

THE INFLUENCE OF PHYSICAL EXERCISE ON SOME ANTHROPOMETRIC PARAMETERS

Florin NEFERU

University C-tin Brâncuși, Tg.Jiu

Abstract

Physical education and sport are identified by many experts, as indispensable for affirming the individual's personality. The development of motor, intellectual and moral skills through physical education and sport is a right and should be mandatory within the educational systems. The study has proposed the validation of fitness programs in order to remodel the body of 50 students (aged $20 \pm 1,5$ years). For 6 months, the subjects have participated in work programs that included specific means of fitness. At the end of the experiment an improved body mass, body mass index and chest-hip ratio was highlighted. Thus, fitness exercises can be successfully used in physical education lesson, giving it attractiveness and efficiency.

Keywords: fitness, body mass, students

Introduction

Physical shape is considered an indicator of vitality and youth and, as such, it is desired and appreciated both in professional and everyday life. A body modeled after existing templates, specific to a certain period of evolution of society is desirable for most individuals. This can be achieved through Physical exercise, one that can interfere with objective stimuli on certain body segments or on the entire body. The effect of movement on the individual is manifested through a substantial contribution to developing and maintaining functional capacity, keeping body structures and limiting their deterioration due to age and lack of stimulation. Analyzing the effects of Physical exercise on students body, Tremblay and Chiasson [1] state that these are much higher on the adiposity of those who practice fitness, than are perceived generally by specialists and health agencies.

Physical development of young people is a matter of strict actuality, our interest particularizing especially on students in the first years of college, on the biological significance of indices and parameters determinant of good health, reason for which we intend to demonstrate the need for specific means using bodybuilding as a form of maintenance and selective influence of the musculoskeletal system, but also as an effective body reshaping.

Proscribing sports exercise is a fact in our country, putting this to a lack of culture for movement, which should be cultivated since childhood. [2]

Placing the movement of human activity in an educational context, holds as an argumentative foundation the close ties it can develop, along with those of major biological functions with mental processes and especially with the cognitive ones [3]

Methods

For 6 months, 50 subjects ($20 \pm 1,5$ years) participated in fitness and bodybuilding lessons 2 times a week, each session lasting 60 minutes.

The programs were individualized based on the weight of the need and the driving experience prior to each subject, aiming at two major goals based on constitutional type ie decreasing body fat and / or muscle tissue mass growth.

The exercises were generally loaded (with many repetitions), aiming at muscular hypertrophy, the workload being high. Each subject was given at each meeting a worksheet where weight and exercises dosage was different, depending on the objective (to increase muscle mass and / or decreasing body fat).

The research subjects were tested before the implementation of work programs and at the end of the experiment, monitoring their progress.

The evaluation consisted in the measurement of weight and waist, according to which the body mass index was performed and the waist-to-hip ratio was calculated. Waist-hip ratio is used increasingly particularly in health, for predicting the risk of cardiovascular or metabolic diseases.

Inclusion criteria were established for the experimental research as follows:

- age 18-20 years
- BMI <30,
- TA and FC age appropriate limits,
- Without neuromuscular disorders,
- Participating in the exercise program,
- Participants who follow the rules imposed by the appropriate conditions, thus limiting errors.

Exclusion criteria established for the experimental research were:

- Metabolic syndrome
- Diabetes,
- Neurological pathology,
- hypertension,
- Orthopedic disorders,
- Subjects participating in specific sports workouts.

Results

Tabel 1. Descriptive statistics for body mass T1

	N	Min	Max	Mean	Stdv	Cv
weight	50	58.70	97.3	70.112	10.23	14.60
Valid N	50					

50 of the analyzed students, recorded an average body weight of 70.11 (± 10,23kg). The coefficient of variation indicates a relatively homogeneous group (14.60%), the body weight is one of the indicators that provide information on health status, this indicator values ranging between 58.70 kg and 97.3kg, reporting the ideal weight (weight- 100), with 16 subjects and 10 exceeding these values falling below this threshold.

Tabel 2. Descriptive statistics for body mass T2

	N	Min	Max	Mean	Stdv	Cv
weight	50	58.00	94.6	68.92	9.42	9.60
Valid N	50					

On the second test, the body mass was 68.92 (±9,42 kg), only 8 students surpassing the ideal values and 5 being under the recommended scale, the latter improving muscle mass and have won in what body mass is concerned.

The body mass index has an average value of 23.36 (± 2.10) to values which lie between 20 to 32 (Table 3). This parameter is within the normal range recommended by the World Health Organization, though there are 10 subjects that exceed the maximum (25) and 2 which are categorized as obese (values greater than 30), according to data given by this higher forum. The coefficient of variation indicates a homogenous group.

Tabel 3. Descriptive statistics for BMI T1

	N	Min	Max	Mean	Stdv	Cv
BMI	50	20	32	23.51	2.50	10.64
Valid N	50					

Tabel 4. Descriptive statistics for BMI T2

	N	Min	Max	Mean	Stdv	Cv
BMI	50	20	32	22.93	2.06	9.01
Valid N	50					

Waist-hip ratio (WHR), a parameter that I followed in selecting subjects for the final experiment showed an average of 0.86, this parameter fitting in the normal range indicated by WHO but there are 12 subjects that exceed the maximum of 0.90. The group is homogeneous, the coefficient of variation being 9.73. At the final testing, this aspect has improved, WHR ratio being 0,86

WHR ratios reported at values below:

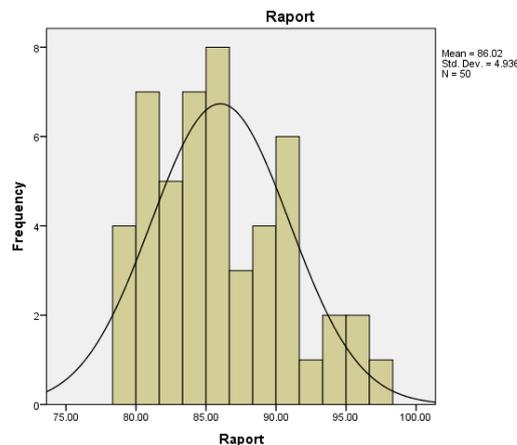
- Excellent acceptable- under 0.85;
- Well 0.85-0,90;
- Inacceptable- average from 0.90 to 0.95;
- Large 0.95 to 1;
- extreme is 1

Tabel 4. Descriptive statistics for WHR T1

	N	Min	Max	Mean	Stdv	Cv
WHR	50	0.78	0.97	0.86	4.93	9.73
Valid N	50					

Tabel 5. Descriptive statistics for WHR T2

	N	Min	Max	Mean	Stdv	Cv
WHR	50	0.82	0.96	0.84	4.22	5.92
Valid N	50					



Graph 1 WHR T1

Conclusions

O'Donoven G. & authors [4] recommends for a healthy adult to perform at least 150 minutes of moderate aerobic physical activity with effort every week or at least 75 minutes of high intensity. Weight training, circuit and other complementary exercises aerobic activity are preferred. Also to support their physical condition, people who have crossed the threshold of initiation and doing sports at least 6 months can get benefits on health line by performing physical activity for 300 minutes per week at a moderate intensity

. They recommended exercises with weights 2 times / week as they can improve muscle elasticity.

Regardless of the number and complexity of daily problems, good physical condition gives an increased satisfaction to sports activities, develops muscle strength, can positively influence both the aesthetic appearance of youth and the functional one, many experts saying that the highest increases in force development are recorded at the age of 20-30

years, fitness being one of the subjects acting in this direction. The work programs applied have proved their efficiency, the indices monitored being positively influenced by the means used. Thus, the proposed fitness program can be extended to a larger group.

References

- [1]. Tremblay A., Chiasson L., (2002), Physical fitness in young college men and women, *Canadian Journal of Applied Physiology*, vol.27, nr.6, pp.563-574
- [2]. Marcu V., Ciobanu D., (2009), *Exercițiul fizic și calitatea vieții*, Universitatea din Oradea, pag 137
- [3]. Neagu N., (2010), *Teoria și practica activității motrice umane*, Ed. University Press, Tg. Mureș, pg.19
- [4]. O'Donoven G.&all, (2010), The ABC of Physical Activity for Helth: A consensus statement from the British Association of Sport and Exercice Science, *Journal of Sport Sciences*, 28:6, 573-591.