Реферати

ЗВ'ЯЗОК АНОМАЛІЙ ПРИКУСУ І ТЕРМІНІВ ПРОРІЗУВАННЯ ЗУБІВ У ДІТЕЙ З РІЗНИХ КЛІМАТО-ГЕОГРАФІЧНИХ УМОВ

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У статті висвітлено поширеність та структуру аномалій прикусу та терміни прорізування постійних зубів у дітей, які проживають у різних кліматогеографічних умовах. Встановлено, що поширеність аномалій прикусу та прорізування постійних зубів у дітей залежать від географічних та екологічних умов проживання. Доведено, що між аномаліями прикусу та кількістю зубів, що прорізалися існує сильний кореляційний зв'язок.

Ключові слова: аномалії прикусу, прорізування постійних зубів, клімато-географічні умови.

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СВЯЗЬ АНОМАЛИЙ ПРИКУСА И СРОКОВ ПРОРЕЗЫВАНИЯ ЗУБОВ У ДЕТЕЙ С РАЗНЫХ КЛИМАТО-ГЕОГРАФИЧЕСКИХ УСЛОВИЙ

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В статье освещены распространенность и структуру аномалий прикуса и сроки прорезывания постоянных зубов у детей, проживающих в различных климато-географических условиях. Установлено, что распространенность аномалий прикуса и прорезывания постоянных зубов у детей зависят от географических и экологических условий проживания. Доказано, что между аномалиями прикуса и количеством зубов прорезались существует сильная корреляционная связь.

Ключевые слова: аномалии прикуса, прорезывание постоянных зубов, климато-географические условия.

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FUNCTIONAL STATE OF CARDIOVASCULAR AND DIGESTIVE SYSTEMS IN THE BODY OF STUDENTS DURING FITNESS TRAINING

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Examination of students engaged in modern fitness technologies is performed in the work and it is established that physical exercises effect the activation of internal systems' work in the body. Analyzing the correlation of recreative fitness with students' nutrition provides an opportunity to identify prospects for improving cardiovascular and digestive systems, improving general condition and achieving the desired student athletic performance. The study found that 92.5% of students were positive about the new content of training in modern fitness technology and only 7.5% said their attitude was uncertain. During the experiment, the dynamics of changes in the parameters of the cardiovascular and digestive systems' functional state (experimental/control groups) were confirmed: the mean body weight decreased by 2.8 kg/1.5 kg, the pulse at rest decreased to 65.25 beats./min.±0.25/74.46 bpm±0.64; s□st□l□ □r□ssur□ d□□r□s□d t□ 112.75 mm Hg±0.35/118.21 mm Hg±0.79; d□□st□l□ pressure decreased to 72.21 mm Hg±0.39/76.57 mm Hg±0.43; th□v□t□l □□□□□t□ □f th□lungs □n□r□s□d b□ 0.4 l/0.2 l, wh□□h □s evidence of the cardiovascular system's economic activity and confirms the feasibility of the applied methodology of health fitness technologies. Regarding the expediency of dietary change: 77% of students said they needed change, while 21% said they wanted it, and only 2% said they didn't want to change their diet.

Key words: fitness technology, nutrition, physical education, health, cardiovascular and respiratory systems.

The work is a fragment of the research project "Implementation of health-saving technologies in physical education in the context of European integration of Ukraine", state registration No. 0117U 003236.

Modern fitness technology is an aspect of the fitness industry that is related to organizational and methodological support of the process aimed at improving the physical condition of the person. High fitness competitive advantage in comparison with other industries, which provide the sphere of human leisure, causes its rapid development, provides a meaningful filling of fitness technologies and determines their efficiency. The purpose of this study is to systematize organizational forms of work, to analyze the structure and methodological features of the tools, to identify the dynamics of changes in the parameters of the physical state, nutrition recommendations that are used in training of modern fitness technologies. Our study was performed based on the research and methodological literature, pedagogical observations of the course of work at the best fitness clubs in Poltava, analysis of health fitness at the Faculty of Physical Education at the Poltava V.G. Korolenko National Pedagogical University, and studies of physical education classes while training the module "Recreative Gymnastics".

The fitness industry is characterized by a high degree of innovation. Specialists identify a variety of activities that can meet the broadest segments of the population. Despite their differentdirectivity profiles, their belonging is determined by a common goal, which is to promote overall health of the body, the achievement of which is conditioned by the principles of health nutrition [1, 4, 7]. All the accumulated knowledge regarding the organizational and methodological support of fitness requires systematization for

further development of methodological provisions to be used in the process of implementing technologies of health fitness.

The purpose of the work was to analyze the characteristics of the cardiovascular system and The purpose of the work was to analyze the characteristics of the cardiovascular system and the dietary pattern, to systematize organizational forms of work during health fitness classes with students.

Materials and methods. The study was carried out at the Poltava V.G. Korolenko National Pedagogical University during 2018-2019 with students of the 1st year of natural sciences (22), physics and mathematics (26) and history faculties (24).

We have carried out a survey on the attitude to fitness classes and an enquiry of students about their adherence to the day regime and nutrition balance. At the beginning and at the end of the experiment, control measurements of weight, blood pressure (AP), pulse and vital lung capacity (VLC) were performed, comparative characteristics of the experimental and control groups were made.

Methods used in our study consist in theoretical analysis of modern methodological and special literature on health fitness programs, sociological, pedagogical and medical-biological methods, comparative analysis of cardiovascular indices of students engaged in fitness, study of their dietary pattern. They were selected based on the analysis of research and methodological literature and pedagogical observations of the training method during the physical education classes, teaching the subject “Health fitness” at the Poltava V.G. Korolenko National Pedagogical University, studies of the work experience at the leading fitness centers in Poltava.

Results of the study and their discussion. At the first stage of the study we carried out a survey and determined the performance of the cardiovascular and digestive systems in students. At the beginning of the experiment, we suggested to assess our desire to practice traditional physical education and modern fitness technology. Students assessed their desire to be engaged by a 10-point scale, where 10 points is the maximum desire and 1 point is the absence of any desire.

The survey showed that the desire to be engaged in traditional physical education classes was assessed on average by 4 points, but the highest score was rated by the desire to exercise in different types of fitness - an average of 9 points. The survey revealed that only 14% had a positive attitude towards traditional physical education classes, and the number of those with negative attitude was tripled - 57%. Respondents having an uncertain attitude made 29%.

При проведенні аналізу показників фізичного стану студентів були визначені такі показники: вага, пульс у стані спокою і після фізичних навантажень, АТ (систолічний і діастолічний), ЖЄЛ (табл.1).

During the analysis of students’ physical condition indices the following indices were determined: weight, pulse at rest and after physical exertion, blood pressure (systolic and diastolic), VLC (table 1).

Table 1

Indices of the cardiovascular and digestive systems functional state

Faculty	Number of students	Body weight (mean) kg	Pulse (at rest) bpm	Pulse (after physical load) bpm	BP (systolic) mm Hg	BP (diastolic) mm Hg	VLC (mean value) L
Faculty of Sciences	22	63.1±2.8	77.38±0.62	125.46±0.24	120.41±0.28	78.31±0.39	2.7±0.4
Mathematics and Physics	26	64.5±3.6	75.43±0.51	121.45±0.71	115.76±0.75	76.24±0.31	2.8±0.2
History	24	62.2±2.5	76.21±0.66	118.4±0.76	112.63±0.24	75.32±0.43	2.6±0.5

After the analysis, it can be concluded that the functional state of the cardiovascular and digestive systems tends to deteriorate, there is a decrease in the body’s reserve capacity, which corresponds to a satisfactory level of physical condition in students.

Further we implemented modern fitness technologies into the educational process of the discipline “Physical Education”. Fitness was practiced by 48 first-year girls at the Faculty of Sciences and Faculty of Physics and Mathematics, who formed the experimental group. At the same time, other participants of the experiment at the Faculty of History were engaged into the traditional program of physical education. The control group (CG - 24 students) and the experimental group (EG - 48 students) were formed.

The fitness program included five blocks of exercises: the introductory part, the cardio-exercise complex, the strength training, the flexibility exercises and the final part. To implement the shaping program into the educational process of the common higher education (CHE) we used a video software of the international shaping federation “shaping classic” with duration of 55 minutes.

The introductory part is designed for 10 minutes. and aimed at preparing the body to perform the main part of the class, which consisted of 8 blocks of exercises, a sequence that helped to increase the load and consolidate motor skills. The first four blocks of exercises are aimed at correction of the hips; the fifth block is aimed at correction of the buttocks; the sixth one is aimed at correction of the abdominal muscles (waist); the seventh is for the rectus abdominis muscles, and the eighth, final block is for the upper back muscles.

The final part of health fitness is aimed at reducing the activity of the vegetative functions and the gradual bringing of the cardiovascular and respiratory systems to rest.

After the experiment, the survey permitted to clarify the students' attitude to the traditional and updated content of physical education classes: 92.5% of students were positive about the new content of the classes and only 7.5% said their attitude was uncertain. The answers to the questionnaire on the feasibility of changes in the content of physical education training were as follows: 77% said they needed changes, while 21% said changes were desirable and only 2% would like to leave the classes unchanged.

At the end of the academic year, we obtained the following indices of the cardiovascular and digestive systems functional state in students of the experimental groups at the faculties of physics and mathematics and the control group at the history faculty (table 2).

Table 2

Dynamics of cardiovascular and digestive systems functional state indices in EG and CG

Faculty	Number of students	Body weight (mean) kg	Pulse (at rest) bpm	Pulse (after physical load) bpm	BP (systolic) mm Hg	BP (diastolic) mm Hg	VLC (mean value) L
Faculty of Sciences (EG)	22	60.3±2.8	65.25±0.25	138.31±0.29	112.75±0.35	72.21±0.39	3.1±0.4
Mathematics and Physics (EG)	26	61.5±3.6	64.34±0.86	135.23±0.47	110.36±0.74	70.43±0.37	3.2 ±0.2
History (CG)	24	62.1±1.5	74.46±0.64	118.51±0.59	118.21±0.79	76.57±0.43	2.7±0.2

After the experiment, the dynamics of changes in the parameters of cardiovascular and digestive systems' functional state in the experimental group of the Sciences Faculty and Mathematical and Physical Faculty were compared to the control group of the History Faculty, which indicates the cardiovascular system's work economizing. Thus, the mean weight decreased by 2.8 kg / 1.5 kg, the pulse at rest decreased to 65.25 bpm±0.25 / 74.46 bpm±0.6 systolic pressure decreased to 112.75 mm Hg±0.35 / 118.21 mm Hg±0.79; diastolic pressure decreased to 72.21 mm Hg±.39 / 76.57mm Hg±0.43; VCL increased by 0.4 l / 0.2 l, which is an evidence of improved cardiovascular and digestive systems activity, and confirms the feasibility of using health fitness techniques. In the control group of the History Faculty, which was engaged in the traditional system of physical exercises, the parameters of the cardiovascular and digestive systems' functional state have significantly lower values compared to the experimental group.

Results of the studies permitted to distinguish in health fitness: individual, group and independent forms of work. Individual form of work permits to take into account individual psychophysical condition characteristics of the person involved, his motivation, level of physical and coordination fitness, but to the fundamental disadvantages we attribute the lack of social support from other participants of the fitness process, which negatively affects the motivation of training. In such cases, the support is the responsibility of the trainer.

Group form of work is quite widespread in health fitness when carrying out various types of aerobic and aerobic-strength training. Collective action in this case creates social support that enhances emotional background and promotes motivation, but the possibilities of personal control over exercise techniques are limited.

In terms of self-study, students are responsible for their state of health, but negative consequences of training are possible in the case of improper exercise techniques, failure to observe their exercise regimen, etc. This form of training is recommended for experienced athletes, students who have worked for more than 1 year with a fitness trainer and have mastered the technique of performing exercises [3, 5, 8].

We believe that the main advantages of fitness over other programs are:

1. Aerobic exercise will lead to overweight loss.
2. Anaerobic load helps to improve cardiovascular, respiratory and digestive systems.
3. Strength exercises will help to lift muscles and create elastic shapes.
4. Proper nutrition will help to correct weight.
5. The individual selection of exercises, the mode of training depending on the type of figure, health status and the purpose of training will help to achieve the desired result faster.
6. Fitness can be practiced by anyone, regardless of age and physical condition.

Particular attention is paid to a balanced diet when exercising. To achieve the desired positive result, a leading role must be given to the diet. The ideal figure is not a myth or a gift of nature, but the result of hard work on oneself. A person will not acquire the desired physical fitness if he or she eats irregularly. Properly selected diet and constant adherence to it is the key to success. It is rational and healthy nutrition which carries a positive charge and a healthy state of the body that will help to see clearly how your figure is changing, approaching the ideal.

At the beginning of the experiment, we carried out the students' survey of nutrition balance and adherence to the daily regimen. Most students, 74%, do not pay attention to observing the daily regime, eating irregularly malicious food. We have given the following recommendations to the students: it is desirable to eat food at the same time, the amount of food consumed at a single meal should not cause a feeling of heaviness and drowsiness. It is necessary to have breakfast, the food consumed in the morning recharges the body with energy for the whole day. In the morning it is recommended to eat carbohydrates, yoghurts, farm cheese, whole-wheat bread, honey.

The body needs proteins, fats and carbohydrates, as well as vitamins and minerals. All of them should be contained in certain quantities: the daily amount of protein half animal and vegetable origin, vegetables and fruit should make at least 40% of the diet. A daily diet should consist of 4 main types of products:

- fruit and vegetables;
- grits and cereals;
- dairy products;
- meat and fish.

We recommended the following useful foods: veal, chicken breast, fish, cheese, low fat rice, buckwheat, oatmeal, rye bread, potatoes, green fruits and vegetables. Energy income should only cover the body's energy expenditure for all activities. For women, the required amount of calories consumed should be 2000 kcal per day. High-calorie products (sweets, baked goods, sausages, fried foods) should be replaced with low-calorie ones (vegetable dishes, light soups, seafood, dairy products). The main daily diet (up to 70%) should include morning and afternoon meals: second breakfast, lunch and snack. Dinner is easy, no later than 6 pm - 7 pm. The body also wants to have rest at night and not to work hard as a result of a high-calorie dinner. Once a week, one day of fasting is very useful and once a week is two days, three days of fasting. If it is difficult to manage without food at all, arrange an apple-kefir day. These days help get rid of accumulated slag and improve metabolism. [3, 6].

It is important to take into account not only the amount of calories, but also their quality, i.e. the ratio of proteins, fats and carbohydrates contained in the food consumed. "Protein calories" are used by the body immediately, and "fat" is only used by the body partially, and its excess forms fat deposits in the body. Calories also differ in their content of nutrients, the degree of their absorption by the body also depends on it. The most "caloric substances" are fats. For example with protein cleavage in the body 1 g of protein or 1 g of carbohydrates 4.1 kcal are released, and splitting 1 g of fat gives release of 9.3 kcal. It is necessary to observe the usefulness when choosing the fats themselves. Representatives of saturated fats are refined products, fatty meats and dairy products, which are both "poor" in useful fatty acids and used by the body for energy supply of only 5%, the rest of fat goes to "fat depot". Unsaturated fats are nuts, fish, seeds and oils that are rich in unsaturated fatty acids and almost 75% of them is used by the body.

Our students were advised to eat small portions of food 5-6 times a day, replacing all low-calorie diets with regular, balanced meals. We have set the optimal diet for fitness: every 3 hours in small portions, with a third of the daily norm of food being consumed in the first half of the day. This will ensure a constant supply of nutrients to the body, increase the overall intake of natural protein. This principle of nutrition will permit you not to enlarge your stomach and not to feel hungry. It should be noted that people who constantly limit themselves in food often have a strong appetite, so you should eat small portions every 3-4 hours. It is necessary to eat slowly, because the signal of satiety arrives to our brain in 20-30 minutes. According to medical observations, weight loss should not exceed 2-2.5 kg per month. Therefore, we proposed to gradually reduce energy consumption (calories consumed per day) and increase energy expenditure (physical activity).

We do not recommend you to lose weight quickly and use low calorie intake because it not only threatens to reduce the fat layer but also to reduce muscle tissue. Studies have shown that excessively low calorie diet affects stable weight formation (leptin), which further threatens with uncontrolled hunger and activation of the lipase lipoprotein (the enzyme responsible for accumulation of fat).

It is important to choose the time of meal in accordance with the time of training. If a person intends to lose weight, it is necessary to eat food not later than two hours before training and not earlier than three hours after it. Tuck-in before training not only threatens with digestive disorders but also reduces the efficiency of

your training. It is necessary to refrain from eating immediately after the exercise because during this time the body is in the process of recovering substances. During the training, the muscles stop synthesizing the protein, its balance begins to normalize when the class is over. Consumption a protein (protein) cocktail after training will increase muscle protein synthesis by 3 times, which is useful for the musles recovery. To replenish energy after exercise, it is necessary to eat fruit, vegetables, whole-wheat bread and grits [1, 6].

During training, the body works actively and needs food rich in proteins and carbohydrates. Protein is the main building material for the cells of the body, it is necessary for strengthening and enlarging the muscles. Proteins form tissues such as skin, muscles. hair and nails, if it is not enough, then while training, giving it to the muscles, the body will deprive other organs of the protein, which will lead to fatigue, reduce immunity, impair mental capacity. To avoid this, it is necessary to meet the daily demand for proteins, which is 1.5 g per 1 kg of body weight. Protein can be of both plant and animal origin. Animal protein contains a large number of essential amino acids, which source are all kinds of meat, fish, poultry, eggs and dairy products. Vegetable protein has a higher biological value and is found in legumes, rice, and cereals.

For the most efficient training, to activate the metabolic processes, we recommend drinking water during training. Not only will it improve the body's thermoregulation, it will also accelerate the excretion of breakdown products from the body. To properly adjust your water balance, we recommend weighing before and after your training. If the weight after exercise is less than before, it is necessary to fill this amount with water. It is recommended to give up sweet juices and aerated water in favor of clean non-carbonated water.

Therefore, a balanced diet during fitness should be rich in protein, carbohydrates, minerals and vitamins. Lack of vitamins and minerals will lead to muscle weakness, weakening of immunity, and deterioration of physical condition. The diet must include foods containing a lot of potassium, calcium and vitamins A, B, E and C, so it is recommended to include a large amount of fresh vegetables and fruit, meat, fish, wholegrains and dairy products into the diet [1, 3].

Conclusion

Thus, the use of appropriate methods in the health fitness training has a positive effect on the activity of the cardiovascular and digestive systems, which permits to argue for increasing the body's functionality, immunity to diseases, well-being and achieving the desired sports results. Despite the difference in the directivity of the of health fitness means, modes of performance, the expediency of their use is conditioned by their inherent methodological features, among which there are: variety and interchangeability, ability to strictly regulate the load, ability to be transformed in order to differentiate the load, providing a selective effect on the body, simultaneous solving a wide range of issues.

During fitness classes, the CNS discharges endorphins, which cause feelings of pleasure and good mood [2, 6]. We have found that regular exercises from healthy fitness programs lead to recovering and raise the body's resistance to disease, activate the cardiovascular and respiratory systems, and in combination with a balanced diet have a positive effect on the digestive system and the general condition of the body. By combining music and movement, the nervous system is stimulated, the tone of the muscles is increased, the working ability of students and the performance of all the body systems are improved.

The peculiarity of our study was the combination of exercise and rational nutrition, which guarantees a full revitalizing impact on the human body. In our opinion, in order to improve the health system in our country, it is necessary to implement the acquired knowledge in practical activities and to create the necessary conditions for development of health fitness programs in higher education establishments.

Prospects for further research in this field provide for implementation the content module "Health Fitness" in into the practice of physical education in Ukraine.

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Реферати

ФУНКЦІОНАЛЬНИЙ СТАН СЕРЦЕВО-СУДИННОЇ І ТРАВНОЇ СИСТЕМ ОРГАНІЗМУ У СТУДЕНТІВ ПІД ЧАС ЗАНЯТЬ ФІТНЕСОМ

Согоконь О.А., Донець О. В., Донець І. М.

В роботі проведено дослідження студентів, що займаються сучасними фітнес-технологіями та встановлено, що заняття фізичними вправами впливають на активізацію роботи внутрішніх систем організму. Аналіз взаємозв'язку оздоровчого фітнесу з раціональним харчуванням студентів, дає можливість виявити перспективи покращення діяльності серцево-судинної та травної систем, покращення самопочуття та досягнення бажаних спортивних результатів студентів. За результатами дослідження було встановлено, що 92,5 % студентів позитивно віднеслися до нового змісту занять за сучасними фітнес-технологіями і лише 7,5 % своє ставлення назвали невизначеним. Під час проведення експериментальної роботи підтвердилась динаміка змін параметрів функціонального стану серцево-судинної та травної систем (експериментальна /контрольна групи): середній показник маси тіла зменшився на 2,8 кг / 1,5 кг, пульс в стані спокою знизився до 65,25 уд./хвл. ± 0,25 / 74,46 уд./хвл. ±0,64; систолічний тиск знизився до 112,75 мм рт.ст.±0,35 / 118,21 мм рт.ст.±0,79; діастолічний тиск знизився до 72,21 мм рт.ст. ±0,39 / 76,57 мм рт. ст. ±0,43 ; життєва ємність легень збільшилась на 0,4 л / 0,2 л, що є свідченням економічної діяльності серцево-судинної системи та підтверджує доцільність використаної методики оздоровчих фітнес-технологій. Щодо доцільності змін у харчуванні: 77% студентів висловились за необхідність змін, тоді як 21% назвали зміни бажаними і лише 2% виявили небажання змінювати свій режим харчування.

Ключові слова: фітнес-технології, раціональне харчування, фізичне виховання, здоров'я, серцево-судинна і дихальна системи.

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ФУНКЦИОНАЛЬНОЕ СОСТОЯНИЕ СЕРДЕЧНО-СОСУДИСТОЙ И ПИЩЕВАРИТЕЛЬНОЙ СИСТЕМ ОРГАНИЗМА У СТУДЕНТОВ ВО ВРЕМЯ ЗАНЯТИЙ ФИТНЕСОМ

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В работе проведено исследование студентов, которые занимаются современными фитнес-технологиями и установлено, что занятия физическими упражнениями влияют на активизацию работы внутренних систем организма. Анализ взаимосвязи оздоровительного фитнеса с режимом питания студентов, дает возможность выявить перспективы улучшения деятельности сердечнососудистой и пищеварительной систем, улучшения самочувствия и достижения желаемых спортивных результатов. По результатам исследования установлено, что 92,5 % студентов позитивно отнеслись к новому содержанию занятий за современными фитнес -технологиями и только 7,5 % свое отношение назвали неопределенным. Что касается изменений в режиме питании: 77% высказались за необходимость изменений, тогда как 21% назвали изменения желаемыми и только 2% выявили нежелание изменять свой режим питания.

При проведении эксперимента подтвердилась динамика изменений параметров физического состояния организма: средний показатель массы тела снизился на 2,8 кг, пульс в состоянии покоя снизился до 65,25 ± 0,25 уд. /мин.; систолическое давление снизилось до 112,75 мм рт.ст.±0,35; диастолическое давление снизилось до 72,21 мм рт.ст. ±0,39, что является показателем экономной деятельности сердечно-сосудистой системы.

Ключевые слова: фитнес - технологии, рациональное питание, физическое воспитание, здоровье, сердечно-сосудистая и пищеварительная системы.

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EVALUATION OF ORAL HYGIENE AND DENTAL CARIES STATUS IN PATIENTS WITH BETA THALASSEMIA

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The study involved 321 patients with a homozygous form of thalassemia and 382 somatically healthy individuals. For the objective evaluation of teeth hard tissues and oral hygiene, the following clinical tests were performed: Simplified Oral Hygiene Index (OHI-S) (Green J.C., Vermillion, J. R., 1960), index by Yu.A. Fedorov and V.V. Volodkina (1971), DMFT index. Comparative analysis revealed a significant difference between the indices of the DMFT index and the index of OHİ-S in the groups. There was a tendency to deterioration of the hygienic index with advancing age of patients with thalassemia. The highest values were found in the group over the age of 18 (3.60±0.11). Thus, preventive dental care is a top priority for patients with β-thalassemia.

Key words: β-thalassemia, oral hygiene, prevention of dental diseases, dental caries.

The study is initiative.

Thalassemia belongs to the most common genetic diseases in the group of blood pathologies. According to the World Health Organization (WHO), there are more than 250 million thalassemia carriers in the world and about 300,000 thalassemia patients [5, 6, 8]. At present, in Azerbaijan, β-thalassemia major is one of the main medical and social problems of the public healthcare. According to the results of genetic studies presented to "Unisef", the frequency of thalassemia among the population in Azerbaijan is