

Nutritional requirements of intense activity

Physical activity increases energy expenditure by the muscles. The body mobilises its energy stored as glycogen in muscles and as fat to provide for the increased energy requirements. At the same time fluid loss is increased through sweat and breath. This fluid loss is a combination of water along with mineral salts and other trace elements. The amount of energy expended and fluid lost varies according to the type of exercise, the duration, temperature, and by individual too.

Carbohydrate

Carbohydrate is the main source of energy for intense exercise. It is stored in the muscles as glycogen. During exercise these glycogen stores are depleted. Once the stores are used up, the same intensity of exercise cannot be maintained, and the exercising individual will be forced to slow down or stop the activity. By ensuring that muscle glycogen levels are adequate before exercise, and by topping up with carbohydrate during exercise, the activity can be maintained at a higher intensity for a longer time. An athlete's diet should provide at least half of the energy from carbohydrate sources (such as starches found in bread, potatoes, rice and pasta, and sugars found in fruit and sweet foods and drinks).

Fat

Small amounts of fat in the athlete's diet are essential and stored fat may be used as a source of energy in prolonged exercise. Protein is needed to build and maintain body tissues. Any excess protein eaten over that required will be converted and stored as fat or excreted.

Fluid

Fluid is one of the most important aspects of the diet for athletes. The more vigorous the exercise and the longer the exercise goes on, the greater will be the potential fluid loss. It is essential that this fluid is replaced regularly throughout the period of exercising, and immediately after. As a variety of salts are lost through sweat in addition to water, it can be useful to replace these too, to help to ensure optimal performance.