Training by functional areas.

When referring to the Functional Area we refer to those areas in which a determined level of intensity to direct and quantify the training loads of a runner. They are of great importance since their knowledge allows us to apply training loads in a more effective way, which will be closely related to the intensity and volume of them and their respective functional responses in the body of the athlete.

Since the middle of the last century runners had been training with methods more or less similar to what is to training by Functional Areas, Nett, Reindell. Gerschller and Other researchers talked about aerobic and anaerobic training. Later, after many studies led mainly by Hollman, Keul, etc. it was begun to divide the areas of work in a greater number of training zones, from the sub aerobic zones: one, two, three, Vo2 max where the main energy mechanism supply is the oxidation of fats, although in these areas all energy mechanisms are used depending on the intensity of the work as well as another division, the anaerobic functional areas with their sub division between lactic and alactic areas, where the use of anaerobic glycolysis is the main source of energy.

Few months ago I was talking about this subject with my friend Msc. Federico Pisani, who is an outstanding mountaineers and climbers coach from Venezuela, he and me agree that had been a high level competitiveness and specificity of training that currently some runners have achieved in the in the world, that may to divided up to 9 to 11 those sub divisions of the zones of training.

In most studies conducted by researchers such as Maglisho, Mader, Mazza, Navarro and others divided the aerobic zone into sub threshold, supra threshold and VO2 max. García Verdugo in his book "Resistance training for runners" which I lend to Pisani and he has not yet returned me yet (lol), presents a differentiation in aerobic zones and lactic zones, and Navarro begins to use terms such as anaerobic threshold and aerobic potency as the more intense area, both of those areas with great influence on maximum oxygen consumption.

In summary, we can see that even though each author gives a different name, all agree in the same way that work at different intensities produces different effects on the organism.

To make it more understandable we will summarize it according to the following nomenclature

Z1 Regenerative area

Z 2, Z 3 and Z4 Sub aerobic area.

Z5 a Super aerobic area.

Z5 b Maximum oxygen consumption

Z6 Lactic anaerobic tolerance area.

Z7 Alactic Capacity Area.

Regenerative area Z1 (Aerobic Threshold)

Training in this area has as main objective the recovery after competitions, the training sessions or the trots between series. It can also be used for warming up or to cooling down, for a trot the day after a competition, a demanding training or for the first minutes when starting a long trot or when returning to training after an injury.

It is an area of great importance in terms of recovery processes, since has effects on aerobic activation, capillary, cardiovascular stimulation and respiratory, the oxidation of fats, and for the removal and oxidation of residual lactate.

Approximately this zone is located at less than 85% of the anaerobic threshold is located.

Sub aerobic area Z2, Z3 and Z4.

In these zones or functional areas the aerobic capacity is increased, the oxidation of fatty acids and there is an increase in the number and size of mitochondria with an improvement in the threshold anaerobic among other benefits.

Working time for this area can range from 30 minutes to 3 hours of career according to the objectives to be achieved. These areas are undoubtedly the most used in any type of training and can represent around 70% of the total volume of training in the macrocycle, being the physiological effects dependent of the percentage of VO2 or the heart rate at which trains produced between one area and another. This zone is located at approximately between 86 and 99% of the anaerobic threshold.

Z 5a Anaerobic threshold.

In this area the amount of fatigue is incremented due that lactate is accumulated in the muscle and the the body's ability to eliminate it is compromised. It can be considered as the maximum intensity in events lasting between 20 to 60 minutes of duration, without producing an irreversible increase in lactate levels in blood and muscles. The training in this area makes runners able to remove the lactate. When trained in this area the anaerobic threshold is improved producing an increase in VO2max.

It is that race rhythm located between 100 and 102% of the threshold step.

Z5b Maximum oxygen consumption.

Running at these training rates allows you to reach the highest levels of combustion oxidative so workloads cannot be sustained for very long periods of time, prolonged continuous races can be maintained for up to 20 to 30 minutes so it is consider a 10 km race running pace.

A training carried out at its maximum level of consumption of oxygen can be sustained up to 5 to 7 minutes of continuous effort becomes very difficult to perform, for that reason it is recommended to fractionate the training with a good recovery to improve the level of VO2 max.

Through this type of training there is an increase in aerobic potency, increases the efficiency of the oxygen with modifications central and peripheral transport and diffusion system.

The aerobic combustion of glucose is carried to maximum capacity, while the oxidation of FGA is it is reduced to a minimum.

The percentages of the anaerobic threshold pace for this type of training are located approximately between 103 and 106% of the anaerobic threshold.

Z6 Area of lactic anaerobic tolerance.

To train these race rhythms requires that the energy to perform those jobs is obtained above the maximum oxidative capacity with a large energy contribution coming from anaerobic glycolysis. Basically it is of great importance for middle-distance runners, but even so it does not stop being used in the preparation of distance runners, since they train those high ranges of intensity provide an improvement in VO2 max and aerobic potency while allowing the recruitment of highly specialized fibers to solve races in the final phases of the competition. Its percentage in relation to the anaerobic threshold exceeds 105% of this.

Z7 Alactic Capacity Area.

This training zone can be said to be destined for sprinters since the rhythms of are so fast that they do not provide much help for long distance runners, this is because energy substrates used are related to the efficiency of the ATP mechanism and its use in long distance races it is bot common, being a typical efforts for sprinters.

An increase in the speed of glycolysis is observed and fats are not used as a substrate energetic. Percentage to train in this area can reach beyond the 110% of anaerobic threshold.