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The development of speed, agility and coordination in young football players of the U12 category

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Abstract: Physical training has been given special attention in recent years in the world of high-performance sports in general and in football in particular. In the context where we are witnessing a standardization of technical-tactical values, many times the level of physical training is what makes it possible to tie the teams. Sports performance has progressed a lot, we meet more and more often performances that in the past seemed impossible to achieve, but currently this fact is possible thanks to the accumulation of several factors such as: streamlining the selection process, modernizing the materials and facilities used in training and competition, the improvement of training methodologies, better trained specialists and the direct involvement of science in the sports training process. Thus, the current study proposes the development and application of training cycles centered on the development of speed, agility and coordination in children under 12 years old who practice football. To evaluate the results, a battery of tests was prepared that includes specific evaluations for each motor quality considered. The results show that the selection of means and methods aimed at developing speed, agility and coordination/skill are essential in the training process of young footballers, and the applied training cycle gives very good results for the analyzed age group. All the athletes improved their results between the initial and the final testing period, which indicates a maximum effectiveness of the training.

Keywords: physical fitness, sports performance, motor quality, training program

Introduction

Physical activity is one of the essential components of human existence which, together with intellectual activity, ensured the uniqueness of our species on the evolutionary path of the biosphere. Starting from the principle of the father of modern Olympism, Pierre de Coubertin, according to which "*sport must bring calm, philosophy,*

health and beauty", Joffre Dumazedier comes to the conclusion that in capitalist society things are just the opposite, sport being dominated by the specter of spectacle and that of profit (Dumazedier, 1967).

Physical training has two main purposes: increasing the athlete's physical potential, and the second is aimed at maximizing the biomotor skills specific to the practiced sport. In a periodized training plan, physical training is carried out according to a sequential scheme (Table 1).

Table 1. Sequential approach to physical training development (Bomba and Haff, 2009)

Training stage	The preparatory stage		Competitive stage
Development stage	1	2	3
Duration (weeks)	≥ 3	≥ 6	≥ 4
Objection	1.Initiation of general physical training	1.Initiation of sport-specific training 2.Improving specific skills	1.Improving specific skills 2.Maintenance of the physiological base

The training of athletes involves the preparation of the body, both from the point of view of increasing the morpho-functional indices, and as a psychological preparation to support continuous efforts and intensity (Papp et al., 2019). Physical training in sports, whether individual or team, has a very important role, the other components being influenced by its level. In the specialized literature we find many definitions of physical training, such as: *"The organized and hierarchical ensemble of training procedures aimed at the use and development of the athlete's physical qualities. It must be permanent at the different levels of sports training and be put at the service of the priority technical-tactical aspects of the activity"* (Marinău, 2021).

The growth and development of children is one of the problems with a particular theoretical and practical significance. Working with juniors during growth spurts is often a difficult time for coaches. Girls go through growth spurts around the age of 12, while boys start feeling them a little later, around the age of 13-14 (Marinău, 2016). The main reference elements regarding the orientation of the training of young athletes are the clear determination of the training models reported both at the level of the development of the sports branch at the given time (Alexe, 1972). At the junior level, training must take into account several aspects, ensuring the satisfaction through movement of a permanent emotional sphere and as rich as possible, skills constituted in attracting and maintaining systematic sports activity (Erdely et al., 2020)

Physical training must be a priority objective of the training of young athletes, so that it becomes a solid base for their further sports activity. In-depth knowledge of the psychomotor characteristics of children classified as junior athletes is necessary because they should not be treated as miniature adults but on the contrary, in their preparation they should be acted upon with means and methods adapted to their possibilities and needs. Modeling in the training of young athletes can be done knowing the structure-characteristics of the competitive effort in football (Bulz et al.,

2022; Ilieș and Caciora, 2020). In practice, it operates with several models, morphologically, data related to waist, weight, length of segments; functional related to effort capacity, the specifics of the game request; the technical-tactical complex of game actions of each player; of training aiming at characteristic elements of the pedagogical training process; competitive, processing data obtained during the game; Testing; motor, highlights the values of the player's general and specific motor qualities.

The multiple somatic, physical and mental transformations have serious repercussions in terms of sports training in each age category. Throughout the junior period, however, a parallel development of coordination (fundamental and specific technical gesture) with physical condition must be attempted, with the amendment that the sensitive phases (optimal periods) of development of each form of manifestation of motor qualities will be taken into account (Cometti, 2002).

The means of preparation are made in a new form, which requires some methodical clarifications of their application and interpretation. When we talk about the physical factor, it is absolutely necessary to talk about the psychological factor, calling it the psycho-physical factor (given the fact that any movement, action, displacement of the body in a direction also requires a mental effort) (Aubert, 2002).

Speed, agility and coordination

The traditional view of speed performance has been that sprinters are born and not made. Although some aspects of sprint performance depend on genetic factors, the consensus on this point has changed in recent years and it is now recognized that speed skills can be trained (Bompa and Haff, 2009).

In an attempt to resolve these debates, there is a growing body of data indicating that both change-of-direction performance and reactive agility can be developed through appropriate training interventions. Various studies have shown that the mechanics of movements that constitute change-of-direction activities are amenable to change through training and appropriate practice of movement skills in a way that reduces injurious loads on the lower limbs and also confers performance improvements (Adil et al., 2018; Gamble, 2012).

Agility is the ability to change the direction of the body efficiently and quickly, and to achieve this, the athlete needs a combination of: balance, coordination, strength and speed. It is very important when it comes to soccer players (Robinson and Owens, 2004). Not only because it is a main component in making passes, dribbling, but it also helps prevent injuries. Optimal activation and inhibition of muscle fibers can prevent muscle tears and even more prevent joint damage. Jullien et al. (2008) point out that short-term agility training, lasting no more than 3 weeks, can improve agility test scores in soccer players. It is also important to note that agility training forms a long-lasting response from motor memory. The ability to control body movement in cooperation with the body's sensory functions, for example catching a ball (ball, hand and eye coordination) (Mackenzie, 2000).

Skill is a complex motor quality, which is found in many situations in combination with other motor qualities, skills and abilities. The content of the skill, the mechanisms of its improvement have not been fully elucidated, a fact that is

reflected in the imprecision of the definition, in the multitude of terms used for this quality: ability, skill, coordination and so on (Pandey and Chaubey, 2015).

Manno (1996) notes that good coordination is "*the necessary condition for the most faithful execution of the motor model (program), which in turn depends on the precision of the information coming from the analyzers, whose integrity and level of training plays a determined role here*".

Development of qualities specific to the U12 age

For a long time, specialists in the field have been looking for an answer as close as possible to the truth about the optimal age for the development of motor skills. There is no lower age limit for starting the development of motor skills. There are only methods and means appropriate to this period of more intense development and relative stagnation (Lovell et al., 2015; Saward et al., 2020).

In relation to this conclusion, some clarifications are required regarding the optimal age at which intensive action can be taken to develop each motor quality (Mitra and Mogoş, 1977).

Abilities and skills develop in an order that depends on when they are required. Physical capacities and abilities have their own biological rhythm of development, which must be respected. Therefore, they must be requested at the right time: not before, because this is not possible, and not later, because it can be useless (Rădulescu et al., 2003).

In recent years, studies in the field of physical education and sports for children have mainly focused on the detailed knowledge of the various stages of physical learning (Markovic et al., 2020). Some of these studies have highlighted the existence of more favorable biological periods for the development of specific capacities. In the specialized literature, several authors define these periods as key stages or magical moments.

The most favorable period in which a development peak can be observed is between 7-12 years. The pace of development slows down after this stage, and adaptive stimuli no longer elicit appropriate responses. This hypothesis, tested experimentally, leads to the idea that the plan for development in this period of evolution must be drawn up with great care (FRF, 2018).

After a sudden increase up to 10 years, between 10-12 years it stagnates, 13-14 years presents the most favorable conditions for the development of speed because there is a balance between excitation and inhibition at the level of the cortex. From a technical point of view we find a high frequency of steps with a small length. To ensure total involvement, the most suitable methods are relays, races, and the total volume per training session should not exceed 120-240 m (Pradet, 2001).

One of the main aspects of technical training is the relationship between technique and coordination, expressed by the technical and coordination factor. A very important aspect, which we also mentioned in the previous section, is that in children's football, the performance depends substantially on the degree of mastery of specific techniques, which correlates with the development of coordination capacities (FRF, 2018).

Materials and methods

In the framework of this work, we aimed to highlight the importance and necessity of preparing these qualities (speed, agility, coordination/skill) for the football game; both through specific and non-specific means for football, knowing the particularities of age.

The judicious application of the means and methods of developing speed, agility and coordination will significantly improve the indications of their manifestation in a group of young football players aged 10-12 years, in the pre-competitive period.

In this idea, we set out to design, apply and evaluate a training program for a total of 16 players. They carry out their activity at a professional football club, having training sessions and official matches on a regular basis. The target group used in this study have an average age of 11.14 years, a standard deviation of 0.86, and from an anthropometric point of view, they present the following data: the average weight is 38.05 kg with a standard deviation of 2.89, height 145.93 cm with a deviation of 4.67.

Tests used

1. The "L" test

Was used in order to monitor the development of the athlete's speed of acceleration and deceleration with the change of direction. The "L" test is also known as the "Three Cone Test" (Mackenzie, 2012).

2. Speed running 4x10 meters, starting from the feet (Shuttle 4x10 m)

It considers the evaluation of speed with changes of direction, combining muscle strength, explosive strength, starting force, acceleration and deceleration.

2.1. Sprint 4x10 meters, starting from the feet, with a ball (Shuttle 4x10 m)

For the evaluation of speed with changes of direction, speed in technical mode, combining muscle strength, explosive strength, starting force, acceleration and deceleration.

3. The "zig-zag" test.

Assessment of agility, ability to move with rapid changes of direction at different angles, balance, acceleration and deceleration, specific technique in speed mode. This test aims to monitor the development of the athlete's speed and agility.

3.1. The "zig-zag" test with ball

Assessment of agility, ability to move with rapid changes of direction at different angles, balance, acceleration and deceleration, specific technique in speed mode and coordination with the specific object, the ball. This test aims to monitor the development of the athlete's speed and agility (Mackenzie, 2005).

4. Hand-eye coordination test

These test aims to monitor the ability of the athlete's visual system to coordinate the information received through the eyes to control, guide and direct the hands in catching the ball (hand-eye coordination).

The training of athletes involves the realization of a well-organized preparation, thus in order to obtain visible and lasting results, a planning of the entire

training process is needed. The training of the athletes takes place in an oriented, planned, systematic and long-term way, with the goal of increasing the value of the players and obtaining performance. On the results obtained after the application of the six control samples, we applied a series of statistical-mathematical formulas (arithmetic mean, standard deviation, the coefficient of variability, maximum and minimum value, amplitude, effect size), so that the image of the results is as objective as possible. Following the implementation of the initial tests and the analysis of the results, we developed a training program for the development of the targeted motor qualities in the shortest possible time. It is spread over a period of 14 weeks, being divided into three distinct cycles, comprising three specific trainings per week and one official game.

Table 2. Synthetic presentation of the means and their dosage in training cycles aimed at developing acceleration speed

		CYCLE I	CYCLE II	CYCLE III
Intensity		90-95%	90-100%	95-100%
Duration	Minutes	5-8 min	5-8 min	5-8 min
	Meters	80-90 m	100-120 m	110-120 m
Load duration		4-5 sec	3-6 sec	3-7 sec
Rest duration		45-90 sec	45-90 sec	45-90 sec
Means		4 x 7 m	4 x 12 m	3 x 10 m
		3 x 15 m	2 x 15 m	4 x 15 m
		2 x 20 m	2 x 25 m	2 x 30 m
Frequency		2 times a week	2 times a week	2 times a week

Table 3. Synthetic presentation of the means and their dosage in training cycles aimed at developing agility

		CYCLE I	CYCLE II	CYCLE III
Intensity		90-95%	90-100%	95-100%
Duration	Minutes	10-12 min	10-12 min	10-12 min
	Meters	40 m	40 m	60 m
Load duration		10-12 sec	10-15 sec	10-15 sec
Rest duration		30 sec	30 sec	30-45 sec
Means		2 x (stairs + 10 m slalom)	20 m (5 m front and 1 m behind running)	2 x (stairs + 8 m slalom) 2 x (stairs + 10 m zig-zag running)
		2 x (stairs + 10 m zig-zag running)	20 m (running and 360° turns left-right x 4)	2 x 20 (5 m front running + 1 m left running + 1 m right running)
Frequency		2 times a week	2 times a week	2 times a week

For monday of each week, it was decided to plan homework for force and acceleration speed. Starting from the statement that a true sprint session must be preceded by plyometric exercises, so the two themes will combine through their form of realization exercises that have an influence on, explosive force of the lower body and acceleration speed, changes of direction, being currently combined on monday of each training cycle (Table 2, Table 3).

For wednesday, the training focused on the development of coordination and agility, and friday being dedicated to training that combines agility but also the different forms of speed manifestation, reaction, execution, acceleration and

deceleration. For the development of agility, the means used were different variants of moving on a ladder followed by accelerated running over different distances in zig-zag, slalom, running with changing the direction of movement, forward backward, left right and 180° turns with the continuation movement (between left/right), and for some variants where the degree of complexity was not very high, we also opted for making them with the soccer ball (Table 4).

Table 4. Synthetic presentation of the means and their dosage in training cycles aimed at developing agility, speed through specific means

		CYCLE I	CYCLE II	CYCLE III
Intensity		90-95%	90-100%	95-100%
Duration	Minutes	10-12 min	10-12 min	10-12 min
	Meters	40 m	40 m	60 m
Load duration		15-20 sec	15-20 sec	15-20 sec
Rest duration		30 sec	30 sec	30-45 sec
Means		Agility / speed trail + Psychokinetic training	Agility / speed trail + Psychokinetic training	Agility / speed trail + Psychokinetic training
Frequency		2 times a week	2 times a week	2 times a week

For the training in which we developed speed and agility, the means used for these two qualities contain elements specific to the football game, but not only. The content of each cycle represents the realization of certain routes in which physical training is combined with technical training for the development of qualities, their development and specific to the football game, exercises with the ball, precision etc. And besides these exercises we also added psychokinetic training, through this training we wanted to develop the speed of reaction to visual/auditory stimuli, coordination, the ability to control body movement in cooperation with the body's sensory functions. Through a brief description of this training, with the help of the application or verbally (through the trainer) the athlete must pass/execute the color-specific command, as quickly as possible from receiving the command to the teammate wearing the indicated color/or the color-specific area.

Table 5. Synthetic presentation of the means and their dosage in training cycles aimed at developing coordination/skills

		CYCLE I	CYCLE II	CYCLE III
Intensity		90-100%	95-100%	95-100%
Minutes		10-15 min	15-20 min	15-20 min
Load duration		20-25 sec	20-25 sec	20-25 sec
Rest duration		45-60 sec	45-60 sec	45-60 sec
Means		Warming exercises without ball Movement games	Warming exercises with ball Movement games Relay race	Warming exercises with ball Movement games Relay race
Frequency		2 times a week	2 times a week	2 times a week

For the development of coordination, ladder exercises were used, different types of movements, at first without the ball, then with the ball, games in pairs that required coordination, for example, passes in pairs, with two balls, once with the foot

once with the hand, then alternatively, only one with the foot, the partner with the hand. Also for the development of coordination/skills, different versions of relays were used, which required coordination with the partner or partners, at the same time and with the object used (Table 5).

Results and discussions

After obtaining the results after the two initial and final tests applied to the 16 subjects, we can say the following.

The results obtained following the application of the structured training program over the three cycles, indicate that all subjects recorded improvements in their scores between the two tests (initial and final). Following the application of the statistical-mathematical formulas we can say that the averages of the group in the two tests record results homogeneously improved at the final test, as presented in table 6.

Table 6. The results obtained during the initial tests by the subjects of the experimental group and the statistical-mathematical indicators resulting from their processing

	L test (sec)		Zig-Zag test without ball (sec)		Zig-Zag test with ball (sec)		4 x 10 m test without ball (sec)		4 x 10 m test with ball (sec)		4 x 10 m test with ball (sec)	
	I.A	F.A	I.A	F.A	I.A	F.A	I.A	F.A	I.A	F.A	I.A	F.A
Mean	11.79	10.81	18.48	16.49	24.0	20.5	13.06	10.7	16.81	14.12	17.75	22.63
Std. dev.	0.47	0.61	1.06	1.01	1.91	1.21	0.52	0.54	0.88	1.11	2.02	2.36
Coefficient of variation	4.00	5.60	5.74	6.13	7.94	5.93	3.94	5.07	5.25	7.90	11.36	10.44
Maximum value	12.64	11.82	20.4	18.3	27.6	22.5	13.9	11.5	18.3	16.3	22	26
Minimum value	10.90	9.83	17.2	14.8	20.8	18.4	12.2	9.7	15.7	12.5	15	18
Amplitude	1.74	1.99	3.2	3.5	6.8	4.1	1.7	1.8	2.6	3.8	7	8

In the following we will analyze the results obtained for each test, but the analysis of the results obtained following the application of the formulas.

After the completion of the first test in this work, namely the "L" test, we can observe the fact that following the application of the proposed program, a difference is observed between the average of the initial and final tests, more precisely which concretizes through a progress of 0.98 seconds and in percentage the progress is 8%, aspects that are highlighted in figure 1.

From a statistical point of view, the size of the effect represents the difference between the means and highlights whether this difference is significant. A difference which, in order to be considered significant, must be over an index of 0.8. Following the statistical-mathematical calculations, we can affirm that the difference between the averages recorded is significant, the result of the calculation of the effect size being 1.81.

If we compare the maximum and minimum values obtained in the two assessments in the case of the "L" test, we notice that compared to the initial test, the best value was 10.9 seconds and at the final test performance increased to 9.83

seconds. Looking at the weakest time in the initial testing, this being 12.64 seconds. a much better time value is observed after the final testing 11.82 seconds.

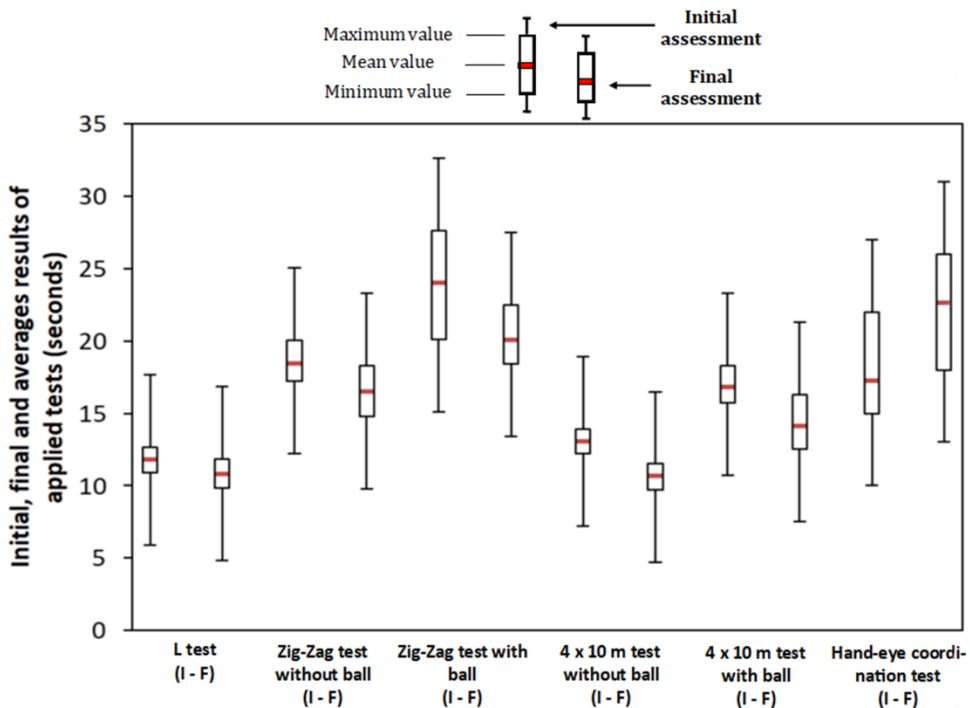


Figure 1. Presentation of the results obtained in terms of the maximum value, the minimum value and the average value of the initial and final assessment for the six implemented tests

The study of the coefficient of variability recorded for each sample provides us with data on the measure of relative dispersion. The lower the coefficient, the greater the homogeneity of the group. A group is considered to be homogeneous when the coefficient is less than 10%, and the homogeneity of the group during the entire testing process regarding the speed tests, both those with the ball and those without the ball, is maintained below the 10% threshold, in fact which entitles us to say that group homogeneity is increased. In this sample, the coefficient of variability is below the threshold of 6% in both tests.

In the "L" test regarding the progress, the average index of the group increased by 0.98 seconds, compared to the initial testing, and the homogeneity of the group remained in very good parameters below 6%. Comparing the averages recorded after the completion of the two tests, respectively the average of the initial testing being 18.48 seconds, instead at the final testing we have an improvement in the group average, this reaching the value of 16.49 seconds, between the two averages from one test to another we observe a progress of 1.99 seconds, and from a percentage point of view a 10% improvement on averages.

In the case of the Zig-Zag test without the ball, regarding the result following the calculation of the effect size, we can affirm the fact that the result of this test is also considered significant, being above the threshold of 0.8, more precisely reaching

the value of 1.85. Both the maximum value and the minimum value from the junior group show an improvement in times, the minimum value, representing the best performance in both tests, a value that registered a progress of 2.4 seconds, a percentage progress of 13%, and the maximum value registering a slightly higher progress of 1.74 seconds compared to the initial tests, thus we have an improvement at the level of the entire team. After performing the statistical-mathematical calculations, the result of the calculation of the coefficient of variability, highlights the fact that the homogeneity of the group is high, with values below the 10%, namely the initial test 5.74%, and the final 6.13%.

At the first test where the object of the work in football appears, namely the ball, testing where the player's technical ability to coordinate the movements specific to the test, but also to control the balls, also comes into play. The average of the two tests shows a progress of 3.98 seconds from the initial test to the final one, a percentage progress of 15%. Following the calculations made for the zig-zag test without the ball, the size of the effect has a statistically significant value above 0.8, more precisely 1.44, this value representing a significant difference in means. Looking at the individual results from the two tests, which represent the best and the weakest value, we can see that in this sample too we have progress in both extremes. The best value from both tests had a progress of 1.68 seconds, the progress from one test to another being 8%, and the weakest value showed a slightly higher progress, respectively 5.1 seconds, the percentage progress being 18%. From the point of view of homogeneity following the calculation and comparison of the data from the two tests, we notice that the homogeneity in both tests is below the 10%, but from the initial to the final test we have a homogeneity progress of 2.03%. By which we observe an increase of the entire team, both in terms of physical and technical training.

Comparing the averages recorded in the 4 x 10 m shuttle test without the ball shows a difference from the initial testing (13.06 seconds) to the final testing (10.7 seconds). The average of the tests showing an improvement in time by 2.36 seconds, in percentage the increase is 18%. For this test, the result of the effect size value can be considered significant as well, having a high value of 2.01. Both the maximum value and the minimum value from the group of soccer players show an improvement in times. The minimum value, representing the best performance in both tests, a value that registered a progress of 2.5 seconds, a percentage progress of 20% and the maximum value registering a progress of 2.4 seconds, the percentage being 17% compared to the initial tests, very close positive progress in terms of growth in both cases, thus we have an improvement at the level of the entire team.

After performing the statistical-mathematical calculations, it can be observed that the homogeneity of the group has the best values in the running tests. The strongest homogeneity can be found in the 4 x 10 meter shuttle test without the ball, a value below 5 in the initial testing, and very close to 5 and 5.07 in the final testing, which demonstrates a very good homogeneity of the entire group even after the training period.

In the case of the Zig-Zag test in which the technique and coordination with the ball are also tested, we observe from one test to another a progress of the averages from 16.81 seconds in the initial test, to 14.12 seconds in the final test, the progress

expressed in percentages of from one test to another being 16%. Based on the calculations, we notice that from the point of view of the effect size, the most significant difference in the means we have in this test, the value being 2.32. Analyzing the result of the minimum and maximum values, we notice that in both cases we have a progress. The maximum value recorded a progress of 2 seconds compared to the initial testing, and the greater progress compared to the best time since the initial testing, had a slightly greater increase, respectively 3.2 seconds. The homogeneity of the group at the initial testing had a value of 5.25, and after the preparation period, at the final testing the homogeneity increased negatively by 2.65, but even with this increase both values are below the 10%, a fact by which we can affirm the fact that the group is homogeneous in both tests.

In the hand-eye coordination test, which aims to measure coordination, we have a progress between the two environments. The initial testing having the value of 17.25 seconds, the final with 22.63 seconds, the progress being 5.38 seconds, the percentage being 30%, in this sample we have registered the greatest progress of the averages compared to the previous tests. The value of the effect size remained significantly high in all the samples made, thus the last sample registering the value closest to the standard one, exceeding the threshold of 0.8 by a little over, respectively 1.11. Being a test that is realized by the number of repetitions performed correctly, this maximum value represents the value with the best result being 26 repetitions, recorded at the final test, the value with a progress of four repetitions compared to the initial test. The minimum value express a progression of three repetitions from one test to the next, with the highest number of repetitions for this statistic being 18 repetitions achieved in the final test.

From the point of view of homogeneity in this sample, the value from the test is 11.36%, a percentage from which it follows that the group has relative homogeneity, and after the training period, the percentage knows a little progress, namely 0.92, reaching the value of 10.44%, the homogeneity of the group being still relative. Being a test in which we evaluate coordination, its specifics can benefit goalkeepers, who have specific training where they often use such elements, and hence the reason why the homogeneity of the group suffered a little.

Interpreting progress through effect size calculation

The values in figure 2 represent the standardized difference between the averages and highlight whether or not this difference is statistically significant.

This is a method by which the level of efficiency achieved after the training period can be found. For the difference to be considered small, this value must be less than or equal to 0.2, for an average efficiency of the group, this value must be between 0.2-0.8, and for a statistically high efficiency, this value must be more greater than or equal to 0.8.

For each test the same series of statistical-mathematical calculations was applied, so from a statistical point of view the value of the effect size for each individual sample is above the threshold of 0.8. The highest value is present in the 4x10m test. with the ball respectively 2.32, and the lowest value in the coordination test where we have the value of 1.11.

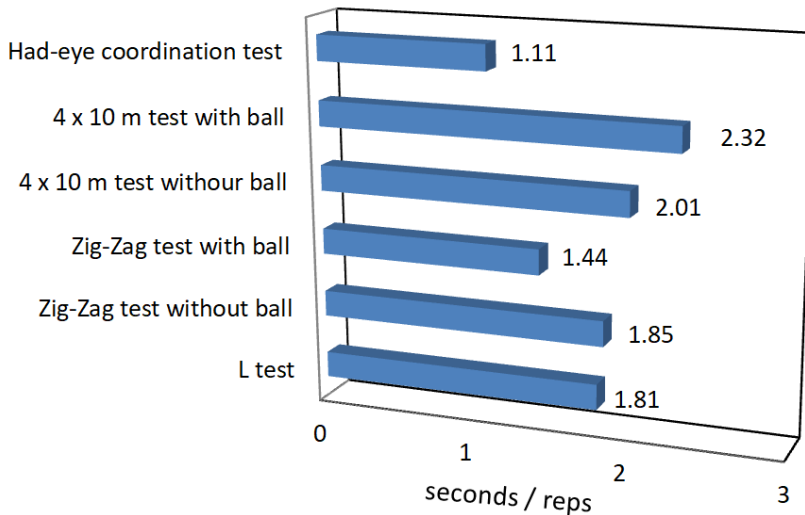


Figure 2. Graphic representation of the effect size values for the six tests applied to the target group

Through everything mentioned in the previous lines, we can affirm the fact that the size of the effect is large, which entitles us to say that we are dealing with a significant difference between the averages of the initial and final testing.

Conclusions

In conclusion, following the statistical-mathematical calculations, the tabulation and graphic representation of the results obtained and the analysis of these data, an improvement can be observed from a statistical point of view, from which we draw the conclusion that there is also an improvement from the motor point of view of the targeted qualities during the training period, a fact that demonstrates the effectiveness of the exercises designed and put into practice.

Physical training must be a priority objective of the training of young junior footballers so that it becomes a solid basis for their further sporting activity. The data we collected and the results obtained in this study mainly prove that the training and preparation process had an efficiency in the development of motor qualities aimed at speed, agility and coordination, as can be seen in the tables above at all the samples taken, between the initial and final testing there was a progress highlighted by the effective value between the averages as well as by the percentage difference calculated for each sample.

Following the achievements of the entire process of development of the targeted qualities, we can say that, in the design of a well-directed training program from the perspective of all aspects of periodization, dosage, means used, they are essential elements, which can have a direct impact on the level of development of those targeted.

Another conclusion that emerges from the recorded values confirms the fact that our activity was effective, is the fact that the effect size presents values greater than 0.8 in all the tests carried out on the junior soccer players U12, a fact that confirms to us that the difference between the performance averages recorded at the two tests, initial and final, is statistically significant.

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