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DOCTORAL SCHOOL

„Program for increasing performance and innovation in excellence doctoral and postdoctoral research - PROINVENT”

OPTIMIZING THE LEARNING OF THE FOOTBALL GAME TECHNIQUE BY CAPITALIZING ON THE COORDINATIVE CAPACITIES OF CHILDREN AGED 8-10 YEARS

SUMMARY

THESIS

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ABSTRACT

Key words: football, children, coordination, attention, degree of head tilt.

INTRODUCTION

In general, the game of football is characterized by the joy of playing the game, creativity, spontaneity, consumption of physical but also mental energy and a total commitment of the being. Football is becoming more and more popular in all walks of life. This sporting activity can be practiced by anyone, regardless of gender, age or age group. According to Rein et al., (2016), soccer is a sophisticated game that includes a variety of technical and tactical aspects. There are many benefits that come from playing football, especially in physical, mental and social growth. Currently, football is experiencing a very rapid development and is a complex sport because it requires numerous special techniques and tactics. Every player should be able to master the basic techniques of playing football, Burhaein et al., (2020). Football is one of the most popular sports, with over 200 million professional players world wide (Stojanovic & Ostojic, 2011).

Football players need special technical, tactical and physical skills to achieve outstanding performance (Hoff, 2007). Jucătorii de fotbal, indiferent de funcție, depun un efort de intensitate ridicată, cum ar fi agilitatea pentru perioade scurte, și au perioade mai lungi de odihnă, de mișcări de o intensitate mai slabă, Köklü și colab., (2015).

According to the opinion of Stoica, (2013), the education of the components of the coordinative capacities, at the right time, is decisive for the development of the future footballer, considering the influence of the coordinative capacities on the performance factors.

All scientific discoveries in the technological, medical, functional, video-IT and methodological fields have been made available to professional football coaches in order to facilitate their path to progress (Stoica &Blejan, 2012).

In order to achieve the desired performances, the highest scientific achievements of the field and the adjacent sciences are allocated in football. The use of science in sports must be permanent and used systematically.

Part I of the thesis

It consists of 6 chapters and contains the theoretical foundation of the work with updated information on the technique of the football game, coordination capabilities, motor learning and developmental peculiarities of 8-10-year-old children. At the same time, in addition to the theoretical conclusions, these chapters also present the critical analysis of the existing specialized literature at the national and international level, regarding the issue addressed. Soccer is a complex game that requires a wide range of skills and abilities to play successfully. Not long ago also called the king sport, it tests a wide range of physical, technical and cognitive skills. Soccer players must have a combination of well-developed physical, technical and cognitive skills in order to excel in this sport, Slimani et al., (2016). Coordination, the basic motor quality in the soccer game was evaluated in soccer academies, in different age categories, thus we mark its importance Gonaus et al., (2019). Prasetyo, (2019) shows that when a player dribbles, he should not keep his head/gaze down, to pay more attention to the game, the space he is in at that moment, the situation in which he is. It was also Prasetyo, (2019), who observed that an optimal level of development of eye-foot coordination leads to the improvement of the ability to use a dribble. Technique influences the game of soccer depending on the level of mastery of each player. Therefore, according to the analysis of Armando, (2020), the ability of talented players to perform effective dribbling can be a visible and observable indicator of their potential.

The conclusions of the first part of the thesis are as follows:

Current research in our area of interest shows us that physical training plays an important role in achieving certain performances, thus, we can say that the approach to this topic represents a high degree of topicality of the information provided and processed during our research.

With the increase in the complexity of the football game, a pronounced growth, but also a technical and tactical diversity on an upward path, we believe that it is necessary to increase the attention on the instructive-educational process of children and juniors, for optimal adaptation to their particularities of development , to the current requirements of the game.

- The profile of the future footballer requires a high degree of development of intellectual skills, mental qualities, such as creativity, anticipation, concentration.

- Educating the components of coordinative capacities, at the right time, is decisive for the development of the future footballer, considering the influence of coordinative capacities on performance factors, Stoica, (2013).
- According to Sabdono et al., (2019), it highlights eye-right leg coordination as one of the factors that can influence players' ability to dribble.
- Teodorescu et al., (2014), state that learning can overlap spontaneous and native reactivity, becoming, through repetition or consolidation, an important acquisition in sports games.
- According to Mitrache et al., (2018), it can be said that all the structures that a living system has at a given time (knowledge, operating tools, algorithms, etc.) and that are not innate are the result of learning.

PART II – a – CURRENT RESEARCH

STUDY I - STUDY ON THE EFFECTS OF THE "100&HeadUP" INTERVENTION PROGRAM ON LEARNING FOOTBALL GAME TECHNIQUE IN 8-10 YEAR OLD CHILDREN

Premises of the study 1

The premise from which the study is carried out is represented by the impact that the intervention with the specific training program, 100&HeadUP, has on the level of coordination capabilities and on the degree of inclination of the head during the football game. Thus, we will have intervention on the improvement of the individual technique, the sense of the ball and watch the switch of attention from visual control to kinesthetic control at the moment of possession.

Study hypotheses 1

- The 100&HeadUP intervention program influences the level of coordination capacities.
- The degree of inclination of the head conditions the correct execution of the technical elements.

The purpose of the study 1

We aim to educate children's sense of the ball, so that we reduce the proportion of wrong passes, switch attention from visual control to kinesthetic control, and children can approach the game of football by looking ahead at the moment of possession.

Objectives of the study 1

In order to achieve our above-mentioned goal, several research objectives were established, respectively:

Determining the motor level at which the participants are; Knowing the degrees of inclination of the head during the game; Knowing the motor, somato-functional, psychological characteristics of children aged 8-10 years, by studying specialized literature; Optimization of specific training methods and programs, reported at group/individual level; Establishing the training period, necessary to obtain an improvement of the individual technique, the sense of the ball; Improving the effort capacity and the motricity indices of children, with an emphasis on coordinative capacities; Continuous improvement of the ability to act and make decisions in space and time crisis, by using the technical procedures learned in the specific trainings.

Research methods used in study 1

Method of bibliographic study; The method of conversation; Statistical - mathematical method; Method of demonstration; The experimental method.

Using HeadUp Training Vests

The HeadUp vest, used during training, blocks the child's view of the ball when he is in possession or very close to the ball. Ball sense is an important component in the process of starting to use the HeadUp training vests, this requires from the child a developed ball sense and at the same time an optimal intersegmental coordination capacity.

Evaluation, participants, period and location of the study 1

The research participants are represented by a number of 42 children, aged between 8 and 10 years. In the proposed research we have participants from the football club FC Chelsea Bucharest, the current Lions FC Bucharest and FC Tineretul Bucharest.

The research was carried out between May 2021 and May 2023. This consisted in the application of the two assessment tests specific to coordinative capacities, namely the T Test -

where we added Blazepod sensor technology, and the Adams Test. Also in this study we integrated the assessment by recording the degrees of head tilt during the game, using artificial intelligence and visual recognition.

CONCLUSIONS OF THE STUDY I

In conclusion, the hypotheses of study I are confirmed, respectively:

- The 100&HeadUP intervention program influences the level of coordination capacities.
- The degree of inclination of the head conditions the correct execution of the technical elements.

At the same time, following the study, the following conclusions can be drawn:

The T test

• There is a decrease in the average by 0.57 s in the case of the experimental group and a decrease in the average by 0.27 s in the case of the control group.

The ADAMS test

• For Testing 3, the Mann-Whitney U test for two independent samples shows significant differences in favor of the experimental group.

Time played looking ahead

• In test 3, the Mann-Whitney U test for two independent samples indicates statistically significant differences in favor of the experimental group, having a strong effect.

Time played looking down

• Testing 3 shows us a significant difference between the two groups, in this testing the effect size is very strong.

We conclude by highlighting the importance of being aware of the position on the field where the player is, the position of the ball, colleagues, opponents. The information must be done by the child himself, it must not come from the coach through various indications shouted from the side of the field to the player.

STUDY II – STUDY ON THE EFFECTS OF THE 100&HeadUP INTERVENTION PROGRAM ON VISUAL ATTENTION AND NONVERBAL PLANNING AND PROBLEM SOLVING SKILLS

Premises of the study 2

In the field of psychology, the assessment of neuropsychological development was carried out in collaboration with the psychology laboratory of the National University of Physical Education and Sport in Bucharest. This process was carried out through the Developmental Assessment Platform using the Stimuli Manual. As part of these efforts, we administered the following tests to participants:

- Test for visual attention, respectively the "Visual attention" test;
- Test for evaluating non-verbal planning and problem-solving skills, respectively "The Tower".

Study hypothesis 2

Use of the intervention program influences the level of visual attention and nonverbal planning and problem-solving skills.

The purpose of the study 2

We aim to improve the level of visual attention and non-verbal planning and problem-solving skills by applying the program aimed at developing the technique of the football game and increasing the degree of inclination of the head at the level of 8-10-year-old children.

Study objectives 2

In carrying out the research, we established the following objectives:

Knowing the characteristics of visual attention; Knowing the characteristics of planning and problem solving skills; Knowing the effects that the intervention program has on the level of visual attention; Knowing the effects of the intervention program on the level of planning and problem-solving skills.

Research methods used in study 2

The bibliographic study method; The method of conversation; Statistical - mathematical method; Method of demonstration; The experimental method.

Evaluation, participants, period and location of the study 2

The research was carried out between May 2021 and May 2023. This consisted in the application of the two evaluation tests followed by us, namely the Visual Attention Test and the Tower Test. The tests used in collaboration with the psychology laboratory of the National University of Physical Education and Sport in Bucharest, were applied to a number of 42 participants.

The study started in May 2021, by studying the specialized literature. The documentation on the Developmental Assessment Platform – Stimuli Manual was important for setting the benchmarks of the research but especially for the evaluation part. Between September 2021 and November 2021, the application of the initial evaluation tests was carried out for both groups, respectively the experimental group and the control group.

The implementation of the training program took place between November 2021 and July 2022. At the same time, the documentation through the prism of studying the national and especially international specialized literature did not stop, being present throughout the research. Between August 2022 and October 2022, the final testing of the two groups took place.

The creation of the database constituted the next stage of the research, where all the data were entered into Excel so that later all the data would be processed by the programs intended for statistical-mathematical analyses. The data processing stage was carried out between November 2022 and May 2023.

This stage involved carrying out all the steps necessary to transform and interpret the data obtained into total, raw, scaled scores, etc. The application of statistical-mathematical methods by using programs specially designed for this direction and at the same time continuing to study the specialized literature.

CONCLUSIONS OF THE STUDY II

In conclusion, the hypotheses of study II are confirmed, respectively: The use of the intervention program influences the level of visual attention and nonverbal planning and problem-solving skills.

Following the interpretation and processing of the data, we can state that there are significant differences between the final testing and the initial testing in terms of Visual Attention, as a result of the intervention with the training program. Also, there are significant differences between posttest and pretest in terms of nonverbal planning and problem-solving skills as a result of the intervention with the training program.

ELEMENTS OF ORIGINALITY AND DISSEMINATION OF RESEARCH RESULTS

The PhD thesis focuses on the investigation of motor activities as priority resources for optimizing the quality of life and enhancing human performance. We believe that innovations bring added value to research, especially as they are more diverse and abundant. Regarding our research, we can highlight the following aspects as elements of originality within this field of research: Introduction and application of HeadUp Vests during training sessions; Implementation of advanced visual recognition software and artificial intelligence technology; Using the innovative BlazePod technology; Adapting the Coerver Coaching training concept to the specific context of our country; Identifying and evaluating correlations between Coerver Coaching training techniques and the integration of HeadUp Vests in specialized training; Approaching research from various angles to gain a comprehensive understanding of the impact of motor activities on human quality of life and performance. All these aspects of originality contribute to adding significant value to our research field, reflecting the diversity and relevance of our study in advancing the quality of life and human performance.

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