



GEOSPORT FOR SOCIETY

Scientific Journal founded in 2014 under aegis of University of Oradea (Romania),
University of Debrecen (Hungary), University of Gdansk (Poland)

ISSN 2393-1353

Edited by Oradea University Press

1, University Street, 410087, Oradea, Romania

Journal homepage: <http://geosport.uoradea.ro>



Aspects regarding speed development in football game in 12 - 14 years old children

Sorin BUHAȘ^{1*}, Grigore Vasile HERMAN², Mirela ȘTEF³

1. University of Oradea, Department of Physical Education, Sport and Physical Therapy, 1 University St., 410087 Oradea, Romania, e-mail: sorin.buhas@gmail.com
2. University of Oradea, Department of Geography, Tourism and Territorial Planning, 1 University St., 410087 Oradea, Romania, e-mail: grigoreherman@yahoo.com
3. University of Oradea, Department of Physical Education, Sport and Physical Therapy, 1 University St., 410087 Oradea, Romania, e-mail: mirelastef80@gmail.com

* Corresponding author

Article history: Received: 16.04.2018; Revised: 20.05.2018; Accepted: 18.06.2018, Available online: 04.07.2018

Abstract: Football in schools, top level football, or football for masses have a wide range of issues studied by theory and methodology in order to render these football branches more effective, and to find other ways or means to achieve in optimal conditions the objectives of this sports area. Football theory comprises a wide array of knowledge structured into a coherent and logical system that describes and explains this phenomenon. Thus, theory is divided into two notions, one being the description of the content, and the other, its explanation. Football methodology takes over and adapts some general principles, methods and means of pedagogy, physical education, sports, sports training, but also of sports games methodology. It also includes principles, methods and means of training in football. In schools, football is part of the curriculum. In this context, we aim to study some aspects of speed development using football and its specific methods as intervention means. The age category we have addressed is represented by children aged 12-14 years. We chose to study speed development because it is an extremely important element in the acquisition of motor skills at this specific age in children.

Keywords: football game, speed, speed development, speed in football game

Introduction

Football is much more than a ball game, it is the sport played and loved in almost every country (Ilieș et al., 2016; Kozma et al., 2015; Scutti and Wendt, 2016).

Due to the elegance of its moves, boldness and courage, football is maintained in the top of sports, being known as the "King Sport", and it has a huge impact on any child who watches with intensity, desire and enthusiasm the game played by the favorite team, trying to imitate in front of friends the idols on screen, as soon as possible (Dumitrescu and Deac, 2009; Buhaș, 2015; Buhaș et al., 2017).

Football is also a game played in schools starting from the age of 5-6 years (Ionescu and Demian, 2007). Through football, children develop physically, mentally and socially, because it is a team game that requires a lot of communication between teammates (Allen et al., 2011; Graydon and Murphy, 1995; Kaiseler et al., 2012).

Football is part of the school curriculum alongside other sports games such as basketball, handball or volleyball, all having as their main objective a harmonious physical development of pupils (Carreiro and Onofre, 2005; Cristea et al., 2013). Likewise, each sports game develops motor skills and competences based on technical elements and techniques presented in each physical education class in schools (Lucaciu et al., 2015).

Football, which is provided in the school curriculum as well as the other sports games mentioned above, should be encouraged to be practiced also as an extracurricular activity (Cristea, 2015). The teacher is "forced" to deliver an attractive physical education and sports class to pupils, where they should come with pleasure and not because they are bound by school curriculum or schedule (Lavin, 2008).

This paper addresses some aspects related to speed development in football game in 12-14 years old children, as one of the most important motor skills.

Football has developed a lot since its occurrence and is still constantly developing in order to lead the game to another level, with competitions for all ages and categories: from football for masses to top level football (Bairner, 2011; Herman, 2016). The level at which football is practiced is very high, evolving in qualitative and quantitative terms (Dragoș, 2015; Marcu and Buhaș, 2014). The Romanian Football Federation periodically elaborates game and training concepts corresponding to all age categories, taking into account also the evolutionary trends at international level (Reilly and Williams, 2003).

Thus, being a collective sport, football engages young people to be more sociable, because a team must trust all its partners or colleagues (Ostojic, 2001). This sport is practiced based on specific game rules; it satisfies young people's desire to compete, but, at the same time, the audience enjoys the beauty and spectacularity of the game (Thiebault, 1998).

Nowadays, football is a complex area of the social life (Ilieș et al., 2014). As a sport discipline, football is integrated into the theory and methodology of sports games and can be also found in the science of physical education and sports at global level (Burke et al., 1986; Brewer, 1990; Pantelis et al., 2011). Being a bio-psycho-socio-pedagogical synthesis discipline, it has several study elements: the game itself and its improvement, training rules and methodology in order to maximize collective and individual performance (Turpin, 1998).

The science that studies the laws of physical education and sports is the Theory and Methodology of Physical Education and Sport, where other sports disciplines fall in also. The science and study of football is considered to emerge from

the general theory of physical education and sports, and only so we can talk about football as a scientific discipline taught in higher education institutions, under different forms of classes for different study programs.

Aim

Football is one of the sports game concept elements that finds its applicability in the education units and forms aiming at training, qualifying and perfecting football specialists. All pupils must be provided with superior physical development elements, skills and strength, basic and secondary motor skills and abilities, and also with the ability to apply them in different conditions independently or individually, without the help of coaches or teachers. A harmonious physical development is very important in the life of both athletes and non-athletes individuals, remaining an important principle that expresses a general orientation of the instructive-educational process (Biddle, 1992). The practice of football in school is presented as a complex of elements that comprises activities developed for instructive-educational purposes during physical education classes and specialized activities, very well organized in sports clubs or special classes within the educational process, aiming at sports performance (Brustard, 1992).

Like other ball games, football, practiced either on a reduced or normal size football ground, has positive effects on practitioners and can supplement some of the traditional means of physical education, and helps physical and sports education to achieve its goals and tasks for all categories of pupils, starting with the primary cycle, continuing with gymnasium and ending with high school level. At the same time, in addition to traditional means, football practice in schools develops some motor skills at a higher level, including speed in all its forms.

Morphological and functional characteristics at the age of 12-14 years

Boys of 12-14 years old are in a complex stage of their development and growth at that particular age - puberty. The attention in children aged 12-14 years is unstable, which must be taken into account especially because children are alert and sensitive; therefore, care must be taken with regard to the use of certain words, and also a warm and familiar language combined with parental severity should be used. The locomotor system suffers the most obvious change: the length of the limbs increases at the expense of muscle strength because fibers stretch to the detriment of their thickness. The nervous system is not yet balanced, children's movements being still brusque at this age. The nervous system activities of children reaching puberty have a direct influence on the formation speed and stabilization of the main and secondary motor skills; at the same time, they are also favoring fatigue and are weakening to a fairly large extent the will and perseverance. The cardiovascular system also undergoes changes; because the heart is very voluminous compared to the thorax, the regulation mechanisms for blood circulation are very often disturbed, even at a very high level to a sustained effort. The respiratory system develops intensely during this period, the lungs increase in weight as well as in volume, and hence their anatomical capacity increases by 50%. At the same time, the amplitude of breathing increases to 300 ml from 230 ml, but the breathing frequency decreases (from 22 per minute at 11 years old, to 20 per minute at 13 years old).

Hypothesis

Our study started from the fact that speed, in all its forms of expression, has a great importance for the football game. The tests that we have used have been designed to develop the speed that pupils need in football game: the reaction speed, the movement speed, the execution speed and the specific speed. Through our tests we have also tried to develop the explosive force that pupils need in some important aspects of football.

Objectives

Speed in football game can be understood by the player's ability to move his body or a segment of his body in as short time as possible. If speed is poorly developed, it negatively influences other motor skills, and also the performance of tactical tasks on time. Speed is required for players in all actions they take, their running distance is rather small, 20-60m, but it's linked to their position in the field or to the moment of the game. Players' movement speed is rather native, and it can be developed through continuous and systematic work. It is recommended to be developed during adolescence. This motor skill is influenced by the strength of lower limb muscles.

The importance of speed development in football

In order to develop speed, a continuous work throughout the year is necessary. Speed is the motor skill that can be easily lost. In order to develop the speed, an important role is played by the player's formation period, more specifically the period of childhood and junior ship. At this age, when the cerebral plasticity is very high, the child must learn to run correctly and get used to a disciplined work. Speed is characterized by determined genetic attributes of receiving, processing, or transmitting information to the external and internal environment through peripheral controls on the muscles. The development of this motor skill is a very important one, thus, in this case, it should not be seen as an innate talent that will erupt sooner or later. Even if a child has a talent for speed run, this being his main skill, speed must be given constant attention throughout the entire growth period in order not to be lost but improved. Between 11-12 years old, alongside with the improvement of movements, the speed improves greatly, and at 13-14 years old best results can be obtained regarding its improvement.

Material and method

The research was conducted at a high school having football groups. The duration of the research was 10 weeks. The training took place on the high school's sport base. The tests were conducted on a number of 10 pupils – male athletes.

Test no. 1 – Accelerated run (sprint) 5 m.

This test aims at assessing the movement speed and response speed over a short distance of 10 meters. The athlete sprints at the sound signal behind the starting line, at the highest speed, stopping only after he passes the 10 m finish line.

Test no. 2 – Shuttle run 4x10 m

The test is made on a flat surface marked with two lines at a distance of 10m from each other, with poles at each end of the line in order to have a much better view of the

route. The runner is behind the starting line, runs at the highest speed to the other line and he has to overcome this line with both legs in order to be able to return.

Test no. 3 – Shuttle run 4x10 m

It is a specific exercise to determine the explosive force of lower limbs.

Test no. 4 - Accelerated run on a distance of 60 m

The exercise is also found in the school curriculum, but on a distance of 50 m. The departure is done behind the starting line, the run is at the highest speed, exceeding the finish line by another 2-3m in order to avoid slowing down before the imposed 60 m. Some researchers state that the test method is not considered a method itself, but only a procedure of the experimental method. The tests include all kinds of standardized and validated tests that apply to all research subjects, having a very accurate results assessment.

Results

The following tables present the initial, final and the arithmetic mean of the four tests we have used:

Table 1. Accelerated run (sprint) 5 m

No.	Player	Initial testing	Final testing	Mean
1	Z.S	1,98"	1,95"	1,96"
2	B.C	1,98"	1,96"	1,97"
3	A.E	1,95"	1,93"	1,94"
4	B.A	1,97"	1,95"	1,96"
5	T.G	1,95"	1,94"	1,94"
6	N.M	1,96"	1,96"	1,96"
7	F.S	1,94"	1,92"	1,93"
8	S.R	1,96"	1,93"	1,94"
9	V.J	1,99"	1,95"	1,97"
10	U.R	1,94"	1,93"	1,93"
Minimum		1,94"	1,92"	1,93"
Maximum		1,99"	1,96"	1,97"

Table 2. Shuttle run 4x10 m

No.	Player	Initial testing	Final testing	Mean
1	Z.S	10,4"	9,8"	10,1"
2	B.C	11,2"	10,2"	10,7"
3	A.E	10,7"	9,9"	10,3"
4	B.A	11,5"	10,4"	10,95"
5	T.G	12,0"	11,2"	11,6"
6	N.M	11,9"	11,2"	11,95"
7	F.S	10,1"	9,7"	9,9"
8	S.R	11,2"	10,3"	10,75"
9	V.J	12,2"	11,5"	11,85"
10	U.R	10"	9,6"	9,8"
Minimum		10"	9,6"	9,8"
Maximum		12,2"	11,5"	11,85"

This test attempted to develop the reaction and short-distance acceleration speed. Most pupils have achieved very good results. We can observe the obvious improvement of the final results compared to the initial ones (table 1).

Following this test, both speed and the force of the lower limbs are developed at the same time. The best result after the final testing was of 9.6 seconds, improved by 0.4 hundredths, while the lowest result was of 11.5 seconds, but improved by 0.7 hundredths (table 2).

Table 3. Standing long jump

No.	Player	Initial testing	Final testing	Mean
1	Z.S	1,72 m	1,82 m	1,77 m
2	B.C	1,75 m	1,80 m	1,75 m
3	A.E	1,70 m	1,75 m	1,72 m
4	B.A	1,69 m	1,73 m	1,71 m
5	T.G	1,72 m	1,77 m	1,74 m
6	N.M	1,74 m	1,78 m	1,76 m
7	F.S	1,77 m	1,84 m	1,80 m
8	S.R	1,75 m	1,80 m	1,77 m
9	V.J	1,72 m	1,76 m	1,74 m
10	U.R	1,74 m	1,80 m	1,77 m
Minimum		1,69 m	1,73 m	1,71 m
Maximum		1,77 m	1,84 m	1,80 m

After performing the standing long jump, pupils were aware that the development of expansion and lower limb force helps developing the explosive reaction speed; lower limbs force in relation to speed is required in the football game as players need a very well-developed reaction speed (table 3).

Table 4. Accelerated run (sprint) 60 m

No.	Player	Initial testing	Final testing	Mean
1	Z.S	9,0"	8,6"	8,8"
2	B.C	8,7"	8,5"	8,6"
3	A.E	8,9"	8,3"	8,6"
4	B.A	8,5"	8,4"	8,45"
5	T.G	9,1"	8,8"	8,95"
6	N.M	9,4"	9,2"	9,3"
7	F.S	8,5"	8,2"	8,35"
8	S.R	8,9"	8,7"	8,8"
9	V.J	9,3"	8,9"	9,1"
10	U.R	9,0"	8,7"	8,85"
Minimum		8,5"	8,2"	8,35"
Maximum		9,4"	9,2"	9,3"

This last test created an emulation between competitors, each of them wanting to win. After the final test, the best result was of 8.2 seconds, and the lowest was of 9.2 seconds, still a good result taking into consideration their training conditions (table 4).

Conclusions

The activity of the tested pupils is fairly good related to their age: 12-14 years old. We analyzed the results obtained from the exercises used to develop the speed in the football game, some of them generating very good results for a group of pupils-athletes. During the 10 weeks of study, we have been able to harmonize the working group, so that the results to be as conclusive as possible. At the same time, the four final tests were well applied, ordered and with a 100% presence of the 10 pupils undergoing these tests. The reaction of the subjects was a positive one; they were constantly trying to self-defeat. During the training, pupils have had the necessary motivation to give their best for each class or training in what regards the competition with themselves. The communication of the results from the initial tests provoked a state of emulation and a sense of self-denial, observed in the results of the final tests. These trainings did not lack the exercises for learning, strengthening or improving the technical elements, as these pupils are still in the process of accumulation.

The exercises used for speed development were also present during the first part of the training, during the warming up period, after running and jumping exercises in order to increase the heart rate. Other used exercises were shuttle ones, some short ones of 4x5 meters, accelerated running with direction changes on short distances from one pole to another in different directions, but also the use of startups from different positions to an audible or visual signal, which have proven very useful for reaction speed development. In order to develop the execution speed and explosive force, during the warm up for the testing we have used some completion exercises, ball passing between two pupils at high level on distances of 10-20 meters or more jumping exercises. At the end of the trainings, after a football game with a reduced number of players, we introduced relay races, on teams, because it helps develop the speed, and other competitive games between one or more teams, because the competition with one another increases the winning spirit and the participants are very focused and motivated to obtain the victory for their own team. Most exercises were put into practice during these trainings, combined both with other exercises specific to football game and with tactical training.

We have been able to create emulation and a state of expectation regarding the improvement of outcomes among pupils. For any 12-14 year old pupil, these tests are annoying or "tiring", because they are particularly fascinated by the ball. Through several contest games, we tried to capture their attention and make them understand

football as it is, that is a lot of work. Only through work, ambition and will you can improve yourself and be motrically and harmoniously developed.

In conclusion, pupils did well, some results being very good, and they all passed through a series of exercises and tests that will change their attitude, motivation and desire to practice a sport which is essential to their physical and mental development.

References

- Allen, M. S., Greenlees, I., Jones, M., (2011), *An investigation of the five-factor model of personality and coping behavior in sport*, in Journal of Sports Sciences, 29(8), 841-850.
- Bairner, A., (2011), *Soccer and Society in Eva Menasse's Vienna*, Sport in history, 31(1), 32-48.
- Biddle, S., (1992), *Sport and exercise motivation: a brief review of antecedent factors and psychological outcomes of participation*, Physical Education Review, 15, pp. 98-110.
- Brewer, J., (1990), *Changes in selected physiological characteristics of an English first division soccer squad during a league season*, Journal of Sports Sciences, 8, 716-717.
- Brustard, R.J., (1992), *Integrating socialization influences into the study of children's motivation in sport*, In Journal of Sport & Exercise Psychology, 14, pp. 59-77.
- Buhaș, S. D., (2015), *Sports and Physical Education – Forms of Socialization*, GeoSport for Society, 3(2), 53-60.
- Buhaș S. D., Herman, G. V., Dragoș, F. P., Stance, L., (2017), *Football and economy before and after communism in Romania*, GeoSport for Society, (6)1: 30-39.
- Burke, L.M., Gollan, R.A., Read, R.S., (1986), *Seasonal changes in body composition in Australian rules footballers*, British Journal of Sports Medicine, 20.
- Carreiro da Costa, Onofre, M., (2005), *Active Lifestyles: The Impact of Education and Sport*, Proceedings of the AISEP 2005, World Congress, Lisboa, Edicoes FMH. pp.293-305.
- Cristea, D. I., (2015), *Considerations regarding creativity in physical education class*, Annals of the University of Oradea - Physical Education and Sport Fascicle, 25, 46-50.
- Cristea, D., Lucaciu, Gh., Ștef, M., (2013), *Comparative study on the attractiveness of physical education classes in the gymnasium and high-school*, Annals of the University of Oradea - Physical Education and Sport Fascicle ISSN 2286 - 2870, ISSN-L 1224 - 5100, pp. 13-20.
- Dragoș, P., (2015), *Aspects regarding efficiency at work in certain Sport organizations*, In Geosport for Society, 2 (1), pp. 21-26.
- Dumitrescu G., Deac Anca (2009), *Football, general notions regarding technique, strategy and rules, Oradea*, Oradea University Publishing House.
- Graydon, J., Murphy, T., (1995), *The effect of personality on social facilitation whilst performing a sports related task*, in Personality and Individual Differences, 19(2), 265-267.
- Herman, G. V., Buhaș, S. D., Stance, L., Pop A-C., (2016), *Considerations regarding the evolution, distribution and dynamics of the Romanian football (League I) between 1989–2016*, GeoSport for Society, 5(2), 69-78.
- Ilieș, A., Dumitrescu, G., Dragoș, P., Buhaș, S., (2014), *Sport, infrastructure and sport activities-tourist resources*, in A. Ilieș (Ed.), Crișana-Maramureș. Geographical Atlas of Tourist Patrimony (pp. 280–285), Oradea, RO: University of Oradea Press.
- Ilieș, A., Stance, L., Bulz, G., (2016), *Geographical landmarks for delimitation of sport-cultural space defined by amateur football in Crișana and Maramureș (2011-2016)*, Annals of the University of Oradea, Geography series, 26(2), 223-234.
- Ionescu I., Demian M., (2007), *Football success, Training methodology between 6 și 19 years*, Timișoara, Artpress Publishing House.
- Kaiseler, M., Polman, R. C., Nicholls, A. R., (2012), *Effects of the Big Five personality dimensions on appraisal coping, and coping effectiveness in sport*, in European Journal of Sport Science, 12(1), 62-72;
- Kozma, G., Bacs, Z., Zilinyi, Z., (2015), *The possibilities and results for the scientific research into the relationship between settlements and sport*, in Geosport for Society, 3 (2), p. 41-52.
- Lavin J., (2008), *Creative approaches to Physical Education, Helping children to achieve their true potential*, Routledge, London and New York.
- Lucaciu, G., David, L., Lucaciu, S., Pop, A.C., (2014), *Effects of mountain tourism practice*, Annals of the University of Oradea - Physical Education and Sport Fascicle, 24, 82-86.

- Marcu, V., Buhaş, S., (2014), *Sports Organizations –Management and Science*, Procedia-Social and Behavioral Sciences, vol. 117, pp. 680.
- Ostojic, S.M., Zivanic, S., (2001), *Effects of training on anthropometric and physiological characteristics of elite Serbian soccer players*, Acta Biologie et Medicinae Experimentalis, pp. 48.
- Pantelis, Th., N., Nikos, V.,K., (2011), *Physique and Body Composition in Soccer Players across Adolescence*, Asian J Sports Med. 2011 Jun; 2(2): pp.75–82.
- Reilly, T., Williams, A., (2003), *Science and Soccer, 2nd edition*, Published by Routledge, New York, pp.21-47, pp. 287-307.
- Scutti, G., Wendt, K. A., (2016), *Football and Geopolitics*, GeoSport for Society, 5(2), 100-106.
- Thiebault, C., Sprumont, P., (1998), *L'enfant et le sport*, Edition De Boeck, Bruxelles, pp. 115-128.
- Turpin B., (1998), *Préparation et entraînement du footballeur*, Collection Savoir-Faire Sportif dirigée par Luis Fernandez, Éditions Amphora.