

Sport & Nutrition

Good nutrition is fundamental to sport.

The appropriate diet is important to enhance sports performance while optimising and maintaining overall health and wellbeing.

Introduction

Certain nutrients have specific roles in sports performance and adequate fluid intake is vital for hydration.

Sports differ in terms of intensity, endurance and training programmes, hence nutritional needs may need to be tailored in accordance. Nonetheless, this guidance sheet highlights the essentials of sports nutrition and provides dietary advice to enhance sports performance.



Where does the energy for exercise come from?

Carbohydrate and fat are the main sources of energy in the body. Carbohydrate is stored in the muscle and liver as glycogen, however the storage capacity of glycogen is limited. Fat reserves, on the other hand, are unlimited. During sport, the body metabolises energy from both glycogen and fatty acids. Fatty acid metabolism is dependent on the presence of oxygen, whereas glycogen is not. Although training improves the body's ability to use fatty acids for energy, some carbohydrate will always be used. As glycogen stores are used up, fatigue sets in and the body becomes tired. Hence, carbohydrates are essential to maintain glycogen stores and therefore provide energy for sport. Starchy carbohydrates are best, although sugary sources may be useful when rapid or a high amount of energy is required (See list of carbohydrate-based foods on the back page).

Before Sport

- Adequate glycogen stores is key to sports performance, therefore consuming a carbohydrate-rich meal 3-4 hours before the event is recommended. The amount of carbohydrate needed will depend on intensity and time of the previous training session and intensity and endurance of the anticipated event.
- Ideally, the meal prior to sport or exercise should be carbohydrate-based, low in fat, contain some protein and be easy to digest. Rice and pasta dishes with a tomato-based sauce and a small serving of meat are ideal.

During Sport

- Experts recommend consumption of small amounts of carbohydrates during intense exercise lasting longer than 1 hour. Also, carbohydrate intake may be useful in prolonged events or events with intermittent performances such as tournaments.
- Carbohydrate intake via fluids e.g. flavoured milk or commercial sports drinks may be more practical.



After Sport

- The body replenishes glycogen stores at a faster rate after sport, therefore eating carbohydrate-rich foods as soon as possible after exercise or training is ideal. If you find it difficult to consume solid food after exercise, carbohydrate-rich drinks are useful alternatives e.g. flavoured milk.
- It is important that glycogen stores are sufficiently refuelled before the next training or sports session. If sessions are scheduled close together, significant efforts should be made to consume carbohydrate-rich foods. If glycogen is not adequately restored, consequences include fatigue or poor performance.

What about protein?

Exercise increases protein requirements, however, these requirements are not as high as many athletes think! The typical diet consumed by most athletes supplies adequate protein for their needs, and there does not appear to be any benefit in consuming extra large amounts. It is thought that the consumption of some protein immediately before and after exercise may be beneficial to muscles. Therefore, including protein in a carbohydrate-based snack after training may be beneficial e.g. small cheese or meat sandwich, yogurt or flavoured milk.

Are vitamins and minerals important?

Athletes should aim to, at last, achieve vitamin and mineral recommendations set for the general population. A diet incorporating a range of foods should realise such targets. Iron and calcium have been highlighted as two minerals which deserve extra attention. Some athletes may suffer poor iron status due to food restrictions, while calcium is of particular importance for bone health among young female athletes who have reduced levels of oestrogen.



Hydration

During exercise the body generates heat, which is lost through sweat. These fluid losses must be replaced in order to maintain performance and avoid dehydration. Drinks containing sodium (in correct proportions) assists water absorption and the rehydration process. Athletes should be fully hydrated prior to exercise. Fluid consumption may be required during prolonged exercise. Ideally, fluid intake should match fluid loss, remembering to take into account continuing sweat losses during the recovery period. Training sessions should be used to develop a fluid strategy. Commercial sports drinks are available, but recent research shows that skimmed milk may be a more effective post-exercise rehydration drink¹.

¹ Shirreffs SM *et al.* British Journal of Nutrition 2007; 98: 173-180.

Carbohydrate-based foods

- 1 Banana
- 1 Orange
- Flavoured Milk
- Bread/Toast
- Small Sandwich
- Scone and Jam
- Breakfast Cereal and Milk

For further information contact:



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