

STUDY ON THE CONCENTRATION OF ATTENTION IN CHILDREN PLAYING FOOTBALL

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Abstract. *The game of football is generally characterised by the joy of playing, creativity, spontaneity and consumption of physical and mental energy, involving the total commitment of athletes. The profile of the future footballer requires a high level of development of intellectual skills and mental qualities such as creativity, anticipation and concentration. We are witnessing impressive progress in technology, which can also be seen more and more in football, from performance measuring instruments to training devices that enhance the player's skills. Thus, in the near future, due to the very fast flow of data, the difference will be largely made by the individual's ability to focus attention and be creative. For this reason, the present study aims to identify the ability to focus attention in children aged 8-10 years, members of two football teams, by highlighting two indicators, namely their speed of information processing and the accuracy of their responses. To this end, we used the Piéron test, which measures the development level of focused attention. The investigated sample consists of 40 children playing football. The research took place in two private children's football clubs in Romania. The training programme proposed by us for the development of on-field attention can be implemented in the training of athletes of different age groups.*

Keywords: *attention concentration, children, football.*

Introduction

The game of football is generally characterised by the joy of playing, creativity, spontaneity and consumption of physical and mental energy, involving the total commitment of athletes. Football is a sport that has become increasingly popular at all levels of society, because it can be played by younger and older people, both men and women. Playing football brings many benefits, especially in terms of physical, mental and social development. Currently, football is progressing at a fast pace. This complex sport requires special techniques and tactics. "Every player should be able to master the basic techniques of playing football." (Burhaein et al., 2020, p. 265)

The ability to perform skilled movement patterns in an efficient and accurate way is the most important aspect of football performance, "and players must apply cognitive, perceptual and motor skills to rapidly changing situations" (Ali, 2011, p. 170).

We are witnessing impressive progress in technology, which can also be seen more and more in football, from performance measuring instruments to training devices that enhance the player's skills. Access to information along with all these technologies can lead to the improvement of player's qualities and implicitly to the development of the game itself. The speed of the game increases considerably from year to year, and players need more and more game skills.

Football is a game of random intermittent nature, during which the critical elements of the game are sometimes determined by chance. If we refer to the learning process experienced by children, we find that their activities are diverse, starting with the way they move, socialise, act and interact with people around them. To support these activities, teachers and coaches need to have the necessary skills to develop “children’s creativity so that they can guide and produce children who have physical motor development, who can adapt to the classroom environment, school, and outside of school” (Susilowati & Suwarjo, 2020, p. 247).

Actually, the sports literature highlights the essential role of focusing attention, which plays a catalytic role in achieving sports performance (Tüdös et al., 2015; Hsieh et al., 2010; Grigore et al., 2015).

The differences in human motor development are determined by predispositions and living conditions. The most important somatic determinants for children and adolescents are body height and subcutaneous adiposity, which primarily affect their speed and strength skills (Puciato et al., 2011).

“Individual physical development includes four aspects, namely the nervous system, muscles, endocrine glands and the physical structure/body. For school-age children and adolescents, optimal physical growth and development is very important” (Susilowati & Suwarjo, 2020, p. 249), because they will directly or indirectly affect their daily behaviour.

At school age, children’s motor development is smoother and gets better coordinated as the child gains weight and strength. Children seem to be able to properly control and coordinate their limb movements. As their arm and leg muscles begin to grow stronger, various physical actions such as kicking, jumping, throwing, catching and running can be performed faster and more accurately (Burhaein et al., 2020). School-age children’s perception is global, even superficial, but it gradually turns into voluntary perception. Their memory is quite well developed, in the sense that they manage to memorise easily but not perfectly and sometimes defectively, especially in the absence of proper guidance.

Typically developing children seem more proficient in learning new skills compared to children with developmental coordination disorders, but more research is needed to confirm that they have a problem to transfer skills to other contexts (Smits-Englesman et al., 2020).

The work atmosphere should maintain the playful character in which children need to acquire a large number of basic or specific skills. Their muscle strength has low values, and maintaining balance is achieved with extra effort. Children’s motor learning ability is remarkable, and their motor skills are subject to processes of consolidation and improvement. In boys, the weakest development is in the case of pull-ups, relaxation, push-ups, mobility in the hip joint and mobility of the back (Motroc & Motroc, 1996).

Attention is the psychophysiological process that consists in the orientation and selective concentration of mental activity on stimuli or tasks in order to obtain optimal perception, adequate resolution of tasks and problem situations and adaptation of sensorimotor, cognitive and affective behaviours to changing external conditions. Pelin et al. (2020) mention focused attention and focus on the present (narrowed focus of attention is required), among the mental states experienced by top athletes when achieving peak performance. Attention appears as a prerequisite for developing the processes of knowledge, self-analysis and self-evaluation, as well as motor behaviours. Attention does not have its own reflective informational content but ensures the triggering, maintenance and optimisation of cognitive mental processes.

Focused attention is triggered concomitantly with the activation of perception by an object-stimulus or the voluntary regulation of representation, memorisation, actualisation, thinking, imagination, praxis, etc. Therefore, it can be said that attention is a relay node of life and mental activity. Attention has its own characteristics. First of all, it is oriented towards something, has an object that can be an external stimulus such as a sound, a light, a painting, or an internal stimulus such as an idea, a desire, a memory. Focusing on an object or phenomenon is often related to a task to be performed, and everything that has a connection with it always attracts attention. Attention is also selective and focuses on certain stimuli that are at its centre, while little or no attention is paid to others. Attention requires optimal concentration of psycho-nervous energy towards what represents its object and therefore is in the field of focus and is well and clearly reflected, while what corresponds to the peripheral area is more vaguely received and interpreted. This optimal concentration is concomitant with both the relative inhibition of other cortical areas and the limitation of the action of collateral stimuli (Tarnovschi, 2020).

Mental training (including attention development) complements practical training and plays an important role in mastering sports techniques and elements (Predoiu, 2016). Focusing on specific moments of the race or match during mental rehearsal urges the repetition of actions or events that may result in success (Gallaway, 2011). Athletes often complain that they can read their opponent and know what to do, but their bodies do not follow their minds. In this case, mental training (which requires focused attention) can improve the situation.

It is estimated that approximately 70-80% of 66,000 daily thoughts are negative and can be amplified in a competitive sports situation. Elite athletes control their negative thoughts by turning them into positive situations that they can use to build themselves (Weinberg & Gould, 2003). It has been shown that positive self-talk can reduce the number of thoughts that interfere with optimal performance. Researchers are interested in promoting effective, desirable behaviours in athletes (Pelin et al., 2018). Self-talk is a powerful tool that can be used to motivate, induce a positive psychological state, increase attention span and reduce negative and disturbing thoughts (Hatzigeorgiadis et al., 2004; Hayslip Jr et al., 2010).

Methodology

Scope

The purpose of this study is to develop a specific training programme for football players aged 8-10 years according to their level of concentration in order to develop the accuracy and speed of information processing in children.

Participants

The investigated sample consists of 40 children aged 8-10 years, members of two football clubs, namely Chelsea Bucharest (20 athletes) and FC Tineretul Bucharest (20 athletes). Of these children, 14 are aged 8 years, 14 are 9 years old and 12 are 10 years old. All children have been playing football for at least one year.

Instruments

The Piéron test was used to measure children's attentional abilities. The indicators monitored in this research were the speed of information processing and the accuracy of responses. Each athlete received a sheet of paper on the desk, which was placed face down. The sheets were not allowed to be turned over before the signal of the teacher or coach. They wrote their last name, first name and age on the sheet. The instruction was standardised: "There are many small squares that have lines oriented in different directions, which makes each square different from the others. Above the squares, in the upper half of the sheet, you will see 4 larger squares. Look carefully at the 4 large squares. You must search and cross out the squares that are identical with the large ones, starting from the left to the right and from top to bottom". Working time is 4 minutes. This test provides valuable data on children's ability to focus their attention, in both quantitative and qualitative terms.

Calculation of results: C represents the correctly crossed out signs; G represents the incorrectly crossed out signs; O represents the missed signs. After analysing all the rows of the test, the quantitative and qualitative aspects of attention were emphasised. Quantity = the sum of correctly (C) crossed out signs, and Quality = $C - G/C + O$. Raw scores were reported to the test standard, and final results were expressed as a percentage.

Procedure

The research took place in two private children's football clubs (Chelsea Bucharest and FC Tineretul Bucharest) from 15.11.2020 (initial testing) to 15.01.2021 (final testing). The test was applied in the paper-and-pencil version to groups of 10-15 athletes. We mention that the informed consent was obtained from their parents, and data confidentiality was ensured.

Results

Table 1 shows the results achieved by our sample in the Piéron test for focused attention.

Table 1. *Piéron test. Initial results for focused attention*

No.	Age	Correct responses	Wrong responses	Missed responses	Quantitative score	Qualitative score
1	9	62	0	7	90%	50%
2	9	90	2	0	90%	80%
3	9	70	15	1	90%	40%
4	10	44	2	16	30%	40%
5	10	38	1	2	20%	70%
6	10	47	0	38	40%	25%
7	9	58	1	4	80%	60%
8	10	45	1	1	40%	80%
9	9	33	0	0	30%	100%
10	10	26	2	7	10%	40%
11	9	44	4	4	50%	40%
12	9	75	1	1	90%	80%
13	9	65	0	15	90%	40%
14	10	58	1	0	60%	90%

15	10	53	1	5	50%	60%
16	10	45	1	0	40%	80%
17	10	45	0	21	40%	40%
18	10	45	1	1	40%	80%
19	10	38	1	2	20%	70%
20	9	44	4	4	50%	40%
21	9	58	1	4	80%	60%
22	10	45	1	1	40%	80%
23	8	34	1	1	50%	70%
24	8	31	0	1	40%	80%
25	8	27	2	1	30%	60%
26	8	23	1	0	25%	75%
27	9	26	3	1	30%	50%
28	8	32	1	1	50%	75%
29	8	38	0	1	60%	80%
30	8	41	2	4	70%	50%
31	8	43	2	3	70%	60%
32	9	57	1	3	80%	60%
33	8	47	5	3	80%	50%
34	9	45	2	2	60%	60%
35	9	49	5	6	60%	40%
36	8	21	1	0	20%	75%
37	8	33	1	9	40%	40%
38	8	27	4	2	30%	40%
39	8	37	3	2	60%	50%
40	8	34	2	0	50%	70%

In order to streamline the data processing and interpretation stage, we summarised all the data obtained in the recording/observation stage; we grouped this information into different categories of values or statistical indicators (Table 2). We also processed and presented the information obtained in the form of graphs.

Table 2. *Statistical analysis of results*

Statistical indicators	Correct responses	Wrong responses	Missed responses	Quantitative score	Qualitative score
MIN	21	0	0	10	25
MAX	90	15	38	90	100
DIF	69	15	38	80	75
Mean	44.32	1.9	4.35	51.87	60.75
STDEV	14.77	2.50	7.13	22.91	17.88

For the correct responses, the minimum value (MIN) recorded was 21, and the maximum value (MAX) was 90; the difference between the minimum and maximum values (DIF) was 69. The arithmetic mean (Mean) was 44.32, and the standard deviation (STDEV) was ± 14.77 . For the wrong responses, the minimum value (MIN) recorded was 0, and the maximum value (MAX) was 15; the difference between the minimum and maximum values (DIF) was 15. The arithmetic mean (Mean) was 1.9, and the standard deviation (STDEV) was ± 2.50 . For the missed responses, the minimum value (MIN) recorded was 0, and the maximum value (MAX) was 38; the difference between the minimum and maximum values (DIF) was 38. The arithmetic mean (Mean) was 4.35, and the standard deviation (STDEV) was ± 7.13 .

For the quantitative score, the minimum value (MIN) recorded was 10, and the maximum value (MAX) was 90; the difference between the minimum and maximum values (DIF) was 80. The arithmetic mean (Mean) was 51.87, and the standard deviation (STDEV) was ± 22.91 . For the qualitative score, the minimum value (MIN) recorded was 25, and the maximum value (MAX) was 100; the difference between the minimum and maximum values (DIF) was 75. The arithmetic mean (Mean) was 60.75, and the standard deviation (STDEV) was ± 17.8867 .

In the following, we will present the means proposed by us to improve the quantitative and qualitative indicators provided by the Piéron test (Table 3). These means are related to the athletes' age and level of training, the information obtained from the test and the facilities existing in the two clubs. The means for the development of on-field attention can become a part of the athletic training, but their systematic approach is required.

Table 3. Means for the development of on-field attention in the case of children

Exercise	Materials needed	Testing place	Description	Dosage
1	Football	Football field	With the ball at the level of the feet, the player must jump on it alternately with one foot and the other, touching the ball with the front of the sole of the foot.	4 x 20 repetitions (3 minutes)/ 30-second break between series
2	Football	Football field	With the ball at the level of the feet, the player must jump on it alternately with one foot and the other, touching the ball with the front of the sole of the foot and performing 10 jumps/touches in a circle to the right and 10 to the left, the ball always remaining in the same place.	4 x 20 repetitions (3 minutes)/ 30-second break between series
3	Football, panel/wall	Football field	While performing footwork 4 m away from the panel/wall, the athlete kicks the ball with the inside of the foot alternately (left-right foot) without stopping.	2 x 4 minutes/ 30-second break between series
4	Football, cones	Football field	“Mirror” - The ball is driven with the right foot to the imaginary centre of the square (Figure 1) by two players at the same time, and when they are about to meet each other, the deceptive movement is initiated by changing the general centre of gravity from one foot to the other or passing the foot over the ball from inside to outside or from outside to inside with a sudden switch of direction while controlling the ball with the outside of the other foot. Next, the ball is driven to the opposite corner, and the exercise is resumed with the left foot.	2 x 4 minutes/ 30-second break between series
5	Football	Football field	“Crowded area” - A ball is placed in the two large squares of the field and each player kicks the ball, initiating the deceptive movement by changing the general centre of gravity from one foot to the other or passing the foot over the ball from inside to outside. The deceptive movement is performed whenever a partner appears in front of the ball. Those who lose control of the ball (get out of the exercise area or hit the opponent) perform 10 squats.	2 x 4 minutes/30-second break between series
6	Football	Football field	In pairs, facing each other at a distance of about 2m, one player holds the ball in his hand, while the other performs continuous footwork. The player with the	2 x 4 minutes/ 30-second break between series

			ball sends it close to the foot of his colleague, who gets it with the instep of the foot and sends it to the partner's chest.	
7	Football, cones	Football field	“Coloured corners” - Cones of different colours are placed in each corner of the square, which is represented by a colour (white, blue, green and red). Players perform various forms of free walk and run across the square and, at the sound signal, the coach will raise a coloured cone. Players must process the information quickly and speed up to the corner having that colour.	2 x 4 minutes/ 30-second break between series
8	Football	Football field	Two players are placed 10 m apart and have one single ball; a player drives it 5-6 m and then passes it to the other player who takes possession of the ball, drives it and passes it in the same way, continuing the exercise.	2 x 4 minutes/ 30-second break between series
9	Football, cones	Football field	2 against 2 in a square with sides of 10m; in each corner of the square, there is a 1-meter gate delimited by cones. Players in possession of the ball must pass it through the goal, while the others must take possession of the opponent's ball.	2 x 4 minutes/ 30-second break between series
10	Coordination ladder	Football field	Traversal variants involving coordination are used and a large number of repetitions and movements of the segments are performed.	2 x 4 minutes/ 30-second break between series
11	Coloured sticks (red, yellow, green, blue), cones, tennis ball	Football field	The athlete is between two cones (placed 5m apart) and must drive the ball with his right foot to a cone and make a short and clear turn on the right foot. Immediately after this, the player starts driving the ball with his left foot to the next cone, and then makes another turn on the left foot. After each return, the player must transfer a tennis ball from one hand to the other but only if the coach smiles; otherwise, the ball will not be transferred. The athlete must also say the colour/colours that the coach raises above his shoulder, namely red, yellow, green or blue.	4 x 2 minutes/ 30-second break between series
12	Football, cones	Football field divided into 4 zones	Players will choose 4 dribbles used by their favourite players (example: bicycle, double return, wide return). They will play a school match between them on a field divided into 4 zones. Only a certain dribble is allowed in each area.	4 x 3 minutes/ 1-minute break between series

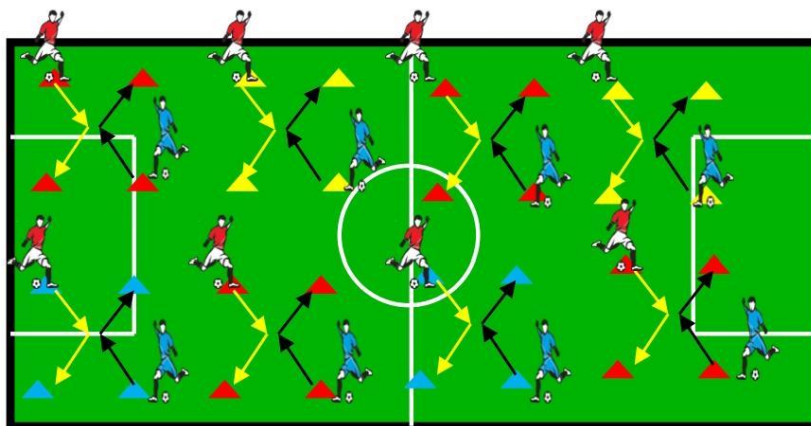


Figure 1. “Mirror” exercise

Table 4 shows the planning of the 12 exercises for the development of on-field attention, which were performed at the end of the training sessions (each training session lasted approximately 90 minutes).

We would like to point out that one of the authors of this study worked with athletes from Chelsea Bucharest on Mondays, Wednesdays and Fridays from 5:00 to 6:30 pm. In the case of football players from FC Tineretul Bucharest, the above author attended the training sessions conducted by the coach of FC Tineretul Bucharest between 6:30 and 8:00 pm. The coaches of the two teams involved in the research had the same approach, with the same classic exercises being performed in the first part of the training sessions over the two months. These workouts (performed in the first 50-60 minutes of each session) consisted of exercises aimed at learning both the technical elements of ball transmission and the collective tactical attacking actions.

Table 4. *Planning proposal for the development of on-field attention*

	Exercise	Minutes
	Week 1 (3 times per week)	
Day 1	1, 3, 4, 5	30
Day 2	6, 7, 10, 12	40
Day 3	2, 8, 9, 11	30
	Week 2 (3 times per week)	
Day 1	1, 3, 6, 8	30
Day 2	7, 10, 11, 12	40
Day 3	2, 4, 5, 9	30
	Week 3 (3 times per week)	
Day 1	1, 4, 10, 12	35
Day 2	2, 6, 9, 11	30
Day 3	3, 5, 7, 8	35
	Week 4 (3 times per week)	
Day 1	10, 6, 3, 1	30
Day 2	12, 7, 4, 2	40
Day 3	11, 9, 8, 5	35

We then verified the effectiveness of the programme (included in the 90 minutes of each training session) in improving the quantitative and qualitative indicators of attention in football players aged 8-10 years.

Table 5 shows the final results achieved by the sample in the Piéron test for focused attention.

Table 5. *Piéron test. Final results for focused attention*

No.	Age	Correct responses	Wrong responses	Missed responses	Quantitative score	Qualitative score
1	9	66	1	8	90%	50%
2	9	82	1	4	90%	70%
3	9	62	9	2	90%	40%
4	10	49	3	12	50%	40%
5	10	35	2	0	20%	75%
6	10	52	1	31	50%	30%
7	9	55	3	2	75%	60%
8	10	50	2	2	70%	70%

9	9	35	1	0	50%	80%
10	10	29	3	3	10%	50%
11	9	48	2	1	60%	70%
12	9	71	1	0	90%	80%
13	9	62	1	11	90%	40%
14	10	55	2	1	60%	75%
15	10	59	2	1	70%	75%
16	10	50	1	1	50%	80%
17	10	48	2	10	40%	50%
18	10	48	1	2	40%	75%
19	10	44	2	1	30%	70%
20	9	39	2	1	40%	60%
21	9	51	1	2	70%	70%
22	10	48	1	1	40%	80%
23	8	39	2	1	60%	75%
24	8	41	1	1	70%	80%
25	8	36	1	2	55%	75%
26	8	29	1	1	40%	75%
27	9	29	1	0	20%	75%
28	8	39	1	0	60%	80%
29	8	39	1	1	60%	80%
30	8	49	1	2	80%	75%
31	8	45	3	1	75%	70%
32	9	59	2	2	70%	60%
33	8	48	6	2	80%	50%
34	9	50	1	3	70%	60%
35	9	45	7	3	50%	40%
36	8	25	2	1	30%	50%
37	8	34	4	8	50%	30%
38	8	25	5	1	30%	40%
39	8	34	4	6	50%	40%
40	8	39	3	1	60%	60%

In order to streamline the data processing and interpretation stage, we centralised all the data obtained in the recording/observation stage; we grouped this information into different categories of values or statistical indicators (Table 6). We also processed and presented the information obtained in the form of graphs.

Table 6. *Statistical analysis of final results*

Statistical indicators	Correct responses	Wrong responses	Missed responses	Quantitative score	Qualitative score
MIN	25	1	0	10	30
MAX	82	9	31	90	80
DIF	57	8	31	80	50
Mean	46.07	2.25	3.3	57.12	62.62
STDEV	12.54	1.80	5.42	20.96	15.89

For the correct responses, the minimum value (MIN) recorded was 25, and the maximum value (MAX) was 82; the difference between the minimum and maximum values (DIF) was 57. The arithmetic mean (Mean) was 46.07, and the standard deviation (STDEV) was ± 12.54. For the wrong responses, the minimum value (MIN) recorded was 1, and the maximum value (MAX) was 9; the difference between the minimum and maximum values (DIF) was 8. The arithmetic mean (Mean) was 2.25, and the standard deviation (STDEV) was

± 1.80 . For the missed responses, the minimum value (MIN) recorded was 0, and the maximum value (MAX) was 31; the difference between the minimum and maximum values (DIF) was 31. The arithmetic mean (Mean) was 3.3, and the standard deviation (STDEV) was ± 5.42 .

For the quantitative score, the minimum value (MIN) recorded was 10, and the maximum value (MAX) was 90; the difference between the minimum and maximum values (DIF) was 80. The arithmetic mean (Mean) was 57.12, and the standard deviation (STDEV) was ± 20.96 . For the qualitative score, the minimum value (MIN) recorded was 30, and the maximum value (MAX) was 80; the difference between the minimum and maximum values (DIF) was 50. The arithmetic mean (Mean) was 62.62, and the standard deviation (STDEV) was ± 15.89 .

Figure 2 shows the difference between the average quantitative score and qualitative score in the initial and final tests. In the initial test, the average quantitative score is 51.87, and the average qualitative score is 60.75. In the final test, the average quantitative score is 57.12, and the average qualitative score is 62.62.

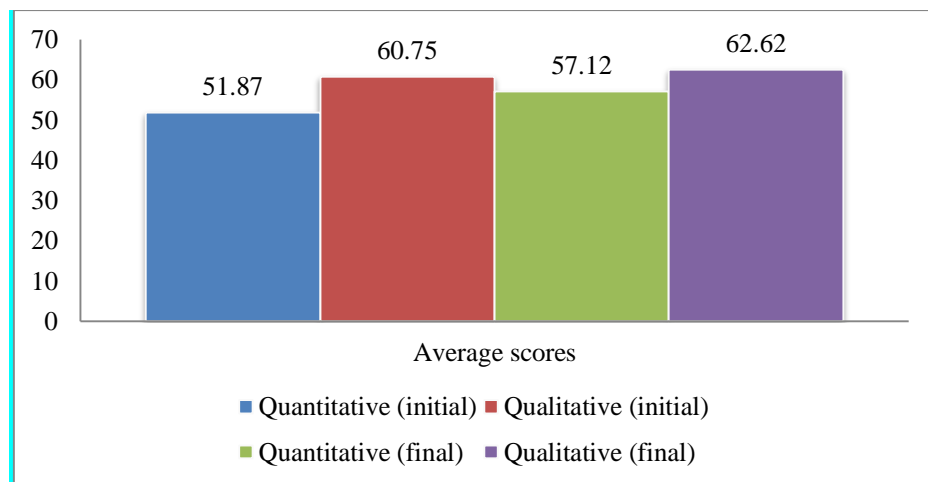


Figure 2. Average quantitative and qualitative scores – Initial and final tests

Table 7. *t Test: Quantitative score*

Paired <i>t</i> test	Initial	Final
Mean	51.87	57.125
Variance	525.24	439.59
Observations	40	40
Pearson Correlation	0.883	
Hypothesized Mean Difference	0	
Df	39	
<i>t</i> Stat	-3.091	
P(T<=t) one-tail	0.001	
<i>t</i> Critical one-tail	1.684	
P(T<=t) two-tail	0.003	
<i>t</i> Critical two-tail	2.022	

Table 8. *t* Test: Qualitative score

Paired <i>t</i> test	Initial	Final
Mean	60.75	62.625
Variance	319.93	252.54
Observations	40	40
Pearson Correlation	0.775	
Hypothesized Mean Difference	0	
Df	39	
<i>t</i> Stat	-1.033	
P(T<=t) one-tail	0.153	
<i>t</i> Critical one-tail	1.684	
P(T<=t) two-tail	0.307	
<i>t</i> Critical two-tail	2.022	

A comparison between initial and final test results highlights the following (Table 7):

The *t*-Stat value is -3.091, while the *t*-Critical two-tail has the value 2.022 relative to Fisher's Table for $p < 0.05$ at $n-1$ and a 95% confidence interval. The effect size index (Cohen's d) = 0.49, which reveals that the effect size is average in the case of quantitative scores.

Table 8 shows that the *t*-Stat value is -1.033, while the *t*-Critical two-tail is 2.022 relative to Fisher's Table for $p < 0.05$ at $n-1$ and a 95% confidence interval ($p = 0.307$ - no significant differences between the results).

Discussion and conclusion

The profile of the future footballer requires a high level of development of intellectual skills and mental qualities such as attention concentration, creativity and anticipation (Burhaein et al., 2020). Focusing attention gives players the opportunity to use complex means and techniques, depending on certain situations that the game offers every second (Susilowati & Suwarjo, 2020). Armando and Rahman (2020) define the dribble as “the movement to run using the foot to push the ball to roll continuously on the ground” (p. 118), which requires focusing attention while performing it.

The spatial, temporal and energy characteristics of technical elements used in the game of football require special cognitive processes such as memory, thought or imagination (attention, as a regulatory mental phenomenon, accompanies these processes). Football players have some traits that influence their decisions during the game, such as stability, on-field movement and concentration, which differ from one technical/tactical situation to another and from one game system to another (Teodorescu & Dănăşel, 2014).

By determining the level of concentration of attention in football players aged 8-10 years, a specific training programme was designed to act upon the indicators (speed or accuracy) provided by the Piéron test for focused attention. Fetean et al. (2021) intervened with age-specific football games to increase the attentional level (distributed attention and focused attention) of football players aged 9-10 years. As the authors mentioned, when talking about “sport psychology studies focused on younger football players, the information is less approached” (p. 206).

Considering the current study, the following conclusions can be highlighted:

- After applying the Piéron test for focused attention, it has been found that the accuracy of responses is at a higher level (compared to the speed of responses) at group level.
- For the quantitative score (initial test), the average is 51.87, while for the qualitative score (initial test), the average is 60.75.
- For the quantitative score (final test), the average is 57.12, while for the qualitative score (final test), the average is 62.62.

Therefore, the group of athletes obtained an average quantitative score (taking into account the standards that level the age-related differences) and a slightly above-average result in terms of qualitative score (accuracy). The statistically significant differences observed as regards the quantitative dimension of the Piéron test (speed of responses) allow us to say that the significant improvements achieved are also due to the exercise programme intervention. No significant differences were found when talking about the qualitative dimension (accuracy of responses).

The study results offer valuable data to coaches, sports psychologists and parents, raising awareness of the attention level of children (football players), both quantitatively and qualitatively. We propose that our training programme for the development of on-field attention be introduced in the training of football players aged 8-10 years, based on its contribution to increasing the speed of information processing in the case of children, while qualitative responses have also recorded small progress.

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Authors' Contribution

All authors have equally contributed to this study and should be considered as main authors.

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