

Assessment of Diet and Frequency of Consumption of Basic Foods among Young Swimmers

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Abstract This article's objective was to study the diet and frequency of consumption of basic foods by girls involved in swimming. Analysis of personal data showed that almost 80% of swimmers know that proper nutrition maintains and improves health. At the same time, only 65.5% of the examined girls followed a proper diet. It has been established that violation of the average daily diet has an adverse effect on the body of swimmers and their athletic achievements. Violation of the average daily diet in young swimmers 7-15 years of age due to low consumption of milk and dairy products, meat and fish products, vegetables, fresh, dried or freeze-dried fruits. And also due to the increased level of consumption of bread and bakery, confectionery and fast food products (fast food). Their diet and nutritional structure does not meet existing requirements.

Keywords Swimmers, Diet, Taste preferences, Frequency of food consumption

1. Introduction

Normal growth and development of the body of young athletes, incl. number of swimmers, increasing functionality, physical and mental performance largely depend on nutrition. Correction of food rations and diet of young athletes, in accordance with the principles of rational nutrition and the characteristics of the type of swimming, has a positive effect on the development of motor qualities and the level of physical fitness of swimmers (Astakhova A. S., Uchasov D. S., 2020). Rational nutrition helps to increase adaptive capabilities, maintain health, prevent diseases, achieve good athletic shape and high athletic performance (Chizhikova A.S., Uchasov D.S., 2020).

Swimmers require energy to perform physical activity and maintain body temperature in a cool water environment. Therefore, on days of intense training, young swimmers need to consume 3500-4000 kcal, and proper nutrition for young athletes implies 4-5 or 5-6 meals a day with intervals between meals of 2.5-3.5 hours (Korosteleva M. M., Nikityuk D. B., 2013). For athletes involved in sports that require predominantly endurance, the recommended dose of protein is from 1.2 to 1.7 g/kg body weight per day. It is this ratio of the amount of protein and the swimmer's body weight that should ensure normal energy supply to the body (Solopov I.N., 2018).

Dietary decisions have a significant impact on an individual's general health, development, and athletic ability, especially

for young athletes participating in demanding training programs like swimming. In order to maximize performance, recovery, and general well-being, it is imperative to comprehend dietary patterns and the frequency of basic food consumption in light of the nutritional demands imposed by intense physical activity. Though the role of nutrition in sports performance is well acknowledged, little research has been done on the eating patterns of young swimmers. In order to support young swimmers' athletic attempts, this study intends to evaluate the diet and frequency of consumption of fundamental foods. The results will offer important insights into the swimmers' nutritional practices and suggest areas for improvement.

2. Literature Review

Dietary consumption has a significant impact on an athlete's ability to perform, recuperate, and maintain general health, particularly young swimmers. Numerous scholarly investigations have emphasized the importance of appropriate nutrition in enhancing sports performance and mitigating the likelihood of illnesses and injuries among athletes.

According to research, because of their rapid growth and development as well as the demands of their training and competition schedules, young athletes frequently have special dietary needs (Thomas et al., 2016; Desbrow et al., 2014). According to Burke et al. (2011), insufficient consumption of nutrients might result in less than ideal performance, exhaustion, slowed recuperation, and heightened vulnerability to diseases and accidents. Research on the

eating patterns of juvenile swimmers has yielded conflicting results about their food habits. According to certain studies, young swimmers could not always get enough energy and nutrition, especially when it comes to vital elements like protein, carbs, vitamins, and minerals (Pelly et al., 2018; Silva et al., 2016). Furthermore, missing meals and erratic eating habits have been noted in young athletes, which may jeopardize their performance and nutritional health (Mountjoy et al., 2014). To further address the nutritional needs of young athletes, regular consumption of core food groups such fruits, vegetables, whole grains, lean proteins, and dairy products is essential. Research has demonstrated how crucial a balanced diet full of these fundamental food groups is for supporting athletes' development, recuperation, and performance (Sundgot-Borgen & Torstveit, 2004).

Even while the amount of research on the relationship between nutrition and athletic performance is increasing, little is known about the precise food habits and frequency of basic food consumption of young swimmers. By evaluating the diet and frequency of basic food consumption among young swimmers, this study seeks to close this knowledge gap and offer important insights into their nutritional practices and potential areas for improvement.

3. Material and Methods

The study was conducted among girl swimmers aged 7 to 15 years in the city of Tashkent. 533 girls aged 7 to 15 years who had been swimming for at least 6 months took part in the survey. The number of girls averaged 50 in each age group.

The study of diet and frequency of consumption of basic products was carried out by survey method using a developed questionnaire. The study was carried out in 9 swimming pools at children's and youth sports schools (youth sports schools), located in 8 districts (Mirzo-Ulugbek, Yakkasaray, Yashnabad, Yunusabad, Shaykhontokhur, Almazar, Bektemir and Sergil) out of 12 available in the city of Tashkent.

One of the blocks of the questionnaire was a block devoted to nutrition issues for young swimmers who pre-formulated questions and several possible answers to each of them, including the answer "I don't know/hard to answer". This block included 37 questions divided into 7 sections: "knowledge on the influence of nutrition on health", "self-assessment of nutrition and frequency of consumption of sports nutrition products", "dietary mode", "eating habits and taste preferences", "frequency of consumption of main groups products, drinks and instant products (fast foods)", "sources of information about healthy eating", "opinion about the factors influencing the organization of proper nutrition in the family".

The questionnaire was developed by employees of the laboratory of hygiene for children and adolescents, approved by the Academic Council of the Research Institute of Sanitation, Hygiene and Occupational Diseases of the

Ministry of Health of the Republic of Uzbekistan (protocol No. 4 of April 2, 2021).

When conducting the survey, there was an ethical review protocol, including discussion and approval of the "Information Sheet of Students and (or) Their Parents with Voluntary Consent to the Survey" and "Map for Studying the Nutrition of Pubertal Girls Swimming." Permission to conduct research was obtained from the Ministry of Physical Culture and Sports, the Main Department of Physical Culture and Sports of the city of Tashkent.

The obtained data were subjected to statistical analysis using the Microsoft program Excel 2017. The survey data were processed using the variation-statistical method with the relative values (% and % of cases), calculation of arithmetic means (M), standard deviations ($\pm d$), and average errors ($\pm m$). Differences in arithmetic means were considered significant at ($p \leq 0.05$).

4. Research Results

Analysis of personal data showed that a large number of 80.8% of swimmers know that proper nutrition preserves and improves their health, but their diet and nutritional structure do not meet existing requirements. It was revealed that 58% of the surveyed female athletes believe that their health greatly depends on the diet and structure of nutrition, while 26.2% noted that their health does not depend on nutrition, while the remaining respondents did not know or did not want answer the question posed. 62.9% of swimmers surveyed believe that they eat properly. To the question "Do you consider your diet healthy and nutritious?" 59.3% noted that their diet is complete and healthy, but 26.4% answered "no", and 14.3% answered "I don't know/it is hard to me to answer".

It was revealed that out of 533 swimmers, 22.6% constantly consumed sports nutrition products, 29.3% sometimes, and 40.5% never consumed sports nutrition products containing proteins.

Block 3 includes questions about diet; the data obtained can be used to evaluate the diet of athletes. While 61.5% of girls surveyed eat at the same certain times, and 34.4% eat at different times, 4% refused to answer these questions. 37.8% of athletes believe that 10-15 minutes is enough to eat normally, 45.4% - 30 minutes, 14.5% - 1 hour. Of these, 33.8% of young swimmers consume hot food once a day, 57% - 2-3 times a day, 8.5% of girls indicated that they eat 4 times a day. "How many times a day do you think you should consume hot food?" to this question, 23.4% of respondents answered that 1 time a day, 67.3% 2-3 times, 6.65% of participants believed that 4-5 times a day you need to consume hot food, the rest of the respondents did not want to answer. 21.29% of athletes have breakfast outside the home, 20.53% - a second breakfast, and 26.43% - have lunch is included in the main meals outside the home, about 18% of girls athletes responded that afternoon tea, dinner and second dinner are present in the outside mode Houses.

Table 1. Percentage of cases of products used %

| No. | Product names | Consumption | | | | |
|-----|---|-------------|------------|------------------|-------------|----------------|
| | | Every day | In one day | 1-2 times a week | Very rarely | I don't use it |
| 1 | Dairy | | | | | |
| | milk, sour milk, yogurt | 41.6 | 29.1 | 19.8 | 8 | 1.5 |
| | sour cream, kaymak | 35 | 26.2 | 22.6 | 14.1 | 2.1 |
| | cottage cheese, cheese, feta cheese | 34.6 | 22.8 | 26.2 | 15 | 1.3 |
| | butter | 43.5 | 21.7 | 14.6 | 14.6 | 5.5 |
| 2 | Meat products | | | | | |
| | chickens, duck, turkey, etc. | 27.9 | 21.5 | 27.4 | 18.3 | 4.9 |
| | eggs | 33.8 | 33.7 | 19 | 8.7 | 4.8 |
| | lamb, beef | 53.2 | 23.8 | 15 | 6.3 | 1.7 |
| | sausages, frankfurters, kazy | 41.2 | 19.8 | 19.4 | 16.7 | 2.9 |
| | fish | 24 | 13 | 15.6 | 36.5 | 10.5 |
| 3 | Dishes from cereals and legumes | | | | | |
| | mung beans, peas, beans | 22 | 17.5 | 37.6 | 16.7 | 6.1 |
| | rice | 28 | 34 | 27.8 | 7.03 | 2.9 |
| | oatmeal, pearl barley, lentil, buckwheat, millet, wheat, semolina, corn grits | 21.3 | 14.8 | 27.6 | 26.6 | 9.7 |
| 4 | Beverages | | | | | |
| | Fanta, Coca-Cola, Sprite, Pepsi, lemonade | 25 | 23.8 | 29.9 | 18.2 | 3 |
| 5 | Sweets | | | | | |
| | candies, chocolate, jam, marmalade | 30.2 | 28.7 | 26.6 | 12.2 | 2.3 |
| | honey | 22 | 18.4 | 21.5 | 27.4 | 10.7 |
| | sugar, navvat | 46 | 21.3 | 15.2 | 11.8 | 5.7 |
| 6 | Fast foods | | | | | |
| | hot dog, hamburger, lavash, sandwich, chips, pizza | 12.7 | 10.3 | 30.2 | 41.4 | 5.3 |
| | Various types of noodles - " Rollton ", etc. | 10.8 | 13 | 18.6 | 44.9 | 12.5 |

Analyzes of "eating habits and taste preferences" showed that, Results of answers to the question "What food do you prefer?" Children noted 57.9 % of cases "fried", 40.1% of cases children "stewed-boiled", dishes that were baked in the oven accounted for 38.2%, about 16.3% of cases respondents answered that they like salty- smoky, fatty and spicy dishes, and 53.6% of cases consume sweets, 6.5% did not want to answer the question. About 79% of respondents believe that they have a variety of food.

Respondents had to fill out questionnaires containing information about their diet and frequency of consumption of the main groups of foods, drinks and various types of products (bread and baked goods, milk and dairy products, meat and fish products, cereal dishes, vegetables, fresh fruits, dried or freeze-dried fruits or berries, carbonated drinks, juices, compotes, water, tea, coffee or cocoa, sweets, pies, gumma, samsa, belyashi, pasties, instant food products), reflected in 1 table.

Bread and bakery products are present daily in the diet of 79.3% of young athletes, 14% consume them 1-2 times a week, 6.5% very rarely, and only 0.2% of girls do not consume them. Milk and dairy products are included in the

diet of all respondents and amount to 38.7%; 45.7% of swimmers include these products 3-4 times a week; 2.6% do not consume these products.

Meat products (chicken, duck, turkey, eggs, beef and lamb) are consumed every day by only 39%, of which 22.5% 3-4 times a week, the rest are consumed very rarely. 36.5% of girls consume fish products rarely, 52.6% 1-2 times a week, and 10.5 % do not include them in their diet.

Vegetables, fresh, dried or freeze-dried fruits, or berries enriched with vitamins, minerals and microelements are very important for regulating water-salt metabolism. These products are included daily in the diets of 53.3% of swimmers, vegetables and fruits are present in the diet of 34% of swimmers, 38.6% of swimmers take vegetables 3-4 times a week, while 61.7% of young athletes consume fruits. 6.2% of girls surveyed do not consume fruits and vegetables. 23.8% of respondents consume cereal dishes daily, 70% of young athletes consume 2-3 times a week, and 6.2% do not consume them. A large number of girls swimmers - 76.7% indicated that they consume confectionery products 3-4 times a week, 17% very rarely, the rest do not consume. Research has found that 43.5% of girls daily drink sweet drinks, tea, coffee,

cocoa, jelly compote, juices, boiled water, still and bottled water, and 47% of respondents do not drink energy drinks (red bull, flash, 18+, zero, etc.). Young swimmers indicated that 52.9% consume fast food products (fast food) 3-4 times a week. According to the survey, it was revealed that 16% of swimmers consume pies, gumma, samsa, belyashi, and pasties every day; and 12.7% consume daily "fast" food " and 10.8% of participants consume different types of drinks every day - " Rollton ", etc.

Analysis of section 6 on "sources of information about healthy eating" showed that 61.6% of cases noted that they receive information from parents and relatives, and about 58% of cases receive information from the media, of which 21.7% - from TV, 27% - from the Internet and 9.1% - from newspapers, magazines, books, etc. It was found that only 13% of the surveyed schools conduct classes on healthy eating regularly according to special programs.

5. Discussion

A swimmer's diet should be healthy and balanced, the nutrient is found in bread, most cereals (buckwheat, oatmeal, pearl barley, semolina, millet, rice), pasta, dried fruits (dates, raisins, prunes, dried apricots), legumes (beans, peas). Vegetables, fruits and berries contain slightly less carbohydrates (up to 24 grams of carbohydrates per 100 grams of product) (Khramtsova O.I., 2019). Our studies examined the frequency of consumption of "Bread and bakery products", "Milk and dairy products", "Meat products", "Cereals and legumes", "Drinks", "Sweets", "Instant food", fruits and vegetables.

In the Russian Federation, an analysis of personal data showed that 69% of respondents do not eat at the same certain hours. Only 19% of young swimmers eat 4 times a day, 69% - three times a day, and 12% of girls indicated in their questionnaires that they eat twice a day. The majority of young athletes (69%) do not follow the diet (Chizhikova A.S., Uchasov D.S., 2020). Our research has shown that 34.5% of girls do not comply with their diet. 61.5% of girls surveyed eat at the same specific time, as well as 33.8% of young swimmers eat once a day, 57% - 2-3 times a day, 8.5% of girls indicated that they eat 4 times in a day.

Research conducted among schoolchildren in Yekaterinburg revealed significant violations in the nutrition of children and adolescents. Only 12% of students of all ages constantly follow the diet, and 41% of schoolchildren violate it systematically. On average, the daily diet of schoolchildren contains all the main food groups, but bakery products are most often present in the diet - 3.39 times a day, occupying the first ranking place. In second place are sugar and confectionery products - 3.26 times a day, in third place are drinks (carbonated drinks, tea, coffee) - 2.34 times a day, with a reduced frequency of consumption of products - sources of essential nutrients. Fish is included in a schoolchild's diet once every 3-5 days. Meat products are present in the diet on average once a day (O.V. Chugunova, N.V. Zavorokhina,

2012). In Tashkent, among the children surveyed, bread and bakery products were in first place (79%), confectionery products were in second place (53.6%), and dairy products, vegetables and fruits were in third place (38.7%).

In the city of Mezhdurechensk, Kemerovo region, a low level of student consumption of meat dishes (on average 70%), fish (46%) and eggs (70%) was noted. More than half of middle and high school students (64%) willingly consume salty crackers and chips. Our research has shown that only 39% of girls consume meat products (chicken, duck, turkey, eggs, beef and lamb) every day, 36.5% of girls rarely consume fish products, 52.6% 1-2 times a week, and 10.5% is not included in the diet.

Analysis of the eating behavior of children revealed violations of qualitative and quantitative, as well as diets in all examined groups of children, regardless of their nutritional status. The above indicates that in general education and sports schools it is necessary to carry out measures to optimize the diet and systematic awareness of the issues of proper nutrition.

6. Conclusions

1. The study found that only about 60% of swimmers have proper and nutritious nutrition. This indicates an insufficient level of knowledge of student-athletes regarding healthy nutrition.
2. 52.9% of young athletes consume fast food products (fast food) 3-4 times a week, 41.4% - very rarely and only 5.3% do not consume it at all.
3. It was found that 22.6% of 533 female swimmers regularly consume protein-containing sports nutrition products.
4. Only 65.5% of the examined girls followed a proper diet. 37.8% of female athletes need 10-15 minutes to eat normally, and 33.8% of swimmers eat hot food once a day.
5. According to research results, 53.6% of girls eat sweets. 79.3% of young athletes eat bread and bakery products, 38.7% milk and dairy products, 39% of girls eat meat products every day.
6. The results of the survey made it possible to determine that 34.4% of swimmers do not eat on time and 27.4% of young athletes do not know what a normal diet should be, but eat pies, gumma, samsa, belyashi, pasties and fast food products food and different types of noodles.

REFERENCES

- [1] Burke, L. M., Cox, G. R., Cummings, N. K., & Desbrow, B. (2011). Guidelines for daily carbohydrate intake: do athletes achieve them? *Sports Medicine*, 41(10), 869-877.
- [2] Desbrow, B., McCormack, J., Burke, L. M., Cox, G. R.,

- Fallon, K., Hislop, M., & Logan, R. (2014). Sports Dietitians Australia position statement: sports nutrition for the adolescent athlete. *International Journal of Sport Nutrition and Exercise Metabolism*, 24(5), 570-584.
- [3] Mountjoy, M., Sundgot-Borgen, J., Burke, L., Carter, S., Constantini, N., Lebrun, C., & Budgett, R. (2014). The IOC consensus statement: beyond the Female Athlete Triad—Relative Energy Deficiency in Sport (RED-S). *British Journal of Sports Medicine*, 48(7), 491-497.
- [4] Pelly, F., O'Connor, H., Denyer, G., & Caterson, I. (2018). Dietary intake and eating patterns of young athletes on Australia's national junior teams. *Nutrition Research and Practice*, 12(3), 213-220.
- [5] Silva, M. R., Paiva, T., & Matias, C. N. (2016). Nutritional intake and body composition of recreational adolescent swimmers over a season. *Journal of Sports Sciences*, 34(21), 2052-2059.
- [6] Sundgot-Borgen, J., & Torstveit, M. K. (2004). Prevalence of eating disorders in elite athletes is higher than in the general population. *Clinical Journal of Sport Medicine*, 14(1), 25-32.
- [7] Thomas, D. T., Erdman, K. A., & Burke, L. M. (2016). American College of Sports Medicine Joint Position Statement. *Nutrition and Athletic Performance*. *Medicine and Science in Sports and Exercise*, 48(3), 543-568.
- [8] Astakhova A. S., Uchasov D. S. Features of physical fitness indicators in swimmers aged 11-13 years under different nutritional conditions // *Physical culture, sports, tourism: problems and prospects - Science-2020*. No. 4(29) P. 23-27.
- [9] Korosteleva M. M., Nikityuk D. B., Volkova L. Yu. Features of the organization of nutrition for young athletes // *Questions of nutrition*. 2013. No. 6. P. 41 – 47.
- [10] *Solopov I.N. Swimmer's nutrition // sports swimming book*. 2018.
- [11] Chizhikova A.S., Uchasov D.S. Analysis of nutritional characteristics of young swimmers // *Science-2020*, No. 2-1 (18). – P.43-49.
- [12] Khramtsova O.I., 2019 <https://nsportal.ru/hramtsova-oksana-ivanovna>.
- [13] Chugunova O.V., Zavorokhina N.V. Analysis of eating behavior of Ekaterinburg students // ISSN 2074-9414. *Equipment and technology of food production*. - 2012. No. 4, 4p.
- [14] Tapeschkina N.V., Lobykina E.N. Peculiarities of eating behavior of school-age children in Mezhdurechensk, Kemerovo region // *ZNiSO* No. 8 (245).