

**METHODICAL ASPECTS FOR DEVELOPMENT OF
COORDINATION ABILITIES IN CHILDREN 8 – 10 YEARS,
THROUGH SPECIFIC TRAINING MEANS OF THE SOCCER
GAME**

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Abstract: *Coordination abilities including the entire range of possibilities for expression of coordination, but also for flexibility in the execution process of natural movements. They are conditioned by the ability to lead, to take and develop motile skills based on the efficiency of the nervous system and muscular system. It manifests in all movements and all levels of sports practice. The manifestation of the coordination skills is conditioned by perceptual system ability to process, analyze and take decisions and to convey the nervous impulses to the motility acting effectors and the capacity to realize the movements with more economy and harmony. They are conditioned by the capacity to lead and to process data from the analyzers involved in movement and the development of motile responses.*

Introduction: The special literature of our country has no recent research that reflects the importance of coordination abilities education, as a support for learning the game of soccer technique in children.

In our country, nor specialized federation, nor private clubs (schools, academies for soccer) nor in the educational institutions (LPS, CSS), present programs with operational structures designed to develop coordination abilities (general coordination, segmentation, static and dynamic balance, side orientation, ambidexterity, space-temporal orientation, kinesiology, reaction speed, repetition, anticipation, etc.), the optimal time for their development and psycho-intellectual, emotional or cognitive (attention, thought, imagination, memory) qualities, which can improve athletic performance and beyond.

Coordination capabilities means a generic and psycho-motor complex of skills involving mainly the ability to quickly learn new moves, a quick and efficient adaptation in various conditions, specific to various types of activities, sometimes restructuring the existing motile fundamentals.

The special literature of soccer game, and of the other sport games, considers the capacities of coordination as consisting of: learning capacity, management and leading capacity and control of movement and ability to adapt and transform the motion.

Material - method: in the realization of the present research, the hypothesis from which we started is the next one: the characteristic coordination capacities of the soccer game can be improved or developed by specific training means.

The aim is to find and implement in the training process these specific means leading to improvement and coordination capacity.

In the view of probation of the hypothesis from which it started to realize the present research, coordinative capacities, characteristics of the soccer game, an experiment was initiated following those steps:

- Choice of subject research subjects;
- Formation of experimental groups and a control group;
- Implementation process of training of the experimental group, of some means, exercises, which aims to develop coordination skills;
- Selection and establishment of evaluation methods and means;
- Recording, analysis and interpretation of the results obtained from the conducted research.

The research was conducted for 12 weeks, from January 25 to April 27, 2012. The experimental group benefited at each 20 minutes training session, in which the proposed exercises were practiced in the experiment process.

In this context, the research tries to find, prove and to propose a way to test and assess the coordination capacities.

Test no. 1 - Combination of jumps, landings, turns.

	2	3	6	7	8	10	11	12	13	14
		4								
	2		6		9				13	
		5								

1. - Starting position, standing;
2. - Jump with the legs apart;
3. - Jump with twisting 90 degrees to the left and then landing on the right foot;
4. - Backward jump and landing on the left leg;

5. - Backward jump and landing on both feet;
6. - Jump with the legs apart with twisting 90 degrees to the right side;
7. - Jump and coming back 180 degrees and landing on both feet;
8. - Jump and landing on the left foot;
9. - Jump and landing on the right foot;
10. - Forward jump and landing on the right foot;
11. - Forward jump and landing on the left foot;
12. – Jump with twisting 90 degrees to the left side, and miming hitting the ball with the head;
13. - Jump with twisting 90 degrees and landing to the right side, with the legs apart;
14. - Forward jump and landing on both feet.

Performance evaluation route will be as follows:

- 10 points → correct execution of all the 14 movements;
- 9 points → correct execution of 13 movements;
- 8 points → correct execution of 12 movements;
- 7 points → correct execution of 11 movements;
- 6 points → correct execution of 10 movements;
- 7 points → correct execution of 9 movements;
- 4 points → correct execution of 8 movements;
- 3 points → correct execution of 7 movements;
- 2 points → correct execution of 6 movements;
- 1 point → the execution of 5 correct movements or less.

Test no. 2 - Juggling of the ball respecting the following rule: the ball can be hit by any modality, but not more than two consecutive times with the same body part. For example, the ball cannot be hit three times with shoe lace of the foot, it can be hit twice with the shoe lace and then with the outside of the foot, the inside of the foot or the heel of the same foot or after two repeated head blows, the process of hitting the ball must be changed. It will account for the correct number of the touches which were made.

Test no. 3 - Walking in balance on a bar with a diameter of 10 centimeters and 20 meters long; each 2 meters traveled are equivalent to 1 point, so the player who goes through all 20 meters, will accumulate 10 points and will get noted with 10.

Test no. 4 – Leading the ball as follows:

- 1 - Leading the ball with the shoe lace of the right foot;
- 2 - Avoiding the pole with the outside of the left foot;
- 3 – Leading the ball with the shoe lace of the left foot;

- 4 - Bypassing the pole with the outside of the right foot;
- 5 - Keeping the ball between the feet - three short jumps;
- 6 – Leading the ball with the plantar side of the right foot;
- 7 – Leading the ball with the plantar side of the left foot;
- 8 – Leading the ball among the four poles;
- 9 - Stopping the ball;
- 10 - Shot to goal.

Test is performed against the clock, but the emphasis is on accurate technical execution of each technique, the time course under pressure flow. Of course, the failure of a technical process means repeating of the test. The timer starts at the first movement of the player and the execution is stopped when he shoots on goal. It is unrated with one second the shot which did not went in the goal area.

Test no. 5 - Sprint followed by performing a pass or a shot to goal as follows: the ball is placed perpendicular on the goal, to the line of 9 meters. The player makes a sprint 10 meters and performs the pass or shot at the teacher command, as follows:

- If the teacher calls out: RED, the player performs a pass to a fixed point, with the left foot to the right side;
- If the teacher calls out: BLUE, the player performs a shot to goal;
- If the teacher calls out: YELLOW, the player performs a pass to a fixed point with the right foot to the left side.

The teacher gives the command when the player comes close to the ball. Each player will run the test three times. Will be given one point for each correct execution and will gather points made by each player individually.

Methods and means used in the training process of the experimental group

In the process of training of the experimental group will be included the following exercises:

- Beat the ball on the ground with the right hand and with the left hand.
- Keeping the ball on the palm and on the dorsal side of the hand (double);
- Beating the ball on the floor with the palm and with the dorsal side of the hand (standing and walking);
- Pass the ball under the foot and grip with the left foot. Runs and vice versa.

- Draw lines walking with two balls on the palm (on one side and on the other side).
 - The same exercise is carried out and jogging (used to fix the reference points of the field).
 - Throw the ball with the right hand, vertically, at a distance of 2 to 3 meters height, and catching with the same hand. The same exercise with the left hand.
 - Launch the ball vertically, with the left hand and the right hand grip (walking and then running).
 - Launch the ball vertically with the left hand, making a pirouette and catch the ball with the right hand.
 - Running with the back forward direction, stop throwing the ball vertically - pirouette and catch with the other hand.
 - Throw the ball to the fixed point at a distance of 7-8 m from the target.
 - Movement of the athletes in different directions and hitting the ball on the ground with the palm (this exercise can be done, and at the sonic or auditory signals).
 - Facing the wall at a distance of 2 meters:
 - 5 launches with the right hand and grip with the right hand;
 - 5 launches with the left hand and grip with the left hand;
 - 5 launches with the right hand and grip with the left hand;
 - 5 launches with the left hand and grip with the right hand;
- The same exercise but with a partner using one or two balls:
- Facing the wall at a distance of 2 meters: on the wall surface are drawn circles of different colors (targets), and students must hit with a ball the inside of the circle and so they accumulate points. The students should walk and be attentive to the coach who tells them what color should hit. The same exercise but against the wall; trying to hit the inside of the circle and the color told by coach.

Working in pairs:

- Throw the ball and catching the ball in pairs (range 7-8 m).
- Throw the ball from a player to another, and catch of the ball (distance 7-8 m).
- The move of the players in different directions, and hitting the ball on the ground with the palm.

Two opposite lateral displacement by step added

By twos, facing each other, in lateral displacement, with added steps and running the entire length of the field passing the ball.

- By twos, facing each other, two steps away with running cross court passing the ball the full length.
- Jogging with a partner (one behind the other, the other one is with the back toward the direction) - passing and catching the ball with one hand (change places).
- The student is facing the wall 2 m away. The teacher, behind him, throws the ball to the wall and rise the hand with which must caught the ball, then kicked with the foot.
- By fours, one behind the other with the legs apart: the first child has two balls in the hand - throw a ball over the head, the second one catches the ball and passes through the third, who throw it over the head, and then the fourth catches the ball. On the same route the second ball reaches from the first child. Last child gained two balls. At the clap of the palms performs a jump with a come back of 180 degrees. The fourth is the first. With the two balls in the hands of the first student who provides a twist to the right side, the second – twisting to the left side, the third – twisting to the left side, passing to the fourth; the fourth is taking now performing a twist of 180 degrees to the right side (and backward).

Jumping and maintaining the dynamic equilibrium at the elastic net jumps.

- Jump with the feet apart in the air, and return.
- Jump with the feet apart forward and backward in the air, and return.
- Jump with the knees to chest and return.
- Vertically jumps from the elastic net jump, with two balls in hand.
- Vertically jumps from the elastic net jumps, sending up the balls, catching and landing in the elastic net jumps.
- Vertically jump from the elastic net jumps, sending the balls from the right side and the left side in the drawn circles on the training wall.
- Vertically jumps with twist and landing on the elastic net jumps with two balls, one in the right hand and one in the left hand.
- Vertically jumps on the elastic net jumps and hitting a bigger sponge ball with the right hand and the left hand to the coach direction.

- With two tennis balls in hands (one on the right hand, another on the left hand), the child performs a jump in the elastic net jumps, and at landing he/she sends the balls, one by one, in the drawn circles on the training wall.
- Athletes must hit (jumping in the elastic net jumps) the drawn target on the wall training (the ball is sent to the target with each hand, then with both hands).
- Jumps at the elastic net jumps maintaining and making doubles.
- Jump from the elastic net jumps and hitting of the ball which was sent by the coach (from the right side and from the left side).

Juggling the ball on the following models:

- Juggling the ball only with the right foot / left;
- Juggling the ball with both feet alternately;
- Juggling the ball including the hitting of the ball with the outside, the inside or the heel foot;
- Juggling the ball on this route: the foot, the head, the thigh and taking back
- Juggling the ball in limited and noisy spaces.

Applied technical routes, individually performed by the following models:

- Running, alternative jumps on the left side – right side on both feet, rolling forward from the squat position in the squat position, walking on the upside down gym bench;
- Walking backwards, turning and running with the added step in the direction indicated by the teacher when turning back;
- Running, jumping to the left – to the right, on one or both legs in circles placed at different distances on the ground, use of the imagination to travel as quickly as possible the route;
- Walking with the arms outstretched above the head, 180 degrees jump back, carrying a medicine ball and went on the gym bench upside down, throwing the medicine ball in the direction indicated by the teacher by sound or visual signals, turning back and running backwards.

Exercises performed in pairs:

- Standing facing each other, the performing of movements in the mirror, at first slowly, then ever faster;
- A player leads the ball slowly, across the land, and the partner must follow standing very close behind him; at the signal the player who leads the ball suddenly, increases the rhythm, and for

15 seconds trying to escape from the back side partner through the changes of rhythm, changes of direction, feints; after 15 seconds switch roles. Note: the exercise is very tiring; it should not be repeated more than twice consecutively.

- The players run side by side (the distance between them is about one meter) while jumping over a barrier (a little fence) at which moment the teacher was in front of them, to indicate the direction to the left side or to the right side. If the teacher has indicated the left side, both players must sprint to the left side, the player from the right side must touch the one on the left side. The direction to be followed may be indicated in several ways – sound signal, audible signal, to attempt confusing (teacher calls the left side, but shows the hand toward the right side, in an effort to confuse the players);
- Facing each other, at a distance of 3-4 meters, passing the ball in the air, from two, three or four obligatory touches.
- Facing each other, jumping on the same spot; one of the players leads the game, indicating the change of the jumping rule; the other player must immediately adapt to the required change.
- Facing each other, at a distance of 10 meters, passing the ball, the ball thrown by teammate through a procedure named by the one who throws the ball (with the flat, the head, with the lace, with the head from a plunge, with the outside, etc..).
- Facing each other, at a distance of 20 meters, passing down the ball, but before passing the player must perform a feint.
- Facing each other at a distance of 20 meters, passing down the ball, taking over and passing the ball by performing with the clumsy foot, or taking over the ball, with the handy foot, passing with the clumsy foot;
- Facing each other, at a distance of 15 meters, passing down the ball, to shorten the time between takings over and passes;
- Passes in two, while moving and shooting the ball at the goal at the audible signal; after the audible signal the ball must immediately be shot on goal, and in any position, the players are not allowed to perform more than one touch.

Team games:

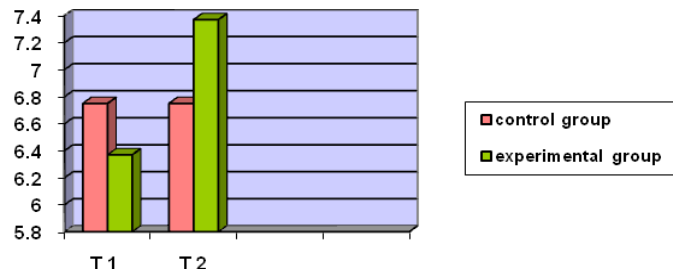
- Three teams; the winner stays on the field; the teams pass the ball with the hand and to win must perform 15 consecutive passes without the opponent to touch the ball; the player who keep the

ball is not allowed to run with the ball in hand, he only can take three steps, before passing. Indications: the players should be encouraged to use different methods of passing the ball but at the same time they must be careful not to mistake the pass, and the same exercise can be played by the rules of the soccer game.

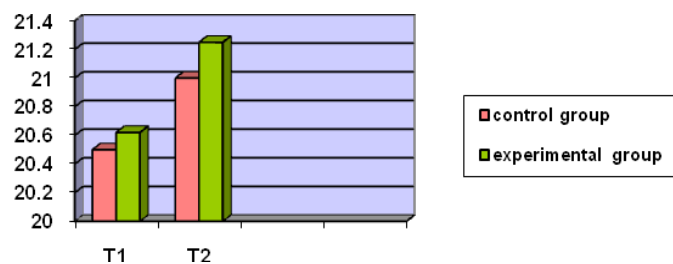
- Bilateral game, at two goals; over the entire surface of the field there are medicinal balls of different sizes, players will have to be careful while running, the lanes that they pass, to adapt the used techniques, and to predict the development of the game actions.
- Bilateral game, at two goals; the teacher indicates to each player a maximum number of touches that they can make during the game (a single touch, two, three or four touches).
- Bilateral game, at two goals; the players are allowed to use only the clumsy foot.
- Bilateral game, on a reduced playing field or at the smaller goals than their normal dimensions.
- “Miuța” in the gym, barefoot, the game takes place on the mattresses; (“Miuta”- is a Romanian name for a kind of mini-soccer game, which takes place on a reduced surface, and a smaller goals; there is a lot of entertaining because of the speed of the game)
- Bilateral game in numerical inferiority or superiority;
- Bilateral game with other than a soccer ball (handball ball, sponge ball, ball of foot-sall, etc.).

Data analysis and interpretation

Test no. 1 – At the initial testing, the arithmetic mean of the control group was 6.75 points and the arithmetic mean of the results of experimental group was 6.37 points. At the intermediate testing the arithmetic mean of the results achieved by the entire control group was 6.75 points, and the arithmetic mean of the experimental group was 7.37 points. The progress achieved by the control group is 0.25 points, and the progress achieved by the experimental group is 2.5 points. The difference in progress between the two groups is 2.25, which is illustrated in the chart below. It is premature to conclude, however, test results show the effectiveness of methods and the used means in the experimental group training.

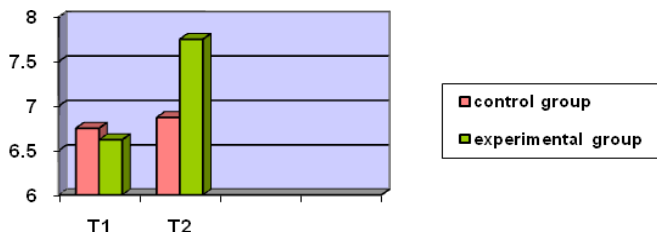


Test no. 2 –At the initial testing, the arithmetic mean of the control group was 20.5 points, and the arithmetic mean of the results of experimental group was 20.62 points. At intermediate testing the arithmetic mean of the results achieved by the control group was still 21, and the arithmetic mean of the experimental group was 21.25 points. The progress achieved by the control group is 1.12 points, and the progress of the experimental group is 4.13 points. The difference in progress between the two groups is 3.01 points, which is illustrated in the chart below. The results show an improvement in both groups, and the players' progress is visibly higher in the experimental group. In this case we can say that the methods and means used in preparing the experimental group achieved their goal. The charts also show the results to the three tests:



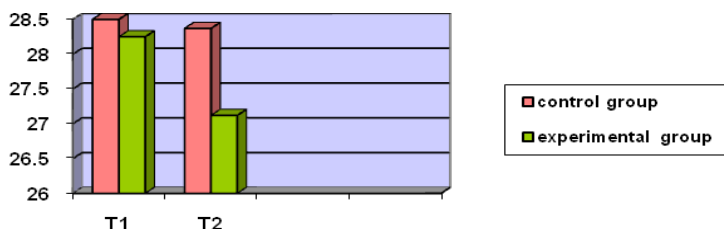
Test no. 3 - At the initial testing, the arithmetic mean of the control group was 6.75 points, and the arithmetic mean of the results of experimental group was 6.62 points. At intermediate test results achieved by the arithmetic mean of control group was 6.87 points and the arithmetic mean of the experimental group was 7.75 points. The progress achieved by the control group is 0.37 points. In the case of the experimental group it was revealed a greater improvement in the intermediate testing, which makes us believe that the result may be accidental. Also, the proposed test is not specific to the soccer game. It is true that tests the balance of the players, so may be included under

coordinative qualities, but considers that this test might be more adapted to the characteristics of the soccer game.



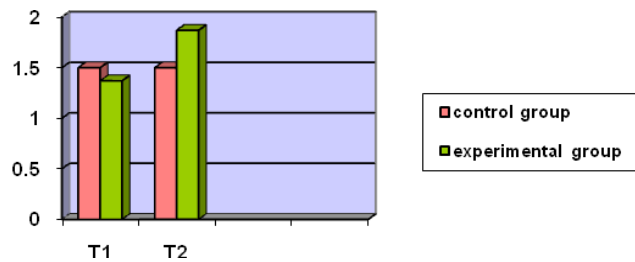
Test no. 4 – The test is made against the clock, but the accent is on the accuracy of the technical executive of each technical process, of course under the pressure of the leakage time. So, the failure of a technical procedure leads to the retake of the test. The timer starts at the player's first move and it is stopped at the moment of sending the ball to the gate.

At the initial testing, the arithmetic mean of the control group was 28,5", and the arithmetic mean of the results of experimental group was 28,25". At intermediate test results achieved by the arithmetic mean of control group was also 28,37", and the arithmetic mean of the experimental group was 27,12". The progress achieved by the control group is 0,25", and the progress achieved by the experimental group is 2,13". The difference of progress between the two groups is 1,88", fact illustrated in the bellow graphic. The progress of the experimental group is constantly, this showing the effectiveness of the proposed and methods and means implemented in the training process of the experimental group.



Test no. 5 – At the initial testing, the arithmetic mean of the control group was 1,5 puncte, and the arithmetic mean of the results of experimental group was 1,37 points. At intermediate test results achieved by the arithmetic mean of control group was also 1,5 points, and the arithmetic mean of the experimental group was 1,87 points. The progress achieved by the control group is 0,12 points, and the final progress

recorded by the experimental group is 1,13 points. The difference of progress between the two groups is 1,01 puncte, fact illustrated in the bellow graphic:



Results and discussion: As a result of the research and of the partial made experiment, we can conclude:

Looking at the term *coordinative abilities* and its definition, the literature is poor and the authors and the specialists did not reach a common point of view on this thing. It is a sure thing that the term is used on plural and it includes the following aspects:

The ability to combine movements allows the establishment of the connections between the automated motric skills, among the elements and the technical processes that are specific to the football game.

The ability to combine movements includes also the segmental coordination, particularly the coordination arms – feet – trunk and ambidextrous.

The ability of spatio-temporal orientation allows the change of position and body movement in space and time, in any particular field of action. The ability of orientation plays an important role in sportive games, in which the sportive has to adapt permanently his executions depending on the teammates and opponents.

The ability of kinesthetic differentiation allows a fine control, differentiated of the dynamic, temporal and spatial parameters of the movement.

The ability of balance assumes maintaining of the body in a certain stable position and its rebalancing after displacements and stress - strokes. In maintaining balance, the vestibular analyzer's role is critical.

The ability of reaction requires rapid motric answers to various stimuli. There are: simple forms – of reaction to the provided and known signals; complex forms – where the stimuli are unknown and the range of possible responses is very wide.

The ability of transforming movements allows that the main program of an action can be adapted or changed, according to the unexpected and completely unforeseen transformations of the situation, and may even require an interruption of the movement, thing that happens in dodging case. It is closely related to the orientation and response abilities.

As a result of the made experiment and of the results' analysis, we can say that the paper's hypothesis, *the coordinative abilities, specific to the football game, can be improved or developed through specific training*, was partially confirmed.

The methods and means that were implemented in the training process of the experimental group were proved to be effective. We consider that these methods and means can be enriched and improved. Also, we consider that is necessary their introduction in the training process of children of 8-10 years, the benefic effects, that they might cause in time being, probably, significant.

Electronic bibliography:

1. http://www.sportscience.ro/.../articol_conf_2005_-2.html
2. http://www.soccertrainer.fr/Guide_entrainement_logiciel_football_organisation_seance_questce.html
3. http://www.soccer-trainer.fr/Types_exercices_logiciel_football.html
4. http://www.soccer-trainer.fr/Captures_logiciel_football_captures_seance.html
5. http://www.soccertrainer.fr/Exemples_exercices_logiciel_football_echauffement_exercices.html
6. <http://www.settoretecnico.figc.it/documenti.aspx?c=49>
7. <http://www.training-wissen.dfb.de/index.php?id=509591>
8. <http://www.ed-amphora.fr/fr/products/detail/id/1817.html>

Titlu: Aspecte metodice privind dezvoltarea capacităților coordinative la copiii de 8-10 ani prin intermediul mijloacelor specifice antrenamentului în jocul de fotbal

Cuvinte cheie : capacități coordinative, fotbal, antrenament.

Rezumat: Aptitudinile coordinative cuprind întreaga gama de posibilități de manifestare a coordonării, dar și a supleții în procesul de execuție a mișcărilor fizice. Ele sunt condiționate de capacitatea de a dirija, de a prelua și elabora abilități motrice și au la bază eficiența sistemului nervos

și muscular. Se manifestă în toate mișcările și la toate nivelurile practicii sportive. Manifestarea aptitudinilor coordinative este condiționată de capacitatea sistemului perceptiv de a prelucra, analiza, a lua decizii și a transmite impulsurile nervoase către efectorii actelor motrice și de capacitatea de a realiza cu multă economicitate și armonie mișcările. Ele sunt condiționate de capacitatea de a dirija, de a prelucra informațiile provenite de la analizatorii implicați în mișcare și în elaborarea răspunsurilor motrice.

Titre: Aspects methodologiques du developpement des capacites de la coordination aux enfants de 8-10 ans par des moyens specifiques de formation dans le jeu de football.

Mots-clés: capacité de coordination, football, formation

Résumé: Les aptitudes de coordination comprennent la gamme complète des possibilités d'expression de la coordination, mais aussi de souplesse dans le procès d'exécution des mouvements physiques. Elles sont conditionnés par la capacité de diriger, de prendre et de développer les habiletés motrices et sont basées sur l'efficacité du système nerveux et musculaire. On se manifeste dans tous les mouvements et dans tous les niveaux de la pratique sportive. La manifestation des aptitudes de coordination est conditionnée par la capacité du système perceptif de traiter, d'analyser, de prendre des décisions et de transmettre l'influx nerveux vers les effecteurs des actes motrices et de la capacité d'accomplir les mouvements avec une grande économie et harmonie. Elles sont conditionnées par la capacité à diriger, à traiter des informations provenant des analyseurs impliqués dans le mouvement et dans l'élaboration des réponses motrices.