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| Research Article

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The Role of Adapted Physical Exercises in Improving Physiological and Functional Development of Students With Disabilities

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Annotation: In this research work, the scientific novelty and theoretical and practical aspects of the topic are scientifically covered. In paravolleyball training, the students' physiological and functional characteristics are increased with the help of special exercises. raised

As a result of the experiment, the physiological and morphofunctional characteristics of the students in the paravolleyball training sessions were concluded with the possibility of improving the students' physiological and functional characteristics with the help of special exercises and the achievements achieved by the participants using the special exercises used in the practical training.

Keywords: Paravolleyball, physiological, functional, physical development, adaptive, methodology, nosology.

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Relevance: Achieving high sports results in world sports, including high achievements in the Paralympic Games, is practically possible for highly talented athletes. The possibilities of searching for sports talent and predicting their potential abilities are represented by the sports selection system.

Physiological and functional characteristics of students include the opportunities to learn the indicators of increasing their physical qualities during training and practical training, as well as the characteristic features that determine success in this type of sport.

Student athletes with disabilities must have significant overall morphological dimensions of the body, special proportions of body segments. Today, one of the problems of the theory of training in adaptive sports and the methodology of mass sports, having studied the nosologies of underprivileged students, is the task of improving the process of teaching students to perform effective actions.

The implementation of this task is considered somewhat complicated, especially the possibilities of improving the physiological and functional characteristics of students with the help of special exercises, the possibilities of learning their sufficient indicators by engaging in these classes, the performance of movement techniques with the help of special exercises, in which the

development of movement techniques is mainly using elementary tools and methods, in addition to maxus and general it is carried out with the help of a complex of exercises, a significant change and growth of mental activity processes is achieved.

Currently, in the anthropometric and functional indicators of students with disabilities, mainly the formation of the transition period, the growth of the body in the growing organism, weight gain, in addition, sharp changes in the activation of organs and systems of athletes were observed in the improvement of physiological and functional characteristics of students. However, as a result of the bone spine not hardening to the end, processes such as various injuries were observed in teenagers and young adults under heavy loads.

The strategy of the process of parasports is based on preliminary data, i.e. the presence of the causes of the pathology, its invisibility, the occurrence of complications, and the presence of simultaneous movement disorders.

The following sequence is recommended for the formation of movement imagination, skills and abilities: proper breathing, formation of the most comfortable position when performing movements (especially important when the vestibular analyzer is damaged), in-depth study of the fundamental properties of movement, performing more voluntary and involuntary movements, organizing body movements giving exercises for eye movements, checking the compatibility of bending and straightening movements.

The purpose of the study: Is to improve the special training of students with disabilities by selecting a set of effective exercises.

Research tasks: Improving the set of special exercises taking into account the individual characteristics of students with disabilities;

improvement of weekly microcycles for the development of physical qualities of students with disabilities;

development of a module for the development of physical qualities in training students with musculoskeletal injuries and leg amputations;

Organization of research. The experimental base of the research is the State University of Physical Education and Sports of Uzbekistan, where the opportunities to study the physiological indicators of students were organized in primary training groups, and the methodological justification and theoretical analysis of the available data were carried out step by step.

The data obtained during the conducted pedagogical experience were subjected to mathematical statistical processing. In this case, for each set of studied test results, the arithmetic mean value, standard deviation and coefficient of variation, as well as the absolute and relative growth of the results during the experiment, as well as the statistical reliability of these changes at the specified number of degrees of freedom and the level of significance, were evaluated based on the calculation of Student's critical values.

The scientific novelty of the study: According to the state of physical, technical, functional training (inhalation and exhalation) of students with disabilities, movement activity is developed due to the use of a set of static exercises in a lying position for people with special leg amputations during mesocycles;

The ability to achieve high results in competitions has been expanded due to the introduction of anaerobic mode into the weekly microcycles aimed at developing the physical (quick-strength, endurance) qualities of students with disabilities;

Opportunities to achieve high results in competitions have been expanded due to the inclusion of special, approximating and technical tools in the preparatory module aimed at developing the physical qualities of students with musculoskeletal injuries and leg amputations;

The method of integral training of students with disabilities has been improved due to the inclusion of a program classified according to the nosology of disability for those with musculoskeletal injuries and leg amputations into the training process.

As we know from scientific sources, the hardening of the bones in the human body is completed by the age of 25. Physiological processes develop in the body of persons with disabilities in a certain tension. During adolescence, physiological processes occur in the form of an increase in the transverse dimensions of the body.

Individual characteristics of athletes were formed, hormonal proportions were achieved due to special exercises provided by us, especially for students with disabilities. Physiological conditions of the body of students with disabilities, especially during the period of growth. Observations of the development processes of the organism show that during adolescence, the growth in body mass, the change in the volume of cardiac hypertrophy, and the percentage of changes in the percentage of muscle mass to body mass were observed.

In the body of students, the respiratory system becomes perfect during the period of young growth, that is, its growth. As a result of our use of special tools and methods during our research, the duration of the students' breathing cycle, that is, the increase in the breathing rate, especially the changes in the time calculation of the pauses during exhalation, were observed.

In the course of our researches, physiological conditions in the body of the students, such as shortness of breath in the respiratory center and the feeling of excessive carbon dioxide in the body, decreased. Voluntary control in controlling the breath, i.e. performing the function of speech, reached perfection. Physiological and functional characteristics of students with the help of special exercises aimed at increasing the possibilities of movement, when the students were given loads, the processes of saving in breathing reactions and increasing the rhythm of breathing and decreasing the minute frequency of breathing were observed.

There are many studies devoted to the study of the cardiovascular and respiratory systems under various physical loads. At the same time, in the theory and practice of physical exercise physiology, the relationship of the cardiovascular and respiratory systems to maximum, submaximal, high and moderate power loads has been studied by several scientists, and there are studies devoted to studying the adaptation of these systems to low power. Theoretical analysis and generalization methods, bibliographic method of searching and studying scientific information, systematic analysis were used in scientific research.

The functional state of the body is evaluated using functional tests, using the motor methods of the selected special exercises to increase the physiological and functional characteristics of the students with the help of special exercises. Functional tests allow to assess the general state of the body, its reserve capabilities, the ability of various systems to form physical loads.

In our research conducted by us, as a result of using a set of exercises aimed at increasing the ability to move with the help of special exercises to improve the physiological and functional characteristics of the students, initial analyzes were made on the height, weight and width of the chest during inhalation and exhalation of the subjects in the following control and research groups. At the beginning of the anthropometric status of the control group, height, weight, chest width, and inspiratory and expiratory parameters were determined.

Anthropometric status of the experimental groups at the beginning of the study: height, weight, chest width and inspiratory and expiratory parameters. At the beginning of the experiment, it was found that the ratios of the functional indicators (height, weight, chest circumference when inhaling and exhaling) of the subjects of the control and experimental groups were consistent with each other.

In order to improve the physiological and functional characteristics of students, the processes of reduction in respiratory reactions and increase in breathing rhythm and decrease in the minute frequency of breathing were observed when students were given loads in return for using exercises aimed at increasing movement possibilities with the help of special exercises. We determined the anthropometric and functional indicators of the athletes before the study and expressed them in the table below. At the beginning of the experiment, the proportions of the anthropometric and functional indicators (height, weight, chest width when inhaling and exhaling) of the test subjects of the control and experimental groups were found to be consistent with each other.

The table below shows the anthropometric and functional indicators of the control and experimental groups of students with disabilities - testers, recorded at the beginning of the pedagogical experiment, their statistical characteristics, and data on the comparison of these characteristics.

The control (n=12) and experimental (n=12) groups used a set of special exercises to develop students' anthropometric and functional indicators.

Indicators	G	ТБ		ТО		Growth		t	P
		$\overline{X}$	σ	$\overline{X}$	σ	Absolutely	%		
Sitting height cm.	NG	68,74	3,02	70,97	3,16	2,23	3,24	1,77	>0,05
	TG	68,32	2,98	72,96	3,27	4,64	6,79	3,63	<0,01
Weight, kg	NG	69,63	2,97	72,29	3,23	2,66	3,82	2,10	<0,05
	TG	69,22	2,89	74,62	3,37	5,4	7,80	4,21	<0,001
When the chest breathes, cm.	NG	71,18	3,43	74,22	3,57	3,04	4,27	2,13	<0,05
	TG	70,79	3,38	76,87	3,52	6,08	8,59	4,32	<0,001
When the chest is exhaled, cm.	NG	74,12	3,74	76,84	3,88	2,72	3,67	1,75	>0,05
	TG	73,13	3,86	78,79	3,93	5,66	7,74	3,56	<0,01

Note: KQA-chest circumference TG-study group NG-control group

Summarizing and analyzing the data presented in the table showed that the anthropometric and functional indicators of the test subjects of the control and experimental groups were close to each other at the beginning of the pedagogical experiment.

For example, the arithmetic mean and standard deviation of the height of the subjects in the control group was 68.74 ± 3.02 cm. and in the experimental group these indicators were 68.32 ± 2.98 cm. was 0.42 cm, the absolute difference of the arithmetic mean values was 0.42 cm, and the relative difference of the corresponding indicators of the experimental group compared to the indicators of the control group was 6.79%. =3.63 and P>0.01) were found to be unreliable at the level of significance. (Figure1).

Relative growth during the experiment in the development of anthropometric and functional indicators of the control and experimental groups (in percentages compared to the indicators in the control group).

Also, the arithmetic mean and standard deviation values of the subjects' body weight were 69.63 ± 2.97 kg in the control group. and in the experimental group these indicators were 69.22±2.9 kg. was , and the absolute difference of the average arithmetic values is 0.41 kg, and the relative difference is 7.80%, the statistical reliability of this absolute difference is also poorly evaluated based on the calculation of the critical values of the tst distribution (t=4.21 and P >0.001) was observed to be unreliable at the level of significance.

Arithmetic mean and standard deviation values of chest circumference during breathing of the subjects were 71.18 ± 3.43 cm in the control group. and in the experimental group these indicators were 70.79 ± 3.38 cm. was , and the absolute difference of the average arithmetic values is 6.08 cm, and the relative difference is 8.59%, the statistical reliability of this absolute difference is also poorly evaluated based on the calculation of the critical values of the tst distribution (t=4.32 and P >0.001) was observed to be unreliable at the level of significance.

Arithmetic mean and standard deviation values of expiratory KQA of the subjects were 74.12 ± 3.74 cm in the control group. and in the experimental group these indicators were 73.13 ± 3.86 cm. was , and the absolute difference of the average arithmetic values is 5.56 cm, and the relative difference is 7.74%, the statistical reliability of this absolute difference is also poorly evaluated based on the calculation of the critical values of the tst distribution (t=3.56 and P <0.01) was found to be unreliable at significance level.

Summary. The analysis of scientific and methodological literature confirms the necessity of systematically developing the movement techniques of students with disabilities through specially designed physical exercises. Particular emphasis is placed on considering the physiological and functional characteristics of students, as well as their age-related developmental features. The study highlights the importance of selecting optimal tools and methods aimed at improving physical, functional, technical-tactical, and psychological preparedness within the framework of adaptive physical education.

Based on the results obtained from the conducted experiments, it was observed that the application of special exercises has a positive and statistically significant effect on the development of students' functional indicators. Improvements were noted in motor coordination, endurance, muscular strength, and overall functional capacity. Furthermore, the use of adapted exercise programs contributed to enhanced movement efficiency, increased functional independence, and better psychological stability among students with disabilities. These findings confirm that a scientifically grounded and individualized approach to the use of special exercises plays a crucial role in optimizing the training and rehabilitation process and in ensuring the comprehensive development of students with disabilities.

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