

RELATIONSHIP BETWEEN SPORTIVE CAPACITIES AND ATHLETIC POTENTIAL IN THE INDIVIDUAL WITH CHRONIC DISEASES



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RELAÇÃO ENTRE CAPACIDADES ESPORTIVAS E POTENCIAL ATLÉTICO NO INDIVÍDUO PORTADOR DE DOENÇAS CRÔNICAS

RELACIÓN ENTRE LAS CAPACIDADES DEPORTIVAS Y EL POTENCIAL ATLÉTICO EN EL INDIVIDUO CON ENFERMEDADES CRÓNICAS

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ABSTRACT

Introduction: Success in sports depends on the athlete's potential, including the presence of chronic diseases that can negatively affect a sports career. The issue studied is complex, and its solution depends on a combination of factors that act as basal components. The relevance of the research topic mentioned here is determined by the need to study the relationship between these two factors in the context of their mutual influence on an individual's sports career development prospects. **Objective:** This scientific study aims to establish a relationship between sports skills and athletic potential in an individual with chronic diseases. **Methods:** The main approach of this study was a combination of systemic analysis of the relationship between various aspects of an individual's talent with the development of his sports career, a theoretical understanding of the relationship of this factor, and the influence of chronic diseases on sport activity. **Results:** The main results obtained in this scientific study should be considered the determination of the quality of an athlete's achievements on his natural talent and the influence of chronic diseases. **Conclusion:** The prospects for future scientific research in this direction are determined by a real need for the search for and practical application of methods to determine the dependence of sporting achievements on factors included in the theme of this scientific work. The applied value of this scientific study lies in the possibility of the practical application of its results to form such methods for future approaches. **Evidence level II; Therapeutic studies - outcomes research.**

Keywords: Health; Training Activities; Medical Examination; Return to Sport.

RESUMO

Introdução: O sucesso no esporte depende do potencial do atleta, incluindo da presença de doenças crônicas que podem afetar negativamente uma carreira esportiva. A questão estudada é complexa e sua solução depende de uma combinação de fatores que atuam como componentes basais. A relevância do tema de pesquisa mencionado neste caso é determinada pela necessidade de estudar a relação entre estes dois fatores no contexto de sua influência mútua sobre as perspectivas de desenvolvimento da carreira esportiva de um indivíduo. **Objetivo:** O objetivo deste estudo científico é estabelecer uma relação entre as capacidades esportivas e o potencial atlético em um indivíduo portador de doenças crônicas. **Métodos:** A abordagem principal deste estudo foi uma combinação de análise sistêmica da relação entre vários aspectos do talento de um indivíduo com o desenvolvimento de sua carreira esportiva, uma compreensão teórica da relação deste fator e da influência de doenças crônicas na atividade esportiva. **Resultados:** Os principais resultados obtidos no decorrer deste estudo científico devem ser considerados segundo a determinação da dependência da qualidade das realizações de um atleta em relação a seu talento natural e a influência das doenças crônicas. **Conclusão:** As perspectivas de futuras pesquisas científicas nesta direção são determinadas por uma real necessidade de busca e aplicação prática de métodos para determinar a dependência das conquistas esportivas de fatores incluídos no tema deste trabalho científico. O valor aplicado deste estudo científico encontra-se na possibilidade de aplicação prática de seus resultados, com o objetivo de formar tais métodos para futuras abordagens. **Evidência nível II; Estudos terapêuticos - pesquisa de resultados.**

Descritores: Saúde; Atividades de Treinamento; Exame Médico; Volta ao Esporte.

RESUMEN

Introducción: El éxito en el deporte depende del potencial del atleta, incluyendo la presencia de enfermedades crónicas que pueden afectar negativamente a la carrera deportiva. La cuestión estudiada es compleja y su solución depende de una combinación de factores que actúan como componentes basales. La pertinencia del tema de investigación mencionado en este caso viene determinada por la necesidad de estudiar la relación entre estos dos factores en el contexto de su influencia mutua en las perspectivas de desarrollo de la carrera deportiva de un individuo. **Objetivo:** El objetivo de este estudio científico es establecer una relación entre las habilidades deportivas y el potencial atlético en un individuo con enfermedades crónicas. **Métodos:** El enfoque principal de este estudio fue una



combinación de análisis sistémico de la relación entre varios aspectos del talento de un individuo con el desarrollo de su carrera deportiva, una comprensión teórica de la relación de este factor y la influencia de las enfermedades crónicas en la actividad deportiva. Resultados: Los principales resultados obtenidos en el curso de este estudio científico deben considerarse según la determinación de la dependencia de la calidad de los logros de un atleta de su talento natural y la influencia de las enfermedades crónicas. Conclusión: Las perspectivas de futuras investigaciones científicas en esta dirección están determinadas por una necesidad real de búsqueda y aplicación práctica de métodos para determinar la dependencia de los logros deportivos de los factores incluidos en el tema de este trabajo científico. El valor aplicado de este estudio científico reside en la posibilidad de aplicación práctica de sus resultados, con el objetivo de formar dichos métodos para futuros planteamientos. **Nivel de evidencia II; Estudios terapéuticos - investigación de resultados.**

Descriptor: Salud; Técnica de Entrenamiento; Exámenes Médicos; Volver al Deporte.

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INTRODUCTION

The problem of an athlete's career development prospects depending on the level of their sporting talent and the presence of various chronic diseases that can interfere with sports is widely discussed today. The growing level of sports achievements in all kinds of sports poses the challenges of finding effective innovative solutions for modern athletes that can optimize training processes to the highest degree.¹⁻³ Activity statistics of modern athletes demonstrates the fact that the more thoroughly factors influencing the result in a particular sport are studied, the more grows the conviction that each athlete is an individual and an individual approach must be created for them.

Sports specialists face a difficult task: identifying among a large number of children and adolescents those who have the greatest potential for a particular sport.^{4,5} However, the expected result may not develop if the athlete has chronic diseases that interfere with sports. Also there are numerous cases of exacerbation of chronic diseases in athletes after the end of their sports career. According to modern studies, only 12% of high qualification categories athletes after completing active training and competitive activity do not exhibit formation of pathological changes in various organs and systems.⁶ This situation necessitates studying the relationship between an athlete's talent and chronic diseases they have, as well as the depth of the influence of these factors on the development of the athletes' careers and their living after its completion.

Medical studies indicate that a significant part of young athletes (from 25 to 45%) at the beginning of their careers have low indicators of somatic health level, which is largely due to the presence of a number of chronic diseases.⁷ Such facts are confirmed by numerous studies that were carried out in the framework of studying issues of sports prospects on level of an individual's athletic talent and chronic diseases.^{8,9}

In-depth medical examinations of athletes are performed in order to obtain the objective information about their health, physical development, as well as the functional state of body and indicators of physical performance.¹⁰ The results of such examinations are of great importance from the point of view of formation of a general picture of assessing individual athletes' career development prospects, both relatively healthy physically and with chronic diseases that can seriously affect their future careers. The purpose of the study is to establish this kind of dependence, as stated in its subject matter.

Literature Review

Salnikov et al.¹ notes that the search for gifted children and adolescents is a fundamental moment for achievements in athletic activity. The authors note that there are differences in the components of athlete selection in different sports. Ogorodnikova⁴ points to the fact that in sports there has developed a tradition of observing as many children as possible, during which it is recommended to take into account the

health state, constitutional features, physical abilities, reaction speed and coordination capabilities.

Fedotova and Tamozhnikova⁶ note that with the development of women's sports, many problems have arisen that are most common among female athletes and their nature is associated with the characteristics of the female body. Women athletes have to deal with diseases that are less pronounced in men, or not at all typical for them.

According to the Chainikov,¹¹ there are a number of shortcomings in the medical support system in children and adolescent sports, namely, a high percentage of young athletes who are not undergoing dispensary supervision and do not undergo in-depth medical examinations during the sports season.

MATERIALS AND METHODS

This study examines the various aspects of dependence of sporting prospects on the level of athletic talent of an individual and their chronic diseases. The object of the study is various features of building a sports career in the context of the impact of talent in a specific area of sports in combination with the negative impact of chronic diseases in athletes. The basis of the methodology of this scientific study is a combination of a systematic analysis of the relationship between various aspects of an individual's talent with the development of their sports career, and a theoretical understanding of the relationship of this factor with the influence of chronic diseases on athletic activity. The choice of this combination of scientific study methods is determined by the specifics of the subject matter and the need for qualitative disclosure on the basis of publications available within the declared scientific direction, revealing the essence of issues submitted for consideration.

A special place in this scientific study is given to the systematic analysis of theoretical developments of authors from other countries within the framework of this research topic, which contributes to a comprehensive coverage and formation of final conclusions based on the results obtained.

All studies by authors from other countries, which were used for this research, were translated into English. The applied value of chosen methodology of scientific study is determined by the possibility of the subsequent use of the selected combination of materials and methods in conducting scientific studies within the framework of the stated topic in order to obtain perfected and reliable information regarding the mutual influence of the factors submitted for consideration. Prospects for the practical application of the selected combination of materials and methods of this scientific study are determined by the importance and scientific prospects of studying the issues of dependence of various aspects of an athlete's career development on the level of their talent, in combination with negative effect of chronic diseases that interfere with development of athletic activity. The combination of materials

and methods chosen in this study contributes to the high quality of disclosure of declared subject.

Since the research was conducted without human or animals, the Ethics Committee was not applied. In addition, informed consent was not applied.

RESULTS

The functional state of an athlete is the main indicator of their health level, readiness for sports participation, as well as general, functional capabilities of their body as a whole. This indicator determines the success and productivity of an athlete's activity in a particular sport over a significant period of time. In modern studies, considerable attention is paid to the study of the influence of an athlete's natural talent on the development of their career, while taking into account both the level of their natural talent and the influence of their existing chronic diseases on development of their activity in a particular sport. In general, the negative impact of such diseases on a sports career is as follows:

- The body's response to physical activity experienced during training worsens.
- Difficulties arise in the bodily recovery process after physical strains of the training process.
- Due to exacerbations of chronic painful conditions, there are disruptions in the competitive activity schedule.

Athlete's career ends prematurely, or they are unable to fully develop their potential.

The dependence of prospects and specifics of an athlete's career development on the level of their athletic talent can be represented schematically, taking into account the main factors involved in this process. (Figure 1)

As evident from the Figure 1, the level of athletic talent has a direct and inverse relationship with the dynamics of sports achievement growth and the level of possible competitive activity of an athlete, and at the same time should be directly taken into account in the process of building educational and training processes. Sports injuries negatively affect the potential for realization of athletic talent and significantly inhibit the development of athletic activity.

When assessing the dependence of prospects of the development of athletic activity on level of athletic talent of the individual and the chronic diseases they have, one should pay attention to the following factors:

- The severity of athlete's chronic diseases;
- The frequency of manifestation of chronic diseases in athletes during their sports activities;
- The degree of influence of chronic diseases on prospects for growth of their sports achievements in the context of effect expected from the training process;
- The volume of training load, calculated during the period of preparation for the competitive season;
- The actual return of the training process, expressed in achievement of planned results within the specified time frame or lack thereof.

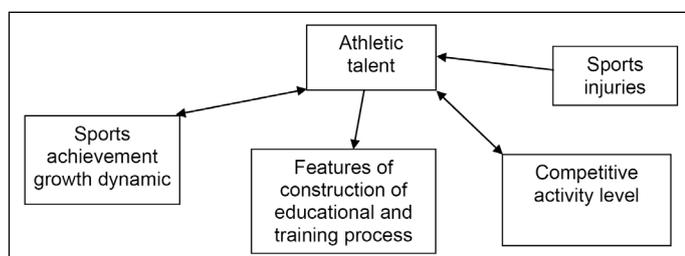


Figure 1. Dependence of prospects and specifics of an athlete's career development on talent.

The issues of assessing the level of athletic talent in a particular type of athletic activity raise questions from the point of view of lack of clear criteria for assessing this parameter. The concept of talent means a systemic quality of a person, which allows them to achieve substantial results in a certain type of activity. If we are talking about athletic talent, then this is athletic activity.

It is determined by the specifics of manifestation relative to a specific sport, in which it is demonstrated in a specific athlete. As an example of dependence of specifics of development of sports activities of an athlete endowed with natural talent and at the same time suffering from chronic diseases, we can think back to Billy Konchellach, two-time 800-meter run world champion. Table 1 provides a statistical analysis of the athlete's performances at major international tournaments throughout his career. The presented data are a clear illustration of the negative impact of chronic diseases on the development of athlete's career. As is evident from the data presented, the athlete missed two Olympic Games due to exacerbation of chronic asthma.

The ability to identify chronic diseases in active athletes at the earliest possible stage of their occurrence and to hinder their development and throughout the athlete's active career acquires particular importance. The athletic activity is a complexly organized system of interrelated actions aimed at achieving certain results. These results determine the success of an athlete's career and depend on a number of factors, among which the presence of chronic diseases plays an important role. Their relationship with inherent sporting talent has not been fully revealed, which necessitates further research within the framework of the stated direction.

DISCUSSION

The issues of determining dependence of development prospects of an athletic activity on the level of athlete's inherent talent in combination with the influence of chronic diseases upon these factors cause the wide discussion. Salnikov et al.¹ point to the fact that it is impossible to understand the patterns of development of almost all aspects of talent outside the context of personality development. The presence of general talent is more often established based on individual manifestations and total quantitative measurements, and not qualitative structural characteristics, because it is not known what should be considered as such.¹² Ogorodnikova⁴ notes that the particulars of each sport determine which mental abilities will be included as structural components in tactical talent.

Fedotova and Tamozhnikova⁶ draw the attention to the fact that there is a prevalence of one or another chronic pathology, depending on the gender of the athlete and their belonging to a particular sport, both among active athletes and among those who have ended their sports career. It is difficult to establish the main somatic diseases that bother ex-athletes and are an obstacle to professional implementation and socialization in the early post-sports period. Krylov¹³ expresses the opinion that athletic talent is a multifaceted concept that includes socio-pedagogical, organizational, psychological, and economic components. The author draws attention to the fact that athletic psychomotor talent is distinguished by supernormal motor activity, maneuverability, balance, as well as a way of «switching» movement speeds. The genetic

Table 1. Billy Konchellach's performances at the largest international tournaments during his sports career.

World Championships	1987	1991	1993
Results	Champion	Champion	Bronze medal
Olympic Games	1984	1988	1992
Results	4th place	Failed to qualify for the Olympics due to asthma exacerbation	Failed to qualify for the Olympics due to asthma exacerbation

component, still insufficiently studied, has recently taken its rightful place in the structure of proclivities of gifted developing people.

Gordeev et al.¹⁴ expresses the opinion that athletic talent means a whole range of natural qualities that ensure athletic victories. Rowe et al.¹⁵ notes that playing sports requires use of strength and success in this activity is impossible without the individual containing certain ability inherent at birth. Only in-depth studies can determine the degree of influence of talent on the success of an athlete in a particular sport.

Dalton et al.¹⁶ points to the fact that according to statistical studies conducted in Australia in 2012, among indigenous youth aged 15-19, there is a relationship between self-reported participation in sports and two positive outcomes for health: overall health and risk of mental disorder. The researchers found that Aboriginal young people involved in sports were 3.5 times more likely to report good general health and 1.6 times more likely to be free of major mental illness. Among the bulk of the respondents, there is a decrease in chronic diseases that were present before. Howells and Fletcher¹⁷ note that unlocking the maximum natural potential in swimming should be at the core of future Olympic champions' training, as a factor influencing the development of their entire sports career. Hecimovich et al.,¹⁸ investigating aspects of the development of a post-exercise fatigue scale, believe that the fatigue of athletes after performing a series of physical exercises is directly related to their predisposition to a specific type of athletic activity. The diversity of opinions of scientists in the direction of the study only emphasizes its multidimensionality and the need for further research in this area with the development of athletic science as a whole.

CONCLUSIONS

A scientific study of questions of dependence of sporting prospects on the level of athletic talent of an individual and their chronic diseases has led to the following conclusions. The natural talent of an individual in relation to a certain kind of sport is a key factor in choosing the direction of athletic activity and planning the stages of development of an

athletic career. It is the presence of athletic talent that determines the dynamics of the growth of sports achievements of an individual athlete in relation to the specific time frame of their sports career. The level of athletic talent is extremely difficult to determine precisely due to the presence of a combination of factors influencing the development of athletic activity, however, it can be assessed at the initial stage of career development by tracking the degree of an individual's perception of athletic loads in combination with specific results exhibited by an athlete in a particular sport.

Chronic diseases can be present in an athlete already at the initial stage of the establishing of athletic career. They can be both congenital and acquired in the course of training, and it is not always athletic activity that can be the cause of their manifestation. The determination of sporting prospects on the level of available athletic talent against the background of chronic diseases present in an athlete is a problematic issue due to the following factors:

Various chronic diseases have different manifestations and affect the development of a sports career in different ways.

Different athletes have different tolerance to chronic diseases, depending on their level of talent and athletic training.

Characteristic of many cases suddenness of manifestation of chronic diseases in athletes, which significantly complicates the planning of the training process and competitive activity.

Chronic diseases can negate the role of athletic talent and become the main cause of problems in the development of an athletic activity or put an early end to the career in general.

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