

Physiological Classification of Sports Exercises

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Abstract: The physiological classification of sports exercises is covered in this article. This is evidenced by a comparative study of the health of athletes of different qualifications, followed by many years of dynamic monitoring of leading athletes. This means that the size of the load is not a factor. The main thing is that it corresponds to the state of the organism and the level of readiness, because the effect of any stimulus is determined not only by its strength, but also by the ratio of the initial level of readiness.

Keywords: Sports, exercise, strength, agility, endurance, physical activity, play, technical physiology.

All sports can be divided into two main groups. For the first group of exercises, very large (in competitions - borderline) physical loads are characteristic. They place only high demands on the leading physiological systems and require physical movements such as strength, agility, endurance. Such exercises include athletics, swimming, skiing and skating, rowing, sports, individual wrestling, etc. including all types of TB. The second group consists of technical exercises: motorsport, sailing, skiing, parachuting, horseback riding, aviation and hang gliding. During the first group of exercises, which are the most numerous, the athlete's movement in space is mainly due to internal forces (muscle forces). During the second group of technical exercises, the athlete's movements are mainly due to external forces (not muscle forces), ie the traction force of the car engine (in motor sports); gravity (skiing, parachuting); airflow (sailing, aviation and hang gliding). Successful technical training takes into account a lot of technical equipment (in equestrian sports - the qualities of the horse) and their level of mastery. This exercise requires a certain amount of psycho physiological functions in athletes, such as

attention, speed of reaction, fine coordination of movements, and so on. At the same time, exercise in technical sports, as a rule, does not impose limiting requirements on the energy and muscular systems, the autonomic supply system, as well as strength, power and endurance, which are physical qualities.

According to the general kinematic characteristics of the exercises, ie the nature of the transition per unit time, the first group of exercises is divided into cyclic and acyclic. running, swimming, rowing, cycling, etc. For this exercise, the stereotypical cycles of action are repeated many times. In this case, not only the general appearance of the movement, but also the average strength of the load or the athlete (bicycle, boat) Some types of sports include different - cyclic and acyclic exercises. For example: a lot of wrestling in athletics; two ski fights; five modern fights. Therefore, the concept of "competitive sports exercise" and the concept of "sport" or "sports field" are often not exactly the same. The speed of movement over long distances is also relatively constant. Except for very short cyclic exercises (distances) and the initial part of any distance, that is, the period of acceleration, in which the speed of movement varies greatly. In other words, cyclic exercises are exercises that are performed on a relatively constant structure and strength. During acyclic exercises, the nature of the activity changes dramatically. These types of exercises include: all sports, martial arts, throwing, jumping, gymnastics and acrobatics, water and alpine skiing; figure skating exercises on skates. Acyclic exercises are also characterized by sudden changes in strength during their performance. This is true not only for competition, but also for training exercises (for example, running back distances at different speeds). An important classification characteristic of exercises (other than technical exercises) is their strength. Given the relatively constant strength of cyclic exercises,

they can be classified according to the average strength of the load during any part of the exercise. During acyclic exercises, the period of maximum activity (strength) is divided into working periods, which alternate with relatively small intervals of activity (strength), a period of complete rest (equal to strength).) may continue until the condition occurs. When classifying acyclic exercises, it remains unclear whether it is necessary to assess the strength of the main work cycles (peak of strength) or the "average" strength of the full-time exercise. The physiological characteristics of acyclic exercise vary with the use of each of these parameters. The mechanical or physical strength of an exercise is measured in watts, kgm / min with physical quantities. It determines the physical load. In many cases, it is difficult to accurately measure the physical load of exercise. In cyclic exercises, strength (physical load) and speed of movement (when the technique of movement is constant) are related to linear dependence, i.e., the higher the speed, the greater the physiological load. physiological (and psycho physiological) reactions of the organism to physical load determine the physiological capacity of the load or the physiological load applied to the body of the person doing the work. The concept of "physiological load" or "physiological strength" is close to the term "workload". When performing the same type of exercise, in each person, under the same environmental conditions, the physiological strength of the load is directly related to the physical load. For example, the higher the running speed, the greater the physiological load. (e.g., at high or low temperatures or air pressure) causes various physiological reactions. In addition, different physiological reactions are observed in the same person, by different muscle groups (arms or legs) or in different positions of the body (lying or standing), during physical exertion with the same intensity. For example, a canoe that performs the same physical activity (oxygen absorption rate) is very different from the physiological load (reactions) of canoeists, swimmers, or runners. As a result, people of different ages and genders have different functional abilities and levels of training. When an athlete performs different sports in different conditions, the physical strength of the exercise cannot be a criterion for

physiological classification. Therefore, as a classification indicator, physiological strength or physiological load indicators are often used. One of the indicators is the time limit for this exercise. In fact, the higher the physiological capacity ("workload"), the shorter the workload. V. S. Farfel, who analyzed the relationship between the speed of travel over different distances and the limit (record) time on the basis of world records, divided the "record curve" into four areas of relative power:

1. up to 20 seconds with a maximum duration of exercise (maximum strength area);
2. from 20 seconds to 3-5 minutes (submaximal power field);
3. from 3-5 minutes to 30-40 minutes (large power field);
4. More than 40 minutes (moderate power field).

This classification of cyclic exercises is widely used in sports. A different approach to the description of physiological strength is to identify relative physiological shifts. The nature and magnitude of physiological reactions in response to a single physical load depends primarily on the boundary functional capabilities of the leading (for this exercise) physiological systems. During the same physical activity, the rate of reactions (physiological shifts) is less in people with greater physiological capacity of the leading systems and, consequently, in people with much lower physiological capacity than in the leading (and other) systems and accordingly. the physiological load on the body as a whole is relatively less. The same physiological load is, for the latter, relatively difficult ("heavier" and, consequently, the time limit for its completion is shorter than that of the former. For example, two athletes perform the same absolute physical load with 3 l / min of oxygen. However, the maximum oxygen consumption of one athlete is 6 l / min and that of the other is 4.5 l / min. Accordingly, in these athletes, the relative physiological load on the oxygen transport system is different, because in the first, the physical work performed "loads" only 50% of the limiting capacity of this system, and in the second - 75%. Therefore, the relative physiological load of the first athlete is less than that of the second. Thus, the relative physiological strength (physiological load,

physiological stress, workload) is used to classify the exercise. Such indicators are the relative physiological shifts that occur in the leading physiological systems in response to physical exertion under certain environmental conditions. These shifts are determined by comparing the current performance of the leading physiological systems with the threshold (maximum) performance.

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