DEVELOPING THE AGILITY OF JUNIOR FOOTBALL PLAYERS THROUGH SMALL SIDE GAMES (SSG) WITH HIGH INTENSITY

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Abstract
The paper highlights the use of small side games (SSG), in which junior football players A worked at high intensity and managed to successfully cope with the anaerobic effort of strength training days, especially explosive strength (MD4), the predominant ones were accelerations and decelerations, changing the direction of running in a duel with the direct opponent, but also specific game situations of speed, especially starting speed (MD2). The first part, the theoretical one, demonstrates the usefulness of a training method according to an effective tactical periodization model, in which authors in the field of performance football recommend the need to train athletes to be able to withstand intense efforts as long as possible.
The practical part shows significant increases in training through dueling exercises in small spaces (SSG), which comes from participating in *Agility Tests with the Blaze Pod System*. This is the first Flash Reflex training system for all players, featuring sensor pods, built-in connectivity and lighting that guides users' workouts. The second test was the *Agility Test T*, which measures the athlete's ability to accelerate and decelerate in all directions (forward-backward, left-right), which we performed as standard but also with the ball. The ball test was carried with the ball driving, the movement being carried out in the same way, except for the last 10m, when the movement was carried out in the forward direction.
In conclusion, it was found that the development of speed and agility of football players would create the conditions for achieving high performances. The exercises used increased the explosive power of the lower body, thus the ability to accelerate, change direction and quickly decelerate could increase the players' chances of win one-to-one duels or execute technical procedures of attack and defense effectively in a match. Thus, the device used by us to investigate the reactive agility of junior football players (Blaze Pod) represents a recent visual-cognitive technology that can be successfully applied in monitoring the training of junior soccer players.
Keywords: *football, juniors, explosive strength, speed, agility.*

Introduction

In addition to the publications showing analyzes and researches carried out through scientific approaches with direct interest for the sports team, football is constantly in the attention of the media and implicitly of an informed public (Feuerhake, 2016). Consequently, obtaining valuable results is conditioned by the identification and application of a complete organizational concept in training and competitions, based on the principles of respecting individual and collective tactical ideas.
Against the background of a general athletic training based on specificity, the individualization of training - with specific structures and in accordance with the reality of the game - will lead to an increase in the quality level of the player and ultimately of the entire team. (Stoica & Barbu, 2014).
The dynamism of the modern football game means physical exertion in the athletes' body through a large number of technical-tactical actions performed at speed. Baranovič & Zemková (2021) believe that football coaches and sports scientists working to improve the football players' speed of movement should be aware that linear sprints and sprints with changes of direction reflect different abilities.
In their research, the authors Dos'Santos et al (2019) report that a six-week training season to modify technique and speed of direction changes (with the use of external verbal training cues and feedback) resulted in

significant improvements in the reduction of the time to complete motor actions and direction changes in both directions, in addition to strength training. Barbu (2012) points out that the specific force is highly required in today's football, due to the demands made at maximum speed and the resistance to anaerobic effort.

Agility and speed of change of direction are determinants of success in football, but there is an apparent lack of information regarding reliable and valid testing procedures specific to football, as these qualities are influenced by various neurological factors. As a result, training programs aimed at improving these qualities need to be oriented towards achieving a precise and efficient movement technique simultaneously with the development of conditional capacities, which (theoretically) contribute to supporting reactive agility and speed of change of direction, capacities that ensure physiological background (ie, the need for rapid strength development). (Krolo, et al, 2020).

Research has shown that football players make approximately 700 changes of direction with different intensity during a game, 600 of which of direction are 0–90° turns (Bloomfield et al., 2007). They require special physical training, so that the morpho-functional support can sustain these technical actions, which involve the manifestation of a high level of agility, especially in small spaces (Stoica & Barbu, 2019).

Based on the results of the research carried out, the authors Ascenzi. et. al (2020) found that faster players are more efficient than slower players, and the loss of speed caused by executing changes of direction proved to be a key benchmark for identifying deficits between linear performance of their execution.

Andrašić et al. (2021) point out that reactive agility and speed of direction changes are key skills required for success in football based on higher levels of motor control. Their findings demonstrate that on-field tests including speed, change-of-direction speed, and reactive agility are sensitive enough to differentiate between a group of adolescent football players.

The aim of the research was to validate a work program that includes exercise structures for the development of agility and specific strength, applied to junior football players with the intention of optimizing their level of physical training assuming a direct effect of efficiency of technical-tactical actions in the fight directly with the opponent.

Methods. Participants

The research was conducted at the level of junior football players A including 20 subjects (male, aged 16±1.5 years) and aimed to increase their performance in order to develop specific force through small side games. In order to validate the purpose of the research, we created work programs, which were applied to the athletes included in the research so as to contribute to the development of the specific agility and strength of the football player with a specific effect in the direct fight with the opponent and in achieving a better manifestation of the player in all game situations.

Procedures

The tests method was used in order to validate the work programs proposed and applied to the research subjects and was carried out in the form of initial and final tests (before and after the application of the exerciseT).

Agility was tested with the BlazePod system, the world's first Flash Reflex training system for everyone, featuring pods with sensors, connectivity and built-in lighting that guides users' workouts. As each bridge lights up, it prompts the user to move.

The pods are designed to seamlessly integrate into exercises, pushing users to work on reaction time and reflexes, as well as agility, speed, balance and endurance.

De Oliveira et al. (2021) validated this visual-cognitive technology, which had been developed by Play Coyotta Ldt, Israel, as the BlazePod offers good reliability (ICC, 95% CI = 0.82, 0.59–0.82) and very acceptable variability (CV, 95% CI = 3%, 2%–4%) of the response time.

BlazePod is an interactive professional fitness training program that combines immersive lighting devices and an intuitive smartphone app with hundreds of activities. BlazePod's

fitness training program consists of touch sensors and a smartphone app.
We used the T agility Test, which measures the athlete's ability to accelerate and decelerate in all directions (forward-backward, left-right), which we performed as standard but also with the ball.

The ball test was performed with the ball driving, the movement being carried out in the same way, except for the last 10m, when the movement was carried out in the forward direction.

Fig. 1. The representation of Agility Test 1- with the ball (BlazePod)

To make the figures and tables, it was used both the Microsoft program and SPSS, v.21 (for making the pods). The exercises used, as well as the planning of the sports training were done through the Tactics Manager program, to improve the performance of the game.
Here are the specific modern exercises used to train the football player on days when it is aimed to specifically develop strength (MD4) and speed (MD2):

- ***Positional games and small side games used to develop strength***

➢ 1 vs 1 Duel - Beat the defender and score
➢ 1 vs 1 Duel with frontal pressure
➢ 1 against 1 Duel – Receiving the ball widely + 1 against 1 against the goalkeeper
➢ 1 against 1 Duel – Receiving the ball with your back to the goal
➢ 1 vs 1 Duel + 1 vs 1 against the goalkeeper
➢ 1 vs 1 Duel + 1 vs 1 against the goalkeeper in the penalty area
➢ Continuous 1vs1 duels – Receiving the ball with your back to the goal and finalization
➢ Continuous duels in 4 fields
➢ 1vs1 Duel - Sprint, ball protection and finalization
➢ 2 Phases - 1vs1 Duel on the flank with transition play
➢ Training through 1 vs 1 duel circuit

Results

Table 1. *Total agility test results - Test 1 (without ball)*

	Agility total T1 (s)	Agility total T2 (s)
Arithmetic average	13.59	12.35
Standard deviation	1.31	0.78
T1-T2 difference	1.24	
The confidence interval	0.79-1.68	
t	5.86	
p	0.005	

The table above shows the results recorded through the Blazepod device. At the initial testing (T1), the total agility in Test 1 recorded an average value of 13.59 (±1.31s), with values between 11.86 and 16.57s. After the application of the work programs, the average of the group was 12.35 (±0.78s) and the values at the final test (T2) were between 11.10-13.89 seconds.
The difference between the two averages (T1-T2) was 1.24s. Applying the t-test for dependent samples, a value of t= 5.86 ($p<0.05$) was recorded.

Table 2. *Total agility test results - Test 2 (with the ball)*

	Agility total T1 (s)	Agility total T2 (s)
Arithmetic average	18.01	16.14
Standard deviation	1.37	1.04
T1-T2 difference	1.87	
The confidence interval	1.49-2.25	
t	10.27	
p	0.000	

The table above shows the results recorded by the Blazepod device in the ball agility test. At the initial testing (T1), the total agility in Test 2 recorded an average value of 18.01 (±1.37s), with values between 14.93 and 16.14s. After the application of the work programs, the average of the group was 16.14 (±1.04s) and the values at the final test (T2) were between 14.49 and 17.71 seconds.
The difference between the two averages (T1-T2) was 1.87s. Applying the t-test for dependent samples, a value of t= 10.27 was recorded, which falls within a significance threshold of $p<0.05$.
Spearman correlation coefficients highlight that total agility, measured with the Blazepod system, correlates positively with the ball agility test ($r=0.492$, $p<0.05$).

Discussion and conclusion

As players are promoted to the senior teams at this age, there is a need for them to possess skills that will help them integrate first into senior training so as to be useful solutions for senior coaches at any time, thus proving that they can contribute to the progress of the team.
In their study Cosma et al. (2017), Moreno-Azze et al. (2021) show that coaches can directly include some specific guidelines to improve strength performance and reduce inter-limb asymmetries. As team sports mainly depend on unilateral force application, there is evidence to support the principle of specificity: unilateral training should be included.
The construction of the player model endowed with skills and abilities specific to his team is done over time. The player will have the characteristics and adapt easily to the needs required in the official game only if he proves that he can cope with the offensive / defensive demands and with the transitions according to the game model that has first been practiced during the training. The exigency in training will lead to the fulfillment of the proposed performance objectives and only the players with a higher level of the motor qualities and skills specific to football will stay long on the list of the performance teams. Tactical actions with the ball and without the ball executed with a speed corresponding to each situation can create an important advantage for the team, a fact that leads us to affirm that choosing the optimal solution to solve the situation is extremely important. (Barbu, & Stoica, 2020).
We believe that developing the speed and agility of football players would create the prerequisites for achieving high performance. Authors França. et al (2022) indicate that explosive strength of the lower body is a significant predictor of speed and agility

capabilities in adolescent male football players.

The importance of improving parameters related to agility and explosive strength is also supported by Trecoci et al., (2016), who claim that the ability to accelerate, change direction and quickly decelerate could increase players' chances of winning one-to-one duels or to execute technical defense procedures effectively in a match. Thus, the device used by us to investigate the reactive agility of junior football players (BlazePod) represents a recent visual-cognitive technology, connected to the phone, which can be successfully applied in monitoring the training of junior football players.

It is extremely important for the football player to be equally proficient (balanced / symmetrical) and quickly change direction ambilaterally, given the unpredictable nature of the game and its agility requirements. (Dos Santos et al., 2019).

Starting from the statement of Pojskic et al. (2018), which emphasizes the absence of football-specific reactive agility tests, which involve specific "give and go" movement patterns and the technique of driving the ball, we applied in our research a new precise form of evaluation of football players' agility, adapting the tests offered by the BlazePod system for the specifics of the sports domain. Consequently, the T-test of agility was also performed with driving the ball, thus including more cognitive stimuli (light sensors and ball control) in testing reactive agility.

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