

Fluids and Foods *DURING* Training/Competition



During exercise, nutrition provides:

- Energy
- Physical comfort; absence of hunger
- Mental focus for best technique and skill execution

Targets:

- Optimal fluid and electrolyte intake
- Carbohydrate to maintain blood glucose

Why?

- To prevent excessive dehydration.
- To prevent excessive changes in electrolyte balance.
- To avoid drinking more fluid than needed to replace sweat loss.
- To ensure energy to train or compete.

Fluid needs vary with your sweat rate, sport, and environment (temperature, humidity, altitude). Monitor your body weight changes during training and competition sessions to estimate sweat loss.

To find out how much is optimal and comfortable, test the amount and type of fluid and food in training – never during competition!

DURING exercise:

- Drink freely from 0.4–0.8 Litres per hour.
- Drink more on days when you train harder.
- Drink more during hot, humid weather.
- Drink some fluid when training in cold weather.
- When training or competing for more than an hour, consume some carbohydrate (e.g. a sport drink or snacks).

Carbohydrate beverages: For sessions longer than an hour, carbohydrate helps maintain focus, technique, and energy. Aim for 0.7 g carbohydrate per kg body weight per hour (about 30–60 g carbohydrate per hour), taken at 15–20 minute intervals.

The recommended beverage for optimal fluid absorption during exercise has **40–80 g carbohydrate/L** and **0.5–0.7 g sodium/L**.

- Sport drinks provide water, carbohydrates, (40–80 g/L) and electrolytes (e.g. sodium, potassium).
- Fruit juice (100–160 g/L carbohydrate) needs to be diluted by half for rapid absorption and sufficient hydration during exercise.
- Energy drinks and soft drinks are too concentrated for rapid absorption and will slow rehydration during exercise.

You can make your own sport drink by mixing:

- 500 mL unsweetened orange juice
- 500 mL water
- 1.5 mL salt

One litre = 54 g (5.4%) carbohydrate and 0.5–0.7 g sodium.

Salt: Sport drinks contain salt (sodium), which is helpful for athletes training or competing for several hours and consuming large amounts of fluid.

CONVERSION: 250 mL = 1 cup = 8 oz.

DURING EXERCISE – Focus on Fluid and Carbohydrate

Water is an effective fluid replacement drink for short (less than one hour) exercise sessions.

Athletes consume more when the fluid:

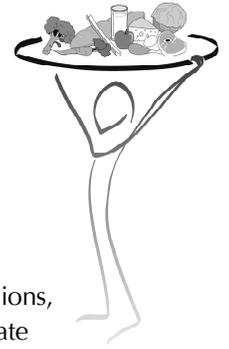
- Is easy to access (right beside them).
- Is a flavour they like.
- Is chilled (about 10 degrees C).
- Has sodium added (0.5–0.7 g/L enhances flavour and thirst).

SNAC Sport Nutrition Advisory Committee
Comité consultatif sur la nutrition sportive

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Snack ideas *DURING* prolonged exercise:

For training sessions lasting several hours and during competition, emphasize fluid and carbohydrate-rich snacks during rest breaks.

The amount you consume will vary according to the amount of time available between the snack and the next bout of exercise. Allow time for digestion.

During exercise or for short exercise breaks (less than 1 hour):

- Diluted fruit juice or a sport drink
- Fruit (dried, fresh, canned, or pureed)
- Bread, pretzels, or crackers and vegetable juice
- Cereal, sport, or energy bars
- Arrowroot, fig, oatmeal, or similar low-fat cookies
- Plain or chocolate milk or meal replacement beverage
- Fruit yogurt or fruit smoothie

For a longer break in exercise (1 to 2 hours):

- Juice and a bagel with peanut butter
- Yogurt, fruit, and water
- vegetable juice and a lean meat sandwich
- Fruit, cookies, and chocolate milk

For a small meal between practices or events (about 3 hour break):

- Fruit, cereal, and milk
- Fruit, vegetable soup, lean meat sandwich and milk
- Steamed vegetables, juice, rice, chicken or fish, yogurt

Avoid bacterial contamination of meals and snacks. Keep cold foods cold and hot foods hot. Bacteria reproduce quickly at room temperature.

During short breaks between exercise sessions, choose foods that are higher in carbohydrate and lower in protein, fibre and fat. This will allow for quick digestion and absorption of fluid and carbohydrate into the body, helping prepare you for the next bout of exercise.

- Plan ahead and be prepared.
- Carry snack items, or know where you can buy them.

For information on planning your meals and snacks, see these CAC resources:

- For an overview of your nutrition needs during training, refer to [Training Diet: Everyday Eating](#).
- For a list of examples of high carbohydrate foods, refer to [Energize with Carbohydrate!](#)
- To learn how to meet your fluid needs during exercise, review [Fluids for Athletes](#).
- To create a meal plan for your training needs, see [From Training Diet to Meal Plans](#).

For help with planning your snacks before exercise, contact the dietitian at your [Canadian Sport Centre](#) or someone listed under the [Sport Nutrition Registry](#) on the CAC website. If there is no dietitian with expertise in sport listed in your area, [Dietitians of Canada](#) may list a dietitian near where you live.

