



TRACKING THE EFFECT OF AN INNOVATIVE OUTDOOR FOOTBALL METHODOLOGY

P. Angelova*

Department of Physical Education and Sport, Trakia University, Stara Zagora, Bulgaria

ABSTRACT

The application of this experimental model *aims* to track the effect of an innovative football methodology designed for active sports students from primary school. Methods for achieving the experimental methodology: A pedagogical experiment was conducted with a developed model of football lessons for 30 school hours with students from grades 4 and 5, divided into two target groups - experimental and control. As a *result* of the pedagogical experiment on the application of the innovative football methodology, an increase in the motor activity of students from the studied contingent was established. As a result of the experiment, reliable changes were established in the magnitudes of achievements in the speed tests (-7.00%), reaction speed (-19.62%), dribbling (-8.38%), juggling (57.76%), i.e. the results revealing the motor abilities and technical skills of students from the target age period were improved as a result of the pedagogical experiment, regularly practiced within one school year.

Keywords: football methodology, innovative training, experimental model

INTRODUCTION

In modern football, impressive sporting results are achieved by teams that have professional football players with highly developed physical qualities, sports and technical skills, and the ability to manage mental processes and states. Most often, the task associated with the development of professional football players through specialized multi-year training is assigned to the competence of clubs and, more precisely, their children's and youth schools and academies. When selecting children, adolescents, and young people, the general maturity of the parties in society is significantly influenced. And not only for male individuals. As noted in a scientific study on the promotion of women's football, the interest in it is tremendous (1). Outdated methodology and boring exercises are not able to fight the temptations that attract the younger generation and distance them from mass sports. This also hinders the development of a broad motor base in children, on which they should raise a high peak of sportsmanship (2-9).

Physical education and sports teachers have the responsibility task of introduce the youngest children to football in such a way that they develop a desire to practice it not only out of obligation, but also out of their desire and initiative, and the game becomes an integral part of their lives. This can be achieved with appropriately selected means and methods of training, a responsible approach, and dedication on the part of physical education and sports teachers. In our country, the selection structure is far less perfect than that in strong football countries. The problem generally comes from the fact that the initial stage of selection is not organized based on the observation of a large number of children. The reason for this is the fact that football clubs in our country do not have a developed concept for introducing football in schools, which are a natural basis for selection and preliminary preparation (10-19).

METHODS

Research Methodology

To achieve the set goals and objectives, the following methods were used:

1. Analysis of literary sources, as follows: To study the problems related to the practice of the game of football among students, the results of systematic classes and methodological instructions, a large set of literary sources was studied.

*Correspondence to: Petya Angelova, Trakia University, Department of Physical Education and Sport, Stara Zagora, Bulgaria, Studentski grad, 6000, E-mail: petya.angelova@trakia-uni.bg

2. Pedagogical observation: It was conducted systematically and purposefully before and during the pedagogical experiment. The object of observation was the model content of the methodological development of football lessons, the mastery of the basic exercises of the football game technique, the activity of students in the lesson work, the organization and place of holding football lessons, the period of holding, the extent to which the educational process contributes to the football game finding a place in extracurricular forms of activity.

3. Pedagogical experiment: It was conducted with the developed model content of football lessons for 30 lessons with students from the 4th and 5th grades - experimental and control groups.

4. Testing: When choosing the tests, requirements were set that would satisfy, to some extent, the specificity of the motor activity of the football game. On the other hand, we attempted to reveal to some extent the complexity between the level of development of a certain motor quality as a factor in the performance of a certain technique of the exercise.

To determine the influence of physical education lessons using football as a means of developing motor skills, we use the following tests:

- Running from a high start at a distance of 20 m; - Running from a high start at a distance of 60 m;
- Students run a distance of 60 m in pairs, simultaneously measuring the achievement of 20 m with an accuracy of 0.1 sec.
- Running with a ball at a distance of 20 m. During the run, the test subject must make no less than 3 touches to the ball. Time is measured from the beginning with a blow to a stationary ball placed on the starting line until the body passes behind the finish line.
- Kicking a stationary ball with the right foot from a distance;
- Kicking a stationary ball with the left foot from a distance. The distance of the flight from the starting point to the point of falling to the ground is recorded with an accuracy of 1 cm.
- Ball forward from a standing position with a hit on a stationary ball placed 3 m from the starting line. After a signal, the student performs a throw of the ball forward, quickly stands up, and hits the ball. The time from the signal to the moment of hitting the ball is recorded with an accuracy of 0.1 sec.

- At the same distance from a sitting position with his back to the ball, he stands up, turns around, quickly moves, and hits the ball. The time from the signal to the moment of hitting the ball is measured with an accuracy of 0.1 sec.
- Juggling with a foot. The student holds the ball with his hands, throws it on one leg, and begins to juggle. The maximum number of steps taken is recorded.
- Juggling with a head. It includes throwing the ball over the head and striving to perform the maximum number of hits without the ball falling to the ground. The number of hits is recorded.
- Complex exercise. It includes throwing the ball over the head, hitting the ball forward with the head, reaching the ball, and leading between four stands located 1 m apart, the first of which is placed 20 m from the start. The entire exercise is performed at a distance of 30 m. The time from the start signal to the ball stopping behind the finish line is recorded.

5. Mathematical and statistical methods for data processing and analysis: The quantitative data obtained from the implementation of the planned tests were subjected to mathematical and statistical processing, with the derivation of indicators by analysis of variance. The reliability of the obtained differences was assessed by deriving Student's T-criterion for guaranteed reliability probability; we have assumed a significance level of $P_t \geq 95\%$ ($L = 0.05$).

Stages of the study: Preliminary stage (November 2023 - March 2024). During this stage, a literature review was conducted on the problem. We got acquainted with the curricula and physical education programs in primary schools and the football curriculum. A model of a physical education curriculum for primary school students for extracurricular football training was developed. A research plan-methodology was developed. The experimental and control groups were determined by lottery. The necessary research instruments, reporting documentation, and tools were prepared.

Main stage (September 2023 - June 2024). During this period, a pedagogical experiment was conducted with the conduct of extracurricular physical education classes on the topic of "Football" in two experimental groups (one each from the 4 and 5 grades), while simultaneously conducting classes with two control groups working according to the

previously established methodology for extracurricular football activities at the initial stage.

Final stage (May 2025 - June 2025). During this stage, the empirical data were prepared for statistical processing and analysis of the results obtained. The data from the experiment were processed and summarized, as well as mathematical and statistical processing.

RESULTS

A pedagogical experiment with developed content and methodology for teaching football in extracurricular forms of physical education for students of grades 4 and 5 was conducted for one year. To register the quantitative changes in the students' achievements according to the signs observed by us, we obtained data on their condition at the beginning and end of the experiment. We analyzed the collected factual material in terms of the changes that occurred in the values, the differences between the values of the achievements by grade in the experimental and control groups.

In cases where the growth in a given test has proven statistical reliability ($P(t) > 95\%$), we can consider that this difference is caused primarily by the training effect factor. The reason for this is the fact that during the period of impact (6 months), the biological development factor can hardly cause significant changes, which carry information mainly about the technical preparation of the children. The data of the boys from the IV grade experimental group were initially lower compared to the control group. The magnitudes of the average values of the control group were higher in the tests: 20 m smooth running, Dribbling 20 m, right foot kick strength, left foot kick strength, kick after executing a ball, juggling with a foot, and single slalom.

After the experiment, the picture changed. In the boys from the experimental group, the magnitude of the achievements in the 20 m running test decreased, which indicates an improvement (0.3 sec.) as a result of the football activities (**Figure 1**).

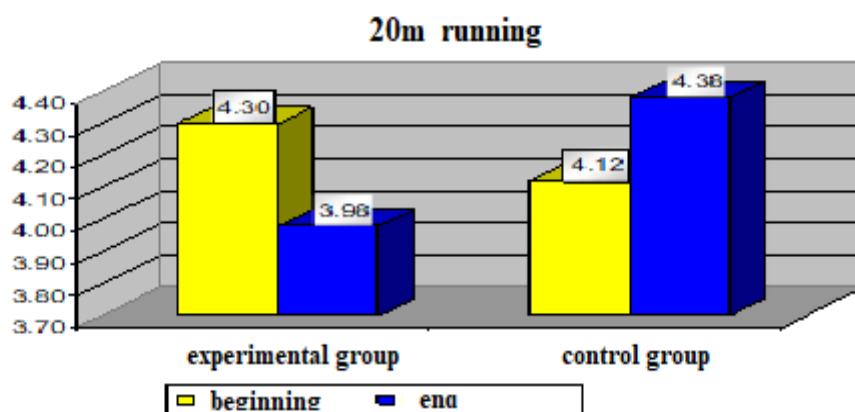


Figure 1. 20m running

In the boys from the control group (engaged in other learning content), the achievement worsened. The situation is similar in the 60 m running test,

where the achievement of the boys from the control group again showed a trend of increasing the time to run the distance (**Figure 2**).

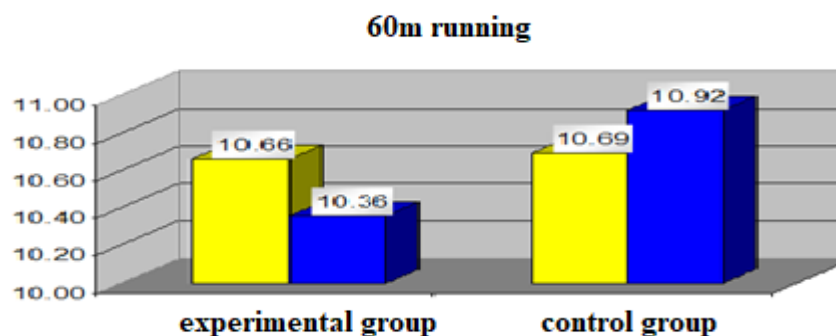


Figure 2. 60m running

The analysis of the 20 m dribble test reveals two aspects of the students' abilities. First, it shows us

the speed capabilities of the students' movement, and secondly, the technical ability to handle the ball

quickly. Comparative analysis of the data for the boys from the experimental group shows that, along with the improvement in the 20 m run, the dribbling skill also improved, which led to an increase in the difference after the experiment ($P(t)=99.99\%$). This result quite convincingly

reveals that mastering the skill of dribbling the ball as a result of football training leads to an improvement in dribbling performance. The lack of such training does not allow the control group to achieve positive results (**Figure 3**).

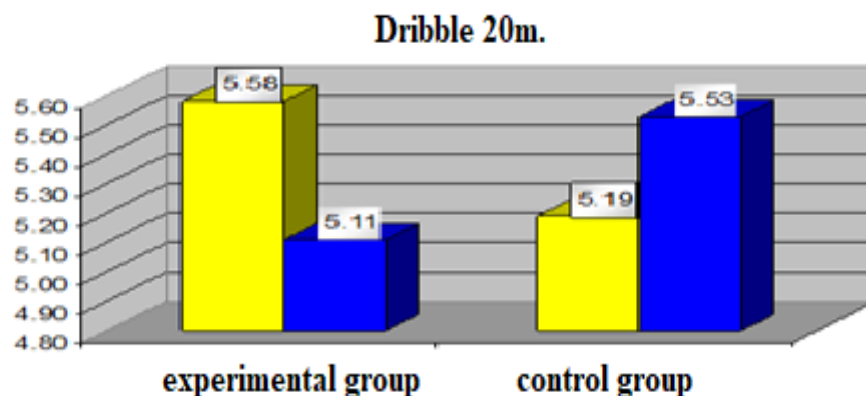


Figure 3. Dribble 20m.

DISCUSSION

The data from the measurements achieved in the test: the force of a right foot strike from a standing position on a stationary ball also reveals two aspects: technical skill for correctly striking a straight blow to the ball, and speed-strength capabilities of the lower limb. Both measurements show that changes have occurred in the students from the experimental group, as the average result has improved. The

improvement in this test is statistically significant and is supported by a very high guarantee probability ($P(t)>99.99\%$). In the control group, the result has deteriorated slightly, which suggests that in the short period of training, the improvement in achievement is to a greater extent the result of mastered technique than of the development of the speed-strength capabilities of the lower limbs (**Figure 4**).

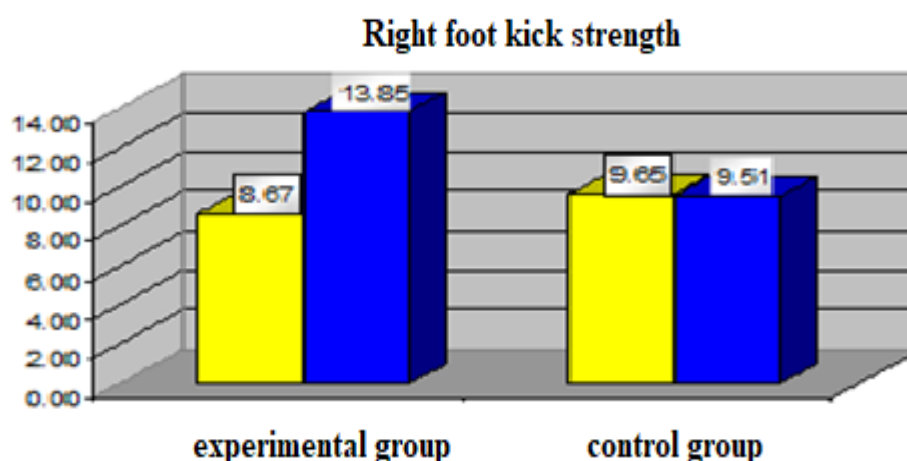


Figure 4. Right foot kick strength

The data obtained from the ball-hitting test after sitting eloquently shows that the result has improved significantly after the methodology we applied, as it is statistically reliable and

supported by a high guarantee probability ($P(t)=99.97\%$). While in the control group, the achievement has deteriorated with a guarantee probability of 29.81% (**Figure 5**).

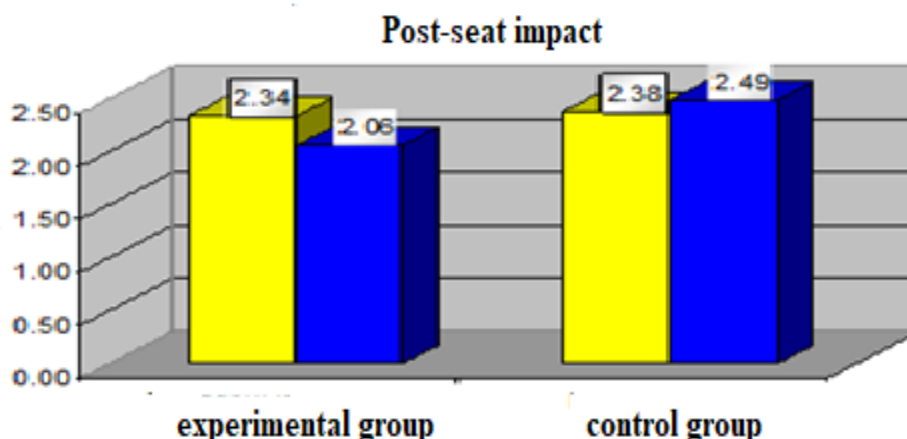


Figure 5. Post-seat impact

CONCLUSIONS

The set goals and objectives of the study and their results give us reason to make the following conclusions and recommendations:

- As a result of the pedagogical observation in the process of teaching football in the physical education lesson, increased motor activity of students from the 4th and 5th grades was found, the number of absentees was reduced; a desire to increase the duration of the lesson, improved discipline, etc.
- Boys from the 4th and 5th grades show a pronounced interest in football activities at school and outside of it. This shows that a lasting and conscious motive for increased motor activity in physical education lessons with football game content has been built.
- As a result of the conducted pedagogical experiment, reliable changes were found in the magnitudes of achievements in speed tests (-7.00%), reaction speed (-19.62%), dribbling (-8.38%), juggling (57.76%), i.e. the results revealing the motor abilities and technical skills of students from grades 4 and 5 have improved;
- The experimental methodology of extracurricular physical education activities with football content developed by us shows a positive complex impact on mastering the basic technical-tactical skills and habits, and developing the specific motor qualities characteristic of the football game in students from grades IV and V;
- The conducted pedagogical experiment and the results obtained from it reveal great opportunities for the football game to increase interest in the lesson work in physical education, for a more complex and developing impact on both the motor

abilities of students and their general motor culture.

- The inclusion of the football game in the physical education curriculum is completely pedagogically appropriate and is accepted by students with increased interest.
- All this gives us reason to assume that the game activity, in our case football, as a means, form, and method of training, upbringing, and development, is of great importance for optimizing the educational process in school and especially for the development of motor abilities of students. This requires its wider inclusion in the curriculum for students from 1st to 8th grade, which can also be achieved through the game form of conducting lessons with a gymnastic and athletic character. This will be at the expense of the style and accuracy of performing motor skills, but in favor of their applicability.
- And more: playing, along with learning, continues to be a main activity for students of primary and junior high school age, because it retains its great influence on their need-motivational sphere;
- We also propose in this regard to equate the number of lessons (hours) in football with the lessons (hours) of other sports games, including in the physical education curriculum of primary schools;
- We would like to recommend that physical education teachers teaching in grades 4 and 5 allocate a minimum of 30 hours of the total number of hours for classroom activities with predominant content and means from the game of football.

REFERENCES

1. Naidenova, K., D. Zheleva-Terzieva. Survey on some peculiarities in the conduct of Grassroots football tournaments for schoolgirls. *Sport and Science*, No. 3, pp. 48-54, 2018.
2. Angelova P. Study some risk factors such as the cause of muscle imbalances and lumbar pain, *Trakia Journal of Sciences*, Vol. 17, Suppl. 1 pp 901-904, 2019. <http://www.uni-sz.bg> ISSN 1313-7069 (print) ISSN 1313-3551 (online) doi:10.15547/tjs.2019s.01.148
3. Angelova, P., Petkov, P. Research of physiometric indicators of female students from trakia university, *Trakia Journal of Sciences*, Vol. 18, Suppl. 1, pp 695-698, 2020. <http://www.uni-sz.bg> ISSN 1313-3551 (online) doi:10.15547/tjs.2020s.01.112
4. Dimitrova, B. The Economic Impact of Brain Drain on the Development of Wellness and Spa Tourism in Bulgaria. *Trakia Journal of Sciences*, Vol. 21, Suppl. 3, 2023. <http://www.uni-sz.bg>
5. Dimitrova, B. Sustainable quality of SPA programs through benchmarking the biomechanical profile of a new aqua spinning methodology. *Series on Biomechanics*, Vol.38, No.2, 23-28, 2024. DOI:10.7546/SB.03.02.2024
6. Dimitrova, B. A Wellness lifestyle enhances emotional intelligence. International scientific conference. *Expanding knowledge through interdisciplinary research*. Sydney, Australia. 27-28.02.2025. Proceeding, p.92-98, 2025.
7. Dimitrova, B. Niche tourism - innovations and quality culture in specialised workforce development. *German International Journal of Modern Science* V.100, p.24-30, 2025. ISSN (Online) 2701-8377
8. Angelova P., Belomazheva-Dimitrova, S. Study on sports injuries among students volleyball athletes, *Trakia Journal of Sciences*, Vol. 21, Suppl. 1, pp 425-430, 2023. <http://www.uni-sz.bg> , ISSN 1313-3551 (online) doi:10.15547/tjs.2023.s.01.071
9. Apturkar, A., Iliev, A. I., Anand, A., Oli, A., Siddeni, S. R., & Meka, V. R. Sentiment analysis of speech with application to various languages. *Digital Presentation and Preservation of Cultural and Scientific Heritage*, 10, 103-118, 2020.
10. Dimitrova B. et al. Smart kognitiven instrumentarium. Vŭnshna otsenka na profesionalni kompetentsii za kadri v Nishov turizŭm. NSA Press; 2021. p. 110. 3, 2021.
11. Ignatova, D. Study the influence of yoga specialised practices on the Formation of correct body posture and corrections of spinal Deformities, *Smart Inovattions in Recreative & Wellness Industry and Niche Tourisum - Scientific Journal*, Vol. 4 Issue 1-2, ISSN: 2603-4921(online), page:17-22, Sofia, 2023. <https://scjournal.globalwaterhealth.org/current-issue/>
12. Ignatova, D. Implementation of motor complexes based on specialized application system blaze-pod trainer, Bulgarian Educational Journal, *Strategies for policy in science and education*, Volume 31, Number 6, 2023, www.azbuki.bg, www.azbuki.eu, ISSN 1310 – 0270 (Print), ISSN 1314 – 8575 (Online), pp. 653 - 667, Sofia, 2023. <https://doi.org/10.53656/str2023-6-6-imp> https://azbuki.bg/wp-content/uploads/2023/12/strategies_6_23_darinka-ignatova.pdf
13. Ignatova, D. Tracking functional dynamics in motor potential for development of Wellness Culture, *Trakia Journal of Sciences*, Vol. 21, Suppl. 1, pp 583-590, 2023. <http://www.uni-sz.bg>. ISSN 1313-3551 (online) doi:10.15547/tjs.2023.s.01.097
14. Ignatova, D. Smart Educational Models of Wellness Practices, Recreation, Wellness Industry and Niche Tourism, *International Scientific Journal for Smart Innovations*, Vol. 6, Is. 1, pp.15-23, 2024. ISSN: 2603-4921, Sofia. <https://scjournal.globalwaterhealth.org/wp-content/uploads/2024/11/2.-IGNATOVA.D.SMART-EDUCATIONAL-MODELS-FOR-WELLNESS-CULTURE.pdf>
15. Ignatova, D. & Iliev, A. Current methods and models combining nutritional regimes with motor activity, Recreation, *Wellness Industry and Niche Tourism, International Scientific Journal for Smart Innovations*, ISSN: 2603-4921, 05 (1-2), pp. 08-14, 2023. https://scjournal.globalwaterhealth.org/wp-content/uploads/2024/02/2.IGNATOVA_I LIEV_p.7-13_2023.pdf

16. Iliev, A. I. Emotion Recognition Using Glottal and Prosodic Features (*Doctoral dissertation*), University of Miami, 2009
17. Iliev, A. I. Feature vectors for emotion recognition in speech. In *National Informatics Conference*, pp. 225-238, 2016.
18. Petkov P. Motivation of the students from Trakia university for participation in physical education classes, *Trakia Journal of Sciences*, Volume 15, Suppliment 1, 2017, ISSN 1313 – 7069, pp. 433-442, 2017.
19. Petkov, P. Factoral structure of morpho-functional indicators and motor qualities of muscular strength and endurance in students, *Trakia Journal of Sciences*, Vol. 18, Suppl. 1, pp 720-726, 2020.