

Prospects for the development of physical culture and grassroots sports in the Republic of Kazakhstan

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Abstract

Purpose: to analyze the state of physical culture and grassroots sports and the prospects for their development in the Republic of Kazakhstan. **Material:** The study used theoretical and pedagogical methods already confirmed by practice. The body composition of children and adolescents was determined by means of "Tanita" bioelectrical impedance analyzer. 332 people of different regions of the Republic of Kazakhstan participated in the survey conducted to determine the attitude of the citizens of this country towards the physical culture. The age of the subjects: 6 to 10 years old (60 persons); 11 to 16 (194 persons); 17 to 25 (78 persons). They had 6 standard tests for determining their physical training: run 10 m, sec; shuttle run 3=5 m, sec; flexion and extension of the arms (10 times); torso raising (10 times); standing long jump; bending on the bench. **Results:** The questionnaire showed that more than 90% of respondents have a positive attitude towards physical training and sports; 63% consider that the physical exercise is mainly meant to improve health; more than 59.9% are registered in sports sections. The six fitness tests for the subjects aged 6-16 highlighted an increase in physical training as age increases, as well as an improved speed. Most of the flexibility indicators in 6-14 years old subjects are below the average, which will negatively influence the future training and competitions tasks making. The bio-impedance analysis of body composition helped to identify the children aged 5-10 with body weight indicators below the norms. At the age of 11 - 17, weight indicators in 63% of the subjects were below the normative indicators, which can be explained by diet and transition to puberty. Fat (%) indicators are mostly within the normal range but have slight differences in children involved in different sports. **Conclusions:** Using the survey and physical training tests results and the data from the bio-impedance analysis of body composition will help planning the physical exercises and classes content depending on age and individual capabilities.

Key words: physical culture, grassroots sports, physical training, testing, questionnaire, analysis.

Introduction

Physical Culture and Grassroots sports today solve many socio-economic vulnerabilities of the state: the unification of society, the distraction of young people from bad habits, disease prevention, and life extension, healthy lifestyle promotion among various segments of the population, and their involvement in physical activity, the creation of conditions for self-realization, self-expression, and development.

The term physical culture is not still freely used outside academia. This was not always the case. At the beginning of the twentieth century, physical culture was the term used to label one's interest in weightlifting, going to the gym, and increasing one's physical activity. It is now used by historians to observe historical health and fitness movements from the nineteenth to roughly the mid-twentieth century in Europe, Asia, and the Americas. This is to say nothing of the sociologists, and performance scholars who still use it in a contemporary setting. In historical writing, the term physical culture is difficult to define, largely because it was applied to everything from aerobics to weightlifting and all that lay in between. Nevertheless, scholars have largely agreed on two key tenets. Physical culture is distinguishable from sport (Heffernan, 2022). In our work, we are based on the definition of concepts "Physical culture" and "Grassroots sports", изложенные в Law of the Republic of Kazakhstan "On physical culture and sports" dated July 3, 2014, No. 228-V, with amendments and additions from 27.06.2022 y. Namely, "Physical culture - an integral part of the culture, a field of social activity, which is a set of spiritual and material values created and used by society in order to develop a person's physical and intellectual abilities, improve their physical activity and form a healthy lifestyle, social adaptation through physical education and development" и "Grassroots sports - a sports movement that promotes the development of physical culture among the population" (Law of the Republic of Kazakhstan "On physical culture and sports" dated July 3, 2014, No. 228-V, with amendments and additions from 27.06.2022 y.)

In our view, it is also necessary to separate such concepts as grassroots sports and high-performance sports. If grassroots sports are more aimed at increasing physical activity and improving the health of the population, and it is closer to the concept of physical culture by definition, then the high-performance sport is

more of a competitive nature in the various world and continental competitions in order to improve the image of the state in the sports arena.

Organization on a state scale and on the basis of an official state program of a harmonious system of physical education for different categories of the population is an extremely important state task. The solution to this problem is possible only by means of the participation of experienced specialists working in the field of physical education and sports (Ivashchenko S., 2020).

At the same time, the introduction of a cultural subject with independent sports activities should become the full content of activities that should meet the interests of young people. A creative approach to the organization of physical education classes by the teaching staff, the organization of a professional process in the form of specializations in sports, the use of creative methods, and promising forms of organizing educational activities in a public institution of higher education social activation of the intellectual work capacity of young people (Avsiyevich et al., 2021). Sports provide key dynamics when it comes to the augmentation of communal principles by enhancing the physical and mental well-being of individuals and the integration of social classes. The idea of "winning" in sports serves as a prime exemplar of success: a highly valued commodity that often results in elitism and superiority. The world of sports allows us to gain vital insight into the sensitive issues of racism, sexism, and classism. Delaney writes, "to ignore sport is to ignore a significant aspect of any society and its culture", continuing to note, "sport is the opiate of the masses since we are in the age of the sport consumer, which is dissimilar to the age of the sport spectator". By placing a "value" on a specific athlete, you are not only defining that athlete based on his or her attributes, you are bestowing upon them a specific worth which ultimately translates into the worth of that specific sports end masse, which is why we unjustly deem certain sports more imperative than others (Macri, 2012).

Each state has its peculiarities of management in the efforts to develop physical culture and grassroots sports. In Germany and France, this work (Sportstättenbauprojekte, 2019; État, 2019) is mainly carried out by state regional authorities, in the USA and the UK, public organizations and sports federations with the support of municipal authorities (New York City Comptroller, 2019), in China, Japan (Yessentayev T.K., 2014; Resolution of the Government of the Republic of Kazakhstan, 2020) state and regional self-government bodies, sports clubs and teenage organizations. For example, the European Union conducts activities European Non-Governmental Sports Organisation (ENGSO) - the leading voice for voluntary-based grassroots sport in Europe. Together with 38 members – National Sports Confederations, National Olympic Committees, and other sports organizations from 34 European countries – ENGSO form a network that brings together people of different ages and backgrounds that share a passion for the sport (<https://www.engso.eu>).

China's mass sports policy has shifted from a unified national perspective to a more human-based standard supported by a variety of policy systems from national to local government. This account shows how mass sports policy has played an active political role in the nation's economic construction and cultural development (Xiaolin Zhang & John Saunders, 2019). In order to further develop the field of physical culture and sports, scientific studies are being carried out in different countries, the results of which reflect the problematic aspects and positive effects, as reflected in the scientific article by Antonio Granero-Gallegos (Antonio Granero-Gallegos, 2020). Different countries operate their programs, taking into account local opportunities and conditions. Expenses are financed from the budget, private investments, sponsorship funds, etc. Classes are held with the involvement of coaches, athletes, physical education instructors, and educators.

The health of the citizens of the Republic of Kazakhstan is the basis for the creation of a successful future for our state. The authorities of the Republic regularly adopt State programs for the development of physical culture and sport. The most significant decisions include "Kazakhstan - 2030", "Kazakhstan - 2050", the law "About Sports", and "The Program for the Development of Physical Culture in 2020-2025". The health status of the population not only affects economic well-being, and moral level, it will neutralize adverse social and environmental conditions, the influence of a sedentary lifestyle, factors of not always balanced nutrition, the presence of bad habits, excessive hobbies with cell phones and computers, which significantly reduce physical activity, especially the younger generation. Specialists of the Kazakh Academy of Sport and Tourism, within the framework of the scientific project of the Ministry of Education and Science of the Republic of Kazakhstan "Organization of physical culture classes at the place of residence", since 2021 began scientific research to improve the organization and methodology of conducting physical exercises and sports at the place of residence.

The involvement of citizens of different ages in regular physical training and grassroots sports, taking into account modern capabilities and the application of new organizational structures, is a current topic for Kazakhstan.

The purpose of the study is to analyze the state of physical culture and grassroots sports and the prospects for their development in the Republic of Kazakhstan.

The objectives of the study:

- to determine the attitude towards the physical culture of citizens of different ages;
- to assess the physical fitness of children and adolescents involved in sections for various sports;
- to determine the composition of the body of children and adolescents involved in sections for various sports.

Material & methods

During the study, battle-tested theoretical and pedagogical methods were used: analysis of scientific and methodological publications on the organization of physical culture and grassroots sports in various countries; the attitude of the population to physical exercises was revealed by an anonymous survey of Kazakhstan citizens of various ages; the level of physical fitness was determined by the results of testing; body composition of children and adolescents was determined using a bioimpedance body composition analyzer "Tanita"; analysis of the applied methods for organizing physical culture and grassroots sports was carried out after visiting the regions of the Republic of Kazakhstan; the obtained results were processed by mathematical methods.

Participants

The study was conducted in various regions of the Republic of Kazakhstan: in the cities Nur-Sultan, Almaty, Ust'-Kamenogorsk, Aqtobe, Ekibastuz, and Taraz. 332 people took part in the survey conducted to determine the attitude of citizens of the Republic of Kazakhstan of different ages to physical culture, of which 60 were aged 6 to 10 years, 194 were aged 11 to 16, and 78 were aged 17 to 25. 377 children and adolescents between the ages of 6 and 16 attending the section participated in testing to determine their physical fitness. During the study, a bioimpedance analysis of the body composition on the device «Tanita» was carried out according to the approved technology, in which 352 people aged from 5 to 16 years took part.

Procedure

To determine their physical training, participants from different regions were tested on 6 standard tests: run 10 m, sec, Shuttle run 3=5 m, sec, flexion and extension of the arms at the stop 10 times for a while, lifting the torso 10 times for a while, long jump from a place with 2 legs, tilt on the bench. The selection of tasks for testing was carried out taking into account the availability of all survey participants. The testing involved 377 children and adolescents aged 6 to 16 years. All participants were divided into two groups of 6-10 years old - preschool and primary school age and 11-16 years old - middle and senior school age. To obtain more objective data, we decided to analyze the results in the group of 6 to 10 years old in two subgroups 6-8 and 9-10 years old, and in the group of 11-16 years old in three subgroups of 11-12 years old, 13-14 years old, 15 -16 years. This approach allowed us to take into account the factor of significant age opportunities in terms of children and adolescents aged 6-16. Testing of participants aged 6 to 17 to determine the level of physical training allows obtaining objective information for making decisions on planning the content and structure of training sessions, taking into account the physical capabilities of those involved at different ages. The selected tests are available for children and adolescents aged 6-16 and can be used both in physical training groups and in groups involved in various sports. Bioimpedance analysis of body composition was carried out on professional equipment "Tanita". Data were obtained on fat percentage (%), fat content in kilograms, body fat mass, muscle mass (%), water content (%), body mass index, weight, and body height.

Statistical analysis

The data obtained were processed by determining the average values in the Microsoft Excel program.

Results

To determine the attitude of citizens of different ages to physical culture, we conducted a survey in which 332 people took part, of which 60 were aged 6 to 10 years, 194 were aged 11 to 16, and 78 were aged 17 to 25.

To the first question "about the attitude to physical culture", the majority noted a positive attitude - 300 (90.4%) of the respondents, 18 respondents (5.4%) were indifferent, one survey participant had a negative attitude, another opinion was expressed by 13 survey participants (3.9%).

More than 90% noted a positive attitude towards physical culture, and only 5% expressed indifference to physical activity, which allows us to conclude that citizens of different ages desire to consciously attend physical exercises.

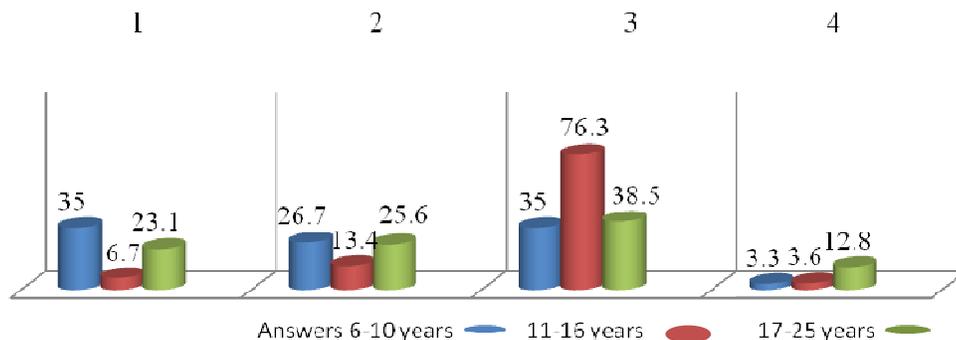


Fig. 1 – Where do you exercise? (%)

Note: Answers. 1. At the place of work (study) 2. At the place of residence
3. In sports sections 4. Other places

To the question about the place of physical exercise, the answers were as follows: 52 (15.7%) at the place of study (work); at the place of residence 62 (18.7%); in sports sections 199 (59.9%); 19 (5.7%) participants are engaged in other places. It can be said that today children, in general, do not have the opportunity to go in for sports sections at their place of residence, in total 18.7% of the respondents go in for sports, and 15.7% go to the place of study, the opportunities are limited. This situation is explained by the lack of sports facilities, in the required quantity in proximity to residential complexes, and those who wish are engaged in the majority in official sports sections - 59.9%. The results of the survey of respondents of different ages are shown in Fig. 1.

To the third question "How would you like to do physical culture?", the majority of participants answered - in group 184 (55.4%), 105 participants, or 31.6% answered that they do not care how to do physical exercises in a group or individually, individual classes were preferred 32 survey participants or 9.6% (Fig. 2).

It should be noted that the survey participants of preschool and primary school age (6-10 years old) answered the third question in almost the same way: 40 or 66.7% of younger schoolchildren prefer classes in a group and 113 or 58.2% of middle-aged and older schoolchildren; no matter where to study 11 or 18% children of primary school age 67 or 34.5%, children of middle and senior school age 27 or 34.6%; Individually, 3 (5%) children prefer to study at primary school age, and 4 or 2.4% on average and older, 4 or 5.1% over 17 years old.

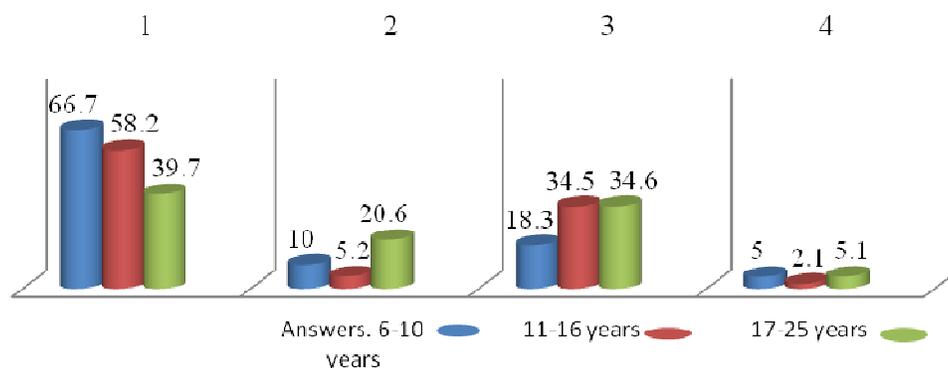


Fig. 2 - How would you like to do physical culture? (%)

Note: Answers. 1. In a group 2. Individually 3. It doesn't matter 4. Different opinion

The main goal of physical exercises, according to the majority of respondents, is to improve the health of 209 people or 63%; 25 (7.5%) people noted that a change in their usual activities, 78 (23.5%) children preferred the answer - another goal. The answer to weight loss at this age is not relevant, only 19 children noted this answer, or 5.7%.

Schoolchildren of both groups have approximately the same preferences in choosing the purpose of physical exercise: health promotion 38 (63.3%) in juniors, 116 (59.8%) in middle and older, 55 or 70.5% over 17 years old, change of habitual activity 9 (15%) in younger schoolchildren, 13 (6.7%) in middle and older schoolchildren, 3 or 3.8% over 17 years old, another goal in younger schoolchildren 10 (17%), 55 (28.4%) in middle and high school schoolchildren, 13 or 6.7% over 17 years old; weight loss in only 2 (3%) junior, 10 (5.2%) middle and high school schoolchildren, 7 or 9% over 17 years old; 9 (15%) participants in the survey of younger schoolchildren noted two answer options in the goal, and in the middle and older age there were 31 (16%) such answers, over 17 years of age double answers were 5 or 6.4%.

To the question "What kind of workload do you get in the class?" the basic mass of respondents to the survey 241 (72.6%) answered "according to the plan of the coach", of which 43 (71.7%) were younger schoolchildren, 163 (84%) middle and senior schoolchildren, 35 or 44.9% over 17 years old; 63 of the respondents answered - "according to their well-being", which amounted to (19%), of which 10 (17%) are younger schoolchildren, 24 (12.4%) are middle-aged and older schoolchildren and 29 or 37% are over 17 years old; 2 (6.3%) children answered "according to mood", and 7 (2.1%) had another opinion.

To the question "With whom would you like to exercise at your place of residence?" survey participants responded as follows:

"with peers" 180 (54.2%), of which 34 (56.7%) are younger schoolchildren, 101 (52.1%) are middle-aged and older schoolchildren and 45 or 57.7% are over 17 years old, i.e., more than 50% of survey participants prefer to work with peers;

- "with children (parents)" 26 (7.8%) of them - 10 (17%) younger schoolchildren, 12 (6.2%) schoolchildren of middle and older age, 4 or 5.1% of respondents over 17 years old;

- "in approved groups" 101 (30.4%) prefer to study, of which 10 (17%) are younger schoolchildren, 64 (33%) schoolchildren of middle and older age, 27 or 34.6% of respondents over 17 years old;

- another opinion was expressed by 25 (7.5%), of which 6 (10%) were younger schoolchildren, 17 (8.8%) schoolchildren of middle and older age, 2 or 2.6% of respondents over 17 years old;
- 18 (5,4 %) survey participants answered using two options.

Answers to the question "What content of the classes are you more interested in?" the following responses were received:

- "doing a specific sport" 150 (45.2%) children, of which 17 (20.3%) are younger schoolchildren, 109 (56.2%) schoolchildren of middle and older age, 24 or 30.8% of respondents older than 17 years;
- "doing sports and general physical training" 150 (45.2%), of which - 36 (60%) younger schoolchildren, 78 (40.2%) middle-aged and older schoolchildren, 36 or 46.2% of survey participants over 17 years old;
- "general physical training" 26 (7.8%), of which - 6 (3.1%) younger schoolchildren, 2 (3%) middle and older schoolchildren, 36 or 46.2% of survey participants over 17 years old;
- another opinion noted 6 (1,8 %).

The majority of schoolchildren chose a specific sport 45.2%, also 45 (2%) specific sports and general physical training, which can be explained by the desire to master the technical and tactical skills of the sport and the development of the physical capabilities of the body.

To the question "What exercises do you like to do during physical culture?" the following responses were received:

- "simple" 89 (26.18%), of which 13 (21.7%) were younger schoolchildren, 35 (17.6%) schoolchildren of middle and older age, over 17 years old answered 41 respondents, which amounted to 52.6%;
- "complex" 115 (34.6%), of which 15 (25%) were younger schoolchildren, 84 (43.5%) were middle-aged and older schoolchildren, 15 or 20.5% were over 17 years old;
- "competitive" 109 (32.8%), of which - 30 (50%) younger schoolchildren, 61 (31.6%) middle-aged and older schoolchildren, 18 or 23.1% over 17 years old;
- "another opinion" 19 (5.7%), of which 2 (3.3%) are younger schoolchildren, 14 or 7.3% of middle and senior school age, 3 or 3.8% over 17 years old.

39 participants included two answers to the question in the questionnaire. Children prefer to perform competitive exercises during training sessions, which must be taken into account by teachers when planning the content of a training session.

Answers to the question: "What time is it convenient for you to exercise?" allowed us to find out the opinion about the time of classes and the rationale for decision-making. The responses were as follows (Fig. 9):

- "in the evening" 111 (33.3%), of which 20 (33.3%) are younger schoolchildren, 66 (34%) are middle-aged and older schoolchildren, 25 or 32.1% are over 17 years old;
- "on weekends" 36 (10.8%), of which 16 (26.7%) are younger schoolchildren, 8 (4.1%) are middle and older schoolchildren aged 12 or 15, 4% are over 17 years old;
- "depending on the study schedule", 147 respondents (44.3%) plan classes, of which 16 (26.7%) are younger schoolchildren, 96 (49.5%) are children of middle and senior school age, older than 17 years 35 or 44.9%;
- participants have "another opinion", 8 (13.3%) of them are of primary school age, 24 (12.4%) are middle-aged and older children, 6 or 7.7% are over 17 years old;

24 (7.2%), when filling out the questionnaire, indicated two answers to this question, i.e., they prefer to study at a convenient time without a specific schedule.

The most convenient time for physical exercises depends on the schedule of training sessions, 147 survey participants share this opinion, which is 44.3%. The opinions of the rest were distributed - 36 (10.8%) for classes on weekends, 111 (33.4%) in the evening, and 38 respondents (11.4%) determined the answer "another opinion".

During the implementation of the scientific project, to determine physical training, participants from different regions were tested on 6 standard tests: run 10 m, sec, Shuttle run 3=5 m, sec, flexion and extension of the arms at the stop 10 times for a while, lifting the torso 10 times for a while, long jump from a place with 2 legs, tilt on the bench (Table 1).

Table 1. The results of the control standards for physical training (n=377)

Age, year	The number of subjects examined	Height, cm	Weight, kg	Type of Test						
				Run 10 m, sec	Shuttle run 3=5 m, sec	Flexion and extension of the arms at the stop 10 times, sec	Lifting the torso 10 times, sec	Long jump from a place with 2 legs, cm	Tilt on the bench, cm	
6-8	48	126.0	30.8	3.0	7.2	10.0	20.2	122.0	7.0	
9-10	95	133.1	32.7	2.9	6.9	8.4	15.3	141.8	8.5	
11-12	85	141.5	38.7	2.8	5.6	8.5	13.7	157.8	7.0	
13-14	96	156.7	48.1	2.5	5.3	8.2	12.2	180.2	6.7	
15-16	53	167.5	58.2	2.4	4.9	7.6	10.7	200.3	9.3	

At the age of 6 to 10 years, standards were adopted for 143 children from 5 regions of the Republic of Kazakhstan: Nur-Sultan, Ekibastuz, Almaty, Ust'-Kamenogorsk, and Aktobe. In the second group of 11-16 years old, 234 teenagers from the same regions representing the south, north, west, and east were tested. It should be noted that children and teenagers go in for various sports: Kazak kuresi, judo, basketball, swimming, fencing, kickboxing, table tennis, white water slalom, rock climbing, and handball.

We determined the speed abilities from the results of running 10 meters. Children aged 6-8 years (48 people) showed a result of 3.0 seconds, ages 9-10 (95 people) showed a result of 2.9 seconds, ages 11-12 years (85 people) a result of 2.8 seconds, ages 13-14 years (96 people) a result of 2.5 seconds, ages 15-16 years (53 people) a result of 2.4 seconds. We determined the speed and coordination capabilities based on the results of the 3x5 meter shuttle run. Average indicators by age also have a stable tendency to improve with increasing age: 6-8 years old - 7.2 seconds; 9-10 years old - 6.9 sec; 11-12 years old - 5.6 seconds; 13-14 years old - 5.3 seconds; 15-16 years old - 4.9 sec. We determined the speed-strength indicators of the muscles of the upper shoulder girdle according to the test, flexion, and extension of the arms at the stop 10 times for a while. The average results by age were as follows: 6 - 8 years - 10 seconds; 9 - 10 years old - 8.4 sec; 11 - 12 years - 8.5 seconds; 13 - 14 - 8.2 sec; 15 - 16 years old - 7.6 sec. The deterioration of the result was recorded at the age of 11-12 years, which can be explained by the weakness of the extensor muscles of the upper shoulder girdle, due to the insufficient amount of time allocated for this exercise and age.

We determined the speed-strength capabilities of the abdominal muscles by the results of lifting the torso from a back-lying position. Indicators steadily improve with increasing age: 6 - 8 years - 20.2 sec; 9 - 10 years 15.3 sec; 11 - 12 years old - 13.7 seconds; 13 - 14 years old - 12.2 seconds; 15 -16 years old - 10.7 sec. The results obtained can be explained by the regular performance of tasks to strengthen the abdominal muscles and the participation of these muscle groups in most exercises.

We determined the speed-strength indicators of the muscles of the legs by the results of the tilt on the bench with two legs. The results improved with age by an average of 20 cm: 6-8 years old - 112 cm; 9 - 10 years old - 141.8 cm; 11 - 12 years old - 157.8 cm; 13 - 14 years - 180.2 cm; 15 - 16 years old - 200.3 cm. The increase in the result became possible due to the active participation of the leg muscles in most training tasks at the age of 6 to 17 years. Flexibility in the spinal column of participants of all ages was determined by the results of the bending on the bench. The following results were obtained: 6 - 8 years - 7.0 cm; 9 - 10 years old - 8.5 cm; 11 - 12 - 7.0 cm; 13 - 14 years old - 6.7 cm; 15 - 16 years old - 9.3 cm.

During the examination, a bioimpedance analysis of body composition was carried out using the Tanita device according to the approved technology.

The following indicators were obtained: fat content (%), fat content in kg, fat-free mass, muscle mass (%), water content (%), body mass index, and body weight (Table 2).

Table 2 - Indicators of the body composition of children and adolescents involved in physical culture and grassroots sports, obtained using bioimpedance analysis (n=352)

The number of people examined	Age, years	Height, cm		Weight, kg		Fat content, %		Muscle mass (including the mass of internal organs) %		Body mass index	
		x	m	x	m	x	m	x	m	x	m
64	5-8	127.6	1.0	27.5	0.7	18.8	0.6	20.9	0.4	16.7	0.3
79	9-10	137.0	0.8	33.0	1.0	17.0	0.6	25.6	0.5	17.4	0.3
81	11-12	147.1	1.9	41.2	1.1	17.6	0.9	33.4	0.6	18.6	0.4
85	13-14	160.3	0.9	50.7	1.2	14.3	0.5	42.9	0.8	19.5	0.3
43	15-16	169.7	1.2	60.3	2.1	13.5	0.9	51.5	1.3	20.8	0.5

Note: - statistically significant changes (p<0.05)

Table 3 - Indicators of height and weight of respondents (n=352)

Age, years	The number of people examined	Height, cm			Weight, kg		
		Respondents	Norm	Difference	Respondents	Norm	Difference
5-8	64	127.6	119.7	+7.9	27.5	23.3	+4.2
9-10	79	137.0	138.1	-1.1	33.0	32.6	+0.6
11-12	81	147.1	147.7	-0.6	41.2	39.5	+1.7
13-14	85	160.3	159.2	+1.1	50.7	49.3	+1.4
15-16	43	169.7	166.3	+3.4	60.3	58.4	+1.9

At the age of 5 to 10 years, 143 people from various regions of the Republic of Kazakhstan were examined: the cities of Almaty, Nur-Sultan, Ekibastuz, Ust-Kamenogorsk, Aktobe.

A comparative analysis of the height and weight of the examined and normative data by age allowed us to make the following generalization (Table 3). At the age of 5 to 8 years, the height of children participating in the survey exceeds the average by 7.9 cm, and their weight by 4.2 kg. In our opinion, a significant difference in indicators at this age can be explained by the fact that children attending sports sections have an advantage in physical development due to physical exercises, genetic inclinations, and diet.

At the age of 9-10 years and 11-12 years, the difference in height and weight is already insignificant: the height of the respondents at the age of 9-10 is less than the norm by 1.1 cm, and the weight is more by 0.6 kg; at the age of 11-12 years, the height of the examined is less by 0.6 cm, and the weight is more by 1.7 kg.

At the age of 13-14 years, the growth rates of the examined are 1.1 cm more than the norm, and the weight is 1.4 kg, which became possible due to attending training sessions in various sports, which contributes to an increase in muscle mass. Respondents 15-16 years old exceeded the normative indicators in height by 3.4 cm, and in weight by 1.9 kg. At this age, most of the respondents have decided on a sport and attend training sessions in order to achieve high sports performance, this can explain the advantage in height and weight.

It should be noted that in 53 children aged 5 to 11 years, low weight indicators were found, they ranged from 23 to 40 kg, which allows us to speak of insufficient body weight, i.e., body weight does not correspond to the height of children. In 44 children, the weight ranged from 40 to 46 kg, which is also less than the average. Almost 46% of the examined children have weight indicators less than the norm.

Body fat values have been recorded in the range of 12.0% to 23.0% and are generally within the normal range. Higher rates were recorded among representatives of swimming and fencing. Increased fat content was recorded in 5 children, obesity in 17 children (10 years - 7, 9 years - 1, 8 years - 7, 7 years - 1, 6 years - 1), and in 10 children the fat content is below the norm (10 years - 7, 9 years - 3). The body mass index determined using the Tanita device in most children aged 5-10 years is within the normal range. However, it should be noted that the difference in height and weight from 8 to 13 - height (-100) cm = weight, kg is observed in 26 children (18%), i.e., weight indicators are below the norm and these children should pay attention to diet and physical activity. Physical activity planning should be carried out individually for each child, taking into account the need to increase muscle mass. Between the ages of 11 and 16, data on Tanita scores were obtained from 209 children; of which 11-year-olds - 45, 12-year-olds - 36, 13-year-olds - 54, 14-year-olds - 31, 15-year-olds - 25, 16-year-olds - 18. According to the indicators of fat content as a percentage of the body weight of the subjects, the following results were obtained: obesity was noted in 10 children, low-fat rates were noted in 41 children, and in 11 children the indicators were increased. Normal body mass index was noted in 132 respondents, with an increased index in 6, and a low index in 71.

Summarizing the results obtained in terms of height, weight, fat content (%), and body mass index, we can say that more than 63% of the respondents aged 11 to 16 years have weight indicators below the norm.

We compared the indicators of height and weight of children from 11 to 17 years old, according to the accepted methodology - height, cm (-100) = weight in kg.

The difference in height and weight from 8 to 23 was found in 133 (63%) children, which indicates problems with weight in children of this age. By age, these indicators were distributed as follows: 11-12 years old - 46 out of 81 (57%); 13-14 years old - 55 out of 84 (65%); 15-16 years old - 29 out of 35 (83%).

One of the reasons for the increase in the number of children with low weight indicators at this age can be explained by the passage of puberty in adolescents, which is characterized by a significant increase in growth and a lag in the increase in muscle mass in most children. At the end of puberty, physical education coaches and teachers can increase physical activity for children and adolescents aged 14 to 16 years, which will increase muscle mass and physical capabilities of the children's body, however, an individual approach to those involved is necessary, since the time of passage of puberty in children are different and until its completion, physical activity must be planned taking into account the capabilities of adolescents and gender.

Discussion

The analysis of the questionnaire results showed:

- more than 90% of respondents have a positive attitude toward physical training and sports;
- the main objective of physical exercise is to improve the health of 63% of respondents;
- more than 59.9% of the respondents are engaged in sports sections and most of them 55.4% are engaged in official groups according to the coach's plan 72.6%, 54.2% prefer to train with their peers;
- more than 45% of respondents want to engage in a specific sport and the same 45%, mostly over 15 years old, want to combine sports and physical training.

We formulated practical recommendations based on the results of the analysis of respondents as follows:

- the content of training sessions to determine the opinion of the participants, to increase their interest to pay more attention to competition tasks and physical training;
- make the best use of existing sports facilities and build new ones taking into account citizens' preferences and proximity to residential complexes;

- to carry out most of the classes in an organized manner and at the same time create conditions for individual tasks;

- physical training and grassroots sports should be planned, taking into account the schedule of study or work, as well as physical activities carried by the body during the day.

Physical training assessment results from six tests available to participants aged 6-16 (running 10 meters, shuttle running 3x5 meters, flexion and extension of the arms at the stop 10 times for a while, lifting the torso from a back-lying position 10 times for a while, long jump from a place with two legs, tilt on the bench, it reflects an increase in physical training as age increases, as well as an improvement in the speed of most of the children and adolescents involved in the study. The studies revealed problems in the development of flexibility and muscles of the upper shoulder girdle. The results of the test allow us to conclude that most of the indicators of the flexibility of the examined children and adolescents aged 6-14 years are below the average, which in the future will not allow them to effectively perform the tasks in training and competitions, with increased mobility requirements in joints, spine and muscle elasticity.

The results of the bioimpedance analysis of the body composition carried out on the Tanita apparatus allowed us to identify children aged 5 to 10 years who have body weight indicators below the normative 46%. At the age of 11 to 17 years, weight indicators in 63% of the subjects were below the normative indicators, which can be explained by the passage of puberty and diet. Fat (%) indicators are mostly within the normal range but have slight differences in children involved in different sports.

Conclusions

The use by physical culture instructors and sports coaches in their professional activities of the results of questioning, testing of physical training, and data from bioimpedance analysis of body composition will allow taking into account the results obtained when planning physical exercises, determining the content of classes, taking into account the age and individual capabilities of those involved in physical training groups and by sports.

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