assumption that the educational process of training future physical education and sport teachers have influence on their physical condition.

By comparing the results in category PES and the Non PES, by girls and by boys, practically demonstrated the validity of the hypothesis, allowing us to formulate the conclusion that the entire population of subjects (boys and girls) PES category have a higher fitness against Non PES, which is due mainly to the curriculum and the large number of practical lessons.

Although people from PES have an average of 177 hours of practical lessons per year of study (12 hours per week - 6 trainings by 90' each), the physical condition (fitness) of PES students is very little superior to those with only the one hour physical education per week, those from Non-PES, but far from the athletes, with a number of similar exercises.

PES population values reported to benchmarks for our field - values recorded performance athletes, are significantly lower. The physical condition of prospective teachers of physical education is far from that of an athlete, what makes us to suggest that, practical lessons, although a similar amount of hours does not provide an exercise similar to the parameters of a workout, due, in our opinion, the following shortcomings of the lesson time in university PES teaching:

- more emphasis on methodological lessons;

- it not leave sufficient time for physical training and exercises;
- fairly large collective of students (20-25), emphasizing the lesson downtime;
- lack of optimum material conditions (a ball to 2-3 students, insufficient sport equipment, insufficient gymnastics apparatus);
- low initial fitness level of students that are coming to the PES specialization in our Faculty.

The entire students' population of our research (girls and boys) has an average physical condition satisfactory, close in value to the "good", due to the fact that the Non PES population was made up only by the first year students, who have in curricula physical education practical classes. As a further step, we wish a statistically significant population scientific research on physical fitness of students of 'Constantin Brancusi' University of TarguJiu with implications for their health status.

It seems paradoxical, but in the era of most fantastic sporting records, obtained in almost all disciplines, many people's health is jeopardized by the lack of movement, with negative effects on the body, including increased incidence of obesity in the population. One may say that man today feels more than ever need to practice exercise in a directed and organized physical

activity, which offset the negative influences of modern civilization: sedentary lifestyle <> strain <> overnutrition.

#### References:

- [1] Vasile, M., Tufă, L., Preoteasa, A.M., Precupețu, I., Popescu, R., Dumitru, M. (2011) Calitatea vieții în România 2010, Revista Online Inovația Socială, 3 (1), <http://www.inovatiiasociala.ro/articol/51/>.
- [2] Muresan, J.D. (2009)- Calitatea vieții umane în Româniadupă 1989, University Publisher, Bucharest.
- [3] Macovei, S. – Gimnastică Aerobică de Întreținere, Edit. Afir, București, 2003
- [4] Hay, P/, Dickens, S., Crudgington B. (2012) Exploring the Potential of Assessment Efficacy in Sports Coaching, International Journal of Sports Science and Coaching, <http://multi-science.metapress.com/content/42mw3627072206q3/?p=be018a5c750941f4b3222c3f1dd9f0ce&pi=15>
- [5] Epuran, M. – Metodologia cercetării activităților corporale, vol. I-II, MTS – Academia Națională de Educație Fizică și Sport, București, 1994.
- [6] Roman, G., (2004), Antrenamentul și competiția în sportul de performanță, Napoca Star publisher, Cluj-Napoca



## THE DEVELOPMENT OF PSYCHO-MOTOR SKILLS THROUGH CREATIVE EXERCISES IN THE GAME OF BASKETBALL

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**Abstract:** Basketball game includes a large number of technical elements, from the simplest to the most complex and more difficult than other sports games. Mastering them requires, and at the same time, develops a large number of psychomotor skills necessary for life. We intend to make pertinent observations, finding answers to some of the causes of poor initial training of children, early diminishing their interest for basketball and concrete ways to solve these problems, hoping that we'll improve methodology basketball at juvenile age. Psycho-motor skills development by specially designed exercises was a modern approach which consisted in addressing the primarily psycho-motor skills and their development through specially designed exercises and applied to the experimental group. We note that was targeted mainly creative nature of the exercises. Through research purposes, which was to find new ways, new operational dimensions, that finally lead to the significant optimization and improvement of psycho-educational intervention in the basketball training lesson, we tried to confer a solid foundation investigation, not only theoretically but also the applicative. The results obtained by the experimental group and their interpretation confirm the validity of the hypothesis contained and, by the strategy used and by results obtained, confirms the hypothesis from which was started, contributing to improving the educational process of the basketball players

**Key-Words:** basketball, creativity, psychomotor skills, creative exercises, technique, tactic, training

This research is emerging as a practical necessity on finding answers to some of the causes of poor training athletes (basketball players in our case), early reduction of the interest of children for basketball and finding concrete ways to solve them.

Harnessing knowledge, abilities and motor skills is not in spontaneous and mechanical use, but creative application in order to habilitation and rehabilitation in the educational process, in general, and particularly in juvenile training.

Basketball, having the status of field with compulsory education, it being found in physical education programs at all educational levels and has a significant share among practitioners of sport at an early age.

Basketball game includes a large number of technical elements, from the simplest to the most complex and more difficult than other sports games. Mastering them requires, and at the same time, develops a large number of psychomotor skills necessary for life. Each technical process has the precise parameters of space, time and effort, and the training should be made so that "performers gradually reach spatially and temporally differences and by effort of great finesse "[1]. Because their formative efficiency, accessibility and the spectacular characterize them believe that they should be received with great interest the children, and these exercises should enjoy a large spread in the clubs and associations in our country, even in those units with modesty material resources.

There is an abundance of literature, both domestic and foreign, dealing with the methodology of acquiring basketball technical and tactical actions. Carefully studying this literature, we find that they are not given sufficient interest in the acquisition and development of psycho-motor skills in the basketball training process.

The strategy that we propose focuses, in a first phase, on development of psycho-motor skills, through varied exercises primarily by creative nature, and in the

second phase, to proceed to acquire proper technical and tactical actions in accordance with the methodology presented in the literature and adapted to the level of training of children, according the existing didactic material resources.

The purpose of our research is to improve the educational process in the basketball discipline, for children of 12-14 years old, by creating and implementation of the specific creative exercises to train and development of psycho-motor skills, in accordance with particularities of age and existing material conditions.

This research reviews a volume of utility theoretical and methodological information; it restructures old empirical concepts and proposes implementation of new rational approaches in the organization, management and conduct of the educational process.

Because we are devotee of a formative and participatory teaching process, we believe it is necessary first to promote collaborative teaching relationships, to stimulate children's efforts and their desire to make own contributions to the introduction and study of new, to be original, inventive and creative. First, we want delimit the concepts of terms of skill and creativity, finalizing with ways to stimulate and exploit the creative potential in the game of basketball. Exigencies of contemporary life and the need more acute by the solve the problems of growing complexity, it occurred in all sectors, creativity education turned into a priority respectively an absolute necessity for society, for all population.

As shown in the reality of modern pedagogy "currently, a priority concern of science education is the exploitation germs of potential creativity and creativity education of children of all ages concern which aims to achieve the following general objectives "[2]:

- developing a positive attitude / suitable to progress to the innovations and to introduce them into their own actions;
- training children to accept the new as an indication of progress, innovation and human creativity;
- encouraging children manifestations characterized by original results
- training and development of skills and capabilities to create, to rethink strategies of work and integrate them into dynamic systems, flexible and effective;
- training and development the capacities to accomplish something new: connections, ideas, theories, ideal or material models, material products, etc.

The school educational, in our case, basketball training, has to be the principal actor that can and should contribute decisively to exploit the potential creativity of children, to stimulate their creative inclinations and to educate their creativity.

In the first part of our research, we plan perform the ascertaining study of the basketball methodology in the sports clubs and associations. Thus, we want the research methods used to obtain significant information to make a comparison between literature data and documents drawn up by Romanian Basketball Federation on the one hand, and concrete reality on the ground, on the other hand.

At this stage, we intend to make pertinent observations, finding answers to some of the causes of poor initial training of children, early diminishing their interest for basketball and concrete ways to solve these problems, hoping that we'll improve methodology basketball at juvenile age.

The information obtained will be the starting point for our pedagogical experiment in which we hope to improve the educational process of training young basketball player.

Research methods used in first part of our research were: the bibliographic information and documentation, research method curricular documents and other specialized documents, investigation on the existing material resources in the club for basketball training of children, direct observation method in the training lessons in conditions as varied.

The observation was carried out during September-October, 2013-2014 school year, to the Scholar Sport Club Targu-Jiu, department of basketball, junior U14 age category.

To complement the data obtained and the desire to include a representative sample of athletes in the this investigation, we developed a questionnaire that included a series of questions (of opinion and knowledge) having as final getting helpful answers in approaching our research. 62 subjects were questioned, who practice basketball game, regardless of the age. We used stratified sampling "which involves grouping the community after one or more characteristics" [3].

Questionnaire for the basketball players included 10 questions, in which the response requested as honest, without omitting any. We were interested in their views on the following issues proposed:

1. How many hours of sportive activities do you want to have per week?
2. What do you like and dislike in your basketball training lessons? I like \_\_\_\_\_ / \_\_\_\_\_ I do not like.
3. What other sport you like to practice mainly besides basketball ?
4. What is your opinion about basketball ?
5. What techniques or tactical actions you want to try more?
6. What qualities do you think are necessary to acquire the technical elements and tactical actions specific basketball game ? List them .
7. Do you consider important the activity you are doing in the basketball training ? Motivated please.
8. Are helping you some techniques learned from the game of basketball in everyday life ?  
NO / YES . Exemplified \_\_\_\_\_
9. Do you think that the acquisition of technical and tactical basketball training processes promotes in learning of exercises or technical executions from other sports ? NOT . / DA . Exemplified \_\_\_\_\_
- 10 . Outside the training lesson, do you practice systematically basketball game ? If yes, where ? NOT . YES.

Ascertaining research which was carried out highlights both the positive and some negative, regarding the methodology basketball. We want to emphasize those that we have looked most important such as positive aspects can be mentioned:

- There is a rich literature, both national and foreign, which addresses the methodology of basketball;
- Under investigation conducted, the unity has a good didactical material resources;
- Only a part of the teachers (coaches) are concerned with the use of active participatory training methods, making lessons attractive and diversified as content;
- Both observations and responses to the questionnaire, confirms that most juniors are interested in training in this sport;

Among the negative aspects noticed, some are due to objective reasons, but most of them have a subjective support. The negative aspects noticed are:

- Discontinuity in training and in competition due to the structure of the school year (holidays, less competition) and the requirement basketball program in general;
- Not working almost all the development of psycho - motor skills, properties necessary for learning basketball's technical elements and processes;
- In the basketball methodology, are rarely used (sometimes not) specific methodological procedures;
- In the methodology of application of technical elements and learning tactical actions are rarely created some "problem situations" that children to solve them alone or with the help of colleagues;
- Not used almost at all, means of training: case study, group work approach problematical, intuitive etc.;
- In many cases, the explanations are just purely formal, the teachers do not emphasizes the proper name of technical element or tactical action and they don't

present “key moments” of the movement in relation to the rules of the game;

- In the lessons, it should be given greater importance dynamic and attractive games and to the contests.

This ascertaining study we conducted highlights the issues as they are in reality on the ground, regarding basketball methodology [5]. The information gained from the application of this research methods we have been really useful, broadening our horizons cognitive, both the coach-athlete relationship situation and on how experimental research needs to be tackled.

Hypothesis of experimental research we tested, in this investigation performed on the experimental group is: *“creative exercises specific of basketball game, designed by coach with players, may contribute to the formation and development of psycho-motor skills”*.

Organizing, stages and deployment of the experimental research was conducted under natural conditions in the lessons of basketball training, respecting the structure of competitive year and following working hypothesis proposed.

The research took place from September to February, the school year 2013-2014 and included two stages. The subjects were 15 in number, without variations between tests, with significant presence in the training process in the experimental period.

In the first stage was followed: establish sample of subjects, initial testing (T1) regarding the level of capacity of psycho-motor skills development, the battery of tests applied to the experimental group, it has been developed and implemented to experimental group a lot of specific psychomotor skills development exercises by kind creative activity within the basketball game.

In the second stage, it obtained the data of final testing (T2) by applying the battery of tests (tests the same as T1), tabulation, sorting and analyzing data, statistical and mathematical record of results and their interpretation.

The mathematical statistical methods used were: arithmetic mean, standard deviation, coefficient of variance, “t” test, significance threshold between the average, correlation and determination coefficient of certain tests [4], [5].

Psycho-motor skills development by specially designed exercises was a modern approach which consisted in addressing the primarily psycho-motor skills and their development through specially designed exercises and applied to the experimental group. We note that was targeted mainly creative nature of the exercises. This new approach is not treated in the specialty literature and is present sporadically in practice in the basketball training.

In this research, for the development of psychomotor skills to our basketball juniors, we used the following strategic approach (problematic situations) [6]:

- The coach’s presentation of psycho-motor skills necessary for the technique or tactical action for learning and composition of specific exercises to develop them;

- The coach’s presentation of psycho-motor skills necessary, the technique or tactical action for learning and the creation of specific exercises with players to develop these skills;

- The coach’s presentation of psycho-motor skills necessary, the technique or tactical action for learning and finding by players as effective exercises for developing those skills;

- The coach’s presentation of the basketball technique for learning and players alone “discover” the psycho-motor skills necessary, followed by the creation of specific exercises for their development, together with coach;

- The coach’s presentation of the basketball technique for learning and players themselves discover and solve the problem, ie, discover skills and create specific exercises to develop their.

This strategy used allowed us to create an optimum number of specific exercises to develop psycho-motor skills.

Thus, have been developed and applied to this age group the following exercises [7]:

- exercises to stimulate coordination capacity;
- exercises to develop precision and orientation of body positions and movements in space;
- exercises for evaluations an time orientation capacity;
- exercises to improve vestibular function;
- exercises to develop speed of reaction on different stimuli;
- exercises for developing a sense of static and dynamic balance;
- specific technical and tactical exercises of basketball game.

Analysis, data processing and interpretation of test results were processing by computer aiming at presenting how the evolving arithmetic mean, standard deviation, coefficient of variance, “t” test, significance threshold between the means and correlation coefficient and determination of certain tests.

The battery of applied tests is composed by: 1) mobility test, 2) stable equilibrium test, 3) "Denisiuk" skill test and, 4) vestibular stability test [8], [9].

In the first test, mobility test, averages enroll into an evolving chart from T1 to T2. Coefficient of variation is small, showing a small dispersion and a high homogeneity around central value.

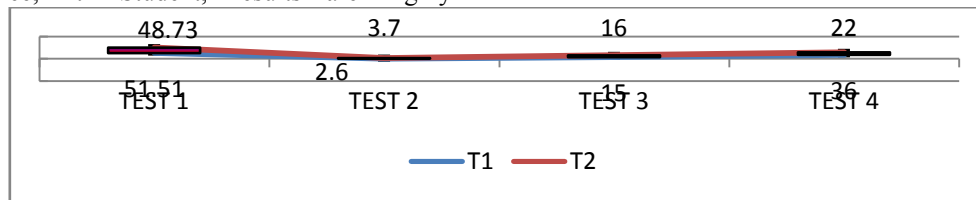
Test of stable equilibrium show by the results obtained a breakthrough from T1 to T2 to the entire group research. Averages indicate good progress from T1 to T2, coefficient of variability presents a homogeneous medium which can be characterized as relatively large dispersion of values.

For the “Denisiuk” skill test, the experimental results obtained are superior to the final testing compared to the initial test. The coefficient of variation indicates a high homogeneity whole lot found out research around central value.

Vestibular stability test reveals a significant improvement between the two averages test, the coefficient of variation shows a lack of homogeneity of individual values around central value.

In the light of the results recorded, between the initial and final average of the group, by calculating the index of significance, "t" Student, results are highly

significant differences at a probability of 0.05% to all tests.



Graph no. 1 - The difference between average values at the two tests

Analysis, statistical and mathematical processing and interpretation of data obtained provide valuable material to present the following conclusions:

1. Psycho-motor skills forming and develop through the creation and implementation an optimum and efficient number of specific exercises;

2. For junior basketball to create specific exercises for psycho-motor skills development, we took a series of measures to develop creative potential, among which the most important (considered by us) are:

- Develop courage and confidence in their actions;
- Develop fluency and flexibility of thinking;
- Increasing interest and maintain positive attitudes towards basketball and everything is new;
- Tolerance to the ideas of others;
- Putting subjects before new problems and solving them;

-Providing psychosocial environment conducive to good cooperation and promote strong collaboration.

3. Backed by the data obtained we can say for sure that exercises created and applied to the experimental group are effective and contribute to the development of Psycho-motor skills;

4. By comparing the results, it was observed that the progress in the development of skills is the higher the more positive attitude of subjects to activities with as it has a more personal meaning for them;

5. In most cases, the difference between the averages shows a highly significant index of significance at a probability of 0.05%, which reinforces the fact that superior results are not random.

6. Psycho-motor skills development also contribute to accelerating learning the technical elements and tactical actions of the basketball, contained in specific training program of this age and also contributes to the development of the ability to create complex technical and tactical by chains of processes and technical elements;

7. Pedagogical experiment results showed us that the exercises used to develop psycho-motor skills are effective and recommend their use in methodology of initiation in basketball.

Through research purposes, which was to find new ways, new operational dimensions, that finally lead to the significant optimization and improvement of psycho-educational intervention in the basketball training lesson, we tried to confer a solid foundation investigation, not only theoretically but also the applicative.

The strategy applied by us, focused on psycho-motor skills development by varied exercises and primarily of

creative nature, after which the specific basketball technical processes were special exercises to develop these skills.

We believe that the statistical indicators have been applied (average, standard deviation, coefficient of variation, the significance of the difference between average) allowed us to obtain valid and meaningful results, which were the basis for interpreting the results of this research.

The results obtained by the experimental group and their interpretation confirm the validity of the hypothesis contained and allow us to issue some proposals and recommendations:

- We propose in the basketball methodology our approach consists in emphasizing the development of psycho-motor skills, primarily through creative exercises as a necessary condition of successfully learning of technical elements in basketball;
  - To capture attention and removing the monotony, we recommend their activation by creating problematic situations consisting of finding and solving problems.
- This research, by the strategy used and by results obtained, confirms the hypothesis from which was started, contributing to improving the educational process of the basketball players.

#### References:

- [1]Dungaciu, P., (1982) – Aspecte ale antrenamentului modern, Sport-Turism Publisher, Bucharest.
- [2]Ionescu, M., (2007), Instrucție și educație, The West „Vasile Goldiș” University’s Publisher, Arad.
- [3]Epuran, M., (1992) – Metodologia cercetării activităților corporale, Sport-Turism Publisher, Bucharest.
- [4]Bocoș, M., (2003), Cercetarea pedagogică. Suporturi teoretice și metodologice, Science Book House Publisher, Cluj-Napoca
- [5]Rădulescu, Șt., (2006) – Metodologia cercetării științifice, Didactical and Pedagogical Publisher, Bucharest.
- [6]Pașcan A., Ionescu M. (2011) - Formarea și dezvoltarea aptitudinilor psihomotrice la elevii de gimnaziu prin exerciții creative specifice baschetului școlar, “Babeș – Bolyai” University of Cluj-Napoca, PhD Theses, Cluj-Napoca.
- [7]Badea-Miss, G., (2011) – Baschet MMX, “Academica Brâncuși” Publisher, Tg-Jiu
- [8]Albu, A., Albu, C., (1999), Psihomotricitatea, Spiru Haret Publisher, Iași.
- [9]Horghidan, V., (2000) – Problematika psihomotricității, Globus Publisher, Bucharest.



## BIOMECHANICAL'S SMALL DETAILS WHICH HAVE BIG EFFECTS OF THE TECHNICAL APPROACH IN ATHLETICS JUMPING EVENTS

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**Abstract:** The problem. The evolution of the top performances achieved in jumping events, both by value and number at the same competition, make us ask ourselves, why?

**Premis`s.** On aspects of jumping technique there were made many analyzes and recommendations. Because there is still some misunderstandings of biomechanical issues, we try a more understandable explanation of all of these issues.

**Hypothesis.** To answer the questions I started to research the problem to the following hypothesis: "A proper understanding of the biomechanical aspects of the timing components takeoff force compensation of the masses during the flight under the laws of mechanics, is the only way to increase jumping events performance".

Before discussing technical issues proposed in the hypothesis, we specify that: All movements of the body segments are subject to the law of physics such as gravity pendulum, the law of gravity, compensating masses.

### Conclusions:

1. Pendulous segments that provide inertial positively influence the amplitude of the takeoff.
2. The more height reached by the segments of pendulum is higher at the completion impulses with so offsetting effect of these of the masses is larger, increasing the length and / or height of flight.
3. When analyzing the technique by the sequences of the chinogram, each image must be understood and interpreted as a moment of a uniformly accelerated motion and continuous dynamics when preparing takeoff.

**Keywords:** Biomechanics, inertial forces, the law of the pendulum.

**The problem.** The evolution of jumping events performances made, both in terms of value, but especially of the high number of athletes who achieved top results in the same time frame, or even the same competition, make us ask ourselves why ?, and especially why Romania is no longer included in the global charts - to seniors?. The question is especially for the women events, where athletes from Romania have been for many years among the protagonists, and lately into obscurity at major competitions.

**Premise`s.** On this subject I have made a number of recommendations on aspects of the triple jump technique, both with regard of the evolution of Adelina Gavrilă as well as Marian Oprea, compared with the technique exhibited by J. Edwards jump world record (18.29 m). Although A. Gavrilă had potential to jump 15.50 m, could not capitalize because of some major technical errors, which they failed to eliminate them although they have been reported. Much better to master the technique turned out M. Oprea, who also was in the last 10 years, among the best triple jumpers in the world. Unfortunately young jumpers, either boys or girls, get closer to A. Gavrilă technique, than M. Oprea technique. We intend to repeat that analysis trying to add some more "small details" but which usually make the difference between performances.

**Hypothesis.** To answer the question we started research on the following hypothesis: "A proper understanding of the biomechanical aspects of the timing components takeoff force, compensation in the phase of flight of the masses according to the pendulum gravitational laws is the only way to increase jumping performance events".

Before discussing technical issues stemming the hypothesis we specify that:

a) No motion can be studied ignoring the law of gravity;

b) All movements of body segments obey the law of the pendulum gravity - according to which: - the free end of a pendulum generates a force of inertia, which depends on the mass, length and angular velocity of rotation around the articulation point.

c) Components of different masses of a body in flight is acting compensatory: - (when the center of mass is moving in a direction, a different but equal center of mass is moving in reverse).

d) **The power** - developed at ground level at the time of the takeoff, is directly proportional to the distance on which acts the strength of takeoff and angular velocity of execution.

**1. Triple jump.** Talking about the triple jump, the best argument is provided by technical evolution in world record jump of J. Edwards, of 18.29 cm. In this regard we address the discussion on the "key" moments of his jumping technique, relating them to the points mentioned above, comparing them with the moments related to the technical approach diametrically opposed of Adelina Gavrilă.

The differences between the two jumps is obvious. At the time of the takeoff (fig.1/sequences 3, 4, and 5), Edwards blocks the knee up when the other foot leaves the threshold, and compensatory movements start in reverse, maintaining high trajectory of the CGG - *efficiently*. Compared A. Gavrilă the knee continues to rise after the takeoff from the threshold, while the ankle exceeds the knee forward, compensatory movements taking place upwards and horizontally (fig. 2, sequences 1, 2, 3, and 4), so CGG will have a downward path - *inefficiently*..

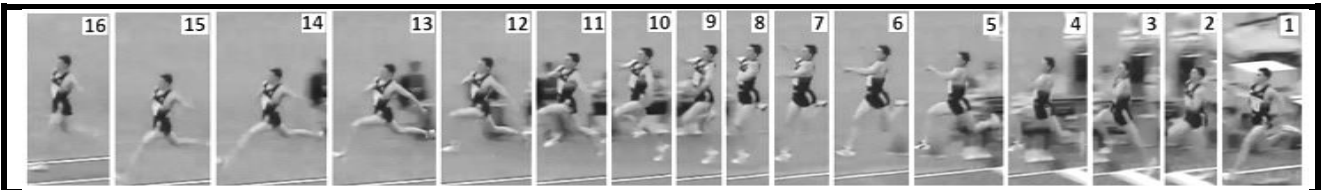


Fig. 1. The evolution dynamics, in the step jump to J. Edwards [1]

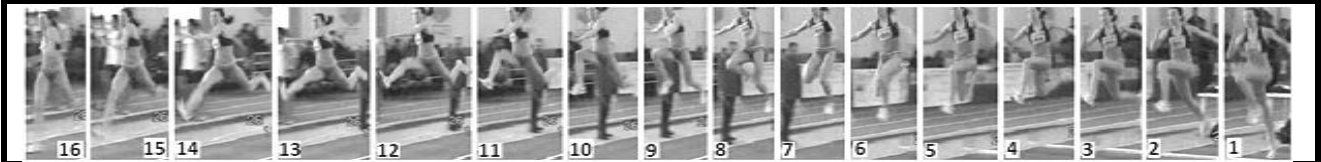
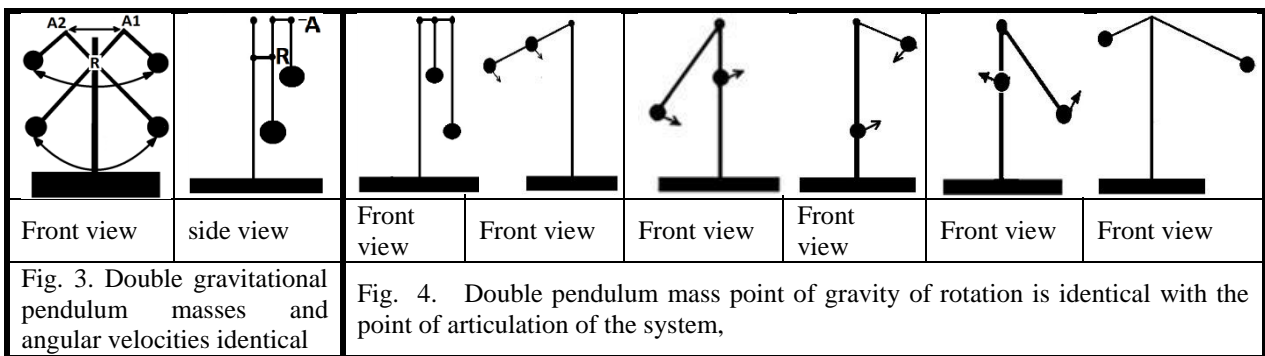


Fig. 2. The evolution dynamics, in the step jump to Adelina Gavrilă

Continuing the flight in step jump, in which the shearing of the long pendulum and the short pendulum, is done according to the scheme of fig. 3, (where A, is the joint point of the system, and R, is a rotation-axis of system) in which the articulation system is moving on a greater distance between the points (A1 - A2), Edwards fully extends the knee of the leg that swinging back (fig. 1/sequences 5-12) - *inefficiently.*, while A. Gavrilă leg swinging back with the knee bent, minimizing the compensatory inertia to the other leg which goes forward (fig.2/sequences 5-12), resulting in decreasing the movement between the points (A1 - A2) - *inefficiently.*

Preparing for beating up jumped following is achieved with maximum efficiency Edwards, starting from position grouped by "treading hung", which allows the development of a maximum speed up to the ground (fig.1/sequences 13-16) resulting in the development of a power proportional to the speed of execution, - *efficient.* The same cannot be said of A. Gavrilă, whose evolution shear dynamics in step-jump, the leg swings backwards does not extend fully (fig.2/sequences 4-10) and leg swings forward which stretches level (fig.2/ sequences 11-13), so before you start beating goes through a position of "string" which are not used within the principles mentioned above – *inefficiently.*

The departure in to step skipped highlights same differences between the two examples. As in the previous step



Edwards maintain the vertical plane of the ankle, behind the vertical plane, of the knee (fig.5/sequences 18-20), maintained, grouped for the duration flight (fig.5/sequences 21-24), of which starts construction, beating through the same "hanging ironing" fast (fig.5/sequences 25-27) - *efficiently.*

The same cannot be said by A. Gabriel, who starts the beating by stretching leg at the front and only after that comes down towards the place by beating (fig. 6 / sequences 11-16). This supplementary movement provokes compensatory inertias on the horizontal, resulting CGG lowering of the trajectory and achieving a lower speed the beating and more forward of center of gravity towards the projection of with effects on of the angle of detachment - *inefficiently.* The separation of the step skipped A.Gavrilă "throws" ankle forward (fig. 6/sequences 18, 19,) - *inefficiently.*

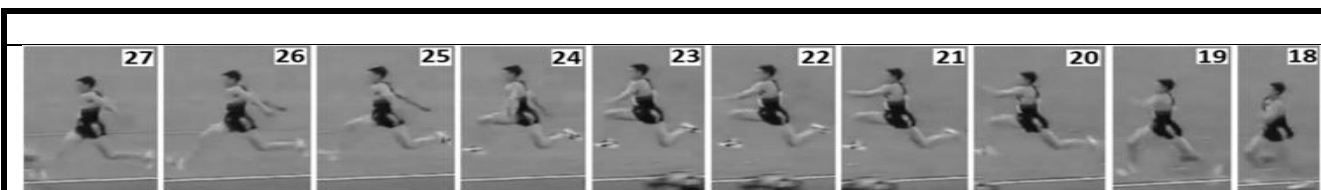


Fig. 5. Dynamics of step skipped, - J. Edwards [1]



Fig. 6. Dynamics of step skipped, - Adelina Gavrilă



Throughout the flight, leg of attack stretches completely forward (fig.6/sequences 20 - 25), causing the same inertias countervailing in the horizontal plane and only then begin action to beating for the last jump (fig.6 / sequences 26 - 28) - inefficient, due to the remoteness of the place by beating, beyond the projection on the ground of CGG. Here are respected biomechanics principles b and c mentioned above. The scheme of fig. 3 enables us a better understanding, of how the gravity works double pendulum system with moments (length) different, given that the both of have the same mass and the same angular velocity.

Last jump of the triple jump is almost identical in both cases, fits the requirements for a correct technical requirements from biomechanical point of view, for which further discussions are useless.

**2. High jump.** We try further a different interpretation from biomechanical point of view, that some consider small details, unimportant, but without understanding that these together provides performance at the high jump event. To see about what details we are talking, we shall make a comparative analysis between Javier Sotomayor's world record jump (2.45 m) and Tufa Alexandru's jump, one of our young people jumper over 2.20 m performance, but which if correct some. If at first the dynamics of the two jumps appear to be identical, in reality there are some details that were seen in the value of the two results.

Order to highlight the details that we believe made the difference between the two jumps and without pretending that if



Fig. 7. . Sequences of the jump, by Javier Sotomayor – 2,45m [1]

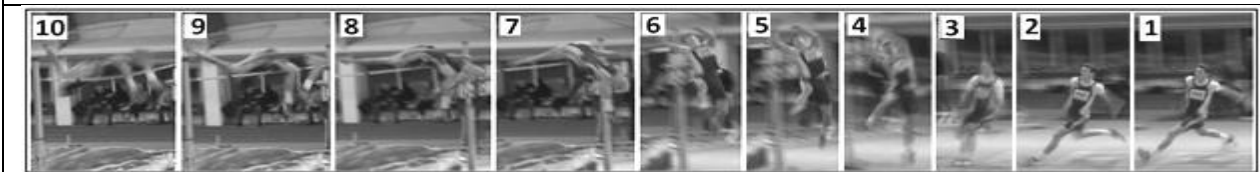


Fig. 8. Sequences of the jump, by Tufa Alexandru

Al.Tufa wouldn't have done, he could've jumped 2.45 m, but definitely would be close to 2.30 m, we have made the two sequences corresponding to those moments that captured some small biomechanical errors.

The basic principle of the high jump technique is the compensation of the masses of segments of the body in the air, important when crossing the bar.

In the case of the height jump we consider that the main objectives of the technique are:

- reaching the maximum amplitude impulses of the segments when finalizing the to complete the most the takeoff force (the sum the takeoff force and the sum of the inertias of the swining segments, pendula);
- in the moment of takeoff, the inertia of forces must act on the same vector with the impulsive force.

Comparing the two chinograme we see biomechanical differences between the two jumpers as follows:

- while Sotomayor's foot of the attacking leg act on the knee on the principle "connecting rod - crank" - *efficiently*, Al.Tufa the leg "under the thigh" - *inefficiently* (sequences 3) of fig. 7 and 8;
- when finalizing the impulses (sequence 4) Sotomayor's takeoff vertically exceed knee of the attacking leg vertically upward the pelvis, while A. Tufa the trunk leans toward the bar too early and the knee isn't rising above the pelvis;
- in the sequences 5 and 6 Sotomayor's keeps the knee above the basin, while the A. Tufa because of the error in sequence 3 stretching the attack leg, instead of "locking" the knee of the attack leg;
- the first segment that passes the vertical plane of the bar on both jumpers is the arm on the bar side (sequences 7 and 8), BUT in (sequences 9,10), while Sotomayor continues to take down the arm as far below the bar, A. Tufa raises it above the bar.

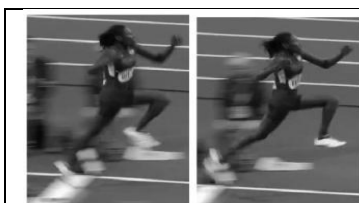


Fig.9. Brittney Reese - 7,12 m  
Place I. - J.O. London, 2012 [3]



Fig. 10. Elena Socolova – 7,07m  
Place II, - J.O. London, 2012 [3]



Fig.11. Ineta Radevica - 6,88 m  
Place IV – J.O. London, 2012 [3]

Women`s long jump – JO, London 2012 (places - 1,2 și 4) [3]

3. Long jump. It is the least complex from the technical point of view, the jumping events. From biomechanical point of view the trajectory C.G.G. after takeoff, does not change if on the body is not acting external forces. Therefore, the length of the trajectory flight depends on the manner in which the jumper uses the inertia provided by the speed on the approach at the time of the takeoff.

This depends on how the segments of body are working at the time of takeoff. Therefore this phase is considered the most important phase of jumping.

For a better understanding of how you should act the swinging segments in the moment of the takeoff, we present the first two moments of the evolutions of three jumpers on top ranked) in OJ London 2012 (Fig. 9, 10 and 11), and the top two world performers Carl Lewis and Mike Powell (Fig. 17 and 18).

Looking at the pictures in Fig. 9, 10, 11, it is observed that the three jumper`s thresholds were almost perfect, the difference being made by small details, about how they acted the swinging segments.

Watching carefully the takeoff we notice that Reese raises the leg having the knee flexed, with the vertical plane before the ankle and above the horizontal plane of the pelvis after which makes a compensatory a movement down.

The same does the takeoff Socolova, but after the takeoff that Russian leg attack continues to climb towards the pelvis, instead Radevica stops the knee of the leg just below the pelvis.

In the FIG. 17 and 18, mention the highest level reached in the men event, two comparative analysis of the takeoff and of the first part of the flight, for M. Powell and C. Lewis.

Even if the resolution photograms is not the best quality, it can be seen that Powell with the knee leg attack reaches far above the pelvis at the time of takeoff from the threshold, while Lewis takeoff is with the knee down on the same level with the pelvis, both jumpers continuing with the shear legs in the air, according to the principle of the pendulum in Fig. 3 long pendulum back and short forward.

**Discussion.** "Biomechanical movement, in its most frequent form, motion, are characterized by trajectory  $d(t)$  and by momental speed  $v(t)$ " [5].

About biomechanical analyzes American researcher Gideon Ariel said that "biomechanics is just a new tool designed to improve knowledge of sport effort and improve athletic performance" Today many athletes strive to find doping products not to leave any traces. This ruins their health. Using perfected training methods to which are added analyzes based on the principles of biomechanics, athletes can get superior results to those obtained through drugs." [6].

This paper is mainly a qualitative biomechanical analysis based on a visual documentary based on video recordings, and processing of images obtained by defragmenting their key sequential photos.

All Ariel [6] said that "athletes with no flaws are rare to find. Frequently, when movements reach perfection, but the athlete loses power. Biomechanical analysis detects the failure and at that point it is possible to prepare a training program to match".

Even though I didn't dispose the tools and techniques for measuring specific parameters which we speak, they were made on the basis of generally valid statements made by specialists in physics and mechanics, we think we could highlight quite well the key moments of the techniques analysis.

The interpretations presented above were made based on known marches, universally valid, derived from general concepts of biomechanics, as follow s: "Speed with formula:  $(v) = d / t$  - as the ratio between the trajectory length (distance -  $d$ ) and (duration -  $t$ ); Mechanical work, with the formula  $(L) = kGy$  - is proportional (not equal) to product of athletes weight ( $G$ ) and the distance (path) traveled, with the strength of formula  $(L) = L / T$ ; Power with formula  $(L) =$

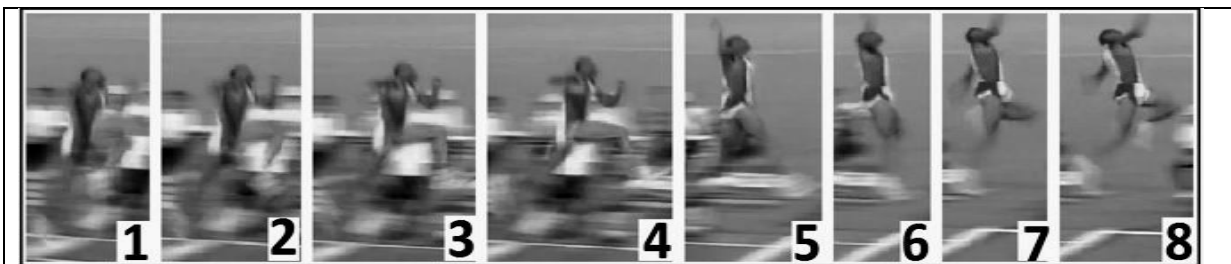


Fig. 17. Secvență e din săritura în lungime de record mondial a lui Mike Powell – 8,95m [4]

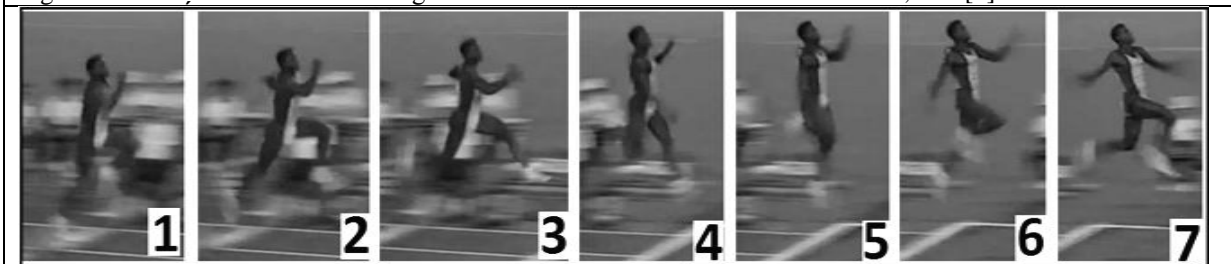


Fig. 18. Secvență e din săritura în lungime a lui Carl Lewis – 8,91m [4]

$L / T$ , to a flow rate of mechanical work, labor, carried out in a period of time". - [5].

Knowing what is each of them, which are their effects according to the parameters between these acts, can easily deduce which are the correct directions they can ensure maximum effect, and that any deviation from these principles can lead to loss of efficiency. In the athletic jumping events we analyzed the main element of performance is the explosive force "theoretically, the measure of the explosive force should be the time of increase of the acceleration until it reaches the maximum point." [5].

Starting from what was presented so far, and calling into question, one by one, the technical problems of athletic jumping events, we could notice that in each phase of movement must take into account the whole body, but also one of its segments compared with each other. Even whether they can discuss some small details on individual characteristics (such as joint mobility) should not be forgotten that, for any type of movement there is one correct structure from biomechanical point of view.

In the athletic jumping events we analyzed the main element of performance is the explosive force that from those presented so far, and calling into question, one by one, the technical problems of athletic jumping events, we could notice that in each phase of movement must take into account the body as a whole, but also the segments, this one against the other.

Even if we can discuss some small details regarding individual characteristics (such as range of motion), weight, height, should not be forgotten that, for any type of movement there is one structure from biomechanical point of view correct.

Given those shown so far, we conclude that any detail however small it may be, can make the difference in sports. you don't have to be a great specialist to differentiate between technique exhibited the J. Edwards, and that exhibited the A. Gavrilă, and understand that our athlete would be constantly jumped over 15.50 m, if it could be close to Edwards's technique. And we are referring here to a few moments from her jump, each time stretching the attack leg, continue lifting the swinging segments in the vertical plane, descent the trajectory of pelvis after takeoff, the power developed is diminished due to reduced speed when the takeoff, the pendulum long braking force and angle beat grow.

In the high jump, timing of inertial forces of takeoff with the force is essential, especially as, in this case, the speed on the approach is reduced. Interpreting differences between the two we observed that Sotomayor's energetic lift of the knee of leg attack in the first phase in the air, and when the upward acceleration decreases gradually becomes equal to the gravitational mass leg attack gets compensation, which provides height trajectory pelvis. Tufa instead presents mistakes on the takeoff where the knee flexion at the time of soaring causes leg stretching prior plan reduces its upward velocity, resulting in takeoff before attack leg to reach maximum amplitude. This phase gives the feeling of crisis elevation, speeds the inclination toward the bar, breaks takeoff force vector, as in the

sequence 4, in which the pelvis goes in the opposite direction to the bar, arm close to the bar, instead of falling below its level works compensatory, incorrectly climbed, lowering the bar above his pelvis trajectory.

In the analysis of the long jump of the two Americans, I did it wondering what made Mike Powell to exceed Carl Lewis, knowing that Lewis was superior of force and speed. Watching the images of the two, the only difference between technical executions when takeoff is observed at the time the threshold where Powell "cling almost desperately" on the knee attack leg, far above the pelvis keeping it more than Lewis, the plane of the ankle, behind the vertical plane of the knee. Comparing the sequences of takeoff, of the first two women on Olympic Games from London, makes us ask the question: if Socolova soar knee leg attack at the time of takeoff, and from that position to begin its descent would have won?

At the end of discussions trying to give justice to Ariel who said: "My goal - is to make prevail the technical performance of medical performance." [6].

Conclusions: from the analyzes displayed it confirmed that the known principles to achieve an effective takeoff, such as:

- swinging segments that provide the inertial's positively influence the amplitude of takeoff;
- cumulation of forces of inertia, with the force impulse, of takeoff, or otherwise - in the moment of takeoff, soaring inertia forces must act on the same vector with the force of impulse;
- conversion speed of approach up thrust on optimal angles at the time the of takeoff;

There are also other aspects less known or less understood by many coaches, especially young ones:

- at the time the foot leaves the ground when takeoff, the plane of the lower leg forwards does not exceed forwards the vertical plane of the knee;
- at high jump during of soaring of the attack leg, lower leg must act on the knee in system "connecting rod - crank", ensuring maximum of soaring inertia;
- the greater the height reached by the swining segments's when finalizing impulses, the offsetting effect of inertia is greater, increasing the length and / or height trajectory the pelvis;
- in the takeoff the swining segments's going upwards must be blocked, and start the reverse movement, compensatory.
- to correct these small errors coach have to "invent" the analytical exercise, for the concerned sequence.

References:

[1] YouTube

<http://www.youtube.com/watch?v=ZAgLGLPtOnE> / [Top 10 best triple jumpers of all time.](#)

[2] YouTube

[http://www.youtube.com/watch?v=7n6NhV4CaiU/Javier\\_Sotomayor\\_-\\_World\\_Record\\_-\\_2.45\\_m](http://www.youtube.com/watch?v=7n6NhV4CaiU/Javier_Sotomayor_-_World_Record_-_2.45_m)

[3] YouTube

[http://www.astreamix.com/watch\\_9h0R08qItZo/](http://www.astreamix.com/watch_9h0R08qItZo/). Women's long jump.

[4] YouTube

[http://www.youtube.com/watch?v=ybEs3j\\_MmrA](http://www.youtube.com/watch?v=ybEs3j_MmrA) /  
[Mike Powell vs. Carl Lewis.](#)

[5] Gagea, Adrian; - (2008), Analytical biomechanics.  
Char. Dounias & Co. Greece. (p. 45, 61,74)

[6] Gideon, Ariel; - (1988), Maşina de fabricat  
campioni. Revista Record, p.26, articol tradus /  
Micşan, F. P.

## QUALITY OF CARE EVALUATION TOOLS: PATIENTS' NEEDS ASSESSMENT

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**Abstract:** The focus of this paper is to research the role of care's needs assessment, in improving care services, adult education and formulating agendas for health, social, educational policy and quality based on their own needs and experiences. The scientific research on quality of care process has been carried out within the framework of the Grundtvig Learning Partnership project "M-CARE – Mutual caring—from knowledge to action".

**Keywords:** care, quality, need assessment.

### Defining Quality of Care

The sanitary system is a complex association which emerges and combines multiple heterogeneous and dynamic factors that could be named the *plurality of the medical act*, special competency and professional protagonists, economical-administrative and medical technologies, and the heterogeneity of the results and consequences. All the elements involved in the medical system must be integrated and coordinates to respond to the needs of the patient assuring the best care possible. Like in all systems, the errors can appear, and for many years an optimal secure system for the medical care is researched for the beneficence of the patient.

The evaluation of this system is aimed to prevent the errors: human, organization, control. "*The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.*" is the definition proposed by the Institute of Medicine [1] for the quality of care. Also, the Institute of Medicine [1] proposed the aims that are involved in a high quality medical care: safety, effectiveness by specific knowledge, patient-centered care, time efficiency, and efficiency avoiding waste, promoting equitability for everybody that has a medical need.

Defining the quality of care is a very complex process; it must be based on the traditions, economic capacity of different country, regions (urban, rural area), populations groups (age, sex), social policies, economic background, moments of time, influences from other country etc. An important aspect of care is the involvement of patient in his treatment; a quality treatment should have like results an improvement of function, health, life quality. Health policies are based on the social economics statistics and supports, the basic principle for those are the increasing quality and a healthier population. Everybody speak about the quality of care, that has some output and outcome that are so difficult to classify. The medical care is first of all a human and inter-human relationship, which can bring positive results for all involved parts or can be unbalance and have benefice for only one part involved in this relation.

Patient satisfaction is commonly measured and many researchers consider it an indicator of medical care quality. However, patients may be satisfied with poor quality care [2]. Another way to see the quality of care

is the rate to which the provided care met the patient expectation, high satisfaction does not necessarily imply a high quality of medical act. In medical care interpersonal excellence refers to care that meets the information, emotional, and physical needs of patients in a way that is consistent with their preferences and expectations. Another term for this type of care is "patient-centered care" [3]. One important aspect of interpersonal care is patient involvement in decision making [4; 5; 6;]. Thus, it is important to specify interpersonal aspects of high quality care and ask patients to report about those experiences. It may also be useful to rate the extent to which care met patient expectations, but it is important to recognize that high satisfaction does not necessarily imply high quality.

According to De Lisa [7] the basic qualities of care are definable; quality is always positive, connoting activities that benefit the person served in the short- or long-term. In other words, quality involves achieving desired health outcomes to a degree that is consistent with current knowledge of diagnosis and effective treatment. The Institute of Medicine has defined *quality* as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge [8,9]. A first approximation to measurement of quality in rehabilitation services involves measurement of the degree to which the objectives of care are met for appropriate groups of patients. Quality care involves the following components [10,11]:

-*Choosing appropriate care.* That is, care that optimally addresses the patient's impairments and activity limitations. Diagnosis, planning, and clinical judgment are involved in the attempt to match treatments to patient conditions and to balance likely benefits against possible risks. The treatments chosen should be established as effective for the condition or problem addressed.

-*Implementing it well.* Needed care should be available (access), provided at the most beneficial time (timeliness), in the correct manner (technical correctness), minimizing safety risks. The skills and sustained efforts of individual professionals and the coordination of the clinical team are involved. [7]

Ethical issues are another principal dimension of the quality of care. The disability rights movement insists on empowerment of persons with disabilities,



and rehabilitation accreditation requires patient involvement in decisions about care and placement [12]. Communication, concern, empathy, honesty, sensitivity, and responsiveness to individuals are important [13]. *Quality health care* is based on provision of effective care. Specification of optimally effective care is difficult in a field as complex and broad as rehabilitation, but the evidence basis for rehabilitation is growing and increasingly defined [7]. Explication, implementation, and improvement of guidelines for care are basic to efforts to assure and improve the routine core quality of care. [14]. The guidelines for care are quality care criteria for the evaluation of quality. The scientific literature has also been used to develop evidence-based practice guidelines and to evaluate both the appropriateness of use of procedures and the quality of inpatient care received by patients with multiple conditions [15].

#### **Definition of need**

Clinical aspects of illness can be assessed using standardized needs assessment instruments that measure symptom-based outcomes. Assessment of the impact of an illness on an individual's quality of life, social functioning, and role functioning and service satisfaction requires patient-based measures [16], these underpinning the discussion on assessment schedules and their uses.

Medical Research Council's definition of Needs for Care Assessment according to Brewin [17], comprises:

*-Need is present when:* (a) a patient's functioning (social disablement) falls below or threatens to fall below some minimum specified level; and (b) this is owing to a remediable, or potentially remediable, cause.

*-A need* (as defined above) is met when it has attracted some at least partly effective item of care, and when no other items of care of greater potential effectiveness exist.

*-A need* (as defined above) is unmet when it has attracted only partly effective or no item of care and when other items of care of greater potential effectiveness exist.

All those implied in the process of care need to know many information about the assessment possibilities available and about the evaluation of results after offered care. Those evaluations can be the base for an informed decision to start an efficient care plan. Assessment and evaluation – essentially the translation of the results of assessment into quantifiable or numerical form – are becoming ubiquitous in healthcare [16], thus policy makers assume that assessment and evaluation will improve the clinical and cost-effectiveness of mental health services.

#### **Concept of need**

In 1972, Bradshaw's [18] framework the concept of need in four different ways of thinking:

*Normative need* is defined by reference to 'appropriate' standards or required levels of services or outcomes determined by expert opinion. Individuals or groups falling short of these standards are defined as being in need. But normative need is by no means absolute, as

Bradshaw observes, normative need 'may be tainted with a charge of paternalism'. Moreover, experts may have different and possibly conflicting standards.

*Comparative need* is determined by comparing the resources or services available in one area — be it a community, a population group or individual — with those that exist in another. A community, population group or person is considered to be in 'need' if they have say more health or social problems, or less access to services, than others. The main problem with the concept of comparative need are its two underlying assumptions — first, that similarities exist between the areas and second, that the appropriate response to the 'problem' is to align service levels. This need not hold true, for example, when both areas experience chronic shortages for a particular service. *Felt need* has a subjective element and is defined in terms of what individuals state their needs to be or say they want. It can be defined easily by asking current or potential service users what they wish to have. But felt need by itself is generally considered to be an inadequate measure of 'real need'. For example felt need can be inflated by users' own high expectations. *Expressed need* is defined in terms of the services people use. It is based on what can be inferred about a person or a community by observing their use of services (or waiting lists for services). A community or person who uses a lot of services is assumed to have high needs. While a community or person who does not, is assumed to have low needs. But expressed need is influenced by the availability of services — a person cannot use or put their name down on a waiting list for a service that is not offered.

#### **Assessment of care quality and care needs**

A large number of different assessment tools exist in the area of medical care, and their content varies. No generally accepted classification of care yet exists on which to base such tools that none adequately address all of the domains which are significant for disability care patients. As Owen et al. [19] noted, '*Assessment is a valuable intervention in its own right, and is not just the entry point into service provision*'. The assessment process can provide an opportunity for individuals to articulate their care and support needs, identify issues that need to be addressed in any personal plan, and be used to collect data. Assessments would be person-centred, taking account of people's unique circumstances. The need assessment has important functions [16]:

-To define health and social care needs at an individual level

-To help care planning (need should predict intervention)

-To monitor change in social care needs over time as a measure of the effectiveness of care planning for the individual

-To define health and social care needs at a population level

-To track changes in social care needs within services over time

-To support research and evaluation



-To guide service development and planning

Also the base of medical practice is the research that can give some sense to the idea of quality of medical care and in another sense it gives the possibility to develop an operational definition and valid and reliable measures of quality. Assessments need to be regularly reviewed and updated, as do the effectiveness and acceptability of related care plans. [24]. The information gained through a systematic assessment should be shared with all members of the team involved in the delivery of care; a usual way of achieving this is through a multidisciplinary case formulation meeting that includes the service user and family where appropriate. All participants have the opportunity to reflect on the findings and develop a coherent understanding of the service user's social care needs. They can then work together collaboratively on a consistent set of care plans [16].

#### **Care process measures**

The United Nations has noted the complexity of assessment: *Defining and determining need is easier said than done. It is not value-free, as who determines it, how it is determined and for what purpose it is done, will all affect the outcome. Neither the methods used to identify needs nor the concepts of social needs have been clearly defined.* [20]

Process measures attempt to answer the question: *“did this patient receive the right care,”* or *“what percent of the time did patients of this type receive the right care?”* [14] Care process measures are based on scientific evidence and can reflect the guidelines of treatment, the standards of care, or practice parameters. Quality measures allow the transformation in numbers or percentage of the results from the applied therapy or activities performed for the care process. Assessments that underline the quality of the care process that should be designed starting from rigorous comparing dates, which in the case of disabilities' is the health status of the individual. And also the assessment can be done by the point of view of patient, patient family (especially for child) or the clinician point of view (the clinician can have an objective opinion about the progression of rehabilitation).

Such measures are typically developed based on the known relationship between a process and outcomes, are used because research has demonstrated a link between those processes and important outcomes. [14] Although outcome measures of quality represent the desired end results of health care, validated process of care measures provide an important additional element to quality improvement efforts, as they illuminate exactly which provider actions could be changed to improve patient outcomes. [21]

An important limitation on the usefulness of process measures is that much care is delivered in the absence of compelling evidence of effectiveness. Although there has been extensive work on the development of evidence based guidelines [1], the evidence for many of the specific things that clinicians do is lacking. Researchers increasingly are recognizing that it is not adequate to simply assess individual processes of care,

but rather groups or processes, or “bundles” of activities that need to occur to lead to a better outcome. [14]

It is also important to recognize that for many treatments that are “preference sensitive” whether or not a particular treatment or procedure is appropriate depends on patient preferences [6;15]. Sometimes, processes of care are too complicated for completely explicit criteria. For example, determining when a problem occurred or when an adverse event was preventable, may require some clinical judgment [22].

#### **Best practices in care needs assessment**

After Eagar K et al. studies of carer needs 'in general' are mostly population surveys or studies reported at the level of small scale local surveys and anecdotal reports. Relatively few studies at the smaller scale on general needs are published in the academic literature. They are intended to highlight carer issues for the formal support systems and produced in the form of reports [23]

It is important to understand that carer needs can change, depending on health, ageing, family or carer circumstances or sudden emergencies. Service providers should allow, as far as possible, flexibility in service delivery arrangements to meet the fluctuating needs of people, especially in times of crisis or emergency. [24]

Assessment is a process of relationship building which occurs over time as a person's needs change, become more evident or they become more receptive to intervention. In this sense, assessment is usually not a one-off event, but an ongoing process of building trust and understanding. An assessment approach is a facilitative process which actively encourages people to define their own needs, goals and the manner in which services can assist to meet those needs. [24]

The exchange model of assessment [25] envisaged a situation where the professional negotiated with the user to obtain agreement about the support required and who was going to provide it. Drawing on the experience of the community care demonstration projects, Challis et al. [26] pointed to the fact that assessment involved engaging the person and forming a relationship with them.

All the reviews covered similar domains in examining the concepts of burden, stress, depression and quality of life, physical and psychological well-being, social life, work life, and financial situations. [23] The reviews that paid particular attention to the development and use of carer needs assessment instruments referred to the same issues and domains. [27]

Standards for health care (based on knowledge, ethic and ethnic characteristics for different population groups) create a roadmap for improving and refining initiatives. After our knowledge such organisms that can assure and improve quality in care area do not exist in our country, even an organization like this it is very necessary. [14] In United States, since 1990, exist a *National Committee for Quality Assurance*, a not-for-profit organization dedicated to improving health care quality. By working in strong relation with employers,

policymakers, doctors, patients and health plans is mission is to decide what aspect of care quality are most important and developing measures of those aspects of care. [14] This organization is an example of good practice regarding the way new standards and evaluation can be used in order to identify lacks and also opportunities to improve the care, based on the cultural particularities and possibilities from a region/country. For example a platform named *Healthcare Effectiveness Data and Information Set (HEDIS)* is a widely used set of performance measures in the managed care industry, developed and maintained by the National Committee for Quality Assurance (NCQA). Conform the HEDIS measures are divided into eight "domains of care": [28, 29]: effectiveness of Care; access/Availability of Care; experience of Care; health plan stability; utilization and relative resource use; informed healthcare choices (availability of new member orientation, education, language translation services, etc.); health Plan Descriptive Information. [14]

### Conclusions

The patients' needs assessment helps for the development of health plans and health systems, evaluating their current ability to meet the needs of adults with functional limitations and to identify strategic opportunities for improvement. [30]

Care quality assessment should involve active engagement of and collaboration with service users and their families Assessments should be: tailored to meet individual requirements of service users be user-centred, culturally sensitive, strengths-based rather than deficits-directed, multidisciplinary and reflective, comprehensive, drawing on multiple sources of information, continuous/ongoing and subject to multiprofessional review, conducted where the service user feels most comfortable, systematic and repeatable. It has an important role in determining the allocation of allowances and personal assistance, particularly in evaluating an individual's potential for professional and social rehabilitation and reintegration has the multidisciplinary team approach for the patient [31]

The cultural particularity of this approach type is at the beginning in Romania, and especially in the big hospitals and clinics from the urban developed areas, and there is still a tremendous need for more work in measuring and improving the quality of care in the Romania.

### References

- [1] Institute of Medicine. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington D.C.: National Academy Press.
- [2] Cleary, P. D., & McNeil, B. J. (1988). Patient satisfaction as an indicator of quality care. *Inquiry*, 25(1), 25-36.
- [3] Cleary, P. D., Edgman-Levitan, S., Roberts, M., Moloney, T. W., McMullen, W., Walker, J. D., et al. (1991). Patients evaluate their hospital care: a national survey. *Health Aff*, 10(4), 254-267.
- [4] Barry, M. J., Fowler, F. J., Jr, Mulley, A. J., Henderson, J. V., & Wennberg, J. E. (1995). Patient

reactions to a program designed to facilitate patient participation in treatment decisions for benign prostatic hyperplasia. *Med Care*.

- [5] Braddock, C. H., Edwards, K. A., Hasenberg, N. M., & et, a. (1999). Informed decision making in outpatient practice: time to get back to basics. 282, 2313-2320.
- [6] Sepucha, K., & Mulley Jr, A. G. (2009). A perspective on the patient's role in treatment decisions. *Med Care Res Rev*, 66, 53S-74S.
- [7] DeLisa, Joel A.; Gans, Bruce M.; Walsh, et all. (2005) *Physical Medicine & Rehabilitation: Principles and Practice*, 4th Edition, Lippincott Williams & Wilkins
- [8] Lohr KN, Donaldson MS, Harris-Wehling J. Medicare: a strategy for quality assurance. Quality of care in a changing health care environment. *Qual Rev Bull* 1992;18:120-126.
- [9] Lohr KN, ed. Medicare: a strategy for quality assurance. Washington, DC: National Academy Press, 1990.
- [10] Blumenthal D. Quality of health care: Part 1: Quality of care"what is it? *N Engl J Med* 1996;335(12):891-894.
- [11] Brook RH. Quality of care: do we care? *Ann Intern Med* 1991;115:486-490.
- [12] Commission on Accreditation of Rehabilitation Facilities. Medical rehabilitation standards manual. Tucson: CARF, 2002.
- [13] Donabedian A, Palmer RH. Considerations in defining quality of health care. In: Palmer RH, Donabedian A, Povar GJ, eds. *Striving for quality in health care*. Ann Arbor, MI: Health Administration Press, 1991:1-53.
- [14] Cleary P. D., O'Kane M. E. <http://www.esourceresearch.org> Evaluating the Quality of Health Care
- [15] Brook, R. H., McGlynn, E. A., & Cleary, P. D. (1996). Quality of health care. Part 2: measuring quality of care. *N Engl J Med*, 335(13), 966-970.
- [16] Davenport Sarah (2006) Ensuring the community cares: assessment and evaluation of social care needs in long-term mental illness, *Advances in Psychiatric Treatment*, vol. 12, 45-53
- [17] Brewin, C. R. (2001) Measuring individual needs for care and services. In *Measuring Mental Health Needs* (ed. G. Thornicroft) (2nd edn), pp. 283-290. London: Gaskell.
- [18] Bradshaw, J. (1972) 'A taxonomy of social need', in G. McLachlan (ed.) *Problems and Progress in Medical Care*. Oxford: Oxford University Press
- [19] Owen A, et al (2005) Carer Eligibility and Needs Assessment for the National Respite for Carers Program: Consultation Paper. Centre for Health Service Development, University of Wollongong. <http://www.uow.edu.au/commerce/chsd/cap.html>
- [20] Productivity Commission (2011), *Disability Care and Support*, Inquiry Report no. 54, Volume 1, Canberra.
- [21] Rubin HR, Pronovost P, Diette GB. (2001) The advantages and disadvantages of process-based

measures of health care quality, *Int J Qual Health Care*. Dec;13(6):469-74.

[22] Sullivan, A. F., Camargo, C. A., Cleary, P. D., Gordon, J. A., Guadagnoli, E., Kaushal, R., et al. (2007). The National Emergency Department Safety Study: Study rationale and design. *Acad Emerg Med*, 14(2), 1182-1189.

[23] Eagar K et al. (2007) *Effective Caring: a synthesis of the international evidence on carer needs and interventions*. Centre for Health Service Development, University of Wollongong

[24] [www.health.vic.gov.au/hacc](http://www.health.vic.gov.au/hacc) (2011) Strengthening assessment and care planning, A guide for HACC assessment services in Victoria

[25] Smale, G. and Tuson, G. (1993) *Empowerment, Assessment, Care Management and the Skilled Worker*. London: National Institute of Social Work

[26] Challis, D., Darton, R. and Johnson, L. (1995) *Care Management and Health Care of Older People*. Aldershot: Ashgate Publishing

[27] Guberman N, Nicholas E et al (2003) *Impacts on practitioners of using research-based carer assessment tools: experiences from the UK, Canada and Sweden*

*with insights from Australia*. Health and Social Care in the Community Vol 11, No. 4, pp. 345-355.

[28][http://blackboard.fresnocitycollege.edu/courses/1/HIT-12-26552-2013SP/content/1882003\\_1/HIT%2012%20article%20C4%20MCO%20Data.PDF](http://blackboard.fresnocitycollege.edu/courses/1/HIT-12-26552-2013SP/content/1882003_1/HIT%2012%20article%20C4%20MCO%20Data.PDF)

>WhatIsHEDIS>[What is HEDIS?](#) Washington, D.C.: National Committee for Quality Assurance. Accessed 2009 Apr 25.

[29] [HEDIS 2009 summary table of measures, product lines and changes](#). Washington, D.C.: National Committee for Quality Assurance, 2008. Accessed 2009 Apr 25.

[30] Disability-Competent Care Self-Assessment Tool, [sloehrer@ihi.org](mailto:sloehrer@ihi.org), [http://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination-Office/Downloads/DCCAssessmentTool.pdf](http://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/DCCAssessmentTool.pdf)

[31] Council of Europe, 2002, Reprinted March 2003 *Assessing disability in Europe – similarities and differences,, Integration of people with disabilities*, [http://www.coe.int/t/e/social\\_cohesion/soc-sp/4744-2%20Assessing%20Disability%20in%20Europe%20%E%2004%2002%20Reprint.pdf](http://www.coe.int/t/e/social_cohesion/soc-sp/4744-2%20Assessing%20Disability%20in%20Europe%20%E%2004%2002%20Reprint.pdf)