

The purpose of sports drinks during aerobic activities

Maintain hydration
CHO to prevent hypoglycaemia for endurance athletes
Re-hydrate post workout
Replace electrolytes lost in sweat
Supplement CHO stores and fuel muscles
Protect against free radical damage

A 1 % decrease in bodyweight results in an increased heart rate (HR) and decreased cardiac output (usually an increase of 8 beats per minutes)

A 2% decrease in bodyweight results in a decrease in aerobic endurance

Examples of average sweat rates: working out at 70% VO₂ Max in 21 degree temperatures results in a 1 L fluid loss per hour- most sports due not allow athletes to consume enough to replace all losses.

General Fluid Replacement: try to develop a fluid intake pattern to meet sweat losses and at tolerable levels during activity- tie this pattern over to competitions- drink small amounts of fluids at frequent intervals.

Sports Drinks:

Base is water + light texture + light flavour + non-carbonated + slightly acidic

The fluid loss in sweat is much more than the electrolyte losses- Sodium is important for fluid retention post workout and for glucose transport across the intestinal wall, also so that we do not dilute our blood sodium content (result = hyponatremia)

Electrolyte Content of a sports drink should be:

40-80mg sodium per 100ml (to maintain plasma volume osmolality)

10-30mg potassium per 100ml

40-70mg chloride per 100ml

5-20mg magnesium per 100ml (to prevent muscle cramping, especially in hot weather)

Examples:

Gatorade has 11 tsp sugar per 710ml bottle

PowerAde has 16 tsp sugar per 710ml bottle

CHO content between 4-8% CHO- we cannot use much more than 1-1.2g CHO per minute (max usage rate)

GOAL- 30 to 60 g CHO per hour during activity (or 0.7g CHO/Kg bodyweight/hour)

At higher temperatures you want more fluids consumed at a lower CHO content, closer to 4% CHO

Type of CHO: simple, rapid digestion, mixture of simple CHO sources (combo of glucose and fructose)- highest rate of exogenous CHO uptake at 1.2g per minute

Adapted from John Ivy, ISSN 2006 presentation
Prepared by Heather Hynes, RD

