

Chapter 04 : BIOENERGETIC ASPECTS IN MODERN SPORTS TRAINING

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In the field of training management, the current trend is oriented towards essentially bioenergetic references. The exercises, means of training, are listed in aerobic lactic or alactic: in terms of terrain in endurance or resistance (HEGNER, 1990). In addition, the progress made in the knowledge of muscular energetics makes it easier to develop a training session and the choice of exercises best suited to the objectives pursued. This great clarity contrasts with the confusion of the multiple "recipes" which are still the prerogative of certain coaches. Duration, intensity, number of repetitions, duration and nature of recovery are the different factors of the exercise which make it possible to direct the desired physiological impact.

Platonov (1988) characterizes modern training by a set of fundamental aspects that can be unanimously agreed upon regardless of the sport in question. These include:

- an increase in the overall quality of work performed in training;
- an optimal relationship between different training methods, particularly between continuous and interval training methods, with an intensity close to 90% of the best performance on the one hand, and competitive testing and effort on the other;
- training aimed at supporting increasingly significant efforts by focusing on the effort phases and less on the recovery phases (as in the interval method), resulting in an optimal relationship between effort and recovery;
- training that is very close to the competitive situation, therefore specific and planned around the most important event of the year;
- a monitoring system (tests) to verify the functional state of the players and the team;
- finally, a very high level of motivation, essential for achieving high-level performance.

II.1 Training load:

By training load, we mean an increased functional activity of the body (compared to the initial level) induced by the training exercises and depending on their degree of difficulty (MATVEEV, 1983). Therefore, the training load allows to judge or test the potential of the individual. During physical work, the athlete works until fatigue appears. The waste accumulated in the body during work stimulates the recovery processes; the athlete not only recovers the energy molecules expended, but also a phenomenon of "overcompensation" is observed.

The relationship between the level of athletic performance and the level of load used is not directly proportional, but the general trend shows that each improvement in results undeniably corresponds to a prior increase in training loads. The increase in load occurs as the athlete's level progresses and must be planned. The workload is therefore a function of two parameters: volume and intensity.

- The volume of a training load refers to the persistence of its effect and the total amount of work performed during an exercise or series of exercises (MATVEEV, 1983)
- The intensity of the load is related to the volume of work provided at the functional intensity involved, taking into account the impact of the load at each moment of the exercise or during a unit of time (MATVEEV, 1983, p. 42)

The adaptation processes of the athlete's body are determined by the nature, magnitude and direction of the loads.

II.1.1 The nature of the load :

The nature of the loads is defined by whether they are training or competition loads, specific or non-specific loads. This nature is also defined by the framework in which it is inserted: load linked to the exercise, to the training day, to the cycle (micro, meso, macrocycle) or to the training year. The specificity of a load is defined by the analogy of the exercises that constitute it with the activity of the competition. This analogy is established from the external indices of the competitive activity (PLATONOV, 1984)

II.1.2 The magnitude of the load:

The magnitude of the charge depends primarily on its volume and intensity. The volume of the charge characterizes a quantitative part of the charge, and the intensity determines its qualitative side.

When planning loads, volume and intensity are assessed by absolute and relative quantities. The load is subdivided according to the magnitude of its influence on the athlete's body, into maximum, large and small loads. ALTBURG (1971), KOURAMSHINE (1981) and particularly KORIAGINE (1973), KONDRACHINE (1978) and PREOBRAGENSKY (1979) determined levels of the volume of loads in basketball and that of its intensity according to five quantities distributed as follows: