

PHYSICAL EFFORT CONCEPT

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The physical effort is defined as a movement request with well defined characters, depending on its parameters.

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“The efforts represents a co-native mobilization conduct, a concentration and acceleration of physical and psychical efforts within a system of conscientious and unconscientiously self-adjustment in order to surpass an obstacle, of overcoming an environment resistance and of its own person”. In the sport training, we are especially interested in the physical efforts, which by its action involve the muscular, energy, transmission and procession of information system, and establish a certain request degree of body, a request that by its stress character, changes the homeostasis level¹, fixing it for the time being at a higher level.

Along time, many authors have tried to express definitions of this notion. Therefore, E. Avramoff shows that the physical effort of training reduces to a process of increase of the body adaptation capacity to the action of physical stimuli. In other words, the physical training is a conscientious and methodic action, having as purpose the valuation and increase of the adaptation possibilities of each function of the body.

Hollman and Hettinger consider the effort as a systematic repetition of movement actions that have as goal the performance improvement without evident changes.

A. Demeter (1994) defines the physical training as a complex pedagogic process, organized on a long period and finished by consecutive and optimum adaptations, until reaching the maximum adaptation, expressed by reaching of maximum sportive mastership and its maintenance along time.

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¹ *homeostasis* – dynamic balance state of the bio-chemical functions and processes of the body, which are translated by a permanent constancy of physiological functions (body temperature, artery pressure etc.).

In the science of sport, from the methodic point of view, the effort is considered a conclusion and permanent learning process, of which execution form includes a certain number of repetitions issued in different manners.

It is remarkable the double request of the body in the effort: on the one hand, *the physical request*, respectively of the somatic and vegetative sphere, and on the other hand, *the psychical emotional request* involved in the effort. Therefore, body in effort is in a generalized request.

I. Drăgan (1994) shows that the training method is permanently evolving, and its objective base is the physiological support. In his opinion, the training is considered as a complex, multilateral, psycho-social, morphofunctional and method-pedagogical process, which follows the creation of an individual with a high sanogenesis level, a higher resistance degree to different environment or endogenous factors, with a high effort capacity and an adequate neural-cortical and neural-endocrine-vegetative environment, all being materialized in the possibility of procurement of certain special sportive performances. He states, too, several physiological principles of training, like: accessibility (ability of resisting to an effort), multi-laterality (complex and multilateral development of sportsman), individualization (correlation of activity to the age, sex, hetero-collateral and personal antecedents, health state, functional capacity), continuity (permanent character of training), effort grading (progressive increase of effort), use of supported efforts in training (the big efforts are efficient means for the increase of functional efficiency of the body, of stability of the internal environment - homeostasis), alternation of effort with the recovery (the effort is the ergotrope side, the recovery being the trophotrope side).

From the biological point of view, the physical and especially the sportive effort is an adequate biological stimulus that obliges the body to answer by electrical, mechanical and thermal manifestations. This stimulus, when is well dosed and taken according to the individual's particularities, leads to quantity and quality accumulations aiming the procurement of maximum performance.

This way considered, the sportive training is made of charges that, by their volume, intensity, density, complexity, specificity and type, lead to functional adaptations or the issuance of certain technical-tactic coordination goals, whereby the systems subject to training are required on the adaptation limit.

The effort size may be considered by two perspectives: "from outside" and "from inside". Seen "from outside", it is characterized by indicators like: specificity, volume, period, magnitude, density and complexity, which condition the functional, morphological changes necessary for the increase of performance capacity. For its development, it is necessary the use of certain

stimuli², of which characteristics are established based on certain methodologies that, implicitly organize and orient their management.

The specificity of stimuli is established by their characteristics, by the reactions provoked to the systems of the body, priority involved, by the psychological qualities of sportsman, by age, training level, by their position in the sub-structure of macro-cycle, by the environment conditions etc.

The stimulus specificity is given by the structure of movement, which selects the required muscular groups, the period of this request, the type of neural-muscular, metabolic and adaptation action of the osteo-tendon structures, but also by the assembly of functions they drive upon a precise hierarchy and order, effects that implicitly determine the composition of training programs.

A. Dragnea (1996) states that the sportive training is a long term process, established as a movement-functional system in order to issue a certain performant conduct in the competition. This conduct is the result of higher adaptation of body to intense physical and psychical efforts.

Gh. Cârstea (1999) considers the training as an instructive-educative process, systematically and permanently developed, graded, of the human body adaptation to intense physical and psychical efforts, for the purpose of procurement of high results in one of the competitive practicing forms of physical exercises.

D. Evuleț-Colibaba and I. Bota (1997) sharing this point of view say that the effort is the result of multiple requests (muscular, cardio-respiratory, neural-endocrine-metabolic and psychical etc.), which the human body is subject to during the provision of a different kind of activity. The requests (stimuli) *are cause-phenomena* that provoke *effect-phenomena* (body reactions).

The physical effort is defined as represented by the whole of movement acts, coordinated for the performance of an adequate mechanical thing, which has on its basis the optimum transformation of chemical energy into mechanical energy – a phenomenon that is only met in the contractile biological systems.

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² *stimulus* – any change that produced in the natural or social environment, which provokes an excitation or a change.

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