

SPORTS DRINKS

For optimal performance, athletes should aim to be hydrated and adequately fuelled during exercise. Sports drinks are designed to provide the right balance of carbohydrates and fluids, to ensure that they are emptied quickly from the stomach and are rapidly absorbed from the small intestine.

It is well accepted that consuming carbohydrates can have performance benefits in a range of sporting events. Carbohydrates provide a fuel source for muscles and the brain, and contribute to the palatability of sports drinks. Ideally, the carbohydrate concentration of a sports drink should range between 6-8%. High carbohydrate solutions can impair gastric emptying during exercise.

Sports drinks include the electrolytes sodium and potassium. Sodium containing beverages can encourage fluid intake by driving the thirst mechanism. Sodium also increases fluid absorption and retention. Sports may also help with salt replacement for athletes who are heavy or salty sweaters. Most commercial sports drinks contain sodium in the range of 10-25 mol/L and in the case of some sports waters, even lower. The addition of potassium to sports drinks is beneficial to assist with muscle contraction during exercise. Some beverages marketed as sports drinks have other added ingredients like vitamins, minerals, proteins and herbs.

Hypotonic drinks contain a lower concentration of salt and sugar than the human body. It quickly replaces fluids lost by sweating. It is suitable for athletes who require fluid without a carbohydrate boost e.g. gymnasts. Most sports drinks are moderately isotonic, containing sugar 13–19 g/250 ml.

Hypotonic

20-40 g sucrose

1 l warm water

1.5 g ($\frac{1}{4}$ tsp) salt (optional)

Sugar-free/low-calorie squash for
flavouring (optional)

100 ml fruit squash

900 ml water

1-1.5 g ($\frac{1}{4}$ tsp) salt (optional)

250 ml fruit juice

750 ml water

1-1.5 g ($\frac{1}{4}$ tsp) salt (optional)

Isotonic drinks contain similar concentration of salt and sugar as in the human body. It quickly replaces fluids lost through sweating and supplies a boost of carbohydrate. This is preferred for most athletes.

Isotonic

40-80 g sucrose

1 l warm water

1-1.5 g ($\frac{1}{4}$ tsp) salt (optional)

Sugar-free/low-calorie squash for
flavouring (optional)

200 ml fruit squash

800 ml water

1-1.5 g ($\frac{1}{4}$ tsp) salt (optional)

500 ml fruit juice

500 ml water

1-1.5 g ($\frac{1}{4}$ tsp) salt (optional)

Hypertonic drinks contain a higher concentration of salt and sugar than the human body.

Normally it is consumed post-work out to supplement daily carbohydrate intake and top-up

muscle glycogen stores. This is taken during ultra-distance events to meet the high energy demands. It must be used in conjunction with isotonic drinks to replace lost fluids.

Sports drinks are used to replace lost fluids and provide energy during ultra-distance events.

Hypertonic

400 ml of orange quash

1 litre of water and a
pinch of salt

Sports drinks may be used by athletes before an event to fine tune their fluid and fuel intake. The carbohydrate tops up muscle glycogen fuel levels, while the added sodium may reduce urine losses before exercise begins. Sports drinks are primarily designed for use during exercise, for optimal fluid and fuel delivery. They will allow the athletes to perform for longer and more effectively in training and competition. During recovery after the event, sports drinks also assist to meet individual's nutrition recovery goals by replacing fluids lost in sweat and also assists with refueling targets to replenish glycogen stores. When aggressive rehydration strategies are required, drinks with higher sodium content may be more useful. To meet all recovery goals, the ingestion of sports drinks should be complemented with other foods and fluids that provide additional carbohydrate, protein and other nutrients essential for recovery.