

# Sports Fitness: Paradoxes of Diagnosis

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Passed 30 years after the well-known of the Minsk Conference (1972) on how to determine athletes trenirovannosti higher level, where there was a radical Rethinking the concept of "fitness" and its methodology diagnosis. Fitness was interpreted not as a medical-biological phenomenon [39, 40, 19], as well as pedagogical categories - physical, sport-technical, tactical, moral and volitional and intellectual athlete's readiness to achieve the limit for him abroad [28, 42, 43, 29]. In essence, the concept of "fitness" merged with the notion "sporting preparedness" [49]. Right to her diagnosis was given coach [24, 52, 33], and the doctor by the traditional methods of monitoring health, medical care for injuries, illness, recovery, rehabilitation. The shift in focus, away from the biological essence of the concept "fitness" is not the best way reflected in the subsequent years to preparation of athletes, and in most sports medicine. "Fitness" as a basic postulate of science-based approach to modern sports training in the context of the concept of limit and progressive loads should to be a major problem in the practice of sport. However, this does not happen. Hence empirical approach to the regulation of stress and crisis in the substantiation of the essence sports training in light of the physiology and biology [15]. Excluding operational readiness, optimize the load can not be creatively to all complex process of sports training. Despite

Its need for sports medicine in sports section diagnosis trenirovannosti become unclaimed [8, 15], has lost its significance as assistant athlete, a coach in their work [12, 13, 14]. Apparently, this can explain unexpected failures, performance failures, illness, injury and distrust of sports medicine.

Sports Medicine was forced to shift to rehabilitation and recovery that certainly shows a great cost of sports. It is no coincidence steel generated reconstruction and rehabilitation centers [11, 13].

Exhausting, extreme training load in the mode of training of athletes - this nonsense. It should not be. This approach to training is contrary to nature rights, laws of biology [54].

In integral understanding of the term "fitness" means state of the organism, which is achieved by means of any training load the contents of which may be different in their impact and character. Hence the specificity of the expression "coached" properties organism - the ability to undergo changes in the implementation of muscle, intellectual, emotional, etc. loads. Despite the different nature of

perturbing factor genesis (physiological patterns of occurrence and Development) is the same. In fact, the term "fitness" equivalent to the concept of "health", which refers "state of complete physical, mental, social well-being" [64].

Sports fitness, for that matter, and ballet, - the result of training, ie special state of the body associated with the overall impact of exercise on rights.

Important condition in the development and formation of trenirovannosti (not only Sports) is the optimal impact of the stimulus. Optimal load, causing physiological stress, eustress by Selye [55], stimulates positive morphofunctional changes in the body, making it more intensive mode. Those loads that go beyond the optimal (Refers to the extreme, debilitating), lead to distress, to irreversible depletion of reserves of adaptation - disadaptative [36, 37, 4, 5]. To hard limit loads no habituation, as there is no habituation (adaptation) to Diseases. They can only be transferred without the health consequences, if preceding loads were optimal [13, 14].

Previous generation of specialists in sports fitness regarded as athleticism [38], associated with certain motor skills. However, in those years, it was noted that the qualifications are not always equivalent to good health. The fact that someone is ably supported in boxing, skating, skiing, game types, etc., does not mean that he is healthy in accordance with modern concepts (criteria) of this condition [22, 23, 19, 14].

C terms of physiology, the state trenirovannosti rights - is a reaction (response of excitable systems to internal and external stimuli) functional systems aimed at obtaining useful results [2, 30, 45, 44, 65].

When talk about "trenirovannosti sports", then it is the ability or property of an organism to perform certain work on muscle a long time without development of fatigue. At one time, now in the distant for us years former president of the International Federation of Sports Medicine, Belgian Professor A. Goverts [17] very well said that "fitness" is a condition which mobilizes whole system of the organism, to enable them to adapt to all physical actions "(emphasis added. - VV). Later studies and observations on trenirovannosti confirmed this idea [53, 16, 14, 19].

Modern Diagnosis of sports trenirovannosti is still difficult to realize. There are very divergent views on the evaluation of qualitative and quantitative criteria for this specific state of the organism, as well as methods by which success is achieved in the diagnosis [6, 20, 21, 23, 24, 33, 35, 41]. Historically, that the traditional method for use of a complex of different methods of functional diagnostics, study simultaneously several body systems [39, 40, 19, 20, 67, 26] can hardly capture the nuances of oscillations morphofunctional changes in the organism in relation to its true state specific in general. Range scatter optimal values of the phenomenological nature (structural, functional, biochemical) are

incredibly great at one stage or another development of sports trenirovannosti that enough is stretched in time: approximately 6 - 8 months for beginners and 1 - 2 - by qualified athletes). Objectively, we can estimate only the responses to a particular load on the background of a certain state of health, and that if this estimate is customized for a sufficiently long period of time. Results can not always be interpreted as the state trenirovannosti because there is no integral, the most characteristic features indicating a high adaptability of the organism to tense muscles activities, except, of course, control prikidok, ie determine physical performance [6, 35]. Phenomenological approach gives to judge only on the state of health in the traditional sense -- presence or absence of disease and only. Even the physical tests efficiency IGST, Masters, PWC170 [34, 35] does not always allow us to confidently talk about the true state of readiness of the organism to extreme stress. When leaving the state of high operational readiness (trenirovannosti) value tests often remain high. Operability even in the early development of overtraining is not always a tendency to decrease (broken only its stability).

Lead reason for the difficulties of diagnosing trenirovannosti is that does not include subjective data. Ignored his self-esteem athlete state, ready for a competition, his mood. Wellbeing medical practice, subjective data are interpreted as the objective. Without subjective symptoms virtually impossible to diagnose, because it They suggest that the athlete is at maximum possible performance - sports uniform.

Objective data in conjunction with the subjective reinforcing the true state of sports trenirovannosti.

Addition integrated approach using multiple methods of functional diagnostics trenirovannosti apply more so-called valuation method "benchmarks" [38], which investigated only one functional system. As a rule, used four criteria: cardiovascular endurance (the ability of the heart and lungs pump blood and saturate whole body oxygen), muscular fitness (strength and endurance of muscles); flexibility (the ability to carry out joint motion in a wide range without pain), body composition (what part of the body is fat). By testing these appearance and condition, can be measured "personal health", which is directly linked to the regime (the character) training that was called "health fitness" [38]. Of course, with such approach is not available diagnostics sport trenirovannosti. Unless method is widely spread. For example, we apply the immunological method Determining the state of immunological resistance in different states an athlete [14].

Sports training as a process of improving the physical manages coaching link with the teaching methods [50, 51, 58, 59, 60, 9, 27, 29, 46, 47, 48]. Diagnosis of the trenirovannosti carried Sports medicine , Doctors-functionalists. Diagnosis and management of state trenirovannosti - The prerogative of the doctor. Medical examinations are being implemented: the definition physiological and biological

patterns of phenotypic adaptation, the process exhaustion (fatigue condition) and recovery of energy cumulation sources. Used for these purposes, as a rule, systematic approach, history, anthropometry, somatoskopiya, the whole complex of instrumental methods functional diagnostics systems.

addition state sports trenirovannosti in sports practice, there is another specific and somewhat unusual condition of the organism, which as a "sporting form" (SF). From the standpoint physiological form of sport - the same state as the state trenirovannosti, ie adaptive state and is considered the final phase adaptation to extreme-limit work with the manifestation of the phase the highest operational readiness. However

state of fitness - still not a synonym for state trenirovannosti, although differences almost symbolic, at least they are objective methods -- undifferentiated state. Difference - in subjective symptoms, results of control prikidok and timing the duration of exposure. Fitness as a primary state of adaptation is the material base, basis for the formation of SFs. In its manifestation SF has latent (hidden) period. It is no coincidence the right diagnosis of both of these states (adaptive phase adaptation of the organism to stress) given to the doctor. That physician acts unifying element in the analytical-synthesized reading research functional state of the organism.

Giving coach leading role in determining trenirovannosti, we thus to limit simplify (to put it mildly) the problem of diagnosis. She and the doctor is not always a virtue, and the more - the coach who has no medical training. But it is of man. The interpretation of health data - still the prerogative doctor (and, of course, not physiology, psychology, biochemistry), to which he has moral and legal right.

Coach defines sport preparedness (technical, physical, tactical and etc. [49, 47]), physician - health. This determines the Union doctor coach who is currently virtually non-existent. The decision of the Minsk Conference 1972 reflected a negative so far, with particularly noticeable in sports higher achievements. Both

Condition (two sides of the same coin), in fact, result adaptive processes. From this perspective one can speak about the same, only about the different phases of a specific health condition - trenirovannosti. Objectively, the results of the reactions they do not differ from each other, for Except subjective characteristic symptoms that are most strongly expressed in the phase of highest operational readiness - fitness: good mood, great feeling, feeling a sense of freshness, vivacity, "explosion", a great desire to serve competition, ease in performing complex exercises and final segment work. Unfortunately, the duration of fitness in time is short (7 - 10 days). The body can not long remain in the regimes maximum efficiency (natural phenomenon!).

C Given the above physical shape should be designed for each material competition. In the practice of sports training during the long stages and training

periods empirically, can spontaneously arise and develop state of fitness. Sportsmen acyclic sports (games, boxing, gymnastics, etc.) begin to celebrate the "courage" in fulfilling its action, increased efficiency in cyclic (running, skiing, skating, etc.) - The feeling of "is" [14].

On that interval training works inexpedient to increase the load and especially to increase its intensity.

In formation of the state of fitness and participation in the management of sports physician required. During this period, its significance is enormous. Empirical way to highest state of operational readiness is not good. In sports need to enter consciously preparing to compete in close collaboration doctor and trainer. Long to keep the limit on the level of functional capacity impossible. Should be remembered about the natural phenomenon of "economization" (optimization) functions [54].

In as an objective method to diagnose the health of the practice of sport is used immunological resistance of the test sample using one of main components of the immune system - with a parallel study of phagocytosis metabolic activity by cytochemistry [61]. Phagocytosis was indicator not only in relation to other branches of immunity (system Complement; cell - T and B lymphocytes, humoral), but also in the diagnosis general state of the organism [10, 15, 56, 57, 63, 66]. Indices of Wright -- the average number of microbes (*Staphylococcus aureus* or *E. Colli*), phagocytized one neutrophil; Hamburger index - the number of phagocytic neutrophils from 100 study [1, 7].

Integrity phagocytosis and metabolic activity allows you to manage and formation *trenirovannosti* status, influence the choice of methods of sports training, regulate and optimize the training load.

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