SPORTS TRAINING IN NON-STANDARD CONDITIONS (ALTITUDE AND TRANSMERUADIN TRAVEL)

A Challenge for Coach and Scientist

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The training in non-standard conditions is inseparable part of the annual preparation of the highly qualified sportsmen. Its place, structure and content depend by the complex impact of numerous factors, connected with the strategy of the sports preparation, for the respective macro-cycle (four-year period, one-year period or six months period). The scientific studies and the rich practical experience show that high altitude training may solve many tasks, connected with all structures of the training process. Due to the specifics of the type of sport, the typical features of the periodization and the individual adaptive potential of the athletes, it is always concrete and specific. The high altitude training should be considered as a powerful, non-standard, stress factor, which leads to qualitatively new structures and functional changes in the organism of the sportsman. The scales of these changes are defined, to a greater extend, by the system of the training impacts and the specific conditions of the environment. The training sessions at altitude, in the practice of the elite athlete, usually are concentrated in a separate stage or meso-cycle of the three main periods of the sports preparation – preparatory, competitive and transit, in form of a camp, in mountainous conditions. In this way, the effect from the high altitude is multiplied by the favorable influence of the high mountainous environment.

The adaptation to the hypoxia has mainly two trends:

- *widening the capacity of the systems for the acceptance and the transport of the oxygen;*
- *improvement of the mechanisms for assimilation of the oxygen* from the tissues and the economics of energy of the organism, by changes on a cellular and sub-cellular level.

The duration of the recovery of the normal rhythm of the organism, after long flights may be achieved, for a period from 1-2 days up to 7-10 and more days. This depends on many factors, among which the following may be pointed out:

- the type of sport or the sports discipline /quicker adaptation is observed in the types of sport with a simpler structure and uniform loading, without an extensive load of the different functions of the organism;

- the individual potential of each athlete;
- the character of the competitive activity and of the training process, which is held before the participation in the competition, during which a long travel is necessary /sportsmen, who participate in many competitions and are forced to change frequently the time belts adapt very quickly and more accurately/;
- the direction of the flight /east or west/;
- the preliminary preparation before the flight – 7-10 days may help, to a greater extend, the process of adaptation;
- the adaptation to the time differences develops in three phases:
  - first phase – 1-2 days are characterized with the existence of stress reactions;
  - second phase – main adaptation – 3-5 days – gradual stabilisation of the functions;
  - third phase – permanent adaptation – 8-12 days – steady functioning of the different systems of the organism and returning of the normal homeostasis.
- the phase of re-adaptation, in returning back to the normal time belt continues from 1 up to 3 days.

Many endurance athletes utilize altitude training. While it was once a controversial topic, researchers now universally agree that when done correctly altitude training offers many benefits.