



Sports Drinks



What is a sports drink?

Sports drinks are functional beverages used by active Australians for rehydration, refuelling and to support athletic performance.

While beverages including water, cordial, juice and soft drinks provide fluid and therefore can help provide hydration following or during sporting activities and exercise, they are not typically the products that come to mind when the term 'sports drink' is used.

Generally, reference to sports drinks relates to beverages containing carbohydrates and electrolytes. Many people choose drinks with electrolytes for rehydration due to sweat loss. These consumers range from athletes to ordinary Australians working out in the gym, exercising, or participating in organised or non-organised sport. Sports drinks are designed to deliver carbohydrates, electrolytes and fluid to allow an athlete to simultaneously rehydrate and refuel during and after exercise.

The term 'electrolyte drink' is defined by the Australia New Zealand Food Standards Code and is also commonly referred to as a 'sports drink'. Today, sports drinks are popular around the world as an effective way to rehydrate.

Sports drinks can vary widely in composition. When determining the most appropriate type of beverage for rehydration and replenishment of fuel, many factors should be considered including the intensity and type of exercise, fitness levels and environmental conditions¹.

It is challenging to prescribe a universal beverage that will meet the needs of all athletes or active people who use beverages for rehydration and refuelling.

¹American College of Sports Medicine. Exercise and fluid replacement: Position Stand. Medicine & Science in Sports & Exercise, 2007.

Introduction to electrolyte drinks and sports drinks

How are electrolyte drinks defined?

The definition of electrolyte drinks is governed by Food Standards Australia New Zealand [FSANZ] under Standard 2.6.2 of the Food Standards Code:

An electrolyte drink means a drink formulated and represented as suitable for the rapid replacement of fluid, carbohydrates, electrolytes and minerals.



For a product to be called an electrolyte drink, the product must have a prescribed composition under Food Standard 2.6.2.

Prescribed composition of electrolyte drinks and electrolyte drink bases:

- Carbohydrate (specified sugars) 50-100 g/L
- Sodium ≥ 10 mmol/L (230 mg/L)
- Osmolality (isotonic only) 250-340 mOsm/L

Standard 2.6.2 permits isotonic electrolyte drinks to carry a claim to the effect that the product is designed to promote the availability of energy and to prevent or treat mild dehydration that may occur as a result of sustained strenuous exercise.

Carbohydrates

Carbohydrates are the body's fuel. They are macronutrients which provide energy to cells, particularly brain and muscle cells during exercise². The body breaks down carbohydrates during the process of metabolism to release energy, and the body is also able to store a limited amount of carbohydrate as glycogen in the muscles and liver. The most common type of carbohydrate found in sports drinks is sugar.

Insufficient fuel can result in fatigue, a reduced ability to train, impaired competition performance, and a decrease in immune system function².

Electrolytes

The most common electrolytes (also called salts) found in sports drinks include sodium and potassium. These are present to support hydration through driving thirst and increasing absorption and fluid retention. Salts in electrolyte drinks also help replace those lost through sweating.

Drinks that are lower in sodium may not be as suitable for rapid rehydration which might be required after a period of particularly intense exercise. Potassium is also present in sports drinks which supports normal electrolyte balance and may assist with muscle contraction during exercise, as referred to in Schedule 4 of the Food Standards Code.

Other ingredients

As manufacturers of sports drinks innovate, additional beneficial ingredients may be found in beverages within this category. These can include minerals, vitamins and protein. Sports drinks that contain added vitamins are considered Formulated Beverages under the Food Standards Code.

Sports drinks are occasionally confused with energy drinks. Energy drinks are considered Formulated Caffeinated Beverages under the Food Standards Code and have a completely different composition and purpose to sports drinks.

Flavourings

Sports drinks can be found in a wide range of flavours, providing consumers with a great range of palatable products. Flavourings are added to sports drinks to improve the taste of the product so consumers enjoy the beverage as well as benefitting from consuming it¹. Only flavourings permitted under the Food Standards Code are used.

Sugar alternatives

To improve the taste of some sports drinks and allow for lower sugar varieties not defined under Food Standard 2.6.2, sweeteners are added to some drinks.



² American College of Sports Medicine, Academy of Nutrition and Dietetics, and Dietitians of Canada, Nutrition and Athletic Performance, Medicine & Science in Sports & Exercise, 2016; 48(3): 543-68.



When to use a sports drink

Pre-exercise

To ensure some very active people and athletes are adequately fuelled and hydrated before they start their physical activity, they may require a pre-exercise meal or snack. Easily digestible foods and drinks containing carbohydrates can be very effective as a source of pre-exercise fuel.

It is important to determine what the best food or fluid is to fuel the exercise to be undertaken in order to prevent early fatigue, decreased endurance and an upset stomach.

Sports drinks, particularly electrolyte drinks, can provide a valuable source of nutrients that may be required by the body during exercise. All electrolyte drinks must comply with Food Standard 2.6.2, and contain carbohydrates and electrolytes that might be required depending on the intensity and duration of exercise.

Consuming sports drinks before exercise can help athletes start in a well hydrated and appropriately fuelled state. This may be necessary when exercising for long periods of time, and in hot or humid conditions¹.

During exercise

Sports drinks, particularly electrolyte drinks, contain carbohydrates to provide fuel for those doing intense, sustained exercise.

The formulation of these products may allow the consumer to continue exercising at a higher level and for longer, due to the provision of fuel while the activity is ongoing¹.

Evidence also suggests that carbohydrates can reduce fatigue and improve performance during intermittent exercise or team sport³.

Recovery

Many athletes are dehydrated after exercise. It is important that they rehydrate and refuel soon after exercise. The urgency is dependent on the type of exercise that has been conducted and when the next training session or competition is scheduled. When choosing the best foods and drinks for recovery, consider the need to refuel and rehydrate, as well as the need for muscle repair and growth.

Post-exercise fluid needs vary between individuals as well as with the type of exercise and environmental conditions. The fluid that is lost through perspiration contains electrolytes which must be replaced to allow for adequate hydration and healthy bodily function. The electrolyte content of sports drinks may help support effective rehydration by replacing electrolytes lost through sweating by driving thirst and increasing absorption and fluid retention¹.

Recovery should be supported by refuelling with carbohydrates. Consuming foods or fluids high in carbohydrates after exercise can maximise effective refuelling time².

Protein intake helps muscle growth and maintenance, making it important for post-training recovery. In addition to protein intake, recovery meals and snacks should also include sufficient fluids to replenish water lost through sweating.

³ Baker LB, Rollo J, Stein KW, Jeukendrup AE, Acute Effects of Carbohydrate Supplementation on Intermittent Sports Performance, *Nutrients*, 2015 Jul 14;7(7):5733-63.



Typical composition of a range of sports drinks, including some common electrolyte drinks

Example fluid	Carbohydrate (g/100mL)	Electrolytes/salts (mg/100mL)	Other ingredients
Gatorade Performance	Sucrose 5.5 Glucose 0.5	Sodium 51 Potassium 22.5	
Gatorade G2	Sucrose 2	Sodium 46 Potassium 13	
Gatorade G-Active	0	Sodium 45 Potassium 14	Vitamin B3 Vitamin B5 Vitamin B6
Powerade ION4 Isotonic	Sugars 5.8	Sodium 28 Potassium 33 Calcium 14.7 Magnesium 5.9	
Powerade Zero	0	Sodium 51	
Mizone Sport	Sugars 3.7 (Dextrose Sucrose Fructose)	Sodium 23	Vitamin C Vitamin B3 Vitamin B5 Vitamin B6 Vitamin B12
Maximus	Sucrose 6.0 Maltodextrin 1.6	Sodium 30 Potassium 47 Magnesium 4 Calcium 2	



Who should drink sports drinks?

Choosing a sports drink depends on the individual, their needs, the type of activity and exercise intensity as well as the timing of consumption (before, during or after exercise) and the environment.

From playing sports, working out, undertaking active recreational activities, to home exercising, there are a number of settings in which sports drinks, particularly electrolyte drinks, might be suitable for consumption.

Many Australians consume electrolyte drinks to help them reach their maximum potential, while others may consume them after exercise as a recovery aid. However, it's important to recognise that a sports drink or electrolyte drink may only be beneficial in certain circumstances, primarily in conjunction with high intensity exercise and endurance sports/activities.

Active adults

The best beverage for active adults depends on a variety of factors including the amount and intensity of exercise and the environment.

Australia's hot climate means exercising outdoors can result in the significant loss of fluid and salts which must be replaced.

In some circumstances, when light exercise is carried out, water or sports waters may be sufficient in order to replace fluids.

For consumers who are looking to lose weight and reduce their kilojoule or sugar intake, an electrolyte drink may not be necessary.

Active adolescents

The nutritional needs of adolescent athletes should be carefully considered in conjunction with a caregiver and sports dietitian. Unlike adults, adolescent diets must also consider nutrition for growth and development, in addition to providing nutrition for activity⁴.

For adolescents participating in prolonged and vigorous physical activity, such as competitive sports tournaments, they may benefit from consuming sports drinks.

The consumption of electrolyte drinks or sports drinks may only be suitable for adolescents engaged in competitive sport. The totality of the diet should be considered with a sports dietitian prior to the consumption of sports drinks.

⁴ Desbrow B, McCormack J, Burke L.M & Cox G.R. Sports Dietitians Australia Position Statement: Sports Nutrition for the Adolescent Athlete. International Journal of Sports Nutrition and Exercise Metabolism, 2014; 24(5):570-584.

Frequently asked questions

How much exercise is required before I should consume a sports drink?

A: There isn't a set amount of exercise as this varies from person-to-person, the type of exercise undertaken, and the particular exercise goal. Generally, those exercising vigorously for 60-90 minutes or more could benefit from an electrolyte/sports drink.

How much sweat would I lose during exercise?

A: Sweat rates vary between individuals and different environmental conditions.

Is plain water just as good as an electrolyte drink?

A: Water is essential for life as it is involved in several functions in the body including regulating body temperature and maintaining proper fluid balance (homeostasis). Water always has a place during sport and exercise when it comes to hydration.

Sweat does not just contain water, but also salts. These important salts require replacement. Water is an effective drink to replace fluid in general and when exercise is at low intensity or for a short duration. For those who exercise at high intensity or for long periods, however, drinks containing carbohydrates and electrolytes such as electrolyte drinks are beneficial and may be more appropriate than water alone.

Will consuming a sports drink affect weight loss?

A: Consuming sports drinks, like any other energy (kilojoule) containing food or beverage, may affect weight loss if the energy consumed is not expended. All electrolyte drinks under Food Standard 2.6.2 must contain a certain level of carbohydrates and therefore energy. The energy in electrolyte drinks may be unnecessary for Australians looking to lose weight or for those who do not exercise vigorously.



What are some of the other options for staying hydrated?

A: Electrolyte drinks offer a convenient and quick way of hydrating and replenishing the energy used and salts lost during vigorous exercise. For less vigorous exercise, rehydration may be achieved by consuming water, milk, fruit juice (with no added sugar) or other oral rehydration solutions. Combining a meal or snack with water will help replenish both fluids and salts.

Are sports drinks suitable for children?

A: Children do not need to consume sports drinks. Some adolescents who are involved in competitive sport may benefit from the consumption of sports drinks, particularly electrolyte drinks, but these should only be consumed with the advice of a professional. Adolescents who are not taking part in vigorous exercise do not need to consume sports drinks.

Further information

For further information about sports drinks and other non-alcoholic beverages, please visit australianbeverages.org

Additional resources

Australian Sports Commission
sportaus.gov.au

Sports Dietitians Australia
sportsdietitians.com.au

