



PROPER ORGANIZATION OF NUTRITION IN THE SPORT OF ATHLETIC GYMNASTICS

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Article history:	Abstract:
Received: 17 th March 2021 Accepted: 2 th April 2021 Published: 18 th April 2021	This study demonstrates the impact of proper nutrition on the engaging form of athletic gymnastics (bodybuilding), a healthier type of gymnastics. Observations were conducted on second-year students of the Faculty of Physical Culture of Andijan State University. Through the study, the study described how the effectiveness of athletic exercise in determining the anthropometric performance of students depends on the proper organization of nutrition. The importance of supplemental nutrition for ectomorphic individuals by body type has been demonstrated.
Keywords: Athletic gymnastics, ectomorph, mesomorph, endomorph, anthropometry, strategy, creatine, protein, carbohydrate, amino acid, vitamins, trace elements, caffeine.	

INTRODUCTION.

Today, the time itself demands to increase the effectiveness of work aimed at promoting legal culture, healthy lifestyles, physical and sports among our youth. The implementation of the measures outlined in the programs in this area will be strictly continued in accordance with the provisions of the recently adopted law "On State Youth Policy" [1].

The World Health Organization states that the creation of conditions for the healthy physical, mental and emotional development of students is a priority for the future of any society. The importance of exercise, especially athletic gymnastics, in the healthy development of students is enormous. One of the most pressing issues today is the proper organization of student nutrition during athletic gymnastics, taking into account the daily and weekly energy expenditure.

Athletic gymnastics is important in terms of conducting such research in order to constantly monitor the level of physical development and the impact on the health of students, the development of a set of measures to strengthen their health. and depends on the organization of proper rest [3, 8, 10].

Rational nutrition is the supply of adequate amounts of nutrients to the body. This implies the physical development of the organism and the provision of vital processes with vital substances and energy. Protein is mainly used as a building material in the body, it receives energy from the breakdown of carbohydrates and fats. In addition to these substances, even in relatively small amounts, vitamins and minerals are necessary for the healthy functioning of life processes.

Athletic gymnastics develops skeletal muscles. Therefore, nutrition should be properly organized when doing this sport, otherwise good results will not be achieved. When doing athletic gymnastics, it is important to organize additional nutrition for athletes. In athletic gymnastics, the effect of exercise training is seen as an increase in skeletal muscle mass [4, 9, 12].

RESEARCH MATERIALS AND METHODS.

The research was conducted among second-year students of Andijan State University in the field of physical culture education in 2020-2021. The study included students' height (cm), body weight (kg), chest circumference (cm), shoulder circumference (cm), wrist circumference (cm), pelvic girth (cm), and hip circumference (cm). , the length (cm) of the leg circumference was measured. On a special height gauge, the remaining measurements of body weight on the medical scales were performed according to standard methods using a tape measure.

1. Prior to the study, post-follow-up measurements were performed on students who were bleeding during the follow-up.
2. Measurement of body weight (kg). In the study, students' body weight was measured using a medical scale (TU 9441-004-00226425-2005) according to the standard method, if the student's body weight was determined by weighing on a medical scale when removing clothes other than underwear (measurement accuracy $\pm 50-100$ g) [2,7]. Measure height (cm). In the study, the measurement of height was performed using a stationary height measuring device (GOST 16371-93, 19917-93) according to the standard method, ie in the upright position, the

base of the legs on the special platform is paired and the body is upright, the shoulders are in the correct position. the shovels were placed in a position that touched the middle part.

3. It was noted that the heel of the body, buttocks, chest and neck area of the head touch the measuring column, the eye area and the top of the ear supra are in the same plane. The head is held in a forward, upright position, the sliding special plate (bar) of the measuring device is lowered to the position of touching the top of the head, and the value (cm) is recorded [2,7].
4. Measurement of the length of the chest circumference (cm) - was carried out using a standard method, in which the value of this indicator of the test student was measured at rest using a centimeter measuring tape (GOST R 50444-92). In this case, the students' chest circumference (cm) is placed in an upright position, the tape is placed on the lower border of the scapula on the back of the body, the large circumference of the chest on the front of the body on the lower part, the hands are measured along the torso (measurement accuracy ± 0.5 cm teng) [2, 7.].
5. Measurement of the circumference of the shoulders, wrists, pelvic girdle, hips and thighs of the human body (cm) - was carried out using standard methods, in which the measured part was measured from the largest point at rest (measurement accuracy is ± 0.2 cm) [2, 5,6].
6. Calculate the body mass index of students - the height of a person rises to the square of height (m). Divide body weight (kg) by the height of the height squared. The result shows the body mass index [6].
7. Supplementary feeding of students (g / kg) - was carried out according to the following scheme - 3 g of protein, 5 g of carbohydrates, 1 g of fat per 1 kg of body weight of the student per day. The total daily supplement was divided into five, and the students were fed under the supervision of a tutor. In addition, one local bio-supplement was added to the daily diet of students. Bioadditives include argentine, beta-exdisterone, caffeine, carnitine, creatine, multivitamins, micronutrients [3, 10, 13].

RESULTS.

The results of the observation were processed mathematically and statistically using standard biometric methods. The results are presented in the form $M \pm m$ of the values of experiments performed at n repetitions, where M is the arithmetic mean and m is the standard error value. In addition, the results of the observation showed that the difference between the values between the groups was calculated on the basis of the Student's t-criterion of statistical reliability and was assessed as statistically reliable at values $r < 0.05$, $r < 0.01$ [5].

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The following table shows the anthropometric indicators of the studied students before and after the start of additional nutrition and athletic training(table 1).

1– table

Andijan State University		
Anthropo-metric indicator	Before the observation begins	Once the tracking is complete p-13
Height (cm)	173,6 \pm 0,02	173,6 \pm 0,02
Body weight (cm)	62,9 \pm 2,9	72,1 \pm 3,06*
Weight index	20,9 \pm 0,75	23,4 \pm 0,75*
Chest circumference length (cm)	92,0 \pm 1,68	93,3 \pm 1,69
Shoulder circumference length (cm)	31,34 \pm 1,19	35,03 \pm 1,24*
Length of wrist circumference (cm).	26,38 \pm 0,58	28,13 \pm 0,55*
Belt circumference length (cm)	80,53 \pm 2,84	81,92 \pm 2,72
Number circle length (cm)	49,46 \pm 1,53	54,23 \pm 1,49*
Leg circumference length (cm)	32,53 \pm 0,83	35,72 \pm 0,82*

Note: *, ** - Represents the level of statistical reliability of the difference between the values of the control group relative to the experimental group I (* - $r < 0,05$; ** - $r < 0,01$).

Based on the analysis of the experimental results, it can be determined that in all anthropometric indicators of second-year students studying in the field of physical culture education, the average values increased at the end of the observation compared to the beginning of the observation. However, the change in some indicators was not statistically significant.

Human height index is resistant to various exogenous and endogenous influences due to strong control by heredity.

Because our study was short-lived (4 months), supplementation and athletic gymnastics did not result in a statistically significant change in student height.

Before the start of the observation, the average height of students was 173.6 ± 0.20 cm. At the end of the experiment, the average height of students remained at the previous level of 173.6 ± 0.20 cm, no difference was observed. Table 1

Body weight consists mainly of the weight of skeletal muscles. In older people who do not exercise, skeletal muscle weight is 42-45% of body weight. In physically fit athletes, it makes up 50% of body weight.

Before the start of the study, the students were found to have an average body weight of 62.9 ± 2.9 kg. It was noted that the absolute indicators of students' body weight fluctuated in the spectrum of 50.4 - 80.0 kg. Upon completion of the follow-up study, the average body weight of the students was found to be 72.16 ± 3.06 kg. It was noted that the heaviest student weighed 84.5 kg and the youngest student weighed 52.4 kg. Table 1

When the average values of the observed groups were compared, the difference was 9.2 kg. This difference is statistically inevitable ($r < 0.05$).

The increase in muscle mass in the body is determined by the change in body mass index. The mean body mass index was found to be 20.92 ± 0.75 at the beginning of the observation. The smallest body mass index was 17.9 and the largest was 25.0.

At the end of the follow-up study, it was observed that the mean body mass index was 23.41 ± 0.75 . Absolute values of body mass index in both groups fluctuated in the range of 18.7 - 26.6. Table 1

When the mean values of the experimental and control groups were compared, the mean value of the experimental group was 2.49 greater than the mean value of the control group, a difference that was statistically unavoidable ($r < 0.05$).

The circumference of the chest (cm) is one of the objective indicators of human health, which represents the healthy development of the organs located in it, the functional state of the chest and the level of development of the respiratory muscles.

Prior to the start of the follow-up, it was found that the mean length of the chest circumference between students' breathing movements at rest was 92.0 ± 1.68 cm. The largest figure was found to be 104.0 cm and the smallest figure was found to be 87.0 cm.

At the end of the observation, the average length of the chest circumference between students' breathing movements at rest was 93.38 ± 1.69 cm. The length of the thoracic circumference in the range of 106.0 to 83.0 spectra was observed between respiratory movements.

When comparing the mean values of the observation groups, the difference was 1.38 cm, which is not statistically unavoidable ($r > 0.05$). The results suggest that athletic exercise and supplementation during follow-up were not sufficient to provide students with a statistically significant change in the length of the chest circumference.

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The shoulder muscles consist of three-headed and two-headed muscles that move the shoulder and wrist-elbow joints. The triceps flexes the joint, while the biceps flexes the joint.

Prior to the start of the experiments, the mean length of the students' shoulder circumference was 31.34 ± 1.19 cm. The largest value was 41.0 cm, the smallest value was 23.0 cm.

At the end of the follow-up, the average length of the students' shoulder circumference was 35.03 cm. It was found that the length of the students' shoulder circumference fluctuated in the range of 55.0 - 45.0 cm. Table 1
When the mean values of the experimental and control groups were compared, the difference was 3.69 cm. This difference is statistically inevitable ($r < 0.05$). From the results obtained, it can be concluded that the athletic gymnastics exercises performed and the supplemental nutrition cause significant changes in the biceps and triceps muscles.

The wrists should rotate over and the elbows should bend, with the club head bring behind. Prior to the start of the experiments, the mean length of the students' wrist circumference was found to be 26.38 ± 0.58 cm. The maximum length of the wrist was 32.0 cm and the minimum was 24.0 cm. At the end of the experiments, the mean value of the length of the students' wrist circumference was 28.13 ± 0.55 cm. The largest figure was found to be 33.0 cm and the smallest figure was found to be 25.0 cm. Table 1

When the mean values were compared, the difference in the mean was found to be 1.75 cm. This difference is statistically inevitable ($r < 0.05$). In the wrist part of the hand, there are muscles that move the fingers. As students relied heavily on the strength of their fingers when performing athletic exercises, supplementation was observed to have a positive effect on the development of these muscles.

The weight of the human body and the organs located in it are transferred to the legs through the pelvic girdle. Prior to the study, the mean length of the students' pelvic girdle circumference was found to be 80.53 ± 2.84 cm. It is observed that the absolute values of the indicators fluctuate in the range of 91.0 - 61.0 cm.

Upon completion of the follow-up, the average length of the pelvic girdle circumference of the students was 81.93 ± 2.72 cm. The largest value of this indicator was found to be 92.0 cm and the smallest value was 63.0 cm. Table 1

When the mean values were compared, the difference was 1.38 cm. This difference is not statistically inevitable ($r > 0.05$). Students' pelvic girdle is made up of bones and muscles. It can be assumed that the continuity of our studies was not sufficient to cause significant changes in them.

On the anterior and posterior sides of the thigh of a human foot are the muscles involved in the movements of the pelvic and femoral joints. Prior to the start of the follow-up, the average circumference of the number of students was 49.46 ± 1.53 cm. The maximum value of the circumference of the students was found to be 58.0 cm, and the smallest value was 41.0 cm.

At the end of the observation, the average number of students in the length of the circle was found to be 54.23 ± 1.49 cm. The largest figure was 59.0 cm and the smallest was 43.0 cm. Table 1

When the two averages are compared, the difference is 4.76 cm, which is statistically significant ($r < 0.05$). The anterior part of the thigh of a human foot has a quadriceps muscle that is involved in stretching the ankle joint of the legs. Since this muscle is under a lot of stress in daily life, the degree of its development is important in performing them. Experimental results show that the use of additional nutritional factors in combination with athletic exercise has a positive effect on the development of the hip muscles.

In the final stage of the follow-up study, the effect of athletic exercise and supplementary nutrition on the length of the leg muscle circumference was observed. Prior to the study, students were given an average value of 32.53 ± 0.83 cm for the length of the leg muscle circumference. The largest value of this indicator was 36.0 cm and the smallest value was 26.0 cm.

Upon completion of the study, it was found that the mean length of the students' leg circumference was 35.72 ± 0.82 cm. The largest value was 38.0 cm and the smallest value was 28.0 cm. Table 1

CONCLUSIONS.

When students compared the mean values of the circumference of the calf circumference before and after the experiment, the difference was 3.18 cm. This difference is statistically inevitable ($r < 0.05$). The weight that falls on a person's toes is held in place by the Achilles tendon, a leg muscle attached to the calcaneus. The calf muscles play an important role in maintaining balance in one leg, which is performed in athletic gymnastics. The development of the leg muscles with the help of supplementary nutrition ensures the successful performance of sports exercises. In order to achieve good results in sports, it is important to perform the necessary actions correctly. Proper performance of movements depends on the development of the muscles involved in performing them. In addition to the selected exercises, proper nutrition is important in the proper development of muscles. Proper nutrition of athletes ensures that they achieve sports results quickly. The effect of students' participation in athletic gymnastics and supplementary nutrition on individuals with ectomorphic and mesomorphic body types was determined by visual observations and measurements.

Thus, when engaging in athletic gymnastics, it is advisable to choose a nutrition strategy according to the body type of students.

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