

Starting from the third stage: - teams are formed from the students of the respective age groups of the secondary school-winner of the second stage, which is allowed to add not more than four players from schools participating in the second phase of the district or city (city district) competitions; - teams are formed from the students of the six neighboring rural schools in one district where there are no adjacent classes who won the second stage.

Teams and players who did not participate in the first two stages of the tournament are not allowed to compete in the third and subsequent stages. The team is allowed to have 17 players. Starting from the third stage only these players can play for the team. Starting from the third stage, the teams participating in the competition can choose 14 players from the initial seventeen, a representative and the coach. The teams are allowed to substitute any of the 14 players (out of initial seventeen) only upon getting through to the next stage of the competition. A team is allowed to include younger players. If a secondary school has more than six or more adjacent classes, it is not allowed to attract players from other schools to participate in the third and subsequent stages. In the category for 14-year-old school students, players who are registered for the Youth Football League of Ukraine are not allowed to take part. All stages of the competition for the prizes of the "Leather ball" include compulsory competitions on the technical elements of the game of football.

CONCLUSION. Despite a significant number of adopted governmental documents in Ukraine, which emphasize the need to improve the health of students through a wide involvement in the sports and recreational activities, including school sports very often all of this exists on the level of/remains only a declaration. The analysis of statistical data in recent years confirms that there is a tendency that characterizes the steady dynamics for deterioration of level of health and physical fitness of the younger generation. The number of students involved in systematic exercise is low. At the same time, there is a sufficient variety of official competitions in Ukraine, in which students have the opportunity to participate. The competition programme includes performances in compulsory and optional kinds of sport both for boys and girls. Compulsory sports include: athletics, "Starts of Hopes" and "Leather Ball" football competitions. Optional sports to choose from are: basketball, volleyball, handball, athletics triathlon, table tennis and chess. The most widespread and the most important competition is football.

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ESTIMATION OF THE STATE OF CARDIOVASCULAR SYSTEM IN YOUTHS IN DEPENDENCE ON SOMATOTYPE

Fil V.M., Matroshylin O.G., Voloshyn O.R. Estimation of the state of cardiovascular system in youths in dependence on somatotype. This article presents data on the structural features of bonds constitutional body with functional indicators of central and peripheral hemodynamics of patients 17 - 19 years old with different types of constitution aimed at forecasting of playing certain sports,

and to identify individuals with different types of constitution and to mark a high risk of on the possible pathologic changes in the cardiovascular system.

Key words: somatotype, cardiovascular system, blood pressure, systolic blood volume, minute volume of blood, cardiac index.

Філь В.М., Матрошилін О.Г., Волошин О.Р. Оцінка стану серцево-судинної системи юнаків у залежності від соматотипу. У роботі представлені дані про зв'язки конституціональних особливостей будови тіла із функціональними показниками центральної та периферичної гемодинаміки. У дослідженні брали участь 60 студентів віком 17-19 років Дрогобицького державного педагогічного університету імені Івана Франка. Наведено результати оцінки типу конституції з використанням основних антропометричних показників за індексом Пінье. Проаналізовано показники центральної та периферичної гемодинаміки у студентів з різним соматотипом. Отримані нами дані свідчать про наявність різноманітних відмінностей у студентів різних конституціональних груп, в тому числі і відмінності в середніх величинах показників гемодинаміки. Результати проведених дослідження є актуальними для розуміння ймовірних причин розвитку серцево-судинних захворювань в осіб з різним типом конституції та можуть бути використані для виявлення груп підвищеного ризику щодо можливого розвитку патологічних змін з боку серцево-судинної системи. Отримані у роботі результати та їх науково-обґрунтований аналіз доповнюють наявні в науковій літературі дані про функціональні особливості серцево-судинної системи в процесі індивідуального розвитку залежно від різних типів конституції.

Ключові слова: соматотип, серцево-судинна система, артеріальний тиск, систолічний об'єм крові, хвилиний об'єм крові, серцевий індекс.

Филь В.М., Матрошин А.Г., Волошин Е.Р. Оценка состояния сердечнососудистой системы юношей в зависимости от соматотипа. Представлены данные о связи конституциональных особенностей строения тела с функциональными показателями центральной и периферической гемодинамики у лиц 17 - 19 лет с различными типами конституции, направленных на прогнозирование занятий определёнными видами спорта, а также для выявления лиц группы повышенного риска с различным типом конституции относительно возможного развития патологических изменений со стороны сердечно-сосудистой системы.

Ключевые слова: соматотип, сердечнососудистая система, артериальное давление, систолический объем крови, минутный объем крови, сердечный индекс.

Raising of the problem and its relation to important scientific and practical tasks. Individual morphological changeability of body's structure can be analyzed by his proportions and somatotype. Constitutology describes the organism of a human as an integral system. The human's body has hundreds of variations and every classification of types of constitution has its basic signs are certain. There is far more modernized classification, where somatotype is considered as a system of interrelated traits balance which characterizes it [7, 10]. As far as it's known, the individual morphological structure of the human's body can be set in order to her anthropometric proportions that characterize her constitutional somatotype and physical development [7]. Lately there is a sufficient amount of data about strong interconnection of somatotypological parameters of physical development with the functional features of separate organs and systems, in particular the cardiovascular system, that gives an opportunity of the differentiated approach establishment of human's capacity level and estimation of risk of origin of different her the patois related to somatotype [2, 3, 5, 14]. According to the literature such connection of the cardiovascular system's functional state with constitutional features is full enough set for the persons of mature age, when the cardiovascular system has already permanent connection with the somatotypological indexes of physical development [3, 6, 14]. However, on the youths stage of the ontogenesis process of physical development the cardiovascular system tests certain morphological changes that affect her functional state. But still the information about connection of cardiovascular system's functional parameters with anthropometric and somatotypological descriptions of the organism in youth age are not presented enough [2, 7]. The research was conducted under the research work programme of the department of anatomy, physiology and valeology of Drohobych Ivan Franko State Pedagogical University.

Research: to set quantitative connection between somatotypological (morphological) indexes and functional parameters of hemodynamics of the cardiovascular system for persons 17 – 19 years old.

Scientific novelty of the research. The connection of constitutional features of body's building with the indexes of central and peripheral hemodynamics for persons of 17 – 19 with different somatotypes were set.

The practical value of the results consists in possibilities of their using for organization of the pedagogical process, aimed at improving of physical development and functional improvement of the cardiovascular system for prognostication of engaging in the certain kinds of sport, and also for the exposure of persons of increase high-risk group with a different somatotype in relation to possible development of pathological changes from the side of cardiovascular.

Materials and research methods

There were 60 students of the Drohobych Ivan Franko State Pedagogical University in age 17 - 19 under our supervision. For establishment as of constitution used classification of Chornorutskoho, a somatotype was determined after the Pignet's index, that represents connection between the circumference of thorax (CT) in the phase of exhalation, a height (H) and by body weight (W) [4].

The height is measured in standing positions with the heightmeter (anthropometry). When we measure the standing height the patient stands on the heightmeter's platform, touches his heels, gluteus and interscapula area with height meter's post with scale. Position of the head: upper edge of the ductus auricular external and lower orbital edge must to lie on horizontal line. When we measure the sitting height the patient sits down on the height meter's platform, touches his sacrum and interscapula area with heightmeter's post with scale. Position of the head must be the same. The weight is measured on a special medical balance weight should be done in the morning. Patient should be with no clothes. In order to follow changes the patient's weight repeated weightings should be done in the same conditions (accurate to 50 g).

Серія 15. Науково-педагогічні проблеми фізичної культури (фізична культура і спорт)

Measurement the chest's circumference. It's performed by centimeter ribbon in positions: rest, maximal inspiration and maximal expiration. The difference between these indexes is range of the chest. Methodic of the measurement. The patient abducts the hands. The centimeter ribbon put on around the chest: on the back under lower angle the scapulae, in front of the chest in the point where the IV ribs fixation to the sternum. The patient is adducting hands, when the centimeter ribbon put on. Circumference of thorax generally determined with an accuracy of 0.5 cm [8]. The functional state of the cardiovascular system has been evaluated by the indexes of systolic (SBP) and diastolic (DBP) blood pressure by auscultation Korotkov, heart rate (HR), systolic blood volume (SVB), minute volume of blood (MVB) and cardiac index (CI). Research conducted blood pressure spring tonometer method M.S. Korotkov subject to the rules set by the WHO (1996): sitting at rest, laying cuff 2 - 3 cm above the elbow. Systolic blood pressure (SBP) was determined by the appearance of heart tones on radial artery and diastolic pressure (DBP) for their complete disappearance. Blood pressure was measured three times at intervals of 2-3 minutes. Set average data from three measurements: arterial-systolic and diastolic pressure (SBP, DBP).

Systolic blood volume determined by the formula Starr [8]. Minute volume of blood (MVB) was determined by the product of heart rate and SVB. Cardiac index (CI) using the formula:

$$BSA = 1 + (W \cdot H): 100,$$

Where: BSA – body surface area W – weight, kg; H – deflection body length (in cm) of the conditional average (160 cm) [8].

Statistical analysis of the results was performed by standard statistical methods using the program Microsoft Office Excel and Statistika 6,0 [9].

Results of researches

The analysis of our results indicates that the evaluation types of constitution of observed people shows the prevalence normosthenics type (54.1%) of asthenics (29.5%) and hypersthenics (16.4%). The maximum difference in the average values between body length of asthenics (168.9 cm) and hypersthenics (173.33 cm) was 4.4 cm, and the difference in size between this trait asthenics and normosthenics (170.18 cm) and less of 1,2 cm. Differences between the average values of chest circumference established between individuals of comparable types where the lowest rates were observed in asthenics – 77.83 cm, the largest in hypersthenics – 92,1 cm, 6.22 cm which is more than normosthenics (85.88 cm). (Table. 1)

Table 1

Anthropometric indices youths 17 - 19 years

Indicators	Types constitution		
	Asthenics (n=18)	Hypersthenics (n=10)	Normosthenics (n=32)
Height, cm	168,9±2,14	173,33±2,89	170,18±1,28
Circumference of thorax, cm	77,83±1,89	92,1±2,13	85,88±1,14
Body weight, kg	54,93±2,46	72,72±3,03	64,57±1,47
The body surface area, м ²	1,69±1,17	1,86±1,67	1,75±0,12

The analysis of the results of parameters of the cardiovascular system shows that people with different types of constitution have significant differences in many ways of central hemodynamics, which coincides with the literature [3, 6, 12]. Our results of functional state of the cardiovascular system are faced in Figure 1. It was found that students with hypersthenics constitution average lowest heart rate 68 beats / min, compared with asthenics – 76.11 beats / min, and normosthenics 78.78 beats / min. A lower heart rate (HR) in hypersthenics can be associated with a predominance of parasympathetic nervous system, unlike normosthenics, whose increased heart rate is mainly influenced by the sympathetic division of the autonomic nervous system, associated with increased myocardial oxygen consumption [1]. A group of students of hypersthenic's type had a high SVB – 75.95, and in asthenics or normosthenics and this figure is almost the same compared to hipersthenics. Minute volume of blood (MVB) – one of the main indicators of blood supply. This value is subjected to large fluctuations in individual and depends on various conditions, functional state of an organism, body temperature, body position in space, etc. [1, 13]. Considering all these factors, we can assume that the increase MVB in hypersthenics against the background of a rare heart rate is achieved due to the increased HR, unlike groups and normosthenics asthenics type. such indicator talks about perform physical work of man. When performing the same work the value of the MVB with a slight increase in the heart rate are greatly increases in trained human. The same picture we can see in hypersthenics. With an average heart rate of 72 beats / min average of MVB is 4,89 l / min. In normosthenics average values of heart rate – 78,78 beats / min, and the MVB – 4.23 / min.

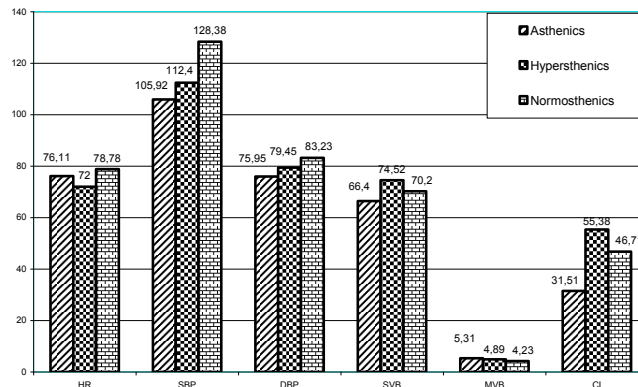


Figure 1. Hemodynamic depending on the type of constitution

SVB is a derivative of the SI (cardiac index). CI – the ratio SVB to body surface area, the stroke index is a more accurate blood supply unit. In our investigation, the average value of the CI hypersthenics is 55,38 ml / s, which is much higher than in the SI asthenics – 31,51 ml / s. It is proved that the value of blood pressure depends on the physical development of the body [11]. Our results set the various parameters of blood pressure in patients asthenics somatotype low rates 105.92 mm systolic pressure, the CI – 31.51 ml.

compared with those normosthenics somatotype (112.4 mm) at CI 55.38 ml. By the level of diastolic blood pressure in these groups' significant differences weren't found. Summarizing the findings of MVB and CI cardiovascular system in different constitutional groups, can be concluded that the highest potential health and physical development are hypersthenics and normosthenics.

CONCLUSIONS

1. Hemodynamic parameters of the functional state of the cardiovascular system different constitutional types depend on morphological features constitution.
2. People with type hypersthenics constitution have low heart rate, high systolic blood volume and cardiac index compared to normosthenics and asthenics type, due to their morphological features constitution.
3. The higher rates of systolic blood pressure in patient's asthenics type of constitution compared to normosthenics and hypersthenics type associated with high systemic vascular resistance, and not by the stroke volume.

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Басс Ю.Ю.

Спеціалізована школа №194 Перспектива», м. Київ

СУЧАСНИЙ СТАН ЗДОРОВ'Я ДІТЕЙ МОЛОДШОГО ШКІЛЬНОГО ВІКУ ТА ФАКТОРИ, ЯКІ ЙОГО ВИЗНАЧАЮТЬ

У статті розглянутий сучасний стан здоров'я дітей молодшого шкільного віку та фактори, які його визначають. Це зумовлює аналіз структури фізичного виховання, закономірностей і факторів, які впливають на її функціонування. У зв'язку з цим перед фізичною культурою, як основою забезпечення зміцнення здоров'я дітей, висувуються нові завдання, що потребують розробки сучасних педагогічних технологій щодо організації системи фізичного виховання в загальноосвітніх школах.

Ключові слова: фізичний розвиток, система шкільної освіти, здоров'я дітей, фізичне виховання, фізичний стан, шкільний вік, фізкультурна освіта.

Басс Ю. Ю. Современное состояние здоровья детей младшего школьного возраста и факторы, которые его определяют. В статье рассмотрено современное состояние здоровья детей младшего школьного возраста и факторы, которые его определяют. Существующая система физического воспитания школьников находится в кризисном состоянии, поэтому проведенный анализ структуры физического воспитания, закономерностей и факторов, влияющих на ее функционирование. В связи с этим перед физической культурой, как основой обеспечения укрепления здоровья детей, выдвигаются новые задачи, требующие разработки современных педагогических технологий по организации системы физического воспитания в общеобразовательных школах.

Ключевые слова: физическое развитие, система школьного образования, здоровья детей, физическое воспитание, физическое состояние, школьный возраст, физкультурное образование.