

NUTRITIONAL GUIDELINES DURING TRAINING & COMPETITION

Food and fluid intake during exercise may help to maintain adequate energy and hydration levels. A drop in hydration levels may adversely affect performance as it may increase the perceived rate of exertion so that fatigue is experienced earlier. If total body water levels drop below normal, body temperature may increase and cause an elevated heart rate.

GOALS	GUIDELINES
<p>Provide energy and support optimal blood glucose levels</p>	<ul style="list-style-type: none"> • Consume 30 to 60g carbohydrates per hour. • Carbohydrate sources with different release rates together with protein may enhance blood glucose control. • Peptides have a fast absorption rate and beneficial effects are achieved with the consumption of 1 to 2% protein per solution (refer to <u>benefits of protein peptides</u>).
<p>Replenishment of fluid and electrolytes lost</p>	<ul style="list-style-type: none"> • Fluid requirements vary between athletes, exercise types and particular situations because fluid loss is affected by genetics, body size, gender, age, fitness level, environment, exercise intensity, diet and habitual environment. It is thus impossible to prescribe fluid guidelines that will meet all athletes' needs. The general recommendation is to drink according to thirst. • Sports drinks containing carbohydrates (6 to 10% per solution) and electrolytes (e.g. sodium, potassium, magnesium, etc.) are better absorbed than water, but the duration and type of event determines what is best. Fluid is best absorbed by the body when the solution is hypotonic or isotonic.
<p>Delay the onset of fatigue</p>	<ul style="list-style-type: none"> • Ensure adequate intake of carbohydrates and pH buffering agents (minerals and protein).
<p>Support recovery and the immune system</p>	<ul style="list-style-type: none"> • The consumption of carbohydrate and protein during exercise may reduce recovery time after exercise. • Vitamins and glutamine (free or protein-bound) benefits the immune system.

Practical Application:

You need to determine the type and amount of food and supplements you are able to tolerate. It is recommended to start with ± 500ml Octane 4.0/ Octane XTR or 2 Octane gels and additional water per hour. You may also add a PVM Energy bar or make use of a combination of different supplements.

Guidelines to Prevent Gastro-Intestinal Discomfort:

- Consume 30-60g carbohydrates per hour which is the maximal amount that can be oxidised during most exercise routines.
- Avoid large quantities of fat, fibre and fructose.
- Avoid hypertonic drinks (mix supplements according to manufacturer's directions)
- Make sure that bottles are well cleaned before use.

Myths:

1) Electrolyte Deficiencies Cause Cramping

The exact cause and mechanisms of muscle cramps are not fully understood. The current scientific view is that cramps are a physiological phenomenon and are not due to nutritional factors. Muscle fatigue is a possible cause of cramps, because fatigue disrupts the mechanisms of muscle contraction. Fatigue is poorly understood, but it is possible that factors such as oxygen levels and metabolic products may play a role in disrupting muscle contraction, leading to cramps. Muscle conditioning plays an important role in the tolerance of the factors that cause fatigue and subsequent cramps.

Other factors like dehydration and heat may be involved, but few athletes develop cramps due to these factors. Dehydration and exercising in extreme temperatures are not direct causes of cramps, but these factors increase the risk because sodium and fluid losses are high. Sodium is involved in the neuronal control of muscle contraction, therefore low sodium and fluid levels can stimulate muscle receptors causing involuntary contraction and cramps.

Very little magnesium, potassium and calcium are lost during exercise which makes deficiencies unlikely causes of cramps. **No evidence exists that any nutrient (s) can prevent cramping.**

2) Caffeine Causes Dehydration

It was believed that caffeine causes dehydration because it inhibits the anti-diuretic hormone (ADH) so that urine production is increased. Although this is true, the net effect of consuming a cup of coffee or tea was shown to contribute to a positive fluid balance. Furthermore, there is no research supporting a significant effect of caffeine on sweat loss and fluid balance during exercise that would adversely affect performance. Individuals react differently to caffeine and it is therefore recommended to test during training first before consuming during competitions.