

The importance of a technical-coordinative work with psychokinetic elements in the youth sectors of soccer academies

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Abstract:

Soccer is born as a spontaneous form of play and as such should remain. It is a sport characterized by unpredictability: in every moment, new situations arise with which the player must relate and to which he must respond adequately. Indecision or carelessness can change the outcome of a game. The complex (and uncomplicated) structure of the game should be trained right through complexity, so that the player can recognize what happens during the game, ie those situations that are found in the game itself. Starting from the youth sector it is necessary to train memory, perception, concentration skills and situation analysis. We need to recreate actions that are more likely to the game, but stimulate reasoning as a training factor. Once the player has gained experience, he will automatically be able to recreate it in the game. The aim of this study is precisely to demonstrate the need to provide young people with a strong technical-coordination base, stimulating the psychokinetic component. In practice, it is necessary to equip the child with a wide technical repertoire that can be used during a game, thus reducing that sense of loss and abandonment to improvisation. In this paper, various exercises will be proposed concerning both the coordinative technical component and the psychokinetic component; the main findings will be analyzed, and compared with the numerous epistemological references present in the literature.

Key words: functional evaluation; psychokinetic; coordination skills; young soccer.

Introduction

Establishing what to train in a young player cannot disregard the knowledge of his degree of biological maturation (D'Isanto et al., 2019). We should try to relate the "what to train", not so much to the age or to the category to which they belong, as to the biological maturation class to which they belong (Magill et al. 1986). When dealing with a group of children between the ages of seven and nine, the target of the coach should be to consolidate the basic motor patterns and guide the child in learning coordinative skills, ie those abilities that regulate and control the movement, which are identified in the "sense-perceptive-motor ability", referable to the efficiency of the nervous system (Madella et al., 1997). The term "coordination" refers to the way in which a subject orders, and therefore organizes among them, a certain number of skills, in order to solve a more or less complex motor problem, depending on the level of skills required (Weineck, 1994). However, for this to happen, these skills must be adequate to the pre-existing level of coordination (Gaetano 2012). According to research done by Hirtz, functional nervous development also depends on the stresses made during the so-called sensitive phases, ie the first and second school age.

Thus, the training of coordination skills favors this functional nervous development (Hirtz, 1981). Even in childhood, it is possible to learn perfect motor processes. For this reason, great value must be attached to learning the right motor skills immediately. In fact, subsequently, the substitution of a stereotype of movement learned incorrectly through the so-called "re-learning", requires a high energy expenditure and a greater effort than is necessary to acquire a precise motor ability from the beginning (Demeter 1981) (Weineck 1983).

According to P.K. Anochin (1973), substantially the coordination refers to the quality of three functional systems that involve the integration of as many systems and processes of regulation and control of the movement. They are: 1) the comparison between the nominal value and the real value; 2) the feedback, relative to the course of the movement, both partial and final (related synthesis); 3) actual control and regulation on the effector musculature (magnitude to be checked). During school age, the high plasticity of the cerebral cortex offers the possibility of developing coordination skills to a considerable extent. According to Stemmler (1977), the first school age (from 6-7 to 10 years) must be defined as the age of intensive development for the improvement of the ability to react, the ability to perform high-frequency movements, the capacity for differentiation of spatial coordination under time pressure. In order to reach the goal of increasing the activities of the movements, it is very important to assign boys with multilateral tasks rich in variations (Manno 2009). It is necessary that the stimuli are sufficiently intense and maintained for the time necessary to produce complete and solid adaptations and that they are not limited only to the practice of different exercises (Raiola 2015). To all

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this, we must consider the strong link between the technical component and the coordination component, which different sector specialists define as "technical-coordinative factor" (Farfel 1985). It is necessary to underline the concept that the performances of youth football are strongly influenced by the degree of learning of specific technical skills, which are structured integrating with the development of the coordinating component (Schmidt 1976). This means that the development of one or the other factor contributes to increase overall performance. In other words, improving the technique also improves coordination and vice versa. Very often several coaches, in the exercises they propose also include elements of psychokinetic. Psychokinetic is a science that studies what brings together a reasoning (psyche) and movement (Kinetics).

In soccer, psychokinetic exercises are used to train the athlete's ability to perform and modify a behavior in the shortest possible time, a basic movement to external stimuli (visual, sound and tactile) that occur in the field (Raiola 2014). When setting up a psychokinetic training you have to devise exercises that recreate more realistic situations to the game, but that force the player to think in order to answer correctly (Valentini et al. 2018). With training, the player will gain some experience that will then be re-performed automatically during the game (Lavery et al. 1962). The exercises should initially be easy to solve and enjoyable, to avoid attitudes of refusal by the players. Subsequently, once you have gained some experience, these exercises will have to be increasingly difficult.

Psychokinetic exercises therefore stimulate the ability to acquire and read situations, the ability to know how to focus attention on what is relevant and the ability to anticipate that is the ability to find solutions as soon as possible (Altavilla et al. 2015). These abilities are real qualities that an athlete possesses in his own DNA, but which can nevertheless improve, so they must be trained and stimulated simultaneously with technique, tactics and athletic training. The psychokinetic session must be scheduled at the beginning of the training, immediately after the warm-up, when the players are not tired, to remain attentive and focused throughout the whole exercise. The Psychokinetic exercises associated with athletic preparation (Psycho-athletic), conversely, require lower reasoning and mental elaboration, therefore they can be performed during the preparation of the matches; in particular, those exercises able to stimulate speed and motor responsiveness can also be performed in the last training session before the match (Kröger,2002).

Very important, in the success of every psychokinetic activity is the relationship established between the trainer and the players (Moser 1991). The trainer must be propitious; He must draw their attention to precise and never numerous details, and must not give or suggest solutions, but wait for the players themselves to come up with solutions to the problems posed (Magill 1980). The enthusiasm of the group is fundamental for the work continuity, so, at the beginning, it is necessary to propose easy and fun exercises, perhaps in the form of games, challenges and competitions.

This represents a starting point for a gradual path, made up of small daily acquisitions and towards always new achievements, which, moreover, do not foresee points of arrival, as man's intellectual abilities are practically infinite (Severino et al. 2019). The proposed exercises, then, must gradually be more and more demanding, always respecting the training method described above.

Methods and Materials

Subjects

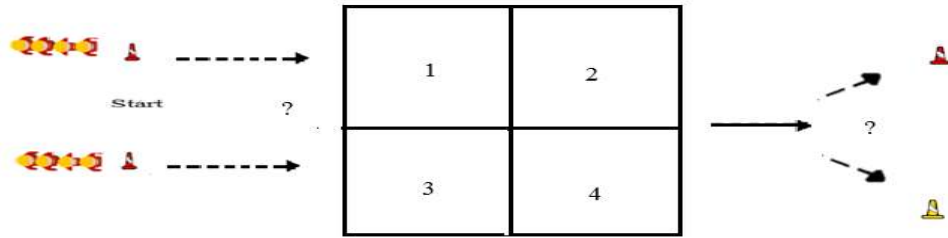
The research was taken on a group of 13 boys aged 8-9, belonging to the "chicks" category of A.S.D Pontecagnano Academy affiliated to U.S. Sampdoria. They play their matches at the stadium "XIII Giugno" of Pontecagnano (SA).

Experimental design

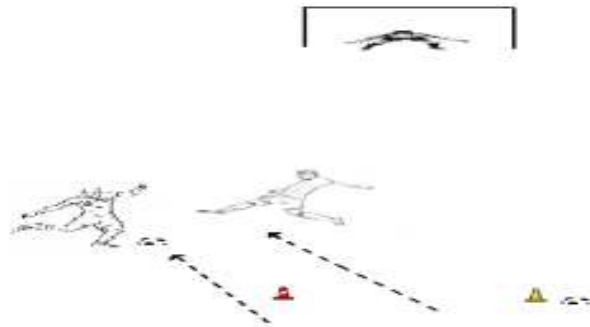
The objective of this study is to obtain qualitative and quantitative data that can be useful for the coach to evaluate the quality of the work done up to that point and, if necessary, to make changes in the contents of the training program (Rampinini et al. 2007). Data were obtained during four training sessions. The first phase focused mainly on aspects of psychokinetic. Two exercises have been proposed to the group in which it was evaluated both the time taken by the boys in the various attempts to conclude the test, and the number of errors that the boys committed in each execution. After carrying out the activation with the ball for about fifteen minutes, the boys were ready to take the test.

In the first exercise, the boys were divided into two rows. In fact, two boys can only perform the exercise at a time, so the first two were arranged, without a ball, in front of their respective cones. In a preliminary phase, one-half of the playing field was appropriately divided into sectors, more specifically in four quadrants, placing some cones at specific distances. A number (1, 2, 3, 4) has been given to each quadrant. In addition, the trial included the use of two cones of different colors (red and yellow) placed immediately outside the midfield.

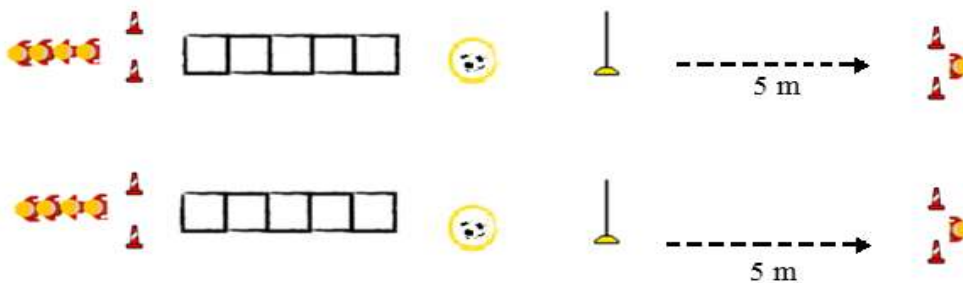
The exercise required the players to move quickly on the dial relative to the number called by the trainer and then run on the cone of the color called. In the proposed variant, the children were asked to move to the dial opposite to the number called. The coach calculated both the time taken by each boy to complete the test in the three attempts and the number of mistakes made during the execution of the test. The variant of this exercise was also used for the research. In this case, the boys, after reaching the dial called by the trainer, had to quickly go to the cone of the opposite color called later by the trainer.



The second test always contains elements of psychokinetic type, but this time include also elements of soccer technique. The use of the ball is provide. We always proceed to divide the group into two rows, involving two boys at a time. Initially two players, turned of their backs, are positioned between two balls placed one on their right and one on their left. At the call of the coach (or right or left), the two players run towards the called ball and recreate a situation of 1 vs 1 with a conclusion on goal. Several are the fundamentals involved in this test. The attacker will surely have to be able to control the ball, which means being able to manage the tool with ease. Secondly, it must be able to move in space without losing control of the ball, maintaining possession and performing some dribbling, whose positive outcome certainly requires good technical, coordinative, speed and personality qualities (Trocchia et al. 2019). Finally, it is provide the ability to finalize the action with the shot on goal that can be carried out using the different anatomical parts of the foot. Those who defend, on the other hand, will have to be able to prepare themselves in a coordinated and rational way to organize an effective defensive phase (Giordano et al. 2019). It is necessary to understand the intentions of the ball carrier, read the trajectories of passage and be reactive (motor anticipation). The reconquest (or recovery) of the ball, can take place with the interception (through the coverage of a space), with the advance (through the correct execution of the marking), or with the contrast (that allows to win a duel).



The third test includes a technical-coordinating relay race that can easily be proposed for the whole "chicks" category and why not, even for the "beginners" category. The coordinating work must be the starting point on which to learn the technical skills. Given the limited time available, it is right to merge both aspects in a single exercise. Here too we form at least two teams. I would say no more than five children per team. The only difficulty could be to find more "speed ladder", at least one per team. The starting arrangement is the one shown in the figure below.



At the trainer's start, the first player of each team will leave, without the ball, who will have to perform the required support on the "speed ladder". It is clear that the complexity of the supports will depend largely on

the age of the children and their abilities. You can start with: one or two support for space, mono or bipodalic jumps, gradually increasing complexity. With "small friends" category, we need to focus on rhythmization and correct support, avoiding exercises like skip high and so on. At the exit, the ball is recovered from the circle with the feet and it is driven near the two poles (about 5m) where the pretense dribbling required by the technician is performed. Here too, requests must be calibrated according to the students' abilities and this type of work requires a "fair base" (D'Elia et al. 2019). In the sense that, given the modalities of the relay, the boys will be led to execute them at speed to gain some time. If you have never worked on this fundamental, it is difficult to request a fast execution (Esposito et al. 2019). In order to pass the auction they must perform several feints. Everyone can calibrate the proposal according to their requests. After performing the feint, the ball is sent to the partner in front. The distance will depend on the age of the students. We can work from 5-6m to 12-15m. Whoever receives the passage quickly guides the ball towards the circle and deposits it inside. Then he runs to change with the next mate and gets in line. Anyone who has passed the ball to the child initially placed on the baseline will take his place. We can also perform more game "heats". The objectives are many. Among these, we have: motor control, rhythmization, dynamic equilibrium (in the case of monopodalic jumps), coordination, driving the ball, feinting or dribbling, passing and receiving.

Results

Table 1. Shows results of the exercise 1

Players	Trial 1	Trial 2	Trial 3	Tot. mistakes
Player 1	6"59	6"29	7"11	2
Player 2	8"09	6"44	7"06	1
Player 3	6"49	7"25	6"41	1
Player 4	7"85	6"62	6"80	0
Player 5	8"64	7"57	7"33	1
Player 6	6"68	6"44	6"70	2
Player 7	6"29	7"85	6"12	1
Player 8	5"30	6"90	6"77	0
Player 9	6"51	5"25	8"66	1
Player 10	7"19	6"59	6"75	0
Player 11	7"57	8"17	7"24	2
Player 12	8"71	6"85	6"98	1
Player 13	6"33	6"07	6"51	0

	Trial 1	Trial 2	Trial 3
Minimum	5,3	5,25	6,12
First quartile (Q1)	6,49	6,44	6,7
Median (Q2)	6,68	6,62	6,8
Third quartile (Q3)	7,85	7,25	7,11
Maximum	8,71	8,17	8,66

	Trial 1	Trial 2	Trial 3
Minimum	5,3	5,25	6,12
Q1-Min.	1,19	1,19	0,58
Q2-Q1	0,19	0,18	0,1
Q3-Q2	1,17	0,63	0,31
Max.-Q3	0,86	0,92	1,55

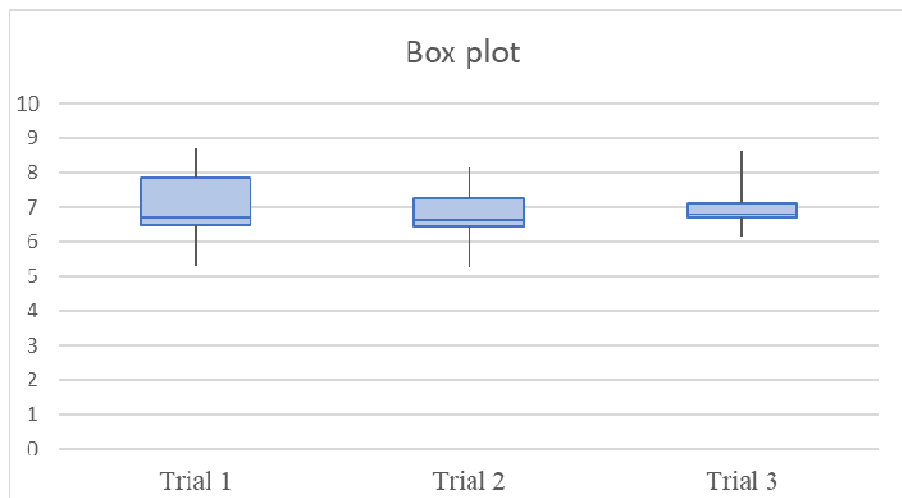


Table 2. Shows results in the variant of exercise 1

Players	Trial 1	Trial 2	Trial 3	Tot. mistakes
Player 1	7"30	6"69	5"52	1
Player 2	8"31	7"15	7"24	1
Player 3	8"03	8"07	6"91	2
Player 4	7"54	6"99	7"22	0
Player 5	6"42	6"25	7"91	1
Player 6	9"29	6"76	7"41	2
Player 7	6"80	7"80	6"29	1
Player 8	6"27	7"96	7"14	1
Player 9	7"21	6"83	7"48	1
Player 10	7"44	7"06	6"75	0
Player 11	7"46	6"60	8"16	1
Player 12	8"40	7"40	8"39	2
Player 13	6"75	6"18	6"60	0

	Trial 1	Trial 2	Trial 3
Minimum	6,27	6,18	5,52
First quartile (Q1)	6,8	6,69	6,75
Median (Q2)	7,44	6,99	7,22
Third quartile (Q3)	8,03	7,4	7,48
Maximum	9,29	8,07	8,39

	Trial 1	Trial 2	Trial 3
Minimum	6,27	6,18	5,52
Q1-min	0,53	0,51	1,23
Q2-Q1	0,64	0,3	0,47
Q3-Q2	0,59	0,41	0,26
Max-Q3	1,26	0,67	0,91

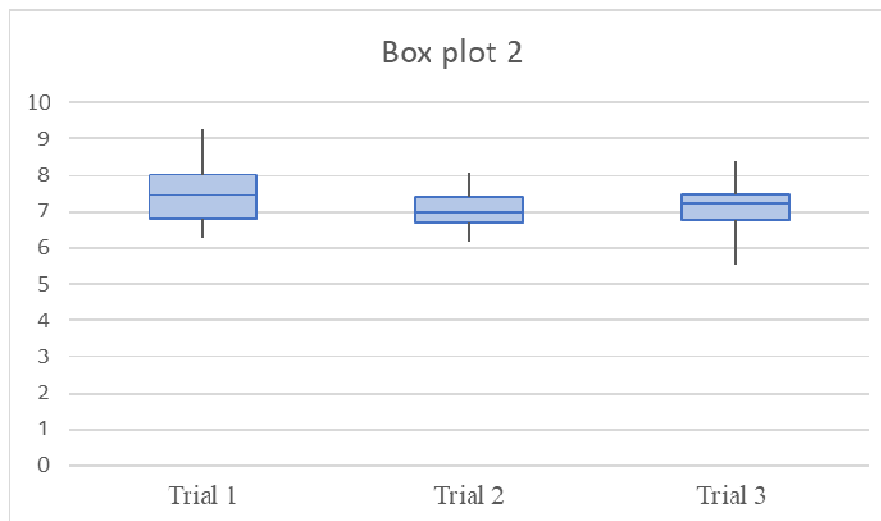


Table 3. Shows results of the exercise 2

Players	Trial 1	Trial 2	Trial 3	Tot. dribbling succeeded	Tot. goals scored
Player 1	9"26	6"64	13"15	3	3
Player 2	7"37	6"38	6"49	4	2
Player 3	8"30	9"63	9"82	2	1
Player 4	6"45	8"36	10"92	3	1
Player 5	8"57	8"28	9"23	4	2
Player 6	6"55	7"60	8"67	5	2
Player 7	7"08	7"11	8"12	3	1
Player 8	8"13	7"45	10"64	5	2
Player 9	8"73	8"34	10"25	3	2
Player 10	9"28	7"29	9"68	1	1
Player 11	7"46	5"83	9"05	5	2
Player 12	7"73	6"61	8"33	2	2
Player 13	8"89	6"83	10"09	2	0

	Trial 1	Trial 2	Trial 3
Minimum	7,37	6,38	6,49
First quartile (Q1)	7,37	6,64	8,67
Median (Q2)	8,13	7,29	9,68
Third quartile (Q3)	8,73	8,28	10,25
Maximum	9,28	9,63	13,15

	Trial 1	Trial 2	Trial 3
Minimum	7,37	6,38	6,49
Q1-min	0	0,26	2,18
Q2-Q1	0,76	0,65	1,01
Q3-Q2	0,6	0,99	0,57
Max-Q3	0,55	1,35	2,9

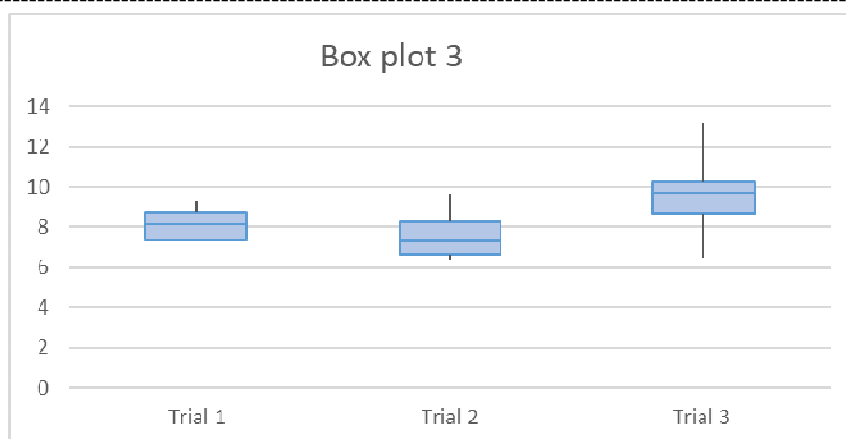


Table 4. Shows results of the exercise 3

Players	Trial 1	Trial 2	Trial 3	Average
Player 1	11"95	11"61	12"19	11"91
Player 2	16"76	15"03	14"87	15"55
Player 3	14"59	16"74	13"00	14"77
Player 4	12"99	16"57	14"93	14"83
Player 5	15"29	15"91	15"90	15"77
Player 6	17"21	14"74	16"08	16"01
Player 7	12"83	17"71	15"04	15"19
Player 8	15"34	15"45	17"93	16"24
Player 9	14"58	14"09	16"48	15"05
Player 10	15"04	15"83	13"49	14"78
Player 11	15"00	13"95	15"38	14"77
Player 12	13"59	12"39	13"69	13"22
Player 13	16"11	16"76	18"92	17"26

Age (9-10 years)	Excellent	Greater than average	On average	Below average	Poor
	Less than 10"	11-13"	14-16"	17-20"	More than 20"

Discussion

This practical-based session demonstrated how the play-practice processes of "shaping" and "focusing" the play are applied to engage players in games-based contexts to facilitate learning. This session highlighted the importance of teaching through the game by exploring the design of authentic challenges engaging players to play and adapt. Attention will be directed to strategies for differentiating the context to cater a diverse participation. The concept of "focusing" the play or "teaching in the game" was demonstrated as a strategy for accelerating learning and drawing attention to specific aspects of skilled play (Bortoli et al., 1991) (Piltz, 2016). Weighted, numbered go-for-goal games provided the context in which to focus the play to develop "game sense" defined by Launder and Piltz (2013) as "the ability to use an understanding of the rules, tactics, strategy and of oneself (and of one's teammates) to overcome the problems posed by the sport or by one's opponents." These games are ideal for focusing on the tactical aspects of game sense as players adopt attack roles, with and without the ball, as well as defending. The session also demonstrated different strategies for "enhancing" the play, to promote player engagement. This enhancement includes embedding a variety of feedback loops within the learning context to maintain engaged states through adjustment, adaptation, and learning.

In the first exercise, an average overall execution time of 7"33 was obtained, overall a good result, since it is fully within the absolute average of the functional assessment considering also the age of reference. As we can also see in Table 1, the mistakes made were very few, mostly due to distractions, or for having accidentally confused the dial corresponding to the number called by the trainer. Interesting were the results obtained from the variant of the exercise, which consisted in going to the cone of opposite color called by the trainer. In this case, the overall average time was 8 "33; more errors occurred since the boys having automated the previous

request, showed more difficulty in executing the request for the new task requested. Only a few boys have made more than one mistakes (player 3, player 6, and player 12) while only the player 4 and the player 13 have not made any mistakes. Despite this, they did not get the best time in the group under consideration. Probably, the worry they had of moving correctly on the cone of opposite color to that called by the trainer, made him lose something in terms of speed and agility. Both for Exercise 1 and for its variant, the box-plot was represented; that is a graphic representation usually used to describe the distribution of a sample through simple dispersion and position indices. It is represented by a rectangle divided into two parts, from which two segments emerge. The rectangle is bounded by the first and third quartiles and divided inside by the median. The segments are delimited by minimum and maximum values. In this way, the four equally populated intervals delimited by the quartiles are represented graphically. For the second exercise, which contained both psychokinetic and technical elements, both the time taken by a player to overcome an opponent in 1vs1 that the number of successful dribbles and goals scored overall in the three available attempts were shown in table 2. The chronometer he was stopped even when the defender managed to intercept the ball, determining the end of the attack action. The overall average time was 8"32. Good results obtained by both player 2 and player 11, respectively the first and second best times, but with only two goals each on three attempts. The only one able to score all and three goals was player 1, but at the same time, it took longer than expected to escape the defensive pressure. As for the first exercise, here too the distribution of the sample through the box-plot was graphically represented. Finally, the last exercise consisted of a technical-coordinative course in the form of a relay race where two teams challenged each other. Three trials were carried out. The chronometer was stopped when the receiver of the passage went to put back the ball inside the circle, allowing the first player in the row to start. A comparison was made between the results obtained from the group under examination and the absolute reference values present in the literature. From the analysis of the data it emerged that only two boys (player 1 and player 12) fall within the range above the average, 10 boys (player 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11) are on average, finally only one boy (player 13) falls within the lower than average range. The trainer can use these results to make changes in the training schedule, or to get guidance on where to work more (Valentini et al. 2017). For sure, these exercises were useful as a strategy for accelerating learning and drawing attention to specific aspects of skilled play (Schmidt et al.1990). Weighted, numbered go-for-goal games provided the context in which to focus the play to develop "game sense" defined by Launder and Piltz (2013) as the ability to use and understanding of the rules, tactics, strategy and of oneself to overcome the problems posed by the game or by one's opponents.

Conclusion

Sport games are characterized by variability. During the game, an ongoing and rapid change of ball possession, tasks, opponents, and game situations exists. This rapid change requires from the players a high degree of development of cognitive skills (Arias et al., 2016). They should perceive the game, act properly, detect the required tasks, and weigh the possible solutions appropriate for the situation. This simultaneous and continuous motion places high demands on the attention, concentration, and anticipation of the players (Ceruso et al. 2019). The use of psychokinetic games is a didactic strategy that stimulates the development of cognitive skill as well as the coordination of individual and collective actions. Psychosocial process are also taken into account. The single player is not only the object of training, but the subject of the training process (Glassauer et al., 2003). The session also demonstrated different strategies for enhancing the play to promote player engagement. This enhancement includes embedding a variety of feedback loops within the learning context to maintain engaged states through adjustment, adaptation and learning.

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