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NUTRITION OF CHILDREN AND ADOLESCENTS INVOLVED IN PRE-UNIVERSITY MILITARY TRAINING PROGRAMS. WORLD EXPERIENCE

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Summary. Vatan M. M., Babienko V. V., Kvasnytska O. B. **NUTRITION OF CHILDREN AND ADOLESCENTS INVOLVED IN PRE-UNIVERSITY MILITARY TRAINING PROGRAMS. WORLD EXPERIENCE.** An analysis of the qualitative and quantitative composition of the nutrition of children and adolescents involved in pre-university military training programs in different countries of the world was carried out. The shortcomings of the main army rations for use in the nutrition of **minor (непопнолетний)** cadets are demonstrated. It was determined that there are still no unified approaches to the formation of standard rations for the contingent under study. This can be a risk factor for chronic diseases in adulthood.

Key words: nutrition, military training, children, teenagers

Реферат. Ватан М. М., Бабієнко В. В., Квасницька О. Б. **ХАРЧУВАННЯ ДІТЕЙ ТА ПІДЛІТКІВ, ЩО ЗАЛУЧЕНІ ДО ПРОГРАМ ДОВУЗІВСЬКОЇ ВІЙСЬКОВОЇ ПІДГОТОВКИ. СВІТОВИЙ ДОСВІД.** - *Одеський національний медичний університет; Букивїнський державний медичний університет; e-mail: vatanmaya@gmail.com.* Проведено аналіз якісного та кількісного складу харчування дітей та підлітків, які навчаються за програмами довузівської військової підготовки в різних країнах світу. Продемонстровано недоліки основних армійських пайків для використання в харчуванні неповнолітніх курсантів. Визначено, що досі немає єдиних підходів до формування стандартних раціонів для досліджуваного контингенту. Це може бути фактором ризику хронічних захворювань у дорослому віці.

Ключові слова: харчування, військова підготовка, діти, підлітки

The work was performed in accordance with the GDR.

Training young people for military service is one of the main problems of the modern world. As historical experience shows, neglecting issues of defense and security of society leads to catastrophic consequences [1]. Cadet corps are one of the forms of training young people starting from adolescence for a military career. They were created in the 18th century for young aristocrats, but over time, most of these institutions were also opened for the admission of members of other social classes [2, 3].

The world's first corps of cadets de Gascon was created by King Louis XIII of France for the youngest sons of the Gascon nobility (in the Gascon dialect, *capdetes* means "little leaders") [2]. This idea of a school for boys who would later become officers in the army to compensate for the lack of inheritance soon spread, similar schools were founded in other European countries.

Famous schools were established by the Großer Kurfürst (Great Elector) Friedrich Wilhelm I of Brandenburg in Kolberg, Berlin and Magdeburg. In 1716, Kohlberg's 1st Corps of about seventy cadets was transferred to the Royal Prussian Cadet Corps in Berlin. Based on the newly built Kadettenhaus, it became the main educational center for officers of the Prussian army under the "soldier king" Friedrich Wilhelm I. Later, cadet schools were established in Stolp (1769), Halm (1776), Potsdam and Kalisz (1793) [3].

The aristocratic Ritter-Akademie (Knight's Academy) in Liegnitz (Silesia, founded in 1708), had a similar concept. According to the Prussian model, cadet schools were founded by the Saxon army in 1725 in Dresden and by the Bavarian army in Munich in 1755. The Württemberg Military College (Kriegsschule) was founded in 1820 in Ludwigsburg. In the Austrian Empire, cadet institutes were established in Hainburg, Eisenstadt, Marburg and Rijeka, where candidates for officers were trained for the military academy.

In 1868, in accordance with the program of modernization of the armed forces, the Academy of the Imperial Japanese Army was founded in Japan [4].

In the United States there is a system of military colleges. Students at the United States Military Academy at West Point, a four-year military college founded by President Thomas Jefferson in 1802, are referred to as "cadets," and collectively the cadet brigade is known as the United States Corps. The Cadet Regiment at the United States Coast Guard Academy is similar to the United States Coast Guard Cadet Corps. The United States Naval Academy maintains a similar brigade of midshipmen, while cadets at the United States Air Force Academy are part of the United States Air Force Cadet sector. The Citadel, founded in 1842, also has a corps of cadets and is one of the largest senior military colleges in the United States. The Texas A&M University Corps of Cadets, founded in 1876, is another notable corps of cadets [5].

Upper Canada College in Toronto (Ontario) housed a cadet corps from 1832 to 1976 [6].

In the modern world, cadet corps exist in Kazakhstan, Russia, India, Sri Lanka, Canada, Thailand, Singapore, the USA and China [2, 7].

In Ukraine, in 1992, according to the resolution of the Cabinet of Ministers of Ukraine No. 490 [8] and the order of the Minister of Defense of Ukraine No. 133 "On reforming the Kyiv Suvorov Military School", the Kyiv Military Lyceum was established on its base. Since 1993, a three-year study period has been introduced. On October 4, 1994, the Kyiv Military Lyceum was awarded the battle banner of the Armed Forces of Ukraine. By Resolution of the Cabinet of Ministers of Ukraine No. 764 dated June 1, 1998, on the initiative of the Union of Ukrainian Officers, the lyceum was named after Ivan Bohun, an active participant in the liberation movement for the independence of Ukraine, and it began to be called the Kyiv Military Lyceum named after Ivan Bohun. In March 1998, the lyceum got a license for to carry out educational activities related to the provision of full general secondary education [9]. Lyceums with enhanced military physical training have been established in all regional centers of Ukraine, the graduates of which later enter military universities and academies [10].

In addition to the network of secondary schools that prepare young people for military service, in various countries of the world there are programs of the scouting movement, e. g. in the USA exist Navy Sea Cadets and Young Marines, in which children from the age of 10 participate; in Great Britain and many countries of the Commonwealth exist educational courses of specialized boarding schools, which accept children from the age of 9 [5, 7, 11].

Candidates must be at least 17 years old to study in higher educational institutions of a military profile. In many countries of the world, there is a practice when teenagers who study in specialized educational institutions with military training, eat according to the norms developed actually for adult soldiers [12]. Nutrition regulations for children and adolescents involved in military training programs are few and, as a rule, general recommendations for children's nutrition apply to this contingent, without taking into account the specifics of additional physical activities that are part of the military training program.

The purpose of the review: to assess modern trends in the organization of nutrition for children and adolescents involved in pre-university military training programs

Material and methods. An information search was conducted in PubMed, Ovid, EMBASE, JSTOR, ProQuest databases using the keywords of nutrition (MESH: "nutrition"), military training (MESH: "military training"), children (MESH: "children"), adolescents (MESH:

“adolescents”). The search depth is 10 years.

From the total array of 69 publications, the 11 most relevant to the search query were selected, followed by content analysis of bibliographic and bibliometric information.

Results and discussion

In accordance with the resolution of the Cabinet of Ministers of Ukraine dated December 28, 2016 No. 1026 "Some issues of the procurement of food products by the Ministry of Defense" [13] and with the aim of ensuring a continuous process of feeding the personnel of the military units of the Armed Forces of Ukraine during the transition to the food supply system using the Food Catalog, orders of the Ministry of Defense of Ukraine dated March 21, 2017 No. 157 and dated August 1, 2017 No. 402, from November 1, 2017, at the Ivan Bohun Kyiv Military Lyceum, personnel are fed using the Food Catalog.

In accordance with the "Procedure for the use of the Food Catalog during the organization of food for the personnel of the Armed Forces of Ukraine", approved by the Minister of Defense of Ukraine, product planning is carried out in accordance with the named Catalog. It includes 350 food items [15]. According to the daily schedule, four meals are organized for the staff (three meals on weekends).

The qualitative composition of the lyceum students diet corresponds the requirements of the Resolution of the Cabinet Ministers of Ukraine of March 29, 2002 No. 426 "On the nutrition standards of servicemen of the Armed Forces, other military formations and the State Service for Special Communications and Information Protection, police officers, rank and file persons, command persons of bodies and units of civil protection" is determined according to norm 6 (Table 1)

Table 1. Norm No. 6 (for lyceum students)

Product name	Quantity per person/day, grams
1	2
Bread made from a mixture of dehulled rye and wheat flour, the first grade	250
Bread from wheat flour of the first grade, bakery products	400
Wheat flour, the first grade	50
Pasta products	40
Cereals different, in total	70
Including	
Rice	26
Semolina	6
Millet	10
Buckwheat	16
Oatmeal	4
Other	8
Beans	12
Meat	250
Fish and fish products	100
Oil	20
Fat	10
Butter	45
Whole milk	400
Sour milk products	100
Sour cream	30
Cheese	50
Hard rennet cheese	15
Chicken eggs, pieces	1
Sugar	70

1	2
Salt, iodized salt	20
Tea	1
Natural coffee or cocoa	4
Bay leaf	0.2
Pepper	0.3
Mustard powder	0.3
Vinegar	2
Tomato paste	6
Dry or pressed baker's yeast. Potatoes and vegetables, total	0.3
Including	
Potatoes	500
Cabbage	110
Beets	30
Carrot	50
Onion	50
Cucumbers	30
Tomatoes	80
The others	50
Fresh fruits or fruit juices (fruit and berry)	200
Dried fruits	20
Jam	20
Cookies	20

During training in military units, cadets are provided with food in accordance with the norm provided for conscript military servicemen of the corresponding military unit (the ship). Persons who have arrived at the lyceum to take entrance exams and are in the barracks position, from the day of their arrival at the lyceum are provided with food according to the general military standard. Lyceum students are provided with food according to norm 6 (Table 1) and during their treatment in the infirmary of the lyceum.

In lyceums with enhanced military physical training when planning meals, the requirements regarding the organization of school meals, approved by the order of the Ministry of Health of Ukraine No. 2205 of September, 25, 2020 and the resolution of the Cabinet of Ministers of Ukraine No. 305 of March, 24, 2021, are additionally applied [16, 17].

Special nutrition regulations for children and adolescents studying at schools with specialized military training exist only in a few countries. As a rule, the general requirements for the nutrition of children of a certain age apply to the contingent of students or cadets.

Hanson J et al. (2020) reviews the experience of implementing the Healthy Menu program. The U.S. Army Children, Youth, and Schools Service (CYS) is a geographically dispersed system of children's services dedicated to supporting the Army's mission readiness by providing quality services to children and youth. The system operates at facilities in the US, Europe and throughout the Pacific region. CYS offers a variety of programs for children ages 6 – 18 y. o. Most programs offer meals and/or snacks as part of the services provided.

The CYS Food Program covers the operational aspects of food provision at CYS. Like the entire system, the meal program operates worldwide and provides snacks/meals to more than 350 children's facilities located in 72 institutions. In total, the CYS program serves up to 70.000 daily rations every day [18].

By regulation (AR 608-10) [19] the CYS nutrition program must meet the standards of the Child and Adult Nutrition Program (CACFP). In April 2016, the CACFP nutritional standards were updated [20] to better align with the Dietary Guidelines for Americans (DGA) [21].

The Healthy Menu Initiative transformed the nutrition program by implementing standardized, seasonal, nutritious and cost-effective menus that adhere to child nutrition best practices. Implementation of the initiative was initiated in cooperation with Kansas State University and began with staff training and pilot menu testing [20].

The initiative reflects the guidance contained in the DGA and takes into account the CACFP rules and best practices that went into effect on October 1, 2017. The Healthy Menu initiative continues to evolve in response to both new and ongoing requirements. Despite a number of difficulties, the initiative was well received, and comparing the previous menu with the current one, there was an improvement in the quality of the diet since the beginning of the initiative (Table 2).

Table 2. Comparison of the qualitative composition of the diets of children undergoing military training before and after the implementation of the Healthy Menu initiative

HEI-2015 components	Me(1q ;3q)		Uc	p
	Before implementing changes	After implementing changes		
Total fruits consumption	5.0(4.8-5.0)	5.0 (5.0–5.0)	537.50	0.288
Whole fruits	5.0 (5.0–5.0)	5.0 (5.0–5.0)	562.50	1.0
Total consumption of vegetables	1.8 (1.4–5.0)	4.6 (3.0–5.0)	90.00	<0.001
Greens and beans	0.0 (0.0–5.0)	5.0 (0.0–5.0)	398.00	0.025
Cereal products	0.0 (0.0–5.2)	0.0 (0.0–10.0)	509.00	0.444
Dairy products	10.0 (10.0–10.0)	10.0 (10.0–10.0)	562.5	1.0
Total consumption of protein-rich foods	4.8 (0.0–5.0)	4.9 (0.9–5.0)	483.00	0.316
Seafood and vegetable protein	0.0 (0.0–5.0)	0.0 (0.0–5.0)	435.00	0.067
Unsaturated fatty acids	0.7 (0.0–10.0)	2.8 (0.0–8.4)	356.00	0.010
Refined products	10.0 (9.5–10.0)	10.0 (10.0–10.0)	550.00	0.456
Sodium	9.0 (1.0–10.0)	9.0 (4.0–10.0)	530.00	0.676
Sugar	10.0 (4.5–10.0)	10.0 (7.0–10.0)	470.50	0.096
Saturated fats	7.2 (2.4–10.0)	9.0 (3.0–10.0)	376.50	0.190

As can be seen from the above table, the assessment of food rations in the USA is significantly different from the traditional algorithms common in the post-Soviet space. The Healthy Eating Index (HEI) is a measure of diet quality used to assess how well a set of foods meets key recommendations [21, 22].

The main differences between the diets before and after the implementation of the changes are the amount of consumed vegetables and vegetable oil [18]. Unfortunately, the authors do not compare qualitative changes in the diet with the dynamics of physical development of children involved in military training programs.

The Study of the Environment, Exercise, and Nutrition of Adolescents Employed in Military Training Programs (M-TEENS) is a joint initiative of the University of Southern California (USC) and the RAND Corporation [22]. The project investigated how the nutrition and physical activity environment in military children's schools and districts affects their diet, physical activity, sedentary lifestyle and body weight.

It turns out that eating patterns depend not on the availability of fast food restaurants or stores that sell foods high in fat, carbohydrates and sodium, but on healthy eating behaviors developed at home and at school.

In 2021, NMFA and Bloom in the US conducted a survey of 2.000 teenagers from families and found that 87% of military teens have low or moderate levels of psychological well-being, and 36% of them reported poor nutrition. None of these children attended cadet schools and were not

involved in military training programs. In 2022, a similar survey found 46% of teenagers with an unsatisfactory level of food security [23].

A study conducted in Great Britain showed that the long absence of military parents from home negatively affects the quality of their children's nutrition. Another factor that affects the quality of food is a frequent change of place of residence, when the child is forced to adapt to a new climate and a new pattern of nutrition (different culinary traditions, lack of usual dishes and food products) [24].

In many developing countries, in schools where children study programs with military training elements, the use of standard army rations is considered an acceptable option for food supply [12, 25-27].

For example, in the US, MRE (Meals Ready to Eat) rations were replaced by (Meal, Combat, Individual) rations in 1981. Since then, the rations have been constantly improved, their packaging is extremely strong, and the ready-made meals included in the ration can be consumed without heating (however, some versions of the rations contain a device for heating food). Since 1998, soldiers have been offered 24 basic MRE options. Each MRE provides an average of 1.250 calories (13% protein, 36% fat, and 51% carbohydrates), which is one-third of a soldier's daily requirement [28]. Teenagers involved in military training are offered 2 - 3 MREs depending on the load.

The composition of different MRE variants is shown in Table 3.

Table 3 Qualitative composition of US military rations

N	Content of the ration	Additional components
1	2	3
1	chili with beans	Cheddar cheese spread Crackers Corn bread Pepperoni crackers with cheese filling A soluble drink with the taste of grapes Spoon Flameless heater Bag for hot drinks Cardboard sleeve Package of accessories A
2	minced beef for barbecue	Fruit puree (apple, strawberry, carrot) Jalapeno Cheddar Cheese Spread Cakes Pastry with filling, bun with cinnamon Chocolate protein drink with hazelnuts Spoon Flameless heater Cardboard sleeve Cardboard insert card Accessory package B
3	chicken with egg noodles and vegetables	Apple-raspberry puree Crackers Peanut butter Apple jelly Covered discs Fruit admixture Instant drink "Tropical Punch" Powder hot sauce Spoon Flameless heater

1	2	3
		Bag for hot drinks Cardboard sleeve Cardboard insert card* Package of accessories A
4	Spaghetti with meat sauce	Cake with chocolate chips Cheddar cheese spread Italian bread sticks Infused and dried chopped cranberries Chocolate protein drink with hazelnuts Spoon Flameless heater Cardboard sleeve Accessory package B
5	Chicken pieces	First Strike bar, apple-cinnamon Cheddar cheese spread Cakes Fried popcorn Teriyaki meat appetizer Carbohydrate soluble drink "Fruit punch" Barbecue sauce Spoon Flameless heater Cardboard sleeve Accessory package B Cardboard case Flameless heater Accessory package B
6.	Santa Fe style beef	Rice and bean tacos Cheddar cheese spread Corn tortillas, whole grain Nuts and raisins with chocolate in a pan Covered discs A soluble drink with an orange flavor Spoon Flameless heater Bag for hot drinks Cardboard sleeve Cardboard insert card* Package of accessories A
7.	Beef breast	Chocolate pudding with protein Peanut butter White wheat snack bread Blackberry preserves Mint candy rings Smoothies from a fruit and vegetable mixture Instant drink, tropical mix Spoon Flameless heater Cardboard sleeve Cardboard insert card* Accessory package B

1	2	3
8	Meatballs with marinara sauce	Cherry-blueberry cobbler Chocolate cookies Jalapeno Cheddar Cheese Spread Italian bread sticks Teriyaki meat appetizer Soluble drink "Orange" Spoon Flameless heater Cardboard sleeve Cardboard insert card* Accessory package B
9.	Stewed beef	Vanilla cake Smooth peanut butter Multigrain snack flour Grape jelly Discs with fruit flavor Soluble drink "Lemon-Lime" A bottle of hot sauce Spoon Flameless heater Bag for hot drinks Cardboard sleeve Package of accessories A
10.	Chili and Pasta	Poppy Pie Jalapeno Cheddar Cheese Spread Vegetable crackers Teriyaki meat appetizer Cherry licorice A soluble drink with an orange flavor A bottle of hot sauce Spoon Flameless heater Cardboard sleeve Accessory package B
11.	Vegetarian taco pasta	Apple puree First Strike chocolate bar Chunky/Crunchy Peanut Butter Crackers Cashew jalapenos Soluble drink with sweetener Ground red pepper Spoon Flameless heater Bag for hot drinks Cardboard sleeve Cardboard insert card* Package of accessories A
12	Long pasta with tomato sauce	Nutritious bar, salted caramel Crispy marshmallow Apple puree with mango and peach

1	2	3
		Peanut butter Strawberry jam Whole grain bread, mini-loaf Chocolate soluble protein drink Ground red pepper Spoon Flameless heater Bag for hot drinks Cardboard sleeve Cardboard insert card* Package of accessories A
13	Tortellini with cheese	Salted peanuts Chocolate-peanut spread Crackers Restorative Trail-Mix with pretzels Soluble drink "Lemon-Lime" Red ground pepper Spoon Flameless heater Cardboard sleeve Accessory package B
14	Fettuccine with spinach mushrooms and cream sauce	First Strike cranberry-raspberry bar Peanut butter Cracker Nuggets with honey mustard and onion pretzels Chocolate soluble protein drink Powder hot sauce Spoon Flameless heater Bag for hot drinks Cardboard sleeve Package of accessories A
15.	Mexican-style chicken stew	Fruit puree from banana and pumpkin Pretzels filled with cheddar cheese Jalapeno Cheddar Cheese Spread Crackers First Strike chocolate bar Chocolate-nut protein drink Powder hot sauce Spoon Flameless heater Cardboard sleeve Cardboard insert card* Accessory package B
16	Chicken burrito	Restorative Trail Mix with pretzels Cake with chocolate chips Corn tortillas, whole grain Cheddar cheese spread Spicy sauce Soluble drink "Lemon-Lime"

1	2	3
		Spoon Flameless heater Cardboard sleeve Accessory package B
17	Pork sausage with maple syrup	Brown potatoes with bacon, Pepper and onion Granola with milk and blueberries Maple top for cupcakes Roasted almonds A soluble drink with the taste of grapes Syrup Spoon Flameless heater Bag for hot drinks Cardboard sleeve Package of accessories A
18	Beef ravioli	Recovery bar, salted caramel Crispy marshmallow Cheddar cheese spread Italian bread sticks Discs covered with milk chocolate Soluble drink "Fruit Punch" A bottle of hot sauce Spoon Flameless heater Bag for hot drinks Cardboard sleeve Accessory package B
19	Beef cutlet with jalapeno pepper	Potato gratin Oatmeal cookies with chocolate chips Spread with bacon and Cheddar cheese Cakes A soluble drink with an orange flavor Barbecue sauce mayonnaise Spoon Flameless heater Bag for hot drinks Cardboard sleeve Cardboard insert card* Package of accessories A
20.	Italian sausages with vegetables	Restorative Trail Mix with beef Infused and dried chopped cranberries Cheddar cheese spread Crackers Salted peanuts A liquid drink with an orange flavor Spoon Flameless heater Bag for hot drinks Cardboard sleeve Package of accessories A

1	2	3
21	Tuna with lemon and pepper	Marble cake Cheddar cheese spread Cakes Baked snack crackers, cheddar
		Soluble drink "Lemon/Lime" Discs covered in peanut butter Mayonnaise Spoon Flameless heater Cardboard sleeve Accessory package B
22.	Beef goulash	Apple puree enriched with carbohydrates Chunky/Crunchy Peanut Butter Strawberry jam Whole grain bread, mini-loaf Patriotic cookies A soluble drink with an orange flavor Spoon Flameless heater Cardboard sleeve Cardboard insert card* Accessory package B
23	Pepperoni pizza slices	Apple pieces in spicy sauce Jalapeno Cheddar Cheese Spread Vegetable crackers Oatcake Soluble chocolate protein drink Spoon Flameless heater Bag for hot drinks Cardboard sleeve Cardboard insert card* Package of accessories A
24	Southwestern Beef and Black Bean	Cherry-Blueberry Cobbler Pie with applesauce Teriyaki meat appetizer Cheddar cheese spread Cornbread, Chipotle Soluble drink with sweetener Spoon Flameless heater Cardboard sleeve Cardboard insert card* Package of accessories A

As can be seen from the above, the content of standard army rations is far from modern requirements for children's nutrition, they contain a significant amount of spices, sauces with preservatives and other alimentary supplements, soluble drinks. Finally, in terms of calories, the daily army ration significantly exceeds the needs of a teenager, even involved in intensive physical

training related to military training.

In NATO countries, army rations are adapted to local culinary traditions, but are unified in terms of nutritional qualities and caloric content.

Standard army rations of types I–IV are used in Germany [29]. They are constantly subject to conditional adaptation to the tastes of the troops and the offers of manufacturers. The individual ration "light" is reduced in volume and weight to 1000 g and is provided with dehydrated food products such as dry ready meals, energy bars and wheat germ biscuits for special forces conditions. Its calorie content is 9.2 MJ (2200 kcal). The arctic ration is adapted to the food needs in a cold climate. Calorie content 20.9 MJ (5000 kcal).

Type I ration consists of three dishes: ravioli in mushroom sauce 300 g, Indian stirfry rice 300 g, semolina with fruit 150 g. Type II is a goulash with potatoes 300 g, chevapchichi with rice and vegetables 300 g or ravioli in mushroom sauce 300 g and 150 g of fruit salad. Type III ration includes a hamburger with tomato sauce 300 g, a vegetable dish with chili 300 g, as well as noodles with minced meat (an analogue of "naval pasta") in sauce. Type IV ration includes lentils stewed with sausage and noodles with minced meat in sauce. Ration V contains tortellini with pork filling in tomato sauce, rice with turkey, squid rings and shrimps, as well as fruit salad 150 g. In addition, all rations contain canned bread, hard cookies, sausage, mild cheese, jam, dark chocolate, chewing gum, tea extract, coffee extract, instant cold drink, sugar, salt, herbal coffee creamer, matches, refreshing towel, multipurpose paper (paper napkins/toilet paper)

The French Individual Combat Ration (RCIR) weighs 1.75 kg. Its energy value is approximately 3500 kcal / 14644 kJ (proteins: 13%, lipids: 32%, carbohydrates: 55%) [30]. Today, fourteen different options are available for the diet, which includes two canned snacks; two cooked dishes in a container of 300 g each; packages of sweet and salty cookies of 250 g each; instant soup in bags; melted cheese or dessert cream on a tray; bag of caramel 40 g; chocolate bar 25 g; a "breakfast" set (coffee, skimmed milk, cocoa drink and sugar, all in powder and tea bags); warming kit (includes six water purification tablets and trash bag); nougat bar; fruit paste; four wrapped sugars; a bag of isotonic drink; jam; packaging of napkins.

The Czech army ration is produced in 6 variants [30]. The first type of menu contains as a ready meal 400 g of pork with potatoes and sauerkraut, 180 g of stewed pork in its own juice, 80 g of tuna. Two slices of crusty bread of 35 g each, 3 packages of 20 g of jam, 2x 2 g of instant coffee, 2 tea bags, 2 glucose tablets, 8 bags of 5 g of sugar, instant drink of 6 g, two small bars of 25 g of dark chocolate, 2 pieces of chewing gum, 2 sticks of table salt, 4 packages of multipurpose paper, three wet wipes.

The 2nd option contains 400 g of pork goulash, 180 g of beef in its own juice, 120 g of pie; the 3rd option consists of 400 g of Gypsy goulash, 180 g of stewed pork, 80 g of tuna in its own juice.

The 4th version of the diet contains 400 g of pork with garlic, 180 g of beef in its own juice, 120 g of vegetable pie and 75 g of chicken pie.

The 5th ration contains 400 g of old Czech goulash, 180 g of beef in its own juice, 120 g of vegetable pie and 75 g of chicken pie.

The 6th ration contains vegetarian dishes.

When military units are in barracks, food is prepared on the spot, but in terms of calories and nutritional value, the daily ration is close to the standard ration used in combat conditions. The nutrition of teenagers involved in military training programs is carried out according to national standards of school nutrition, but during field practice, cadets, as a rule, eat army rations.

Conclusions: Thus, despite the importance of providing food for children and adolescents involved in pre-university military training programs, there are still no unified approaches to the formation of standard rations for this contingent in the world. This can be a risk factor for the occurrence of chronic diseases in the future, regardless of whether the cadet chooses a military career in the future or not.

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