



Hydrovit R+

Ergo-drink, what is it for?

Regular physical activity is, without any doubt, healthy for human bodies. Many scientific studies have shown the effectiveness of regular exercise on enhancing efficiency of cardiovascular, respiratory and musculo-skeletal performance. Throughout regular exercise it is possible to improve heart functions, improve muscular strength and endurance, and maintain the body more efficient with aging. Elite athletes know that only through training optimisation it is possible to reach great results. An optimal training program is not only based on the definition of the exercises and training methodologies to use. In fact, alternating training and recovery is of paramount importance for developing an optimal training “project”.

Optimal nutrition is also important before and after physical exercise, since it helps in optimising training and recovery.

In order to reach high performance levels it is necessary for sure to develop individualised training programs based upon individual characteristics of single athletes and based upon the performance demands of the sport in which the athlete is involved. Not only that. A correct nutrition plan able to furnish the correct amount of nutrients and satisfy daily energetic needs is able to favour supercompensation.



Supercompensation is characterised by complex physiological responses of the body determining adaptations to the external stimuli applied with training. In simple words, when the body undergoes to physical stress, it reduces its performance capacity for a certain period of time based upon the effort load. This reduction is due to the biological reactions able to re-adapt the body and bring it to an higher performance level. Reaching an higher performance level is termed supercompensation.

Systematic and well-planned training, based upon the above mentioned biological reaction, can lead to supercompensation and performance enhancement.

Training is important as such as recovery for favouring supercompensation.

A correct nutritional plan can speed up this biological process permitting more frequent training sessions and the possibility of quickly reaching the optimal performance level. We have mentioned before the metabolic energy.

In human bodies all biological reactions require energy. Energy is obtained through degradation of macronutrients (carbohydrates, proteins and lipids) received through nutrition. The capacity of swimming, running or skiing for long time is strictly dependent on the individual capacity of extracting energy from food and transfer it to contractile elements in muscles.

How is energy transferred to muscles ?

Of course energy is not directly transferred in muscles. Some enzymatic reactions are needed in order to extract chemical energy and furnish it to the body. The molecule



which transports energy in human body cells is ATP. ATP is formed by a molecule of adenine, ribose and three phosphate groups. Its degradation determines energy release which is captured by the cells. The amount of ATP in the body is extremely reduced, so, when biological structures require energy, some nutrients are broken down to favour its formation. ATP re-charge is possible through creatinphosphate breakdown, Carbohydrates breakdown and fats beta-oxidation. Then, all macronutrients contribute to ATP re-charge in the body. These reactions can be activated with or without oxygen.

Metabolic processes performed without oxygen are termed Anaerobic processes, the ones performed with oxygen are termed Aerobic processes. In aerobic-type physical activities, muscle fuels is mainly furnished by carbohydrates and lipids. In Anaerobic-type activities it is thanks to creatinphosphate and anaerobic glycolysis that energy is furnished.

During physical activity muscles' mechanical work, heart rate and blood flux determine an increase in body temperature. Climate also contributes in increasing those physiological responses. The most known physiological response is sweating. This response is needed to lower body temperature and it requires energy and determines a loss of electrolytes (mostly sodium).

During physical activity is then needed to supply electrolytes in order to maintain stable the water-electrolyte balance. In extreme dehydration conditions it is very



difficult to have an effective training/performance. Cramps are often observed in those cases.

Lower levels of electrolytes, diminished energy support, and increase in metabolites determine reduction in performance and in training capacity. To counterbalance this physiological situation it is necessary to adopt a nutritional strategy before and after physical activity.

What can we do during intense physical activity ?

A lot ! In fact, utilising a sport drink can be useful in supplying electrolytes lost with sweating and also carbohydrates which are broken down to favour ATP furniture to the muscles. Utilising ergodrinks is useful for this reason: supply electrolytes and energy.

Most of the sportdrinks nowadays on the market are mainly developed to have a good flavour, rarely their composition is optimal for the function they are used for. A good sport drink needs to have a good flavour of course, however it has to be based upon some scientific principles in order to be effective. During physical activity, a sport drink has to quickly furnish energy. During performance has to supply quickly energy and electrolytes. Due to this reason, the carbohydrates composition has to be able to permit quick absorption. Scientific studies have shown that an optimal beverage should contain a carbohydrate concentration ranging from 5% to 8% (Burstein et al. 1994; Ryan et al., 1989; Yaspelkis e Ivy, 1991).



Greater amounts are not more effective, they can also impair fluid absorption and add sugar and calories.

Our sportdrink Hydrovit R+ has been developed with the amount of carbohydrates indicated in literature. This concentration has been in fact indicated as the most effective in favouring fluid absorption and quick energy supply. Ingesting carbohydrates has been shown to be effective in enhancing performance and delay fatigue (Coggan and Coyle, 1988; 1991; Mitchell et al., 1989; Criswell et al, 1991; Kanter, 1996).

With sweat, body fluids and electrolytes are lost, in particular sodium and potassium up to 1 liter per hour (Costill, 1977). Supplying fluid lost is necessary for optimising cardiovascular function and for thermoregulation during exercise. Between electrolytes, sodium has been shown to be extremely important since it can favour restoration of extracellular fluids and, in particular, plasma volume (Nose et al., 1988). Then, sodium supplementation has been shown important as referred to performance (Latzka e Montain, 1999; Maughan e Shirrefs, 1997; Galloway, 1999). Drinks containing sodium are able to influence extra-cellular fluids' restoration and plasma volume.

We know different types of carbohydrate. Hydrovit R+ contains a carbohydrate mix (glucose, fructose and D-Ribose) optimal for quick fluid absorption and for rapid restoration of glycogen during physical activity. Ribose favour ATP re-charge which



is the biochemical energy primer of the body. Ribose has been shown able to enhance ATP levels in humans (Wagner et al., 1991) and

in light of the latest research findings is one of the most effective nutrients in helping the body to naturally recover energy lost during physical efforts.

It is also important to underline that beverages containing caffeine and CO₂ cause absorption problems and discourage fluid consumption during exercise. Caffeine is also able to favour dehydration.

Based upon the above mentioned principles, the research staff at Medisport has developed a new sport drink to be utilised during or after physical efforts. The new sport drink contains all the optimal nutrients for favouring fluid absorption, supplying energy and electrolytes.

A study conducted on repeated sprinting performance in soccer players has shown lower levels of lactate in athletes drinking Hydrovit R+ as compared to placebo.

Lower reduction of average power in continuous jumping has been also observed following sprint training in handball players consuming Hydrovit R+ as compared to a placebo group.

Our data show that Hydrovit R+ is an effective sport drink !



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