

# Psycho-physical state as the basis for the manifestation of special physical fitness of young ski racers

UDC 796.015.682



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## Abstract

**Objective of the study** was to substantiate the concept of "psychophysical state" and to reveal its connection with the special physical fitness of young ski racers.

**Methods and structure of the study.** The conducted scientific work is based on the method of theoretical analysis and generalization of scientific and methodological literature.

**Results and conclusions.** In the course of theoretical analysis, the concepts of "psychophysical qualities" and "psychophysical state" are revealed. The significance of the physical and mental readiness of ski racers during the transition from the stage of initial training to the stage of sports specialization has been revealed. The requirements for the special physical fitness of young athletes at the stage of initial specialization are determined. The main features of this stage include the emergence of control measures, including standards for special physical training in the form of ski racing in classic and free style, as well as an increase in the number of control and main starts. At the same time, high demands are made on the technique of skiing.

**Keywords:** *young ski racers, psychophysical qualities, psychophysical state, normative requirements, special physical fitness.*

**Introduction.** In the training process of young cross-country skiers, physical training plays an important role, since it is aimed at developing all the physical qualities necessary for a skier's sports activities. Physical training is the basis for the development of physical qualities and increasing the functionality of the body of a young athlete in cross-country skiing.

Young cross-country skiers include athletes undergoing staged long-term training with a gradual increase in sportsmanship, which includes: preliminary training corresponding to the initial training stage at 9-11 years old, the initial specialization stage, divided into initial (first two years) and advanced specialization (3 to 5 years).

When moving from the stage of initial training to the stage of sports specialization, young ski racers for the first time pass the control and conversion standards

for special physical training in the form of races with a classic and free style of movement [10].

In accordance with the federal standard of sports training for the sport of "cross-country skiing", at the stage of sports specialization, the number of control competitions is doubled compared to the stage of initial training (from three starts to six), and the number of main competitions is tripled (from two up to six) [10]. Competitive activity requires the ability of young athletes to tune in at the start of the competitive distance and work it out to the finish line. At the same time, N.N. Melentjeva and R.V. Puzyrevsky show that children are not always psychologically ready for them [6, 11]. There is a contradiction between the need for a sufficient level of special physical fitness, which ensures the passing of control and conversion standards, and insuf-

ficient psychophysical readiness of young ski racers for the first competitive starts.

**Objective of the study** was to theoretically substantiate the definition of the concept of "psychophysical state" and to reveal its connection with the special physical fitness of young cross-country skiers.

**Methods and structure of the study.** The conducted scientific work is based on the method of theoretical analysis and generalization of scientific and methodological literature. The theoretical basis of the study was the works of M.A. Kolpinskaya, S.V. Makeeva, G.I. Mokeeva, A.V. Adchenko, N.N. Melentjeva.

**Results of the study** and their discussion. During the analysis of scientific and methodological literature, it was revealed that physical training is a basic component in the training process of young cross-country skiers. A sufficient level of preparedness allows you to cope with increasing physical exertion and master the technique of skiing.

According to N.G. Ozolin, one of the reasons for improper technique is a low level of physical fitness. It is more difficult to correct a technique than to re-teach it, so it is important to pay attention to physical training with young athletes. With a low level of physical fitness, it will be difficult to cope with the requirements for the technique of skiing [8].

The level of development of one or another physical quality of a skier is determined by the specificity of cross-country skiing. Therefore, all physical qualities and abilities can be divided into basic and additional. The main ones include general and speed-strength endurance, while the additional ones include strength, speed, flexibility, general and special coordination, dexterity, balance [3].

Often, when considering physical qualities, they imply a complex set of physiological and mental properties of an organism, which determines the kinematic, dynamic and energy characteristics of a person's movement and call them psychophysical qualities [13].

Kinematic characteristics are associated with the manifestation of space-time indicators and reflect the degree of manifestation of such physical qualities as dexterity, speed and endurance.

Dynamic characteristics are closely related to such a physical quality as strength and are manifested in maximum, explosive, starting strength, strength endurance and speed-strength abilities [9].

The energy characteristics of the movement of the human body are manifested in the physical qualities

of endurance and strength and reflect the work of the functional systems of the human body.

All characteristics of movement are closely related to the manifestation of a person's motor abilities, which largely depend on his innate anatomical, physiological, biochemical and mental characteristics. When the psychophysical qualities of an athlete change, the psychophysical state also changes, which manifests itself in a holistic reaction of the body to external and internal influences that occur when performing activities that are significant for a person and aimed at achieving a useful result.

Optimal psychophysical state provides an opportunity for an athlete: to maintain a positive emotional state in difficult conditions of training and competition; maintain a high level of physical performance; show intellectual, strong-willed qualities necessary in the race, despite the influence of factors that cause negative emotions, mental tension.

In the literature, the psychophysical state is considered as the preservation and development of its mental processes, morphological and physiological characteristics and their corresponding performance, providing adequate behavior in the circumstances and is accompanied by mental comfort with a maximum life expectancy [5].

The psychophysical qualities necessary for a skier-racer include: moral and psychological qualities - personal (temperament, character traits, motives, etc.); cognitive (memory, attention, thinking, perception); moral (moral values, attitudes towards people, readiness for self-improvement, etc.); socio-psychological (ability for positive interpersonal interaction, tolerance, non-conflict) [12].

The team of authors S.A. Kolpinskaya, M.A. Mikhilchenko et al., conducting research on university students, revealed a direct and strong connection between the physical and mental state and a high correlation between the psychophysical state and human activity. Based on the results of scientific analysis, they substantiated the existence of such a concept as a psychophysical state, including two components in it: mental (mental characteristics of the individual) and physical (physical health and development, functional and motor capabilities) [4].

Under the physical condition understand the readiness of a person to perform physical work, physical education and sports. The physical state is determined not only by any one indicator, but by a combination of interrelated features, and primarily such



as physical development, physical performance, functional state of organs and systems, gender, age, physical fitness [2].

High physical and psychological readiness of cross-country skiers is not only a guarantee of a successful result in competitions, but also a prerequisite for long-term professional activity. In the process of physical training, the necessary level of development of physical qualities is achieved, which ensures the ability to maintain a high pace of competitive struggle. While the psychological one allows you to form motivational attitudes and a willingness to realize your potential at the starts. Physical and psychological readiness is necessary for a ski racer for a successful start, the correct distribution of forces over the distance and finishing [11].

**Conclusions.** The psychophysical state is the basis for the manifestation of special physical fitness of young cross-country skiers. From this position in sports training, the concept of "psycho-physical state" is considered by the authors of the article as an integral complex of relatively stable values of kinematic, dynamic and energy characteristics of a person's movement, manifested in the aggregate of physiological, biochemical and mental processes occurring in a certain period of time in the body associated with physical performance. , character traits and personality traits of an athlete, reflecting the mechanisms of action of increasing specific physical loads and determining the effectiveness of achieving sports results in relation to the requirements of the chosen sport.

### References

1. Adchenko A.V. Metodika otsenki psikhofizicheskogo sostoyaniya sportsmena [Methodology for assessing the psychophysical state of an athlete]. *Sportivnyy psikholog.* 2021. No. 1 (58). pp. 35-38.
2. Abrosimova L.I., Arkhangelskaya I.A., Aulik I.V. et al. *Detskaya sportivnaya meditsina* [Children's sports medicine]. S.B. Tikhvinsky, S.V. Khrushchev [ed.]. Guide for physicians. 2nd ed. rev., add. Moscow: Medicina publ., 1991. 560 p.
3. Dubrovsky V.I. *Sportivnaya meditsina* [Sports medicine]. Textbook for students. 2nd ed., add. Moscow: VLADOS publ., 2002. 512 p.
4. Kolpinskaya S.A., Mikhalchenko M.A., Rykova N.F. et al. *Korreksiya psikhofizicheskogo sostoyaniya studentov sredstvami fizicheskoy kul'tury* [Correction of the psychophysical state of students by means of physical culture]. *Nauka v sovremennom mire* [Science in the modern world]. Proceedings International scientific-practical conference (Anapa, February 09, 2022). Anapa: "NITS ESP" publ., 2022. pp. 73-82.
5. Makeeva V.S., Shavyrina S.V. *Upravleniye psikhofizicheskimi sostoyaniyami studentov v protsesse fizicheskogo vospitaniya* [Management of the psychophysical state of students in the process of physical education]. *Obrazovaniye i samorazvitiye.* 2010. No. 1 (17). pp. 225-230.
6. Melentjeva N.N., Lopukhina A.S., Taratorina V.N. *K voprosu o psikhologicheskoy podgotovke lyzhnikov-gonshchikov* [To the question of the psychological preparation of cross-country skiers]. *Founders: Individual entrepreneur Klyueva Marina Maratovna. Uspekhi gumanitarnykh nauk.* 2019. No. 7. pp. 23-29.
7. Mokeev G.I., Shestakov K.V., Mokeeva E.G. *Otsenka psikhofizicheskogo sostoyaniya sportsmenov* [Evaluation of the psychophysical state of athletes]. *Aktualnyye problemy fizicheskoy kul'tury, sporta i turizma* [Actual problems of physical culture, sports and tourism]. Proceedings International scientific-practical conference. Ufa, March 24-26, 2016. pp. 431-442.
8. Ozolin N.G. *Sovremennaya sistema sportivnoy trenirovki* [Modern system of sports training]. Moscow: Alyans publ., 2017. 480 p.
9. Platonov V.N. *Dvigatelnyye kachestva i fizicheskaya podgotovka sportsmenov* [Motor qualities and physical training of athletes]. Moscow: Sport publ., 2022. 656 p.
10. *Prikaz Minsporta Rossii «Ob utverzhdenii Federal'nogo standarta sportivnoy podgotovki po vidu sporta «lyzhnyye gonki» ot 20.03.2019 № 250: zaregistrirvano v Minyuste Rossii 04.06.2019 № 54833* [Order of the Ministry of Sports of Russia "On Approval of the Federal Standard for Sports Training in the Sport of Cross-Country Skiing" No. 250 dated March 20, 2019: registered with the Russian Ministry of Justice on June 4, 2019 No. 54833].
11. Puzyrevsky R.V., Pozhimalin V.N., Grushina A.Yu. *Vospitaniye volevykh kachestv u lyzhnikov-gonshchikov* [Education of volitional qualities in cross-country skiers]. *Founder: A.S. Sidenko. Sinergiya nauk.* 2021. No. 55. pp. 630-636.



12. Semenova S.A., Sharova A.V. Psikhofizicheskiye kachestva kak pokazatel kompleksnoy otsenki gotovnosti individa k realizatsii svoikh biologicheskikh i sotsialnykh funktsiy [Psychophysical qualities as an indicator of a comprehensive assessment of the individual's readiness to realize their biological and social functions]. *Kultura fizicheskaya i zdorovye*. 2020. No. 1. pp. 70-74.
13. Khalansky Yu.N. Terminy i ponyatiya v fizicheskoy kulture kak otrazheniye tselevoy ustanovki zadannogo deystviya [Terms and concepts in physical culture as a reflection of the target setting of a given action]. *Innovatsionnyye formy i prakticheskiy opyt fizicheskogo vospitaniya detey i uchashcheysya molodezhi* [Innovative forms and practical experience of physical education of children and students]. *Proceedings. Vitebsk: Vitebskiy gosudarstvennyy universitet im. P.M. Masherov publ.*, 2020. pp. 258-261.