

EXPERIMENTAL STUDY ON INTERSEGMENTAL COORDINATION IN U12 FOOTBALL

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Abstract: Training toward skills development and toward its components can take place in any part of the weekly cycle. Also, exercises and other means used for this purpose are found in all three parts of the training lesson, both in the first part, in the form of light exercises (especially the specific dynamic coordination), that lead, at the same time, to the training of the body for the effort, but also in the fundamental part (the theme of the lesson or exercises carried out between some main tasks) and closing (exercises performed in slow rhythm, for disconnect, relax). Skill, in all forms of manifestation, can develop along the whole year of preparation, of course with different weights, depending on the workout periods.

Introduction

It is known that achieving superior performance in football is determined by a systematic, organized training, within which to provide a scientific training, unforced, in compliance with the requirements of the biological and psychopedagogical order. [1,3]

Motricity, the degree of skill, is a criterion of the highest share in the selection of young footballers. From the selection of children who have not yet practiced football in a organized form and until the selection of players for the national team, the skill is put on the foreground all the time and this is because the skill means the base of the high technique, finishing style, maturity of tactical thinking, calm and confident of victory. [2,8]

The skill represents for footballers the basic motrical quality because in its complexity is also involved accuracy, balance, coordination, ambilaterity, orientation, rhythm and tempo. [4,5]

Inter-segmental coordination is the ability to simultaneously and efficiently control different segments of the body (legs, arms, torso, head) to perform complex movements. In the U12 (12 years old) age category, this skill is of major importance in the training of soccer players, as it is the foundation for individual technique. [7,10]

At age 12, children begin to perfect their basic techniques (kicking, passing, dribbling, receiving the ball). Body segment coordination is essential for controlling the ball with different parts of the body (foot, thigh, chest), synchronizing movements between limbs and torso, and rapid adaptation of the body to the direction of the ball. [3,5]

Good inter-segmental coordination allows for the development of fast and efficient movements, such as quick changes of direction with the ball, body alignment during sprints or stops, and the execution of specific movements such as feints or dribbling with changes of pace.

A coordinated body moves efficiently, with better control of balance and stability. This significantly reduces the risk of injury, especially to the joints (knees, ankles). [6,8]

At U12, simple tactical concepts are introduced (occupying space, combination play). Intersegmental coordination helps players orient themselves in space, react better to changing game situations, and communicate physically with teammates (supporting movements, marking). [7,9]

The U12 age group is optimal for the development of general and specific coordination, as it is a "key moment" in neuromotor development. What is learned at this age has a major impact on future performance.

Material and method

In the study we determined the following research hypotheses:

1. Implementation of a complex of means for the development of specific dynamic coordination for a period of about 120 days, will result in the improvement of its indices' manifestation at the age of 12 years.

2. The samples and the rules for football players for checking specific coordination level are able to appreciate the progress (or regress) made during the experiment.

The team chosen for the research was the team A.C.S. „Dream Team” Suceava – U12. The experiment was started on the 10th of November 2024 and it ended on the 20th of April 2025, during this time applying directly a number of means to develop the coordination and carrying out tests on the level of its development.

In experiment we used two groups of subjects. The experimental group is represented by the components of the team A.C.S. „Dream Team” Suceava. The group is made up of 20 players: 18 field players and 2 goalkeepers. All 20 football players have the age between 12 and 14 years. The control group is represented by the components of the team LPS Suceava. The lot of this team consists of 18 players: 16 field players and 2 goalkeepers.

With the first group we experienced all the means for the development of specific coordination and we carried out the tests, and with the second group we performed only two tests, at the beginning and at the end of the experiment.

Further we have developed and selected a large number of means that can be used in the context of these means for the development of specific dynamic coordination.

They have been divided as follows:

a. exercises of flick of the ball with the foot.

- b. takeover of ball exercises.
- c. driving the ball exercises.
- d. exercises for deceptive movement.
- e. tackle exercises.
- f. exercises of flick of the ball with head.
- g. specific exercises of the goalkeeper.

With regard to the use of such means in the framework of the training it was done step by step on each category of means, in accordance with the following principles and methodological indications:

- the first stage is characterized by the accuracy of movements coordination in space, speed of execution is not taken into account. (Accuracy is given by the improvement of muscle sensations in the slow movements);

- the second stage is characterized by the precision of movements in space carried out at high speed. (The implementation is based on a motric reflex well consolidated).

- the third stage is given by the possibility of its manifestation under varied and changeable conditions. Each made stereotype corresponds a precise system of excitors, and a good resolution consists in selecting of that skill or motrical accomplishment that best fits the new situation that emerged in the game.

In the experiment we used the following control samples:

Sample 1 (Fig. 1):

- kick from the corner of the field (corner) with the right foot, to the point from 11 metres (in a circle with a diameter of 3 m);

- running to the corner area of 16 m and doing 4 shots to the gate in 4 balls arranged in 2 to 2 feet, with left foot;

- running to the other corner of the field and doing a corner kicks with the left foot to the point of 11 metres;

- running to the corner area of 16 m and performing 4 shots to the gate in 4 balls arranged from 2 to 2 feet, with the right leg.

The norms to accomplish:

- two penalty corner to enter in the circle from 11 meters;

- it is given 1 point for each shot;

- 1 point penalty;

- 5 of the 8 shots to the gate must to be in the gate;

- is granted 5 points;

- 1 point penalty for each kick down;

- complex is running within 50”

- penalty 2p at each 5" and finally the points are gathered and noted in the table.

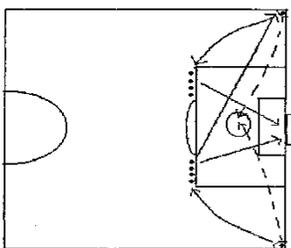


Fig. 1

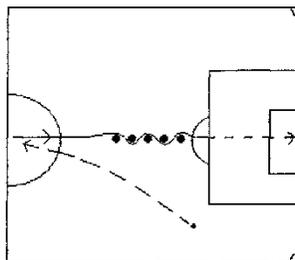


Fig 2

Sample 2 (Fig. 2):

- taking the ball from the center of the field;
- driving the ball in straight line 20 m;
- dribbling through the 5 milestones placed at distance of 1,5 m;
- the cent shot from 16 m;

The complex runs twice (with each leg, one at a time).

The norm to accomplish:

- the execution is done in maximum 11" with deft leg and in 14" with the other;
- grant 5 p;

- penalty 1 point for each second delay and 1 point for each for each shot

besides the gate. Points are gathered and the result is noted in the table.

Sample 3 (Fig. 3):

• from the circle at the center of the field, a long diagonal pass through a teammate who run after the ball, run reception and centers to point at 11 feet for the one who passed the ball, this passing again the ball towards the gate with head, in the long jump or in the plunge.

The exercise is carried out 5 times for each player. One point is given for each shot bounced on the gate. Points are gathered and the results are noted in the table.

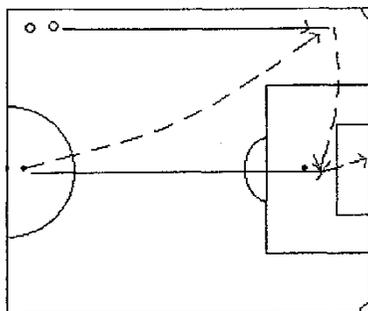


Fig. 3

Sample 4:

- keeping the ball in the air by repeated flicks with both feet, alternately, for 30 seconds;

The norm to accomplish:

- minimum 25 touches;
- is granted 5 points;
- 1 point penalty for each second delay;
- if the ball touches the ground it is given 2 penalty points and it resumes the execution.

Results and discussion:

In order to highlight the degree of homogeneity of the group, after every test we have calculated the coefficient of variance, the arithmetic average and standard deviation. The results are listed in the table below and it refers to the team A.C.S. „Dream Team” Suceava, as the experiment group and the team LPS Suceava as witnessgroup.

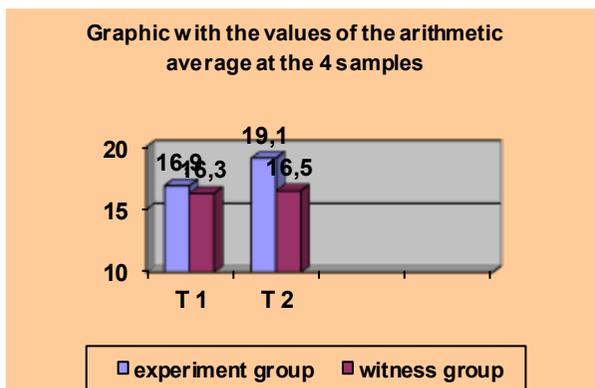
Table nr.1. Statistical indicators of initial and final testing in the experimental and control group

	EXPERIMENT GROUP		CONTRIL GROUP	
	Initial testing	Final testing	Initial testing	Final testing
Arithmetic average	16,9	19,1	16,3	16,5
Standard deviation	1,7	1,09	1,6	1,61
Coefficient of variance	10,05 %	5,1 %	9,2 %	9,11%

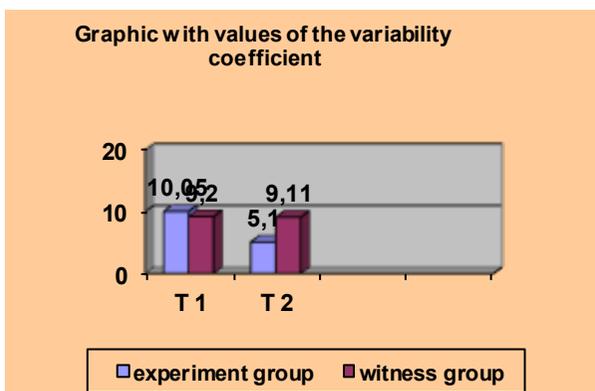
Comparing the results we see that both coefficients of variability are between 0-15%, so homogeneity of the collective is great. There is still a substantial improvement of the coefficient, from 10,05 % at initial testing, to 5,1% as a result of the experiment. For the control group, the variability coefficient records 9.2% from the initial testing and 9,11% at the final testing.

The arithmetic average also presents an increase of 16.9 points at 19.1 points for each player, which is a performance improvement, unlike the witness group, where the arithmetic average has approximately the same value.

It is found that, in contrast to the experimental group, where the application of the means of development the specific coordination lead to positive results, at control group the failure to comply with these means could not determine improvements.



Graphic 1 – The values of the arithmetic average



Graphic 2 - The values of the variability coefficient

Of great importance in the development of coordination is the variety in the training. It is known that monotony, always practicing the same training procedures and always through the same exercises, lead very easily to fatigue, boredom. To stimulate in training and to obtain better results, so it should be a large use of all methods and means of coordinative capacities' development, of course, with an emphasis on those that have proven that they have the most increased effectiveness.

Closely related to the variety in training is another principle which must govern the development of ability/coordination, namely the motrical versatility; this is because skill is, by definition, a large motrical experience, accomplishments and complex skills. Versatility in training ensures at the same time, the variety and the transfer of skills, leading in this way to the raising of skills development.

In the methodology of development skills there are used both methods of analytical work but also global ones. More it is used today the global training, skills development is made depending on the other motrical qualities. Personally, I think

that is a good thing, because the skills components manifest in game in interdependence with the speed, strength or resistance. It can be said that the development of skills can be achieved in practice along with solving other tasks. At the same time, however, it should put a greater emphasis on the analytical development of this capacity in special trainings or at least in the individualized training.

Conclusions

Specific coordination develops in particular through specific work with the ball and through other means of ground movement without the ball. The most effective mean is the game, in all its forms of organization: games and challenges with the theme, games on low land, games in inferiority or numerical superiority, games with different rules and training tasks or normal football game.

Training directed towards skills development can take place in any part of the weekly cycle. Also, exercises and other means used for this purpose are found in all three parts of the lesson, both in the first part, in the form of mild exercises (especially coordination), leading at the same time to the preparation of the body for the effort, but also in the fundamental part (subject of the lesson or exercises carried out between some main tasks) and closing (exercises performed in slow pace, for disconnect, relaxing). The means presented are easily usable and have a great contribution to the attainment of the specific objectives of sports training when are used methodically, rationally. Skills, in all forms of manifestation, can develop along the whole year of training, of course with different weights, depending on the workout periods.

Having regard to these few conclusions about the skill and the methods of its development, it must be taken into account in the practical work, of some proposals and recommendations arising therefrom. It addresses the following issues:

- To work as much as possible for the development to a higher level of all components of skills;
- In the framework of the development methodology it should focus on those methods and means which addresses to the active and conscious participation of the players;
- The development of coordination in all its aspects, it should be done both in collective trainings, but especially within the individualized trainings.
- Individualization within the preparation can be done both in collective training, as well as separately;
- To use in training more varied means, which are the base on permanent development of the specific coordination;
- Linked to the skill's development, it is necessary to use versatility principle on motrical plan, which can be applied by using a large number of means and methods. This mean that in training we should not be limited only by elements from football game, but we should introduce elements from complementary sports

(basketball, handball, volleyball, rugby) and from combined games (football - basketball, football - tennis);

- To use both the global method, but also the analytical one in the specific coordination development. It is therefore recommended training the coordination both during the resolution of other tasks of the training but also in special trainings, which are destined exclusive to coordination;

- Taking into account that skill depends, and on the same time, it requests a great deal the breakdown activity, it is recommended giving some adequate breaks, enough for comeback, in order to be able to work in optimal conditions for its development;

- Means and methods of skill development should be included in trainings during the whole year. In the preparatory and transition period to focus on the general skill development and on some forms of specific skill. During the competition period, the more it will act for the development of specific skills, both analytic and global, in interdependence with the other basic motric qualities: specific skill in speed, strength and resistance.

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