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# Knowledge and eating habits of CrossFit trainees

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## Synopsis:

**Introduction.** Achieving high performance in sports is the result of many factors, both exo and endogenous. Proper nutrition is the basis of the so-called healthy lifestyle, health care and prevention of diet-related diseases. Physical activity is an extremely important component and carries a number of benefits that affect mental, physical and social well-being. Failure to provide sufficient energy, can lead to decreased performance, delayed recovery processes or loss of muscle mass. The purpose of the study was to assess the knowledge and nutritional habits of CrossFit trainees.

**Material and methods.** 131 people were surveyed; the questionnaire was posted on the CrossFit Poland forum. The survey was voluntary and anonymous. The results were collected in a database in Microsoft Excel 2010 MS Office Package and statistically analyzed using Statistica 12. In the statistical evaluation of the relationship between characteristics, a significance level of $p \leq 0.05$ was adopted. **Results.** In a survey of the knowledge and eating habits of CrossFit trainees, about 50% of respondents declare that they eat regularly. In addition, 50.5% state a moderate level of knowledge about healthy eating, while 33% state a

high level. There is a high incidence of dietary supplement intake, accounting for 78.5%. As the frequency of training increases, the amount of supplements consumed increases. **Conclusions.** A significant part of the study group declares a very good or moderate level of knowledge of rational nutrition, which influences the choice of and regularity of the meals consumed in this group of Crossfit trainers.
**Keywords: knowledge, eating habits, Crossfit, physical activity, supplements, nutrition**

## Introduction

Recommended by the expert position, a balanced diet and properly selected supplementation significantly affect the process of energy generation during exercise and accelerate the rate of resynthesis of energy substrates after exercise. The appropriate level of supplied building materials presumably enhances the supplementation process, regenerating damaged tissues. In the nutrition and supplementation of physically active people, it is important to pay attention to two basic aspects of this issue (nutrition used for a significant part of the year vs. nutrition in the preparation period before competition -. during, before and during recovery ). Nutritional strategies to achieve the best possible results should be carefully tailored, personalized [1].

CrossFit is endurance and strength training with high overload factors. The workouts are highly varied, resulting from constant changes in exercise, time, load and even environment [1,2]. CrossFit was founded on the High Intensity Interval Training (HIIT) method, which is a variation of interval training. It is characterized by interspersing an intense workout at 85-100% of maximum heart rate with a moderate-intensity workout at 60-70%, with a temporal advantage on the lower side of intensity. The duration of the workout ranges from 10-20 minutes, counting the warm-up [3].

CrossFit trainees' knowledge of a well-balanced diet correlates with eating habits, which determines good physical fitness. The main objective of the study was directed at assessing the level of knowledge and eating habits of CrossFit trainees. The following research questions were posed to address the research hypothesis:

1. Does having nutritional knowledge affect the habits of CrossFit trainees?
2. Is there a correlation between the nutrients that respondents pay special attention to and the products that dominate their diets?

3. Is there a relationship between the consumption of perimenopause meals and the products that dominate respondents' diets?
4. Is there a correlation between the amount of physical activity undertaken and the use of dietary supplements?

## Material and methods

The research technique was a proprietary survey questionnaire. The research tool consisted of 34 questions, both single and multiple choice. Then a link was subordinated, which was posted on the CrossFit Poland online forum for people undertaking this type of physical activity. All questionnaires were completed via the Internet. A total of 131 people were surveyed.

The results of the conducted study were collected in a database in the Microsoft Excel program of the MS Office suite and statistically analyzed using Statistica 12. The statistical evaluation of the relationship between the characteristics was based on a significance level of $p \leq 0.05$.

## Results

### *Characteristics of the study group*

The group qualified for the survey was 131 people, of which men were 71 (54.2%), while women were 60 (45.8%). In the study group, 97 respondents (74%) were people with higher education, 33 people (25.2%) with secondary education, while 1 (0.8%) with vocational education. Occupational status was characterized as follows: 100 people (76.3%) were economically active, 29 (22.1%) were learners/students, while 2 (1.5%) were non-workers. Analyzing the frequency of physical activity, 45 respondents (35.1%) declared 5 times a week, 34 respondents (26%) 4 times a week, followed by a group of 31 people (23.7%) 2-3 times a week, and 20 people (15.3%) 6-7 times a week. Considering the reasons for which respondents train CrossFit, it was noted that 40.5% train to get in better shape, 22.1% for health prevention, 27.5% as a hobby.

*Level of dietary knowledge and eating habits of CrossFit practitioners*

**Table I. Knowledge of rational nutrition vs. regularity of meal consumption in the study group .**

| Variable | | | Level of knowledge about rational nutrition | | | | Total |
|---|---|---|---|---|---|---|---|
| | | | very high | weak | average | moderate | |
| Regularity of meal consumption | not | Numbers | 2 | 1 | 1 | 6 | 10 |
| | | % Regularity of meal consumption | 20,0% | 10,0% | 10,0% | 60,0% | 100,0% |
| | | % Level of knowledge about rational nutrition | 4,8% | 50,0% | 4,2% | 9,5% | 7,6% |
| | | % of Total | 1,5% | 0,8% | 0,8% | 4,6% | 7,6% |
| | I don't care | Numbers | 1 | 0 | 1 | 0 | 2 |
| | | % Regularity of meal consumption | 50,0% | 0,0% | 50,0% | 0,0% | 100,0% |
| | | % Level of knowledge about rational nutrition | 2,4% | 0,0% | 4,2% | 0,0% | 1,5% |
| | | % of Total | 0,8% | 0,0% | 0,8% | 0,0% | 1,5% |
| | I try to | Numbers | 5 | 1 | 14 | 34 | 54 |
| | | % Regularity of meal consumption | 9,3% | 1,9% | 25,9% | 63,0% | 100,0% |
| | | | | | | | |
| | | % Level of knowledge about rational nutrition | 11,9% | 50,0% | 58,3% | 54,0% | 41,2% |
| | | % of Total | 3,8% | 0,8% | 10,7% | 26,0% | 41,2% |
| | yes | Numbers | 34 | 0 | 8 | 23 | 65 |
| | | % Regularity of meal consumption | 52,3% | 0,0% | 12,3% | 35,4% | 100,0% |
| | | % Level of knowledge about rational nutrition | 81,0% | 0,0% | 33,3% | 36,5% | 49,6% |
| | | % of Total | 26,0% | 0,0% | 6,1% | 17,6% | 49,6% |
| Total | | Numbers | 42 | 2 | 24 | 63 | 131 |
| | | % Regularity of meal consumption | 32,1% | 1,5% | 18,3% | 48,1% | 100,0% |
| | | % Level of knowledge about rational nutrition | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | | % of Total | 32,1% | 1,5% | 18,3% | 48,1% | 100,0% |

Analyzing the above data, 65 subjects (49.6%) eat regularly, and 54 subjects (41.2%) showed efforts in the context of eating regularly (Tab.1). In contrast, in the group trying to eat regularly, 34 people (63%) described their level of knowledge about rational nutrition as moderate (Tab.1). Among the respondents - 42 people (32.1%) declare that they have a very high level of knowledge about rational nutrition, and 63 people (48.1%) believe that they have a moderate level of knowledge about rational nutrition (Fig.1).

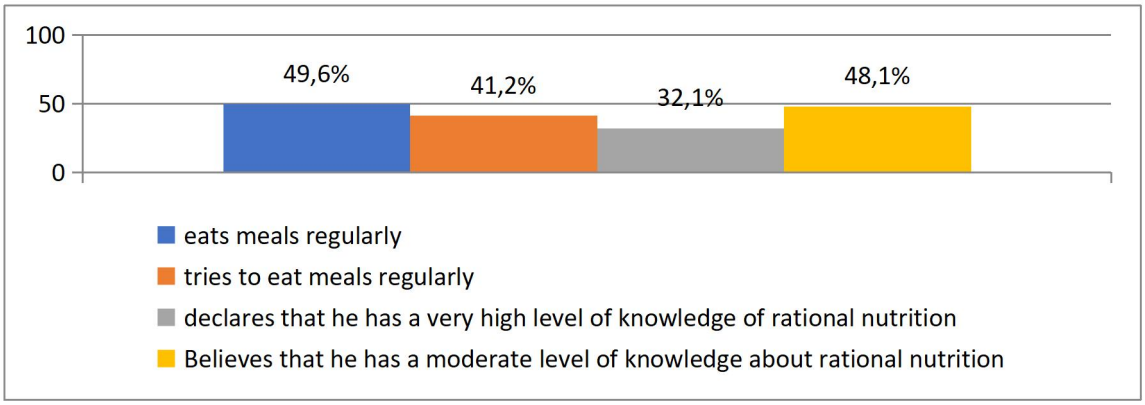


**Figure 1. Regularity of meal intake vs level of knowledge regarding rational nutrition .**

In addition, 34 people (52.3%) who report eating regularly also testify that they have a very high knowledge of rational nutrition. Of those surveyed, 93 people (71%) state that a balanced diet has a great impact on the results achieved in sports, while 38 (29%) declare that it has a fairly great impact.

The chi-square test proved statistically significant. Knowledge of rational nutrition influences the regularity of eating meals (Tab.II.).

**Table II. Table Chi-square test: knowledge of rational nutrition vs. regularity of meal intake .**

| Chi-square tests | | | |
|---|---|---|---|
| | **Value** | **df** | **p (two-sided)** |
| **Pearson's Chi-square** | 33,869 | 9 | ,000 |
| **Reliability quotient** | 35,029 | 9 | ,000 |
| **N Important observations** | 131 | | |

It was shown that 63 people (48.1%) of the total respondents declared that they had a moderate level of knowledge on rational nutrition, 42 people (32.1%) said they had a very high level of knowledge on rational nutrition. In the case of calorie control, the results are more spread out, with 52 people (39.7%) never controlling calories, 37 people (28.2%) occasionally, and 42 people (32.1%) declaring that they control calories. The largest number of people who control calories declare that they have a high knowledge of rational nutrition 20 people, (47.6%) of those who control calories. For those who do not control calories, 24 people (46.2%) declare that they have a moderate level of knowledge about rational nutrition. The chi-square test proved not to be statistically significant ($p=0.134>0.05$). Thus, there was

no correlation between the level of knowledge of rational nutrition and control of the caloric content of products. Kramer's Phi V test is also not statistically significant, so the relationship in this case is not present (Tab.III.).

**Table III. Relationship between education and declared level of knowledge on rational nutrition .**

| Variable | | | Level of knowledge about rational nutrition | | | | Total |
|---|---|---|---|---|---|---|---|
| | | | very high | weak | average | moderate | |
| Caloricity of food and calorie control | no, never | Numbers | 14 | 1 | 13 | 24 | 52 |
| | | % Caloricity of food and calorie control | 26,9% | 1,9% | 25,0% | 46,2% | 100,0% |
| | | % Level of knowledge about rational nutrition | 33,3% | 50,0% | 54,2% | 38,1% | 39,7% |
| | | % of Total | 10,7% | 0,8% | 9,9% | 18,3% | 39,7% |
| | yes, occasionally | Numbers | 8 | 1 | 7 | 21 | 37 |
| | | % Caloricity of food and calorie control | 21,6% | 2,7% | 18,9% | 56,8% | 100,0% |
| | | % Level of knowledge about rational nutrition | 19,0% | 50,0% | 29,2% | 33,3% | 28,2% |
| | | % of Total | 6,1% | 0,8% | 5,3% | 16,0% | 28,2% |
| | yes, always | Numbers | 20 | 0 | 4 | 18 | 42 |
| | | % Caloricity of food and calorie control | 47,6% | 0,0% | 9,5% | 42,9% | 100,0% |
| | | % Level of knowledge about rational nutrition | 47,6% | 0,0% | 16,7% | 28,6% | 32,1% |
| | | % of Total | 15,3% | 0,0% | 3,1% | 13,7% | 32,1% |
| Total | | Numbers | 42 | 2 | 24 | 63 | 131 |
| | | % Caloricity of food and calorie control | 32,1% | 1,5% | 18,3% | 48,1% | 100,0% |
| | | % Level of knowledge about rational nutrition | 100,0% | 100,0 % | 100,0% | 100,0% | 100,0% |
| | | % of Total | 32,1% | 1,5% | 18,3% | 48,1% | 100,0% |

For those with secondary education, 22 people out of 33 in this group (66.7%) are guided by the composition of the product when choosing it. For those with tertiary education, 43 out of 97 people (44.3%) are guided by the composition or quality of the product when

choosing it. Among all respondents, 50% indicated that they are guided by the product's composition when choosing a product. The chi-square test proved not to be statistically significant so the education of the respondents does not affect what they are guided by when making consumer choices. Kramer's Phi V test is also not statistically significant so there is no relationship between education and consumer choices (Tab.IV).

**Table IV. Education of respondents and consumer choices**

| Variables | | | Guidance in consumer choices | | | | Total |
|---|---|---|---|---|---|---|---|
| | | | product price | product quality | the opinion of others regarding the products in question | product composition | |
| Education | Medium | Numbers | 3 | 8 | 0 | 22 | 33 |
| | | % z Education | 9,1% | 24,2% | 0,0% | 66,7% | 100,0% |
| | | % with Guidance in consumer choices | 25,0% | 15,7% | 0,0% | 33,8% | 25,4% |
| | | % of Total | 2,3% | 6,2% | 0,0% | 16,9% | 25,4% |
| | higher | Numbers | 9 | 43 | 2 | 43 | 97 |
| | | % z Education | 9,3% | 44,3% | 2,1% | 44,3% | 100,0% |
| | | % with Guidance in consumer choices | 75,0% | 84,3% | 100,0% | 66,2% | 74,6% |
| | | % of Total | 6,9% | 33,1% | 1,5% | 33,1% | 74,6% |
| Total | | Numbers | 12 | 51 | 2 | 65 | 130 |
| | | % z Education | 9,2% | 39,2% | 1,5% | 50,0% | 100,0% |
| | | % with Guidance in consumer choices | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | | % of Total | 9,2% | 39,2% | 1,5% | 50,0% | 100,0% |

Among those surveyed, 35 (26%) reported drinking tea. Among those who do not drink it, most drink 1-2 liters of fluids per day (38.9%). For those who declared, tea consumption, 48.6% drink about 2-3 liters of fluids per day (Tab.V).

**Table V. Amount of tea consumption .**

| Variable | | | Daily fluids drunk | | | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | 0.5 - 1 liter | 1 - 2 liters | 2 - 3 liters | 3 liters | < 3 liters | |
| Tea | 0 | Numbers | 5 | 37 | 32 | 9 | 12 | 95 |
| | | % from Tea | 5,3% | 38,9% | 33,7% | 9,5% | 12,6% | 100,0% |
| | | % z Daily liquids drunk | 100,0% | 77,1% | 65,3% | 56,3% | 100,0% | 73,1% |
| | | % of Total | 3,8% | 28,5% | 24,6% | 6,9% | 9,2% | 73,1% |
| | 1 | Numbers | 0 | 11 | 17 | 7 | 0 | 35 |
| | | % from Tea | 0,0% | 31,4% | 48,6% | 20,0% | 0,0% | 100,0% |
| | | % z Daily liquids drunk | 0,0% | 22,9% | 34,7% | 43,8% | 0,0% | 26,9% |
| | | % of Total | 0,0% | 8,5% | 13,1% | 5,4% | 0,0% | 26,9% |
| Total | | Numbers | 5 | 48 | 49 | 16 | 12 | 130 |
| | | % from Tea | 3,8% | 36,9% | 37,7% | 12,3% | 9,2% | 100,0% |
| | | % z Daily liquids drunk | 100,0% | 100,0 % | 100,0% | 100,0 % | 100,0% | 100,0% |
| | | % of Total | 3,8% | 36,9% | 37,7% | 12,3% | 9,2% | 100,0% |

A chi-square analysis showed a statistically significant relationship between tea drinking and the amount of fluids consumed daily (Tab.VI.).

**Table VI. Chi-square test : Tea consumption vs. daily fluid intake .**

**Chi-square tests**

| | Value | df | Asymptotic significance (two-sided) |
|---|---|---|---|
| Pearson's Chi-square | 10,461[a] | 4 | ,033 |
| Reliability quotient | 14,582 | 4 | ,006 |
| N Important observations | 130 | | |

a. 40.0% of cells (4) have an expected abundance of less than 5. The minimum expected abundance is 1.35.

The relationship between athletic achievement caused by a balanced diet and the elimination of products by respondents was reported.

**Table VII. Eliminated products in the diet vs. achieved results sports.**

| | Balanced diet and results in sports |
|---|---|
| Fast food | **0,2412** |
| Alcohol | -0,0477 |
| Colorful, sweetened drinks | -0,0123 |
| Cereal products | -0,1004 |
| Sugar | -0,0198 |
| Dairy | -0,1265 |
| Meat | -0,0571 |

Considering the results of the above table, there is a positive relationship between awareness of the impact of a balanced diet and the consumption of fast food. This means that there is an elimination of products such as fast food dishes (Tab.VII.).

The relationship between the nutrients that respondents pay the most attention to and the products that dominate their diets was also analyzed.

**Table VIII. Dominant products in the diet vs. nutrients .**

| Ingredients in the diet | Meat and meat products | Fish | Vegetables and fruits | Milk and milk products | Bread and cereal products |
|---|---|---|---|---|---|
| Proteins | 0,0172 | -0,0791 | 0,0064 | **0,2013** | -0,0107 |
| Fats | 0,1119 | 0,0188 | 0,0552 | 0,0558 | -0,1047 |
| Carbohydrates | 0,1874 | -0,0673 | -0,0471 | 0,0835 | **-0,2016** |
| Vitamins | -0,0572 | 0,1144 | -0,0311 | 0,0667 | -0,0548 |
| Mineral components | -0,1056 | **0,1781** | 0,0945 | -0,0554 | 0,0034 |
| Dietary fiber | -0,0713 | 0,0470 | 0,0246 | **0,2277** | 0,0667 |
| Prebiotics and prebiotics | 0,0451 | **0,1773** | 0,0480 | -0,1471 | -0,1466 |
| Antioxidants | -0,1765 | **0,2132** | 0,0938 | -0,0374 | 0,0194 |
| Plant sterols and stanols | -0,0220 | 0,1350 | 0,0475 | 0,0359 | -0,0143 |
| Unsaturated fatty acids | 0,1210 | 0,1522 | -0,1087 | 0,0355 | -0,0754 |
| All of the above | 0,0181 | **0,2499** | 0,1054 | -0,1054 | -0,1151 |

Interpretation of the results from the table above, indicates that there is a significant positive correlation between minerals (r=0.1781), probiotics and prebiotics (r=0.1773), antioxidants (r=0.2132) and fish consumption. Also, between protein (r=0.2013) and dietary fiber (r=0.2277) and consumption of milk and dairy products. In contrast, a negative but significant association occurred between carbohydrates and the consumption of bread and cereal products (r=-0.2016), (Tab.VIII.).

It was evaluated whether the BMI value correlates with the type of food consumed between meals.

**Table IX. Type of foods consumed vs. BMI .**

| Type of products | BMI |
|---|---|
| Sweets | 0,1047 |
| Fruits | **-0,1938** |
| Vegetables | -0,0295 |
| Confectionery products | 0,0288 |
| Fast food | 0,0030 |
| Sandwiches | -0,0792 |
| Nuts and nuts | 0,0646 |
| Other | -0,0434 |

The only significant correlation was between fruit consumption and BMI. However, the relationship is negative and statistically significant (r=-0.1938), (Tab.IX.).

**Activity level along with ze and supplementation process**

Among the respondents, 66 people (50.8%) said they train for an average of 60-90 minutes, while 45 people (34.6%) characterized their training by 30 to 60 minutes. Of which the majority of respondents in these groups declare that they reach for carbohydrate and protein products before training - 73 people (56.2%). A chi-square analysis shows that the length of the workout does not differentiate what products people reach for before training (p=0.461). Another 102 people (78.5%) said they reach for dietary supplements. Among this group, the largest number of people, 37 (36.3%), engage in physical activity 5 times a week, 30 people (29.4%) engage in activity 4 times a week, 17 people (16.7%) engage in physical activity 6-7 times a week (Fig.19.). Those who do not reach for dietary supplements are 28 (21%), of whom 46.4% undertake physical activity 2-3 times a week. As the table below shows, the difference is statistically significant (p=0.015<0.05),

**Discussion**

Physical activity undertaken regularly brings benefits on many levels of a person's life. On the one hand, through training programs, one can maintain a high level of physical fitness, while on the other hand, it has a positive impact on one's mood and mental health [3]. In recent years, a variety of options have developed in place of traditional workout programs. For example, high-intensity interval training (HIIT), which is gaining popularity, is characterized as an effective program through which the effects of some non-communicable chronic diseases, including type 2 diabetes and hypertension, can be reduced [4, 5].

An expanded variation of high-intensity interval training is CrossFit, which involves combining high-intensity resistance training with multi-joint movements performed in several

planes simultaneously. The main motives for engaging in a physical activity such as CrossFit are declared by 40.5% of respondents to be for killing free time, 22.1% for health, 27.5% declare that for hobbies, while 1.5% state that for killing free time. In the case of a study conducted among physical education students, the main motive for undertaking physical activity was self-realization, followed by empowerment among peers and self-esteem enhancement [6]. Women exercising in fitness clubs most often declared that the reason for exercising in 64% was to improve psycho-physical well-being, followed by 61% to improve physical fitness, and the last place 39% - the motive of self-realization [7]. The overall dimension of physical activity of Poles is at a similar level to that of Europeans, however, Poles show a much higher level of physical activity than Western Europeans. A high level of recreational activity in leisure time is declared by 12.2% [8].

In a survey of the knowledge and eating habits of CrossFit trainers, it was found that about half of the respondents (49.6%) eat regularly, while 41.5% try to eat regularly. There is little information in the available literature on the dietary habits of CrossFit trainees, so the results obtained were compared with studies conducted among athletes. Kalużny et al. evaluating the dietary behavior of amateur and professional athletes proved that both study groups do not follow the recommendations regarding the number and timing of meals. Regular consumption of meals - every 3h is declared by 37% of professional athletes, while 48% of amateurs [9]. In a study on the eating habits of professional athletes training volleyball and basketball, it was found that 52% of the subjects eat meals regularly, i.e. 4-5, while 39% eat every 4 hours [10]. Relating the results obtained to other authors in the Dukralec-Michalski study, which assessed the eating habits and nutritional status of young men in relation to physical activity, one can see a significant correlation. That study showed a significant correlation regarding the amount of meals consumed, it was found that the consumption of 4-5 meals was declared by twice as many physically active people compared to those with a sedentary lifestyle (74% *vs.* 36%). In addition, one in five respondents who did not engage in any physical activity declared that they consumed less than 3 meals per day [11]. In the soccer training group, analysis of the study showed that the most common meals consumed were 3 meals per day (30% of IV league footballers and 50% of VI league footballers) or 4 meals (45% and 30%, respectively). Adopting the same criteria for evaluating the results provides an opportunity for comparison and inference, namely that only 50% of the respondents eat regularly, with 4-5 meals per day. Our own study showed that 48.1% of the total respondents declared that they had a moderate level of knowledge about

rational nutrition, while 32.1% said they had a very high level of knowledge about rational nutrition. There was no correlation between the level of knowledge on rational nutrition and education. In Szczepanska's study of knowledge vs. selected dietary behaviors of obese patients vs. education, little difference was found between the dietary knowledge and dietary behaviors of people with different levels of education, with the highest frequency of correct answers to questions verifying knowledge and the most favorable dietary behaviors found in the group of people with higher education [12].

The nutritional knowledge of CrossFit certified coaches was surveyed, and the study found that 65% of respondents are eating properly. The survey included questions on energy needs, macronutrients, micronutrients and hydration. They had the greatest knowledge in the areas of energy needs, micronutrients, which accounted for 70% of the correct answers to the previously given questions, while they declared less knowledge in the areas of macronutrients and hydration, which accounted for 50%. The differences in declared knowledge did not depend on the level of CrossFit certification [13]. The majority of Crossfit trainers in the study group are engaged in amateur training, but 49.6% of them are eating properly.

The self-reported survey showed mineral water consumption by 82% of respondents, for those who drink mineral water 28% drink about 1-2 liters a day or 2-3 liters a day. The frequency of consumption of spring water was also analyzed, with only 25% consuming this type of water. Declared consumption of vegetable juices is only 9%, while only 1 person declared consumption of sweetened beverages. In Szczepanska's study of the dietary behavior of competitive volleyball and basketball athletes, 22% of respondents declared consuming 1-1.5 liters of fluids, 1.5-2 liters of fluids were drunk by 23% of respondents, while 27% of respondents declared consuming 27%. Most often, this group of athletes consumed mineral water, which accounted for 68% of the respondents, 17% consumed juices, followed by 5% sodas, while 7% consumed coffee or tea [10]. Results conducted among professional and amateur athletes show that 51% of amateur athletes report consuming mineral water, while 25% consumed carbonated beverages. In the case of professional athletes, 76% consume mineral water, while 18% consume carbonated beverages. Based on the juxtaposition of the results of various surveys, we can conclude a high consumption of mineral water, it is significantly higher than the consumption of spring water. In the case of respondents of our own study, a positive correlation can be observed between the consumption of fluids. Analysis of the frequency of consumption of isotonic beverages shows that only 6% of respondents declare consumption of this type of beverages. Comparing the above, the

consumption of isotonic drinks in relation to the group of volleyball players declares 100% of this method of hydration, while in the group of soccer players - 51.4% [10, 14]. In the study by Seidler and Sobczak, the study group was students from a sports championship school aged 15-19 years, such a difference in the study may be due to the sophistication and frequency of physical activity undertaken by the respondents. In a study by other authors on the consumption of water and isotonic drinks before competitions, the consumption of beverages is declared by about 15% of the respondents [14].

Of the respondents, 102 people (78.5%) declared that they take dietary supplements. Among this group, as many as 36.3% take physical activity 5 times a week, 29.4% of respondents take activity 4 times a week, while 16.7% of respondents declared taking physical activity 6-7 times a week. Of those who do not reach for dietary supplements, 46.4% undertake physical activity 2-3 times a week. Studies conducted among professional athletes, show that athletes readily reach for dietary supplements. Vitamin supplements are consumed by 69.2%, while 70.5% of respondents say they consume mineral supplements. In the case of soccer players, who also fall into the group of professional athletes, their results break down as follows: supplements - 83.3%, vitamins - 83.3%, protein - 25% [14]. Another study found that 76% of the studied group of athletes regularly use vitamin and mineral supplementation, more often women than men (86% vs. 63%) [14]. According to other studies, the use of dietary supplements among athletes is very common, depending on the country as well as the type of sport practiced. In comparison, among boys who train martial arts, the declared percentage of dietary supplements used is 65% [15, 16].

In conclusion, about 50% of respondents report eating regularly, for certified CrossFit coaches it is 65% [13]. The above phenomenon, is due to the education carried out during coaching courses, the knowledge possessed favors the habits sued. Unfortunately, the lack of literature makes it impossible to compare the results of the study to a similar study group. With regard to the above-mentioned sports groups, it can be noted that the declaration of regularity is at a similar level, with an average of 50%. A significant proportion of respondents declare consumption of dietary supplements, as much as 78.5%. A correlation was noted that with the increase in the frequency of physical activity undertaken, there is an increase in the consumption of dietary supplements. There is a high consumption of mineral and vitamin supplements, averaging 70%.

The Swiss pyramid, developed on the basis of the pyramid for healthy people by the Swiss Society for Nutrition, serves to rationalize the diet of physically active people. At the base of the pyramid are unsweetened beverages, while at the top are sweets, salty snacks, sweetened beverages and alcoholic beverages, with groups of vegetables and fruits, whole grain cereal products and legumes, protein products, and oils, fats and nuts recommended for consumption in varying amounts and frequencies in between [17]. When it comes to consumer choices, about half of the respondents say that they are guided by the composition of the product, this is extremely important. It can be concluded that there is a need to increase nutritional knowledge here. In addition, a positive aspect declared by respondents is the elimination of fast food products, as many as 61% of respondents eat meals they have prepared for themselves in advance. The respondents' habits and dietary choices can be stated as good.

Diet is an important factor in optimizing athletes' exercise capacity. A rational, well-balanced diet, covering the athletes' increased need for energy, protein, B vitamins and antioxidants, as well as some mineral salts, optimizes training effects. Meeting the norms of physiological nutrient requirements requires planning a varied dietary ration, including a variety of products from each group, according to recommendations developed for people with high physical activity. In addition, having reliable knowledge in the subject area promotes the formation of a positive attitude towards nutrition and is a factor for optimizing the health and psychophysical performance of Crossfit trainers.

**Applications**

1. A significant part of the study group declares a very good or moderate level of knowledge about rational nutrition, which influences the choice and regularity of meals consumed in this group of Crossfit trainers.
2. In a small number of respondents, a correlation was found between the nutrients they pay attention to and the products that dominate their diet.
3. In the study group, there was no relationship between the peri-training meals consumed by Crossfit trainers and the products that dominate their diets.
4. The duration of training does not differentiate what products people reach for both before and after training, with carbohydrate and protein products being the most common.

5. People who engage in physical activity 5-7 times a week are more likely to use dietary supplements compared to those who engage in physical activity 2-3 times a week.

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