

FORMATION OF PROPER EATING BEHAVIOR IN CHILDREN OF THE SECOND CHILDHOOD WHO PLAY SOCCER National University of Ukraine on Physical Education and Sport (Kyiv)

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Connection of the study with planned research works. The results of this study were obtained by the author during the research work of NUUPES (Department of Medical and Biological Disciplines) on the topic: «Features of somatic, visceral and sensory systems in qualified athletes at different stages of training» (state registration №: 0116U001632), section «Correlation between anthropometric indicators and indicators of the functional state of athletes at different stages of training».

Introduction. Soccer is the most popular game in the world. It is a very athletic sport. Playing soccer requires from athlete great strength, endurance, perseverance, speed in moving on the field, as well as possession of special psychophysiological qualities, such as willpower, ability to overcome pain, very good orientation on the field, quick decision-making, collective qualities, spatial sensation. It is important to develop non-standard thinking, creative approach to the situation.

They usually start playing soccer at the age of 8-9. Children who have a desire to play soccer need to understand that they have to go through a difficult path to achieve professionalism. The coach should explain to his students that soccer is accompanied by heavy physical exertion on the body.

Children of the second childhood have some specific anatomical and physiological features. When playing soccer, the organs of the musculoskeletal system, cardiovascular system, respiratory system, nervous system, endocrine system are subject to excessive stress. Overloading and improper performance of movements leads to high risks of injury, especially to the bones, ligaments, joints, skeletal muscles and brain. Research of American experts have shown that 38% of all sports injuries occur between the age of 6 to 17.

Reduce the risk of injury and increase the development of the necessary sports qualities is also possible in the formation of proper eating behavior in children, food culture, laying the foundations of a scientific view of sports nutrition. The coach is obliged to pay attention to these issues and control the nutritional preferences and passions of his subordinates. Accordingly, the coach must have the appropriate competencies. At the same time, he must not only teach others, but also follow proper nutrition, provide the necessary information to children, and give an example of how famous soccer players in the world feed on. This strongly motivates young athletes and forms the correct behavioral stereotypes [1, 2, 3].

Children who are actively involved in sports with increased physical activity (especially in soccer) consume more energy than other peers. So one needs to ensure proper, adequate metabolism and energy, one needs to

fully replenish the body with the necessary substances, minerals and vitamins.

It is necessary to teach the child to take oneself seriously and eat in the allotted time. Gradually, children should form a correct idea of nutrition. They must learn to understand the selection of food. It is clear that children depend on their parents. Therefore, the coach (or sports nutritionist, if there is one in the sports team) must be able to establish adequate communication with parents or other relatives of children athletes and work synchronously and in harmony in one direction.

An integrated approach to the formation of a professional soccer player promotes good health. Usually, within a few years of playing soccer, an athlete develops a strong physique, tall stature, strong limbs and body. The vital capacity of the lungs and the circumference of the chest increase, the skeletal muscles develop well [4]. Athletes in soccer are usually not overweight and disproportionate.

Currently, a sufficient number of works have been accumulated that highlight the strategies and tactics needed in the work of coaches with children soccer players [5, 6, 7]. There are scientific papers, although not in sufficient numbers, that research the causes, consequences and prevention of injuries in soccer [8, 9, 10, 11]. But with regard to the formation of proper eating behavior, especially from childhood, these issues require research and dissemination of their results.

An analysis of the modern scientific literature has shown that the issue of proper nutrition of soccer players is quite relevant. Modern sport is impossible without sports nutrition. Research by scientist's shows that soccer players are extremely ignorant of the rules of sports nutrition [12, 13, 14, 15, 16]. There is lack of literature that would show the results of research on the eating behavior of children soccer players. In our opinion, this is extremely necessary both for the health of the child athlete and for increasing performance in sports.

The purpose of the study – dietary support and the formation of proper eating behavior in children who play sports (soccer).

Object and methods of research. *Participants.* Children 8-9 years (20 boys) who were selected for soccer.

Research methods. To solve the tasks set in the work, the following research methods were used:

- analysis of scientific literature and sources on the research topic;
- logical methods of cognition;
- psychological and pedagogical methods (lecture, conversation, observation);

– physiological methods of research (measured heart rate (HR) and blood pressure – using an automatic tonometer);

– anthropometric and somatological methods of research (determined the following indicators: body length (cm), body weight (kg), chest circumference at rest (cm). Calculated Pinier index, Verweck index, index of functional changes (IFC) or adaptation potential (AP) by Bayevsky R.M., in a modification for children by Antropova M.V. and co-authors (1999)).

The main tasks of the obligatory annual examinations of athletes are, first of all, to determine changes in the state of health during the school year and the possibility of compensatory recovery of the child's body after exercise with the help of the Ruffier test.

Mathematical processing of research results was performed using the software package Microsoft Office 2007 (MS Excel) and STATISTICA 6.0 using common methods of variation statistics.

Research Design. The organization of the study was as follows.

For children aged 8-9 who started playing soccer, a survey was conducted regarding their knowledge of nutrition rules, energy and structural value of food.

After that, lectures and conversations were given on the following topics:

- “Features of the organization of the child's body”;
- “Rules of conduct and injury prevention in football”;
- “Fundamentals of healthy eating”;
- “Nutrition to strengthen and restore the body of athletes.”

For children soccer players several options of the daily menu were offered. The composition of foods in the diet varied depending on the season.

The children kept diaries that reflected the coach's tasks and diet. The content of the diaries was analyzed. Physiological, anthropometric and somatological studies were performed during the year. A comparative analysis of the obtained data was performed.

Research results and their discussion. During the second childhood there are significant anatomical, physiological and psychological changes, expanding social roles. The growth rate of the skeleton is slowing down. Different parts of the body increase heterochronously. The growth of a body in width prevails. One-sided loads and high muscle tension in children of this age often cause curvature of the spine and posture disorders [17].

Exercise has a stimulating effect on the areas of bone growth of the child's skeleton. The main curves of the spine are finally formed – lordosis and kyphosis. Playing soccer during this period can help achieve the necessary flexibility and motor quality. Sharp body shocks, landing on straight legs when jumping, uneven load on the left and right leg can cause shifts in the centers of pelvic ossification, lead to flat feet. Excessive fatigue of the child's body can slow down the growth of the body in length.

Effective development of new movements in the second childhood depends on the processes of improving the central nervous system. New conditioned reflex connections are easily formed, and accordingly the child learns new movements.

During this period, skeletal muscles are actively developing. Tendons and ligaments are gradually tight-

ened; the connection of muscles with ligaments improves.

Children's muscles are short, small in diameter and small in volume, that is why fatigue develops rather quickly. On the other hand, they have a fairly good blood supply, so children need little time to recover. During this period, red muscle fibers predominate in the muscles [17].

The volume of the heart increases at a relatively slower rate compared to the total lumen of blood vessels [18].

Due to the intensive development of movements (frequency, speed of movement, reaction time, etc.), children adapt very well to high-speed loads and can show excellent results in running, where the speed of movement is of leading value. During this age period, dexterity of movements develops at a high rate [18, 19, 20].

Soccer is a very active sport. According to the Ministry of Health, soccer has the highest probability of injury (50-60% of all sports injuries occur in soccer). Excessive loads on the musculoskeletal system of the child can provoke “pathological changes” and “creeping fracture” [21, 22].

Nutrition to strengthen and restore the body of young athletes.

Proper nutrition of children soccer players is slightly different from the recommended diet for children of the same age. The diet should be aimed at strengthening the child's body and maintaining proper metabolism and energy.

Soccer players, like other athletes, must adhere to a strict regime and have a clearly composed menu. The diet should include all the necessary nutrients in the right amount. And it does not matter whether we are talking about professional soccer players or those who play at the amateur level. This also applies to soccer players of different ages [23].

To achieve results in soccer, you need not only to perform the exercises correctly, but also to monitor your health, control your anthropometric data, including body weight. And it depends, to a large extent, on nutrition [24, 25].

Surveys of children on their knowledge of dietary rules, nutritional value of food, healthy eating and unhealthy foods showed that among the 20 children, only 3 had some idea on these issues.

Interviews and lectures were held with children who came to play soccer and their parents, at which it was emphasized that in order to be healthy and get high sports results, it is necessary to exclude from the diet: confectionery products; salty, smoked and fried dishes; bananas, dates in large quantities; fatty meat; sweet, especially carbonated, drinks; fast food, chips, chewing gum; sugar.

Restrictions are necessary for spices, onions, garlic – that is, those that contain many sulfur-containing amino acids or aromatic compounds and burden the liver. Of the fruits, the restriction applies to pears, plums and some similar fruits, such as dried apricots and prunes, which have either a laxative or fixing effect. It is also advisable to eat these fruits after training and games.

Young athletes need to get with food about 20-25% more vitamins and other nutrients, as their metabolism accelerates during exercise. Therefore, greens, fruits,

berries, vegetables should be constantly present in the menu.

Apples, oranges and bananas are the best fruit set for a soccer player. Watermelon and melon are good for replenishing water balance, in addition, watermelon contains the amino acid citrulline, which regulates water metabolism in the body. Raisins, dried apricots, prunes are good for the heart muscle [2, 26].

The diet directly depends on the stages of preparation and on the training loads of the soccer player. In the preparatory period, when athletes go to training to improve overall physical fitness, it is desirable for young athletes to increase the body's protein content for muscle development, and to improve endurance they have to enrich the diet with carbohydrates and vitamins (widely using oatmeal and buckwheat, vegetables and fruits) [24, 27].

During the training of speed and strength qualities, a soccer player needs products enriched with phosphorus and calcium (cheese, fish, etc.). Food eaten before the game (at least 3 hours before the match) should be high in calories, low in fat, but not fatty, with a predominance of protein and carbohydrates. After all, 60-65% of an athlete's energy is provided by carbohydrates, 15% by proteins, and only the rest is by fat. What matters is not the quantity of food, but the quality of its components. It is not advisable to include fatty foods that are difficult to digest (animal fats, fried meat, beans, peas, many seeds, etc.) in your diet before exercise, and even more so before responsible games.

In addition, on the day of the match it is important for the player to consume a large amount of fluids so that he does not become dehydrated. It is important to remember that the diet should be followed daily, not just before the game [2].

In summer, during activities up to 2 liters of water per day should be consumed. A little less in winter. One should prefer mineral water, compotes, tea. Water and any beverages must be non-carbonated, not too cold and not too hot [2, 3, 27].

The menu we offered to children athletes included: porridge (buckwheat, millet, barley), pasta dishes from durum wheat (but in small quantities), fresh juices from vegetables and greens, whole grain rye or wheat-rye or buckwheat bread, eggs, boiled meat, boiled fish, soft cheese, sour-milk products (yogurts, kefir), salads, including with seaweed (it is desirable to add various fresh oils to salads, sesame – 1 tea spoon contains enough calcium), tea (mostly herbal, green, with lemon and honey), apples, banana, berries, compote, necessarily – nuts, seeds (pumpkin, sunflower). It is better to limit potatoes, and if included in the diet, then baked. Mushrooms, peas, beans – in small quantities.

In order not to reduce the amount of a product, the emphasis is on dividing the diet into separate meals so that the foods consumed are fully absorbed. It is best if the child eats 4 times a day in small portions. The first breakfast should account for about 30% of the total daily diet. The second breakfast should contain 10%, lunch – 40%, and dinner – 20%. You should also choose foods for each meal. Thus, breakfast and lunch may contain foods rich in protein, and for dinner it is better to choose dishes from cereals and vegetables [1, 3].

With such a diet, the child's body will be able to get the nutrients it needs properly, without feeling deficient in vitamins and minerals [2, 3].

Formation of correct eating behavior in children soccer players of the second childhood. After the children were offered several dietary options, we monitored the children's compliance with the advice.

All children kept diaries, where they recorded the basic physical exercises that they had to master, understand, be able to repeat and improve, as well as kept daily records of daily food intake. The records were analyzed, errors were analyzed, and thus formed the correct approach to understanding nutrition. Anthropometric data of the child were entered into the diary (once a month): weight, height, chest circumference, heart rate, pressure.

The mistakes made by the children soccer players regarding nutrition are as follows.

In the first 2-3 months, most children did not bring diaries to classes, or there were no entries in the diaries, or the entries were not systematized. During that period, we invited parents to jointly monitor the tasks given by the coach in terms of the ability to discipline and organize themselves. The children gradually got used to the requirements. They even had got an interest and responsibility. During the year of such systematic work, children became accustomed to keeping diaries, they learned to analyze their mistakes (both sports and food). Children learned to distinguish between food – useful and unhealthy, they acquired such concepts as proteins, fats, carbohydrates, minerals, vitamins, the role of water in metabolism, the energy value of food, etc. Some children have even learned to monitor things like increased fatigue after eating heavy, unnecessary foods, increased drowsiness, excessive sweating, compared to other children who did not violate the diet or compared to the condition of the body when the child ate healthy food.

Of course, children of this age are quite dependent in everyday life on adults, especially parents. Such children and the coach had problems communicating with parents who themselves did not have a culture of eating. In most cases, they were the reason why their child did not understand the proposed food suggestions. Therefore, a significant amount of time was spent on communication with parents. Among the 20 boys with whom the classes were conducted, four children had rather difficult communication skills of their parents.

It is interesting that almost all parents of these children did not interfere and did not have their own opinions about the training process, almost none of them resisted keeping records in the diary of sports exercises, goals, tasks. But as for nutrition, especially in the first months, parents were constantly discussing, resisting, considering themselves experts in sports nutrition.

Analysis of the results of annual anthropometric and physiological studies.

The height of the studied children in a year increased from 129-137 cm to 133-143 cm, weight – from 28-32 kg to 31-35 kg.

Chest circumference (CC) is an objective indicator of physical development, which also characterizes the development of respiratory muscles and the functional state of the chest. During the year, the chest circumfer-

Table 1 – Blood pressure in children (n = 20) who played soccer

Date of the research	Systolic blood pressure, Hg	Diastolic blood pressure, Hg
The beginning of research	91,8 ± 8,9	58,2 ± 7,62
In a year	98,8 ± 8,9	64,2 ± 6,62

ence in the children we studied increased by an average of 3.01 ± 0.4 cm.

Determination of the Pinier index showed a tendency to decrease (from 32 ± 0.7 to 31.5 ± 0.6), which indicates a lean physique.

In children of the second childhood the heart rate averaged 83 ± 4 beats/min at rest. After exercise, heart rate usually increased by 35-50%.

Heart rate was measured 10 minutes after exercise. In the first two months, in 80% of children heart rate did not return to baseline during this period. After a year of training, it was noted that the restoration of heart rate occurs in all children who followed sports and dietary advice.

Blood pressure was also measured (results are presented in **table 1**).

As can be seen from the table, in the group of children of the second childhood during the year of sports increased both systolic and diastolic blood pressure, which corresponds to the age norms.

Calculations of the Vervek-Vorontsov index at the beginning of football lessons showed the following:

- 30% of children had a brachymorphic body (0.55-0.72 p.) – i.e. these children had a predominance of transverse growth over longitudinal;
- 50% of children had a mesomorphic body type (0.9-1.15 p.), which corresponds to the average type, harmonious development;

Table 2 – Ruffier's test scores

Children's initials	Beginning of training Ruffier's test	In a year Ruffier's test	Adherence to the diet and regime
A.P.	16 low level	15 below average	Rarely
A.R.	13 below average	9 Average	Yes
A.S.	4 above average	3 high level	Yes
V.A.	6 average	3 high level	Yes
V.V.	8 average	5 above average	Yes
V.M.	16 low level	9 Average	Not always
G.M.	8 average	4 above average	Yes
D.A.	14 below average	9 Average	Yes
D.D.	9 average	2,5 high level	Yes
D.I.	5 above average	2,8 high level	Yes
D.O.	16 low level	14 low level	No Rarely visited
M.M.	18 low level	9 Average	Periodically
M.P.	16 low level	15 low level	No Rarely visited
M.T.	5,5 average	2,4 high level	Yes
M.Y.	16 low level	5 above average	Yes
N.P.	14 below average	2,5 high level	Yes
O.A.	18 low level	14 below average	Sometimes
O.D.	18 low level	14 below average	Sometimes
P.O.	16 low level	no data	Yes (in the beginning), but then stopped playing sports
Y.V.	5,5 average	2,5 high level	Yes

• 20% of children were characterized by dolichomorphic body type (1.30-1.32 p.), which has signs of predominance of growth: long limbs and a narrow torso.

A year later, these data were as follows:

- 20% of children had a brachymorphic body (0.57-0.72 p.) – i.e. these children had a predominance of transverse growth over longitudinal;
- 60% of children had a mesomorphic body type (0.9-1.10 p.), which corresponds to the middle type, harmonious development;

• 20% of children were characterized by dolichomorphic body type (1.30-1.32 p.), which has signs of predominance of growth: long limbs and a narrow torso.

Children who had a dolichomorphic body type during the year remained at the level of dolichomorphy. The increase in the number of children with mesomorphic body type was due to children with brachymorphic type, whose body has undergone a corrective effect from physical activity during soccer training.

Adaptation potential (AP) was determined.

Eight children at the beginning of classes had a state of adaptation called "failure of adaptation". During the year of sports with such adaptation, there were only two boys who rarely attended soccer classes and practically did not follow dietary advice.

Six children had unsatisfactory adaptation. Four of them improved their adaptability, one boy remained at a level of unsatisfactory adaptation (rarely following a proper diet). Another boy stopped playing sports.

The adaptive potential of the 5 boys corresponded to the concept of "adaptation stress". Four of them went to the next level of adaptation, and one remained at the same level (ate right at home, but between meals ate unhealthy foods: chips, soda, fried in oil cakes, etc.).

Only one child at the beginning of soccer training had an index of functional changes, which showed satisfactory adaptation.

The obtained data on the adaptive potential of children who played soccer and had dietary support show a positive effect of the two processes.

As a result of calculations of the Ruffier index, we obtained the following results (**table 2**).

According to the Ruffier test, all boys who exercised regularly improved their body's ability to work in a year, compared with those children who rarely exercised and did not follow proper nutrition rules, indicating a well-chosen strategy complexes with proper nutrition.

The analysis of the obtained data gives grounds to assert that there is a connection between the level of adaptive potential and the observance of diet and ration. This also applies to efficiency indicators (Ruffier's test).

All children with whom classes were conducted and who performed appropriate exercises during this period felt well. No complaints of feeling unwell were recorded. No injuries were reported.

One of the most important problems of modern physiology and medicine is the study of mechanisms and patterns of the process of adaptation of the organism to different environmental conditions. Adaptation to any human activity is a complex, multilevel process that

affects various functional systems of the body. Physiological adaptation is a stable level of activity and interconnection of functional systems, organs and tissues, as well as management mechanisms, which ensures the normal functioning of human in the new conditions of existence, the ability to reproduce healthy descendants [28].

The ability of the body to adapt to certain environmental factors and, in particular, to physical activity, largely depends on human health, as well as the ability to withstand physical activity. In recent years, research works have appeared regularly on various aspects of the use of physical activity in the field of physical culture and sports. When studying the effect of training loads on the body, adaptation is seen as a process of purposeful increase of its functionality, efficiency of muscular activity, increase of special working capacity, maintenance of homeostasis and fuller use of reserves. A reliable indicator of the level of adaptive responses to internal and external influences in conditions of intense physical activity can be the functional state of the cardiovascular system, which responds most quickly to muscular effort and limits efficiency of an organism.

Despite the crucial role that nutrition plays in improving optimal productivity, supporting adaptation to training and maintaining immune function, little attention has been paid to the energy needs and nutrition of soccer players during the preseason, a phase characterized by high-intensity training [29]. But these conclusions are made for adult soccer players.

The main tasks of the obligatory annual examinations of athletes are, first of all, to determine changes in the state of health during the year and the possibility of compensatory recovery of the child's body after exercise with the help of the Ruffier test. The Ruffier test is a simple indirect method of determining physical efficiency and endurance that uses heart rate values during different recovery periods after exercise. This test is quite easy and affordable to track whether the child's body has time to recover after exercise. This also applies to children who are involved in soccer.

Analysis of modern literature has shown that experts are increasingly paying attention to sports nutrition. As for soccer, there are very few athletes from different countries who receive professional advice from sports nutritionists and they have the wrong skills and eating behavior.

According to Beasley K.J. et al. (2015), McCrink C.M. et al. (2020) adult Irish soccer players have an irrational dietary practice and do not have sufficient knowledge about nutrition. Dietary analysis showed a deficiency of energy, low consumption of carbohydrates, rather low consumption of vitamin D, vitamin A, selenium, potassium, zinc, magnesium, calcium. Lack of knowledge about the required amount of water has led to significant dehydration in these athletes [30, 31]. Similar data were obtained for Australian soccer players (Condo D. et al., 2019) and German soccer players (Braun H. et al., 2018). Ignorance of nutrition, especially in sports, causes the risk of low energy supply to the body [14, 15]. Smarkusz J. et al. (2019) show the role of different dietary bases for soccer players of different types: forwards, defenders, etc. [32]. American soccer players have confidence in the sports coach in terms of diet. Abbey E.L. et al. (2017) claims that the dietary habits of American soc-

cer players are unexplored. And the hard and constant physical work out of soccer players with poor nutrition can have serious health consequences. Studies have shown that the vast majority of players consumed large amounts of total fat, saturated fat, cholesterol, sodium and potassium, but were low in carbohydrates, fiber and essential fats. Athletes who took a nutrition course in college had more dietary knowledge and skills. Thus, Abbey E.L. et al. in their research show the potential role of the official sports nutritionist in the team [12].

Devlin B.L. with colleagues (2017) assessed the differences and the correlation between knowledge about nutrition, food consumption and body composition in elite and non-professional soccer players. Nutritional knowledge was positively correlated with fat-free soft tissue mass. This understanding of known factors can help sports nutrition professionals to be more specific and focused in their approach to supporting players to achieve increased productivity [23]. Australian soccer athletes are not aware of the current rules of sports nutrition, according to Andrews M.C. et al. (2015), Trakman G.L. et al. (2018) who raise the question of the need to disseminate dietary knowledge among athletes [13, 33].

An analysis of the literature shows that the study of nutrition culture, the relationship between the nutritional characteristics of players of different types, different levels of qualification are conducted in soccer players of youth and adults. There are almost no research works related to the work of sports nutritionists in a team with a coach in order to form the correct eating behavior, dietary knowledge, dietary support of children who are just starting to play soccer. In our opinion, it is more rational to form the correct eating behavior in athletes from the very beginning in sports, in childhood and adolescence.

Conclusions. Soccer is a very popular sport in the world. It does not require special equipment. It can be practiced at any age, from amateur to professional level.

Working with children is always increased responsibility. The child's body differs from the adult by significant constant changes in the structures of different levels, and accordingly, in the functioning. This affects the peculiarities of the child's psyche.

Soccer is always a serious physical activity. When playing soccer, there is a high risk of injury to the bones and joints of the skeletal bones, especially in a not yet fully formed child's body. At the same time, sports harden the child, make him strong both physically and internally. To become a real soccer player and achieve high results in the future, it is necessary to know from an early age about the risks of injuries during sports, avoid them through appropriate exercises and rules of conduct during training and competitions, as well as strengthen the skeleton, ligaments, muscles by proper nutrition. Proper nutrition of young soccer players is slightly different from the recommended diet for children of the same age.

Soccer workout require very heavy loads and a variety of training to develop strength, speed, endurance and agility.

To prevent serious health consequences against the background of heavy physical and mental stress, the athlete from childhood should be aware of the model of proper nutrition, which is an integral part of athletic achievement.

Our work with children of the second childhood, who started playing soccer, showed the effectiveness of a comprehensive approach to mastering the basics of soccer, developing the necessary qualities in children, including physical and mental training, working with parents and forming proper eating behavior in children.

With proper training and nutrition, the body of a young soccer player gradually works, adapts to high loads, which expands the functionality of his organs and is accompanied by the restructuring of all its activities.

Prospects for further research in this direction. One of the most affordable ways to support and properly develop the body during exercise is the dietary support of a young athlete (soccer player). Age-related sports nutrition is currently underdeveloped in Ukraine. Children, their parents and coaches in most cases have low dietary awareness. In the future, research will be conducted that will reflect the physiological and biochemical processes in the body of children-athletes with proper dietary support.

References

1. Polievskij SA. Sportivnaya dietologiya. Moskva: Akademiya; 2015. 208 s. [in Russian].
2. Kharchenko NV, Anokhina GA. Diitolohiia. Kyiv: Merydian; 2012. 528 s. [in Ukrainian].
3. Cyganenko OI, Persheguba IaV, SKliarova NA, Oksamytnaia LF. Sovremennoe sportivnoe pitanie: napravleniya razvitiya, problemy i ih reshenie. Sport. visn. Prydniprovia. 2015;3:302–306. [in Ukrainian].
4. Romaniuk V. Osoblyvosti fizychnoho rozvytku yunyh futbolistiv 11–17 rokiv. Fizychno vykhovannia, sport i kultura zdorovia u suchasnomu suspilstvi. 2013;4(24):86–91. [in Ukrainian].
5. Bajrachnij OV. Analiz sorevnovatel'noj deyatel'nosti futbolistov vysokoj kvalifikacii s uchyotom igrovyh amplua. Pedagogika, psihologiya ta mediko-biologichni problemi fizychnogo viovannia i sportu. 2008;8:7–10. [in Ukrainian].
6. Lapshin OB. Teoriya i metodika podgotovki yunyh futbolistov. Moskva: Chelovek; 2014. 176 s. [in Russian].
7. Opoku-Okrah K, Sam DK, Nkum B, Dogbe EE, Antwi-Boateng L, Sackey B. et al. Sports anaemia and anthropometric evaluation of footballers at Kwame Nkrumah University of Science and Technology (KNUST). Pan Afr Med J. 2016 May 9;24:25. DOI: <https://doi.org/10.11604/pamj.2016.24.25.7244>.
8. Babak SV, Moroz OA. Ryzkyky otrymannia travm ditei ta pidlitiv pry zaniattiakh futbolom. Arkhivarius. 2016;6:163-167. [in Ukrainian].
9. Dodson CC, Secrist ES, Bhat SB, Woods DP, Deluca PF. Anterior Cruciate Ligament Injuries in National Football League Athletes From 2010 to 2013: A Descriptive Epidemiology Study. Orthop Journ Sports Med. 2016;4:3. DOI: <https://doi.org/10.1177/2325967116631949>.
10. McCall A. Injury prevention strategies, coach compliance and player adherence of 33 of the UEFA Elite Club Injury Study teams: a survey of teams' head medical officers. Br J Sports Med. 2016;50:12. DOI: <https://doi.org/10.1136/bjsports-2015-095259>.
11. Nassis GP, Gabbett TJ. Is workload associated with injuries and performance in elite football? A call for action. Br J Sports Med. 2017;51(6):486–487. DOI: <https://doi.org/10.1136/bjsports-2016-095988>.
12. Abbey EL, Wright CJ, Kirkpatrick CM. Nutrition practices and knowledge among NCAA Division III football players Affiliations expand. J Int Soc Sports Nutr. 2017 May 19;14:13. DOI: <https://doi.org/10.1186/s12970-017-0170-2>.
13. Andrews MC, Itsiopoulos C. Room for Improvement in Nutrition Knowledge and Dietary Intake of Male Football (Soccer) Players in Australia. Int J Sport Nutr Exerc Metab. 2016;26(1):55–64. DOI: <https://doi.org/10.1123/ijsnem.2015-0064>.
14. Braun H, Andrian-Werburg J, Schänzer W, Thevis M. Nutrition Status of Young Elite Female German Football Players. Pediatr Exerc Science. 2018 Feb 1;30(1):157–167. DOI: <https://doi.org/10.1123/pes.2017-0072>.
15. Condo D, Lohman R, Kelly M, Carr A. Nutritional Intake, Sports Nutrition Knowledge and Energy Availability in Female Australian Rules Football Players. Nutrients. 2019 Apr 28;11(5):971. DOI: <https://doi.org/10.3390/nu11050971>.
16. Devlin BL, Leveritt MD, Kingsley M, Belski R. Dietary Intake, Body Composition, and Nutrition Knowledge of Australian Football and Soccer Players: Implications for Sports Nutrition Professionals in Practice. Int J Sport Nutr Exerc Metab. 2017;27(2):130–138. DOI: <https://doi.org/10.1123/ijsnem.2016-0191>.
17. Mardar GI, Khalaim IaA, Babak SV, Iazlovic'ka LS, Marceniak IV. Anatomii ta fiziolohiia dytyny. Chernivtsi: Ruta; 2002. 175 s. [in Ukrainian].
18. Bezrukih MM, Son'kin VD, Farber DA. Vozrastnaya fiziologiya: (Fiziologiya razvitiya rebenka). Moskva: Akademiya; 2003. 416 s. [in Russian].
19. Godik MA. Fizicheskaya podgotovka futbolistov. M.: Terra-Sport, Olimpiya Press; 2006. 272 s. [in Russian].
20. Guba VP, Leksakov AV, Antipov AV. Integral'naya podgotovka futbolistov. Moskva: Sovetskij sport; 2010. 105 s. [in Russian].
21. Brusko AG, Gajko GV. Funkcional'naya perestrojka kostej i ee klinicheskoe znachenie. Lugansk: LGMU; 2005. 212 s. [in Ukrainian].
22. Gacek M. Association between general self-efficacy level and use of dietary supplements in the group of American football players. Rocznik Panstw Zakl Hig. 2016;67(1):31–6.
23. Algul S, Bengu AS, Baltaci SB. Effects of morning and nocturnal soccer matches on levels of some trace elements in young trained males. Cell Mol Biol (Noisy-le-grand). 2019 Feb 28;65(2):32–36. DOI: <https://doi.org/10.14715/cmb/2019.65.2.6>.
24. Bond D. Estestvennoe pitanie: Kak pitat'sya v sootvetstvii s nashej geneticheskoy programmoj. Moskva: Ajris-press; 2003. 336 s. [in Russian].
25. Carl RL, Johnson MD, Martin TJ. Promotion of Healthy Weight-Control Practices in Young Athletes. Pediatrics. 2017;140(3):e20171871. DOI: <https://doi.org/10.1542/peds.2017-1871>.
26. Ebert TR. Nutrition for the Australian Rules football player. Sci Med Sport. 2000;3(4):369–82. DOI: [https://doi.org/10.1016/s1440-2440\(00\)80004-3](https://doi.org/10.1016/s1440-2440(00)80004-3).
27. Aranson MV. Pitaniye dlya sportsmenov. M.: Fizkul'tura i sport; 2001. 97 s. [in Russian].
28. Rebaï H, Chtourou H, Zarrouk N. Reducing resistance training volume during Ramadan improves muscle strength and power in football players. Int J Sports Med. 2014;35(5):432–7. DOI: <https://doi.org/10.1055/s-0033-1353216>.
29. O'Brien L, Collins K, Doran D. Dietary Intake and Energy Expenditure Assessed during a Pre-Season Period in Elite Gaelic Football Players. Sports (Basel). 2019 Mar 13;7(3):62. DOI: <https://doi.org/10.3390/sports7030062>.
30. Beasley KJ. Nutrition and Gaelic football: review, recommendations, and future considerations. International Journal of Sport Nutrition and Exercise Metabolism. 2015;25(1):1-13. DOI: <https://doi.org/10.1123/ijsnem.2013-0214>.
31. McCrink CM, McSorley EM, Grant K, McNeilly AM, Magee PJ. An investigation of dietary intake, nutrition knowledge and hydration status of Gaelic Football players. Eur J Nutr. 2020;58:2. DOI: <https://doi.org/10.1007/s00394-020-02341-x>.
32. Smarkusz J, Zapolska J, Witzczak-Sawczuk K, Ostrowska L. Characteristics of a diet and supplementation of American football team players: following a fashionable trend or a balanced diet? Rocznik Panstw Zakl Hig. 2019;70(1):49-57. DOI: <https://doi.org/10.32394/rpzh.2019.0054>.
33. Trakman GL, Forsyth A, Middleton K, Hoye R, Jenner S, Keenan S, et al. Australian Football Athletes Lack Awareness of Current Sport Nutrition. Guidelines Int J Sport Nutr Exerc Metab. 2018 Nov 1;28(6):644-650. DOI: <https://doi.org/10.1123/ijsnem.2018-0002>.

ФОРМУВАННЯ ПРАВИЛЬНОЇ ХАРЧОВОЇ ПОВЕДІНКИ У ДІТЕЙ ДРУГОГО ДИТИНСТВА, ЯКІ ЗАЙМАЮТЬСЯ ФУТБОЛОМ

Бабак С. В.

Резюме. Здоров'я молодих поколінь – основа майбутнього. Заняття фізичною діяльністю з дитинства сприяє загартуванню організму, його зміцненню та підвищенню працездатності. Користь спорту для дитячого організму складно переоцінити. В той же час, великі навантаження на організм, що росте, вносять в нього свої зміни. Футбол – це активна спортивна гра, яка потребує розвитку фізичних якостей, таких, як витривалість, швидкість, спритність, сила. Тренування та самі змагання відбуваються на тлі великих фізичних та психічних навантажень. Досягнення результатів залежить не тільки від правильно побудованого тренувального процесу, але і від харчування. Закладати основи правильного харчування з огляду на підвищені фізичні навантаження на організм дитини варто із самого початку занять спортом. Мета дослідження: дієтологічний супровід та формування правильної харчової поведінки у дітей, які займаються спортом (футболом).

Впродовж року проводилась робота із дітьми другого дитинства (8-9 років), які розпочали займатися футболом. Розробляли харчовий раціон. Давали знання щодо правильного харчування при заняттях спортом. Робили фізіологічні, а також антропометричні вимірювання, розраховували антропометричні індекси з метою аналізу адаптації дітей до фізичного навантаження.

Після проведених бесід та лекцій, діти, які почали займатися футболом, отримали потрібні знання, вели щоденники, в яких відображали свої харчові раціони. За рік занять діти-футболісти, які притримувались правильного харчування, покращили показники щодо адаптації організму до фізичних навантажень, порівняно із дітьми, які не притримувались дієтологічних порад.

Для запобігання серйозних наслідків для здоров'я на тлі великих фізичних та психічних навантажень, у спортсмена-футболіста з дитинства має бути закладена в свідомості модель правильного харчування, що є невід'ємною частиною спортивних досягнень. При правильному тренуванні та харчуванні організм футболіста з дитинства поступово впрацьовується, адаптується до високих навантажень, що розширює функціональні можливості його органів і супроводжується перебудовою всієї його діяльності.

Ключові слова: діти другого дитинства, футбол, раціональне харчування.

FORMATION OF PROPER EATING BEHAVIOR IN CHILDREN OF THE SECOND CHILDHOOD WHO PLAY SOCCER

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Abstract. The health of the younger generations is the foundation of the future. Exercise since childhood helps to harden the body, strengthen it and increase efficiency. The benefits of sports for the child's body is difficult to overestimate. At the same time, heavy loads on the growing organism make changes in it. Soccer is an active sports game that requires the development of physical qualities such as endurance, speed, agility, strength. Training and competitions take place against the background of great physical and mental strain. Achieving results depends not only on a properly constructed training process, but also on nutrition. It is necessary to lay the foundations of proper nutrition in view of the increased physical load on the child's body from the very beginning in sports. The purpose of the study: dietary support and the formation of proper eating behavior in children who play sports (soccer).

During the year, work was carried out with children of the second childhood (8-9 years), who started playing soccer. The diet was developed. Children got knowledge about proper nutrition during sports. Physiological and anthropometric measurements were made, anthropometric indices were calculated in order to analyze children's adaptation to physical activity.

After the talks and lectures, the children who started playing soccer received the necessary knowledge, kept diaries in which they reflected their diets. During the year of training, children soccer players who followed a proper diet had improved performance in terms of adaptation to physical activity.

In order to prevent serious health consequences against the background of heavy physical and mental stress, an athlete soccer player should have a model of proper nutrition in his mind, which is an integral part of sports achievements. With proper training and nutrition, the body of a soccer player from childhood gradually works, adapts to high loads, which expands the functionality of his organs and is accompanied by the restructuring of all its activities.

Key words: children of the second childhood, soccer, nutrition.

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