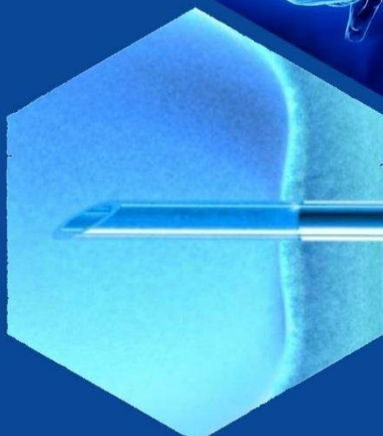
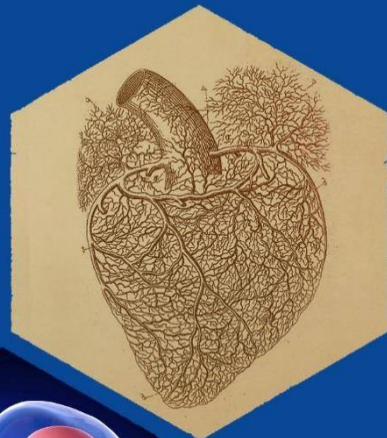


ISSN: 2181-0664
DOI: 10.26739/2181-0664
www.tadqiqot.uz

UZBEK MEDICAL JOURNAL

Volume 7, Issue



2025

ЎЗБЕК ТИББИЁТ ЖУРНАЛИ

7 ЖИЛД, 3 СОН

УЗБЕКСКИЙ МЕДИЦИНСКИЙ ЖУРНАЛ
ТОМ 7, НОМЕР 3

UZBEK MEDICAL JOURNAL
VOLUME 7, ISSUE 3



ТОШКЕНТ-2025

ЎЗБЕК ТИББИЁТ ЖУРНАЛИ

УЗБЕКСКИЙ МЕДИЦИНСКИЙ ЖУРНАЛ | UZBEK MEDICAL JOURNAL

№3 (2025)

Бош мухаррир:
Главный редактор:
Chief Editor:

Мадазимов Мадамин Муминович
Ректор Андижанского Государственного
медицинского института, д.м.н., профессор
кафедры факультетской и госпитальной
хирургии

Тахрият раиси:
Председатель редакционной коллегии:
Chairman of the editorial Board:

Алексеев Андрей Анатольевич
Директор ожогового центра НМИЦ хирургии
им. В.Вишневского, главный комбустиолог
Министерства здравоохранения России, д.м.н.,
профессор.

Бош мухаррир ўринбосари:
Заместитель главного редактора:
Deputy Chief Editor:

Салахитдинов Камалиддин Зухриддинович
доцент, д.м.н. кафедры факультетской и
госпитальной хирургии Андижанского
Государственного медицинского института

Маъсул котиб:
Ответственный секретарь:
Executive Secretary:

Досина Маргарита Олеговна
в.н.с. ГНУ "Институт физиологии Национальной академии наук Беларуси", к.б.н., председатель Совета
молодых ученых Отделения медицинских наук НАН Беларуси

ТАХРИЙИ МАСЛАХАТ КЕНГАШИ | РЕДАКЦИОННЫЙ

Хужамбердиев Мамазоир Ахмедович
д.м.н., профессор кафедры госпитальной терапии
Андижанского Государственного медицинского института

Привалова Ирина Леонидовна
д.б.н., профессор кафедры нормальной физиологии
Курского государственного медицинского университета,
заведующая лабораторией физиологии висцеральных систем
НИИ физиологии (Курск)

Гаврилова Елена Анатольевна
д.м.н., профессор, заведующая кафедрой лечебной
физикультуры и спортивной медицины Северо-западного
государственного медицинского университета им. И.И.
Мечникова (Санкт-Петербург)

Чурганов Олег Анатольевич
д.п.н., профессор кафедры ЛФК и спортивной медицины
Северо-Западного государственного
медицинского университета им. И.И. Мечникова (Санкт-
Петербург)

Салахитдинов Зухриддин Салахитдинович
д.м.н., профессор, заведующий кафедрой ВОП №1,
Андижанского государственного медицинского института

Рябчиков Денис Анатольевич
д.м.н., в.н.с. онкологического отделения хирургических
методов лечения ФГБУ "НМИЦ
онкологии им. Н.Н. Блохина" Минздрава России

Гулямов Суръат Саидвалиевич
д.м.н., профессор кафедры оториноларингологии, детской
оториноларингологии, стоматологии
Ташкентского педиатрического медицинского института

Тереза Магалхайз
профессор, заведующая кафедрой Судебной медицины
государственного университета Порту (Португалия)

Юлдашев Илхом Рузиевич
д.м.н., профессор, заведующий кафедрой Аллергологии,
иммунологии, микробиологии
Ташкентского педиатрического медицинского института

Хамраев Абдурашид Журакулович
д.м.н., профессор кафедры госпитальной детской хирургии,
Ташкентского педиатрического медицинского института

РЕДАКЦИОННАЯ КОЛЛЕГИЯ:

Рузиев Шерзод Ибодуллаевич д.м.н., доцент кафедры судебной медицины и медицинского права Ташкентского педиатрического медицинского института

Якубова Олтиной Абдуганиевна доктор медицинских наук, доцент, заведующая кафедрой акушерства и гинекологии, неонатологии факультета повышения квалификации и переподготовки врачей Андижанского государственного медицинского института

Бабич Светлана Михайловна доцент, заведующая кафедрой социальной гигиены Андижанского государственного медицинского института

Цеомашко Наталья Евгеньевна д.б.н, с.н.с., заведующая отделом медико-генетических исследований МНИЛ Ташкентской медицинской академии

Хамраева Лола Салимовна доцент, к.м.н. кафедры офтальмологии, детской офтальмологии Ташкентского педиатрического медицинского института

Усманходжаева Адиба Амирсаидовна доцент, к.м.н., заведующая кафедрой Народной медицины, реабилитологии и физической культуры Ташкентской медицинской академии

Шарипова Фарида Камильевна к.м.н., доцент кафедры психиатрии, наркологии и детской психиатрии, медицинской психологии, психотерапии Ташкентского педиатрического медицинского института

Бузруков Батир Тулкунович д.м.н., профессор, заведующий кафедрой офтальмологии, детской офтальмологии Ташкентского педиатрического медицинского института

Туйчиев Галибжан Урмонжонович к.м.н., доцент, заведующий кафедрой детской хирургии, детской анестезиологии-реаниматологии с курсом офтальмологии и стоматологии факультета усовершенствования и переподготовки врачей АГМИ

Маматхужаева Гулнора Нажмитдиновна доцент, к.м.н. кафедры Офтальмологии Андижанского Государственного медицинского института

Каримова Зиёда Кушбаевна доцент, к.м.н. кафедры Аллергологии, клинической иммунологии, микробиологии Ташкентского педиатрического медицинского института

Усманова Шоира Равшанбековна Ташкент давлат стоматология институти госпитал терапевтик стоматология кафедраси доценти

Расулова Нодира Алишеровна доцент кафедры педиатрии и общей практики ФПДО Самаркандский государственный медицинский университет

Махмудова Лола Иззатилоевна Бухарский Государственный медицинский институт

Адилова Дилнавоз Ризокуловна Бухарский государственный медицинский институт

Тахирова Камолахон Аббасовна доцент кафедры Ташкентского государственного стоматологического института

Камилова Адиба Закиржановна Ташкентский государственный медицинский университет

Убайдуллаева Нигора Ильясовна Ташкентский государственный медицинский университет

Юлдашева Насиба Алишеровна Ташкентский государственный медицинский университет

Хатамова Матлюба Тилавовна профессор, Бухарский государственный медицинский институт

Махсумова Ирода Шавкатовна Ташкентский государственный медицинский университет

Абдуллаев Шерзод Рахматович Центр развития профессиональной квалификации медицинских работников

Кадырбаева Алия Ташкентский государственный медицинский университет,

Шаева Рано Гайратовна Доктор медицинских наук, доцент Бухарский государственный медицинский институт

Контакт редакций журналов. www.tadqiqot.uz

ООО Tadqiqot город Ташкент,

улица Амира Темура пр.1, дом-2.

Web: <http://www.tadqiqot.uz/>; Email: info@tadqiqot.uz

Тел: (+998-94) 404-0000

Editorial staff of the journals of www.tadqiqot.uz

Tadqiqot LLC the city of Tashkent,

Amir Temur Street pr.1, House 2.

Web: <http://www.tadqiqot.uz/>; Email: info@tadqiqot.uz

Phone: (+998-94) 404-0000

МУНДАРИЖА | СОДЕРЖАНИЕ | CONTENT

1. Bacteriorium in the post-natural period on the background of afthozny stomatitis 6
Khotamova Matluba Tilavovna
2. Clinical and ophthalmological features of the course of allergic conjunctivitis in
military personnel..... 11
Abdullaev Sh.R., Namozov A.K.
3. Features of anthropometric and clinical-anamnestic characteristics in patients after
meniscectomy.....23
Latipov Ulmasjon Shaykhiddinovich, Yusupov Shukhrat Abdurassulovich MD,
4. Chronic hyperplastic laryngitis.....35
Khushvakova Nilufar Zhurakulovna, Xamidova Farida Mo'minovna, Bo'riyeva Dilnoz
Baxriddinovna
5. Hiccups cancer diseases.....42
Khushvakova Nilufar Zhurakulovna, Xamidova Farida Mo'minovna, Bo'riyeva Dilnoz
Baxriddinovna
6. Markers of hepatic function, inflammation, and endothelial dysfunction in the
long-term period after liver donation in living-related transplantation.....49
Xaybullina Z.R., Ismailov S.I., Tairova L.S., Bondarchuk M.V., Abdushukurova S.E.,
Abdullayeva S.D., Payziyeva N.R., Usmanov A.A., Fayzullayev O.A., Tuksanov E.A.,
Shamsiyeva N.R.
7. Anthropometric and functional characteristics of adolescent athletes depending on
the specifics of sports discipline.....63
Abdumadzhidov M.A. Makhmudov D.E.

10.1002/jgh3.70015. eCollection 2024 Aug. PMID: 39185485 PMCID: PMC11342348 DOI: 10.1002/jgh3.70015.

8. Khaibullina Z. R., Babajanov A. Kh., Djuraeva N. M., Abdukhalimova Kh. V. Von Willebrand factor dynamics after related liver transplantation // Journal of Biomedicine and Practice. 2025, vol. 10, issue 2, P.537-545.

9. Khaybullina Z.R., Babadjanov A.Kh, Tayirova L.S., Turgunbaev E.K. Comparative assessment of the severity of restoration of the structural and functional state of the liver lobe in donors and recipients during lifetime closely related transplantation // Science and innovations 2024.-(special issue).- 2024.-P.107-112.

10. Kobayashi T, Miura K, Ishikawa H, Soma D, Ando T, Yuza K, Hirose Y, Katada T, Takizawa K, Nagahashi M, Sakata J, Kameyama H, Wakai T. Long-term Follow-up of Laparoscope-Assisted Living Donor Hepatectomy. Transplant Proc. 2018 Nov;50(9):2597-2600. doi: 10.1016/j.transproceed.2018.03.035. Epub 2018 Mar 16.

11. Ladner DP, Dew MA, Forney S, Gillespie BW, Brown RS Jr, Merion RM, Freise CE, Hayashi PH, Hong JC, Ashworth A, Berg CL, Burton JR Jr, Shaked A, Butt Z. Long-term quality of life after liver donation in the adult to adult living donor liver transplantation cohort study (A2ALL) // J Hepatol. 2015 Feb;62(2):346-53. doi: 10.1016/j.jhep.2014.08.043.

12. Turgunboev EK, Haybullina ZR, Babadjanov AK, Sultonova RD. Predictive role of laboratory assessments and interval radiological imaging in adverse thrombohemorrhagic outcomes in living donor liver transplantation//Quant Imaging Med Surg - 2025;15(10):10037-10049 <https://dx.doi.org/10.21037/qims-24-2230>

АНТРОПОМЕТРИЧЕСКИЕ И ФУНКЦИОНАЛЬНЫЕ ОСОБЕННОСТИ СПОРТСМЕНОВ ПОДРОСТКОВОГО ВОЗРАСТА В ЗАВИСИМОСТИ ОТ СПЕЦИФИКИ СПОРТИВНОЙ ДЕЯТЕЛЬНОСТИ



<https://doi.org/10.5281/zenodo.21608235>

Абдумаджидов М.А., соискатель

Махмудов Д.Э., DSc

<https://orcid.org/0000-0002-8486-7714?l>

Республиканский научно-практический центр спортивной медицины

Аннотация. В статье представлены результаты комплексной оценки антропометрических и функциональных показателей спортсменов подросткового возраста, специализирующихся в футболе и единоборствах. Проанализированы особенности телосложения, силовых характеристик, развития грудной клетки, а также функционального состояния нервно-мышечной и вегетативной нервной систем у юных спортсменов. Установлено, что морфофункциональные различия обусловлены спецификой спортивной деятельности и отражают разные адаптационные стратегии организма в период интенсивного роста. Полученные данные подтверждают необходимость индивидуализации тренировочного процесса и медицинского контроля с учётом вида спорта и возрастных особенностей.

Ключевые слова: подростки, спортсмены, антропометрический профиль, футбол, единоборства, нервно-мышечная система, вегетативная нервная система, функциональная адаптация.

SPORT TURI XUSUSIYATLARIGA QARAB O‘SMIR SPORTCHILARNING ANTROPOMETRIK VA FUNKTSIONAL XUSUSIYATLARI

Abdumajidov M.A., mustaqil izlanuvchi

Mahmudov D.E., DSc

Respublika sport tibbiyoti ilmiy-amaliy markazi

[ORCID: 0000-0002-8486-7714](https://orcid.org/0000-0002-8486-7714)

Annotatsiya: Maqolada futbol va jangovar sport turlari bilan shug‘ullanuvchi o‘smir sportchilarning antropometrik va funksional ko‘rsatkichlarini kompleks baholash natijalari keltirilgan. Sportchilarning gavda tuzilishi, kuch ko‘rsatkichlari, ko‘krak qafasi rivojlanishi, shuningdek, nerv-mushak tizimi va vegetativ nerv tizimining funksional holati tahlil qilindi. Tadqiqotlar shuni ko‘rsatdiki, morfofunktsional farqlar sport faoliyatining o‘ziga xosligi bilan bog‘liq bo‘lib, intensiv o‘shish davrida organizmning turli moslashuv strategiyalarini aks ettiradi. Olingan ma’lumotlar mashg‘ulot jarayonini shaxsiylashtirish va sport turi hamda yosh xususiyatlarini inobatga olgan holda tibbiy nazorat zarurligini tasdiqlaydi.

Kalit so‘zlar: o‘smirlar, sportchilar, antropometrik profil, futbol, jangovar sport turlari, nerv-mushak tizimi, vegetativ nerv tizimi, funksional moslashuv

ANTHROPOMETRIC AND FUNCTIONAL CHARACTERISTICS OF ADOLESCENT ATHLETES DEPENDING ON THE SPECIFICS OF SPORTS DISCIPLINE

Abdumadzhidov M.A., PhD applicant

Makhmudov D.E., DSc

Republican Scientific-Practical Center of Sports Medicine

[ORCID: 0000-0002-8486-7714](https://orcid.org/0000-0002-8486-7714)

Abstract: This article presents the results of a comprehensive assessment of anthropometric and functional parameters in adolescent athletes specializing in football and combat sports. The study analyzes body composition, strength characteristics, chest development, and the functional state of the neuromuscular and autonomic nervous systems in young athletes. It was found that morphofunctional differences are determined by the specificity of the sports discipline and reflect different adaptive strategies of the body during the period of intensive growth. The obtained data confirm the importance of individualizing the training process and implementing medical monitoring, taking into account the type of sport and age-related characteristics.

Keywords: adolescents, athletes, anthropometric profile, football, combat sports, neuromuscular system, autonomic nervous system, functional adaptation

Relevance. Adolescence is a critical stage in the development of the body's morphofunctional systems, especially in individuals who regularly participate in sports. During this period, rapid growth and puberty are combined with increasing training loads, requiring careful monitoring of both anthropometric and functional indicators [1,3,7,8].

Anthropometric characteristics are traditionally used to assess physical development, predict athletic performance, and optimize training programs [2,4,5,6]. At the same time, the effectiveness of athletic activity, especially in dynamic sports, is largely determined by the functional state of the neuromuscular system, the level of motor coordination, and the balance of autonomic regulation [9,10].

Football and martial arts place different demands on the athlete's body. Football is characterized by a predominance of cyclic and speed-strength loads with high demands on endurance and coordination, whereas martial arts require greater muscular strength, explosive power, and static-dynamic stability [6,11]. Therefore, a comprehensive study of the morphological and functional characteristics of young athletes is of significant scientific and practical interest.

The aim of the study was to conduct a comprehensive analysis of the anthropometric and functional indicators of adolescent athletes depending on the type of sport specialization (football and martial arts).

Materials and Methods: The study involved 115 male athletes aged 12 to 14 years. The first group consisted of martial artists (boxing, Greco-Roman wrestling, judo), $n = 63$, average age 13.19 ± 0.20 years. The second group consisted of football players, $n = 52$, average age 12.75 ± 0.20 years. The assessment included

anthropometric measurements (height, body weight, chest circumference), dynamometry of the hands and back muscles, calculation of index indicators (BMI, Erisman index, Pignet index), examination of the functional state of the neuromuscular system (unconditioned reflexes, Romberg tests, Yarotsky test, tapping test), assessment of vegetative regulation (ortho- and clino-orthostatic tests, dermographism).

Statistical processing of data was carried out using the variation statistics method using Student's t-test, significance level – $p < 0.05$.

Results. The study yielded data that allow us to evaluate the morphological and functional characteristics of adolescent athletes (12–14 years old) depending on their sport. The indicators presented include anthropometric parameters, body index ratios, and functional characteristics of the neuromuscular system. The results allow us to identify differences between football players and martial artists, assess their level of physical fitness, coordination, strength, and adaptability, and determine the influence of sport on the development of adolescents' morphological and functional profiles.

Table 1

Comparative anthropometric indicators of adolescent athletes (12–14 years old)

Indicator	Football players (n=52)	Martial artists (n=63)	t	p
Height, cm	158.73 ± 1.80	152.78 ± 1.42	2.60	0.010
Body weight, kg	51.06 ± 1.74	45.30 ± 1.05	2.83	0.007
OGK (rest), cm	83.42 ± 1.06	72.73 ± 0.95	7.51	0,000
OGK (inhalation), cm	86.27 ± 1.09	75.37 ± 0.93	7.61	0,000
OGK (exhalation), cm	81.90 ± 1.05	71.35 ± 0.96	7.41	0,000
Chest span, cm	4.44 ± 0.13	4.06 ± 0.15	1.88	0.201
Hand strength (right), kg	35.58 ± 1.09	29.52 ± 0.94	4.20	0,000
Wrist strength (left), kg	30.04 ± 1.02	26.67 ± 1.03	2.32	0.027
Back muscle strength, kg	68.04 ± 2.64	51.51 ± 1.18	5.72	0,000
Body mass index	19.95 ± 0.38	19.32 ± 0.26	1.39	0.180
Erisman Index	4.06 ± 0.52	-3.66 ± 0.49	10.79	0.008

Pignet index	24.25 ± 1.20	34.75 ± 0.80	7.02	0,000
--------------	--------------	--------------	------	-------

Table 1 compares the anthropometric parameters of adolescent football players and martial artists (12–14 years old) and allows us to identify the specific morphological profiles of the athletes depending on their sport. Football players are significantly taller than martial artists (158.73 ± 1.80 cm versus 152.78 ± 1.42 cm, $p = 0.010$), indicating a more robust physique adapted to prolonged exercise and endurance. Football players also have significantly higher body weight (51.06 ± 1.74 kg versus 45.30 ± 1.05 kg, $p = 0.007$), which, combined with their height, contributes to a dense and resilient physique.

The resting chest circumference of football players is 83.42 ± 1.06 cm, which is significantly greater than that of martial artists (72.73 ± 0.95 cm, $p < 0.001$), and the differences remain during inhalation and exhalation (86.27 ± 1.09 cm and 81.90 ± 1.05 cm in football players versus 75.37 ± 0.93 cm and 71.35 ± 0.96 cm in martial artists, $p < 0.001$), reflecting a developed respiratory system and greater lung capacity. Chest span does not differ significantly (4.44 ± 0.13 cm in football players versus 4.06 ± 0.15 cm in martial artists, $p = 0.201$), indicating similar chest mobility.

Football players demonstrated higher hand strength for both the right (35.58 ± 1.09 kg vs. 29.52 ± 0.94 kg, $p < 0.001$) and left (30.04 ± 1.02 kg vs. 26.67 ± 1.03 kg, $p = 0.027$) hands, which is related to prolonged dynamic loads on the upper limbs. Football players also demonstrated significantly higher back muscle strength (68.04 ± 2.64 kg vs. 51.51 ± 1.18 kg, $p < 0.001$), providing support for the core during intense physical activity.

The body mass index (BMI) did not differ statistically between the groups (19.95 ± 0.38 in football players and 19.32 ± 0.26 in martial artists, $p = 0.180$), indicating a harmonious relationship between mass and height in both groups. The Erisman index showed a significant difference (4.06 ± 0.52 in football players versus -3.66 ± 0.49 in martial artists, $p = 0.008$), reflecting a more developed chest in football players and a narrow chest in martial artists. The Pigneur index also differed significantly (24.25 ± 1.20 in football players and 34.75 ± 0.80 in martial artists, $p < 0.001$), indicating an average strong physique in football players and a weaker physique in martial artists.

An analysis of these parameters confirms that football players are characterized by greater height, body mass, a developed chest, and strong back and wrist muscles, which ensure endurance and the ability to withstand prolonged dynamic loads. Martial artists exhibit lower mass and strength, as well as a less developed chest, consistent with the specific nature of a sport focused on agility, coordination, and explosive power. Meanwhile, the BMI in both groups is within the normal range, and the differences in the Erisman and Pigneur indices reflect the specifics of body type, emphasizing the need for an individualized approach to training.

Table 2

Functional indicators of the neuromuscular system of adolescent football players and martial artists (12–14 years old)

Indicator	Football players (n=52)	Martial artists (n=63)	t	p
Plantar reflex	4.63 ± 0.07	4.45 ± 0.08	1.95	0.055
Knee reflex	4.63 ± 0.07	4.40 ± 0.09	2.10	0.041
Achilles reflex	4.54 ± 0.08	4.30 ± 0.07	2.25	0.029
Biceps reflex	4.52 ± 0.10	4.28 ± 0.09	2.10	0.038
Simple Romberg test	4.29 ± 0.10	4.10 ± 0.11	1.80	0.074
Complex Romberg test	4.27 ± 0.10	4.05 ± 0.10	1.97	0.052
Finger-nose test	4.25 ± 0.09	4.02 ± 0.08	2.13	0.036
Tapping test (frequency of hand movements)	63.63 ± 1.17	59.50 ± 1.25	2.74	0.008
Orthostatic test, pulse (lying/standing)	65.94 ± 1.13 / 78.31 ± 1.16	67.50 ± 1.20 / 79.80 ± 1.15	1.45	0.15
Wedge orthostatic test (pulse difference)	6.87 ± 0.37	6.30 ± 0.40	1.10	0.27
Dermographism	Red - 44.2%, White - 21.1%, Norma - 34.6%	Red - 38.0%, White - 28.0%, Norma - 34.0%	—	—

Table 2 reflects the comparative functional indicators of the neuromuscular system of football players and martial artists of adolescence (12–14 years), allowing us to assess the level of coordination, reflex activity and adaptive capabilities of athletes.

In terms of unconditioned reflexes, football players demonstrated slightly higher values: the plantar reflex was 4.63 ± 0.07 versus 4.45 ± 0.08 in martial artists ($p = 0.055$), the knee reflex was 4.63 ± 0.07 versus 4.40 ± 0.09 ($p = 0.041$), the Achilles reflex was 4.54 ± 0.08 versus 4.30 ± 0.07 ($p = 0.029$), and the biceps reflex was 4.52 ± 0.10 versus 4.28 ± 0.09 ($p = 0.038$). These differences indicate a more pronounced, but controlled, reflex activity in football players, which meets the requirements of a dynamic sport.

The Romberg test results show good coordination scores in both groups. The simple test was 4.29 ± 0.10 for the football players and 4.10 ± 0.11 for the martial artists ($p = 0.074$), the complex test was 4.27 ± 0.10 versus 4.05 ± 0.10 ($p = 0.052$), and the finger-nose test showed a significant advantage for the football players (4.25 ± 0.09 versus 4.02 ± 0.08 , $p = 0.036$). This indicates slightly higher coordination stability and precision of movements in the football players.

The frequency of hand movements according to the tapping test was also higher in football players (63.63 ± 1.17 vs. 59.50 ± 1.25 , $p = 0.008$), reflecting better functioning of the motor analyzer and more developed nerve conduction velocity.

The results of the orthostatic and clinical orthostatic tests did not reveal statistically significant differences between the groups, which indicates a normotonic type of regulation of the cardiovascular system in both groups of adolescents.

Dermographism in football players was presented as follows: red – 44.2%, white – 21.1%, normal – 34.6%. In martial artists, red dermographism was noted in 38.0%, white – 28.0%, normal – 34.0%, reflecting slight differences in the ratio of the tone of the sympathetic and parasympathetic divisions of the autonomic nervous system.

Discussion. Analysis of the obtained results allows us to identify specific features of the morphological and functional profile of adolescent athletes depending on the type of sport.

Anthropometric indicators show that football players are taller and heavier than martial artists. The significantly larger chest circumference of football players indicates a more developed respiratory system and the ability to sustain prolonged aerobic exercise, which is consistent with the demands of football training, which includes high endurance and intense dynamic activity. Martial artists, on the other hand, have lower body mass and muscle strength, reflecting the specific nature of martial arts, which emphasize agility, coordination, reaction time, and explosive power. The Erisman and Pigneur indexes confirm the difference in morphological body type: football players have medium strength and a well-developed chest, while martial artists exhibit a narrower build and less core strength. Moreover, BMI values in both groups are within normal limits, indicating a harmonious relationship between height and body weight.

Functional indicators of the neuromuscular system also differed between the groups. Football players demonstrated higher scores on unconditioned reflexes and coordination tests, reflecting a high degree of adaptation of the neuromuscular system to prolonged and complex motor loads. Tapping test results showed a higher frequency of hand movements in football players, indicating a higher neuromuscular conduction velocity and functional readiness for game actions. Martial artists demonstrated slightly lower functional indicators; however, they are consistent with the requirements

of their sport, which emphasizes explosive strength and precision of movement rather than prolonged dynamic loads. Orthostatic testing and dermatographism data indicate that both groups have adequate autonomic regulation, although martial artists more often exhibit signs of functional sympathetic tension, which may reflect the specific nature of the training process and workload.

Thus, differences in the morphological and functional characteristics of adolescent athletes are directly related to the specifics of their sport. Football players exhibit a body type and functional capabilities optimal for endurance and prolonged dynamic loads, while martial artists possess characteristics that ensure coordination, speed, and explosive power. These data highlight the need for individualized training, taking into account the morphological characteristics and functional readiness of each athlete, which is especially important for adolescents during a period of intensive physical and physiological development .

Conclusion. Adolescent football players demonstrate greater reflex activity, high coordination, and hand speed, consistent with the demands of prolonged dynamic loads and intense game activity. Martial artists have slightly lower reflex and coordination test scores, reflecting the specific nature of their sport, which emphasizes strength, agility, and short-term explosive activity. Autonomic regulation in both groups is within normal limits; however, some football players exhibit a predominance of parasympathetic tone, indicating functional adaptation to training loads.

Conclusions . Adolescent football players are characterized by higher reflex activity, well-developed coordination, and high hand speed, which corresponds to the requirements of prolonged dynamic loads and intense game activity. Martial artists have slightly lower reflex and coordination test scores, reflecting the specific nature of their sport, which emphasizes strength, agility, and short-term explosive activity. Autonomic regulation in athletes of both groups is within normal limits; however, some football players exhibit a predominance of parasympathetic tone, indicating functional adaptation to systematic training loads.

Literature.

1. Davydov, V. Yu. Sports anthropology as a scientific direction: an analytical look at the problem // Health for all. - 2022. - No. 1. - P. 35-51.
2. E. Anpilov, N. G. Kruchinsky. An analytical look at the problem of training reserves in cyclic sports during the period of intensive growth: an integrated approach based on the individual characteristics of the athlete // Health for All. - 2022. - No. 1. - P. 30-34.
3. Tutelyan, V. A., [et al.]. Use of the method of complex anthropometry in sports and clinical practice. – Moscow: Sport, 2018. – 64 p.

4. Pfeifer, D. S., [et al.]. Assessment of the morphological status of an athlete. – Minsk: RSPC of Sports, 2017. – 36 p.
5. Rylova, N. V. Current aspects of studying the body composition of athletes // Kazan Medical Journal. - 2014. - Vol. 95, No. 1. - P. 108-111.
6. Marinho, B.F., [et al.]. Body composition, somatotype, and physical fitness of mixed martial arts athletes // Sport Sciences for Health. – 2016. – Vol. 12. – P. 157–165.
7. Vysochin, Yu. V., Gordeev, Yu. V., Denisenko, Yu. P. Age dynamics of the functions of the central nervous and neuromuscular systems in football players (monograph) // International Journal of Experimental Education. - 2013. - No. 5. - P. 25-27.
8. Ashmarin, D. V. Age dynamics of development of the respiratory system of football players aged 13–16 years // Fundamental research. – 2013. – No. 4-1. – P. 95–98.
9. Guba, V. P. Integral approach to complex control of the functional state of young football players // Theory and practice of physical education. - 2014. - No. 4. - P. 30-35.
10. Kuznetsov, R. R. Identification of differences in morphofunctional characteristics and physical fitness of young athletes specializing in football and mini-football // Theory and practice of physical education. - 2014. - No. 6. - P. 6-9.
11. Lunina, N. V., Gubareva, N. V. Monitoring the psychophysiological state and morphofunctional status of young football players at the initial training stage // Modern problems of science and education. - 2018. - No. 6.

ЎЗБЕК ТИББИЁТ ЖУРНАЛИ

7 ЖИЛД, 3 СОН

УЗБЕКСКИЙ МЕДИЦИНСКИЙ ЖУРНАЛ
ТОМ 7, НОМЕР 3

UZBEK MEDICAL JOURNAL
VOLUME 7, ISSUE 3

Editorial staff of the journals of www.tadqiqot.uz
Tadqiqot LLC the city of Tashkent,
Amir Temur Street pr.1, House 2.
Web: <http://www.tadqiqot.uz/>; Email: info@tadqiqot.uz
Phone: (+998-94) 404-0000

Контакт редакций журналов. www.tadqiqot.uz
ООО Tadqiqot город Ташкент,
улица Амира Темура пр.1, дом-2.
Web: <http://www.tadqiqot.uz/>; Email: info@tadqiqot.uz
Тел: (+998-94) 404-0000