

**PROSPECTS OF USING THE PROGRAM FOR DETERMINING BODY COMPOSITION
AND NEUROPHYSIOLOGICAL CHARACTERISTICS OF JUNIOR AND CADET
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✓ Resume

One of the rapidly developing areas of modern genetics is the development of molecular genetic approaches to determine a person's predisposition to various types of activity. This approach is the most promising, since it allows one to determine the genetic predisposition to the performance of large physical loads and to carry out a targeted differentiated selection of children for sports at the earliest stages of their sports activity. Sports genetics provides useful information on how to improve performance, which athletes to select for competition and which of them will be able to cope with the task at hand. The selection of young, promising in their hereditary qualities athletes (at the same time the minimum risk of intense physical activity for their health) is an important issue in sports medicine, which can be solved by modern methods of genetics. Therefore, sports genetics provides useful information on how to improve the performance of performances, which athletes to select for competitions and which of them will be able to cope with the task. To implement the above tasks, we have developed a program that is designed to study and evaluate indicators of the component composition of the body, types of the nervous system of junior and cadet athletes, as well as the relationship of the component composition of the body. allele-genotypic variants of ADRB2, FABP2 gene in cadets and juniors involved in various sports.

Key words: sports genetics, predicting the capabilities of athletes, selection of young athletes, genetic predisposition, program, assessment of indicators of body composition.

**ПЕРСПЕКТИВЫ ИСПОЛЬЗОВАНИЯ ПРОГРАММЫ ДЛЯ ОПРЕДЕЛЕНИЯ
СОСТАВА ТЕЛА И НЕЙРОФИЗИОЛОГИЧЕСКИХ ХАРАКТЕРИСТИК
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✓ Резюме

Одним из интенсивно развивающихся направлений современной генетики является разработка молекулярно-генетических подходов, позволяющих определить предрасположенность человека к различным видам деятельности. Этот подход является наиболее перспективным, поскольку позволяет определить генетическую предрасположенность к выполнению больших физических нагрузок и осуществить целенаправленный дифференцированный отбор детей для занятия спортом на самых ранних этапах их спортивной деятельности. Спортивная генетика дает полезную информацию о том, как улучшить результативность выступлений, каких спортсменов отобрать на соревнования, и кто из них сможет справиться с поставленной задачей. Отбор молодых, перспективных по своим наследственным качествам спортсменов (при одновременно минимальном риске интенсивных физических нагрузок для их здоровья) является важным вопросом спортивной медицины, который позволяют решить современные методы генетики. Поэтому спортивная генетика дает полезную информацию о том, как улучшить результативность выступлений, каких спортсменов отобрать на соревнования, и кто из них сможет справиться с поставленной задачей. Для реализации вышеперечисленных задач нами разработана программа, которая предназначена для изучения и оценки показателей компонентного состава тела, типов нервной системы спортсменов юниоров и кадетов, а также взаимосвязи компонентного состава тела. аллель-генотипические варианты гена ADRB2, FABP2 у кадетов и юниоров, занимающихся различными видами спорта.

Ключевые слова: спортивная генетика, прогнозирования возможностей

спортсменов, отбор юных спортсменов, генетическую предрасположенность, программа, оценка показателей компонентного состава тела.

ЮНИОР ВА КАДЕТ СПОРТСМЕНЛАРДА ТАНАНИНГ КОМПОЗИЦИОН ТАРКИБИ ВА НЕЙРОФИЗИОЛОГИК ХАРАКТЕРИСТИКАСИНИ АНИҚЛОВЧИ ДАСТУРИНИ ҚЎЛЛАШ ИСТИҚБОЛЛАРИ

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✓ Резюме

Замонавий генетиканинг тез ривожланаётган йўналишларидан бири бу одамнинг ҳар хил фаолият турларига мойиллигини аниқлаш учун молекуляр генетик ёндашувларни ишлаб чиқишдир. Ушбу ёндашув энг истиқболли ҳисобланади, чунки у катта жисмоний машқлар бажарилишига генетик мойилликни аниқлашга ва уларнинг спорт фаолиятининг дастлабки босқичларида болаларни спортга йўналтирилган табақалаштирилган танловини ўтказишга имкон беради. Спорт генетикаси кўрсаткичларни қандай яхшилаш, қайси спортчиларни мусобақага танлаб олиш ва улардан қайси бири олдига қўйилган вазифани удалай олиши ҳақида фойдали маълумотлар беради. Ўзларининг ирсий тамойиллари бўйича истиқболли ёш спортчиларни танлаш (шу билан бирга уларнинг соғлиги учун интенсив жисмоний фаолликнинг минимал хавфи) замонавий тиббиёт генетика усуллари билан ҳал қилиниши мумкин бўлган спорт тиббиётидаги энг муҳим масаласи ҳисобланади. Шунинг учун спорт генетикаси мусобакаларда кўрсаткичларини қандай яхшилаш, қайси спортчиларни танлаш ва улардан қайси бири бу вазифани удалай олиши ҳақида фойдали маълумотлар беради. Юқоридаги вазифаларни амалга ошириш учун биз организмнинг таркибий кўрсаткичларини, ўспирин ва кадет спортчиларининг асаб тизимининг турларини, шунингдек, тананинг композицион таркибининг ўзаро боғлиқлигини ўрганиш ва баҳолашга мўлжалланган дастур ишлаб чиқдик. Турли спорт турлари билан шуғулланадиган кадетларда ва ўсмирларда ADRB2, FABP2 генларининг аллел-генотипик вариантлари.

Калит сўзлар: спорт генетикаси, спортчиларнинг имкониятларини баиорат қилиш, ёш спортчиларни танлаш, генетик мойиллик, дастур, тана композицион таркиби кўрсаткичларини баҳолаш.

Relevance

The victory of athletes at high-level competitions is the most important factor in the country's international status. In this regard, the question of the importance of the health of athletes for achieving high sports results has acquired particular importance [1,17,19,24].

After gaining the sovereignty of our country, the state pays more and more attention to the development of professional sports. One of the main theoretical and applied medical and biological problems of physical culture and sports medicine is the problem of sports selection, the development of the theory of which determines the level of sports achievements and sports science in general. Sports genetics is still at the beginning of the path, but at the same time it opens up many prospects for the development of medical and biological support for sports. The results of scientific research have proven that the optimal health indicators of athletes are based on the state of dynamic balance between the

functional reserves of the body and the factors affecting it [4,5,18,20]. At the same time, the magnitude of the influence of factors that are inherent in the modern system of training athletes on the body of those involved increases in proportion to the stages of their professional development, which requires not just optimal health indicators, but the presence of an appropriate level of reserves of functions of its components [2,10,15,16,23]. The value of the latter is the basis of the athlete's reliability - an indicator that is characterized by high performance of actions and its stability in extreme conditions of activity. The use of the genetic characteristics of the organism will lead humanity to new records, because now not only perseverance, regular training, willpower and motivation of an athlete are important, but also his "Olympic" heredity. The genetic approach to the problem of sports orientation, the selection of athletes will undoubtedly help to avoid

"marriage" in coaching, save from performing ineffective work and ensure high rates of training of athletes [3,6,7,12,21,22]. With the help of genetic analyzes, it is possible to determine not only a predisposition to a particular sport, but also to identify possible health problems that can become a serious obstacle to sports victories. The solution of the above-mentioned problems is an urgent and priority problem of modern sports medicine [8,9,11,13,14].

To implement the above tasks, we have developed a program that is designed to study and assess indicators of the component composition of the body, types of the nervous system of junior and cadet athletes, as well as the relationship between the component composition of the body and allele-genotypic variants of the ADRB2, FABP2 gene in cadets and juniors engaged in various sports.



The purpose of our research was to study the practical significance of the program we created for determining the composition of the body and neurophysiological characteristics of junior and cadet athletes in sports schools in the city of Bukhara.

Materials and methods

To develop practical recommendations and proposals for optimizing the training regime and the selection of promising cadet and junior

athletes, which will allow athletes to achieve high results, on the basis of the data obtained on the point assessment, we analyzed 75 junior and cadet athletes. All these athletes underwent a questionnaire test program to determine body composition and neurophysiological characteristics of junior and cadet athletes.

A program for determining body composition and neurophysiological characteristics of junior and cadet athletes

Программа для определения композиционного состава тела и нейрофизиологической характеристики спортсменов юниоров и кадетов с учетом полиморфизма генов

Фамилия:

Имя:

Отчество:

Дата рождения:

Предмет:

Дата оценки:

Данные для сохранения:

Критерии оценки:

Оценка показателей композиционного состава тела:

☐ Непроводилось

☐ Проводилось частично

☐ Проводилось полностью

Оценка частоты встречаемости аллельно-генотипного варианта гена ADRB2:

☐ Непроводилось

☐ Проводилось частично

☐ Проводилось полностью

Оценка нервной системы спортсменов юниоров и кадетов:

☐ Не оценено

☐ Оценено частично

☐ Оценено полностью

Оценка частоты встречаемости аллельно-генотипного варианта гена FABP2:

☐ Непроводилось

☐ Проводилось частично

☐ Проводилось полностью

Оценка взаимосвязи между показателями композиционного состава тела, типов нервной системы спортсменов юниоров и кадетов:

☐ Непроводилось

☐ Проводилось частично

☐ Проводилось полностью

Оценка взаимосвязи показателей композиционного состава тела, типов нервной системы и аллельно-генотипными вариантами генов ADRB2, FABP2:

☐ Непроводилось

☐ Проводилось частично

☐ Проводилось полностью

Имеет ли спортсмен "олимпийскую" наследственность:

☐ Не имеет

☐ Имеет

Имеет ли спортсмен мотивацию:

☐ Не имеет

☐ Имеет частично

☐ Имеет

Баллы: Вывод:

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0 - 7 points. The level of expected athletic performance is very low. It requires a full study, assessment and comparison of indicators of the component composition of the body, types of the nervous system and the ADRB2, FABP2 gene in cadets and juniors involved in various sports, to study the relationship between the component composition of the body and allele-genotypic variants of the ADRB2, FABP2 gene in cadets and juniors engaged in various sports.

8 – 14 points. The level of expected sporting achievements is average. It requires the study of the ADRB2, FABP2 gene in cadets and juniors involved in various sports, to study the relationship between the body composition and allele-genotypic variants of the ADRB2, FABP2 gene in cadets and juniors involved in various sports.

15 - 21 points. The level of expected athletic performance is very high, where the development of athletic skills is recommended.

The program can be used in sports schools for sports selection and identification of technical solutions, which in turn will help to improve the level of sports achievements.

Research results

As follows from the data obtained, athletes cadets and juniors who passed the test questionnaire according to the program prepared by us to

determine the composition of the body and neurophysiological characteristics were divided into 3 main groups: 1 group is athletes who received from 0 to 7 points, there were 18, 2 group of athletes which received from 8 to 14 was 47 athletes, the 3rd group of athletes who received from 15 to 21 was 10 athletes juniors and cadets.

Conclusion

The practical significance of the program lies in the fact that the results are fundamental for the development of practical recommendations and proposals for optimizing the training regime and the selection of promising cadet athletes, which will allow athletes to achieve high results. The use of the genetic characteristics of the organism will lead humanity to new records, because now not only perseverance, regular training, willpower and motivation of an athlete are important, but also his "Olympic" heredity. The genetic approach to the problem of sports orientation, selection of athletes will undoubtedly help to avoid "marriage" in coaching, relieve one of ineffective work and ensure high rates of training for athletes. With the help of genetic analyzes, it is possible to determine not only a predisposition to a particular sport, but also to identify possible health problems that can become a serious obstacle to sports victories.

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Entered 09.04.2021