

Sports Nutrition for Youth: What to Eat Before, During and After Activity Module

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Introduction

The information contained in this module has been adapted from [Sport Nutrition for Youth: A Handbook for Coaches](https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-sports-nutrition-for-youth.pdf), <https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-sports-nutrition-for-youth.pdf>. The information in the handbook is based on current research and best practice in sports nutrition at the time of publication. These modules aim to support coaches who work with recreational athletes, rather than elite athletes. Coaches should always consult a sports dietitian for young athletes who compete at an elite level or who need special nutrition advice.

These short learning modules highlight the key sport nutrition concepts that coaches can teach their athletes and parents. Coaches can deliver content from the modules in the dressing room, on the bench or during formal discussions. No technology is required. There are a total of six sport nutrition modules available and they include:

- What to Eat Before, During and After Activity
- What to Drink Before, During and After Activity
- Planning for Tournaments, Competitions and Travel
- Choosing Healthy Drinks
- Nutrition Supplements and Sports Performance
- Alcohol and Sports Performance

How to use this module

Key teaching points: These spotlight the main nutrition messages from the module to share with athletes and parents.

Background information: This section provides greater detail and research about the topic of each module including explanations of the ‘what’ and ‘why’ behind the key messages.

Materials for athletes: These tools and resources include websites and handouts that can be passed along to your athletes and parents to provide extra ideas to support healthy eating for athletes.

Time to deliver the module: The module could be delivered in 5–15 minutes depending on how much time you have with your athletes and how much detail you want to go into with them. If you only have a few minutes, the key teaching points could be delivered in about 5 minutes and then you could provide your athletes and parents with the handouts for further information. If you were to go through the teaching points as well as the background information it could take about 10–15 minutes.

Sport nutrition guidelines

Note: For more detailed information on supplements, please refer to pages 79–86 of *Sports Nutrition for Youth: A Handbook for Coaches*.

- Nutrition and Hydration Guidelines *before* activity: pages 31–33
- Nutrition and Hydration Guidelines *during* activity: pages 34–40
- Nutrition and Hydration Guidelines *after* activity: pages 41–42
- Learning activities: pages 43–44

Hydration is also a key part of sport nutrition. Please see the *What to Drink Before, During and After Module* for specific timing, amounts and types of fluids recommended, as well as supporting handouts.

Key teaching points

1. Proper nutrition and hydration before activity can improve mental and physical performance.
2. The timing of meals is vital for best performance.
3. The types of foods athletes eat are important for energy, performance and recovery.
4. Athletes need to test new foods and drinks before training sessions rather than before a competition in case these items cause stomach upset or other physical effects during activity.

Background information

Nutrition guidelines before activity

- The best foods to eat before activity are those high in carbohydrates with moderate amounts of protein. These foods should also be lower in fat and fibre to reduce the chance of stomach upset.
- High carbohydrate foods digest quickly and should be the main source of fuel for activity.

The timing of meals is vital:

- Beginning an activity with food in the stomach may cause cramping or nausea.
- Eating a meal 2–3 hours before an activity gives an athlete’s body time to digest food and convert it to energy to fuel muscles.
- When it is not possible to eat a meal 2–3 hours before an activity, athletes could simply have a snack 1–2 hours before. This snack will help prevent hunger and provide energy for the activity.

Sample pre-activity meals:

- 2 slices toast with nut/seed butter, a piece of fruit and skim or 1% milk
- chicken sandwich on whole grain bread with low fat cheese and mustard, and unsweetened apple sauce
- stir-fried roast beef and vegetables with brown rice and skim or 1% milk

Sample pre-activity snacks:

- granola bar, low fat yogurt cup and a banana
- low fat cottage cheese, pear slices and an English muffin
- half a roast beef sandwich on whole grain bread with mustard instead of mayonnaise

Nutrition guidelines during activity

- Proper nutrition and hydration during activity can improve mental and physical performance.
- Athletes need to test new foods and drinks during training sessions rather than during a competition, as there is a chance that these items may cause stomach upset or other negative effects.
- In most cases, an athlete will not need to eat during activity if they have eaten enough to fuel their muscles and body before they train or compete.
- For *intense* activities lasting longer than one hour, athletes should ingest 30–60 grams of carbohydrates in small amounts during each hour of activity and drink enough fluid to maintain hydration and energy levels.

Examples of good carbohydrate food choices include:

- 1 large banana (30 grams carbohydrate)
- 1 medium orange (12 grams carbohydrate)
- 1 cup watermelon (11 grams carbohydrate)
- 4 dried apricots (13 grams carbohydrate)
- 1 box (28 grams) raisins (22 grams carbohydrate)

Nutrition guidelines after activity

The timing of a snack or meal following an activity will depend on the amount of time between training sessions or competitions.

Less than 24 hours until next activity:

- Athletes who have less than a full day to recover between sessions should eat food sources of both carbohydrate and protein within 30 minutes of finishing the activity. It is important to eat within this time frame for muscles to fill their glycogen stores.

More than 24 hours until next activity:

- Athletes who have more time to recover between sessions can refuel with food sources of carbohydrate and protein at their next regular meal or snack. There is no need to refuel within 30 minutes of activity to achieve enough glycogen storage in muscles if the athlete has more than 24 hours to recover.

Frequently asked questions about nutrition

Should athletes use sports food products?

Like sports drinks, food products such as sports gels, beans, chews and bars can help athletes refuel blood sugar levels and electrolytes during intense activity lasting more than an hour. However, unlike sports drinks, these products do not provide hydration during intense activity where the athlete sweats a lot.

It is important to note that sports food products are not ideal food choices for athletes to consume before or after activity because they are low in fibre, high in sugar and calories and do not follow Canada's Food Guide. Sports products can also be quite costly, and it should be noted that the use of famous athletes in ads for these products may lead young people to believe they need to use these items to be better at sports.

If an athlete wishes to consume sports food products during intense activity, they need to consider the following:

- Use the Nutrition Facts label to work out the amount of the product needed to consume to get 30–60 grams of carbohydrate per hour of intense activity
- Check the ingredients list for sugar substitutes or caffeine, which are not recommended for youth
- Drink enough water with these products to prevent stomach upset and to ensure good hydration

Materials for athletes

These supporting handouts that you can share with your athletes and parents can be found on the following pages:

- What Should I Eat Before Activity?
- What Should I Eat During Activity?
- What Should I Eat After Activity?

What Should I Eat Before Activity?

It is important to eat enough food before activity to fuel your muscles and brain for good mental and physical performance while you are active. High carbohydrate foods digest quickly and should be the main source of fuel within 2–3 hours before activity.

Meals and snacks should have a lot of carbohydrate, but only a medium amount of protein (one food guide serving of Meat and Alternatives or Milk and Alternatives) to make sure your stomach empties before activity. Choose foods that are low in fat and lower in fibre, to prevent gas or stomach upset.

Best to choose before activity: High carbohydrate but not too much protein, fibre or fat
Pasta in tomato sauce
Wrap or tortilla with lean meat (chicken breast, ham)
Poached eggs on dry toast
Cereal such as oatmeal
Bread, buns, pita, tortilla, English muffin
1% or skim milk
2% milk fat (M.F.) or less yogurt with fruit
1% M.F. or less cottage cheese and fruit
Fruit smoothies made with milk rather than juice and with no added sugar or honey
Fresh fruit, carrots, potatoes, yam

Best to avoid before activity: Higher fat OR higher fibre
Hamburgers
High fat meats and cheeses
Deep-fried foods, French fries or potato chips
Bran muffins (higher fat and higher fibre)
Ice cream
Cream-based soups or sauces (such as Alfredo)
Chocolate
Peas, beans and lentils (too much fibre before activity, so choose these after activity)
Cabbage, broccoli or cauliflower (too high in fibre before activity, so choose these after activity)

Adapted from Alberta Health Services, Sports Nutrition for Youth: A Handbook for Coaches

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Before a competition, always eat familiar foods that do not cause stomach upset or cramps when you are active. Do not try a new food before a competition!

When Should I Eat?

If you begin an activity with food in your stomach, you will likely have cramps or upset stomach. Eat your meal two to three hours before an activity to give your body time to digest the food and convert it to energy to fuel muscles.

If it is not possible to eat a meal two to three hours before an activity, you can still eat a snack one to two hours before you begin. This snack will help prevent hunger and provide energy for the activity.

Be sure to drink water with your meal or snack to help you stay well hydrated.

Sample Meals 2–3 Hours Before Activity

Include all four of the Canada's Food Guide food groups in your meal 2–3 hours before your activity:

- 2 slices toast with 30–45 mL (2–3 Tbsp) nut or seed butter, a piece of fruit and 250 mL (1 cup) skim or 1% milk.
- Chicken sandwich with 30 g (1 oz) lower fat cheese, mustard and 125 mL (½ cup) unsweetened applesauce.
- 60–90 g (2–3 oz) roast beef and 250 mL (1 cup) vegetables combined in a stir-fry and served over 250 mL (1 cup) brown rice with 250 mL (1 cup) skim or 1% milk to drink or 175 g (¾ cup) yogurt for dessert.
- 2–3 poached or scrambled eggs wrapped in a tortilla shell with fresh or grilled vegetables and 30 g shredded lower fat cheese with a bowl (250 mL) of fruit salad on the side.
- 60–90 g (2–3 oz) grilled fish (such as salmon) with at least 250 mL (1 cup) grilled or steamed vegetables and a large baked potato with salsa and 15 mL (1 Tbsp) sour cream.

Sample Snacks 1–2 Hours Before Activity

Include at least two food groups in your snack 1–2 hours before your activity:

- Small granola bar, 175 g (¾ cup) low fat yogurt and a banana.
- 60 mL (¼ cup) low fat cottage cheese, 250 mL (1 cup) pear slices and an English muffin.
- ½ roast beef sandwich with mustard instead of mayonnaise.
- 250 mL (1 cup) plain oatmeal made with skim or 1% milk and garnished with fresh apple slices and cinnamon.

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What Should I Eat During Activity?

Proper nutrition and hydration during activity will help improve your mental and physical performance while you train and compete.

If you are active for less than an hour, you do not need to eat during activity so long as you eat enough food before you start.

You may need to eat during activity to provide energy to your brain and muscles if:

- You are involved in an intense, nonstop endurance activity that lasts longer than one hour (such as running, cycling or cross country skiing).
- You have only eaten a small meal or snack before activity and you run out of energy.

If you are doing an intense activity for more than one hour, you can aim to eat 30–60 g of carbohydrate per hour. You also need to drink enough fluid to stay hydrated.

You can spread out this carbohydrate intake by snacking on food, sipping a sports drink or a combination of both.

During a competition, always eat familiar foods that do not give you an upset stomach or cramps while you are active. Do not try a new food during a competition! Test new foods during training instead.

Examples of food choices for carbohydrates include:

- 1 large banana (30 g carbohydrate)
- 1 medium orange (12 g carbohydrate)
- 250 mL (1 cup) watermelon (11 g carbohydrate)
- 8 dried apricots (26 g carbohydrate)
- 1 small box (28 g) raisins (22 g carbohydrate)

Should I Use Sports Food Products?

Food products such as sports gels, beans, chews and bars can help you replace blood sugar and electrolytes (sodium and potassium) during intense activity that lasts more than an hour. However, these products do not keep you hydrated when you sweat a lot so you need to drink water at the same time.

Sports food products are only helpful during activity. They are not healthy food choices before or after activity because they are low in fibre and high in sugar and calories. It is better to choose real foods at these times.

If you choose to consume sports food products during intense activity, be sure to:

- Use the Nutrition Facts table to work out the portion of the product you need to get 30–60 grams of carbohydrate per hour of intense activity.
- Choose items that have no caffeine or sugar substitutes or you may get an upset stomach.

Drink enough water (125 mL (½ cup) every 15 minutes) at the same time.

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What Should I Eat After Activity?

Proper nutrition and hydration are important after activity, training, or competition to refuel your muscles and repair tissue. To refuel your muscles, you need to eat carbohydrate and protein when you are hungry for your next meal or snack.

Carbohydrate rich foods:	Protein rich foods:
Fresh, frozen, or canned fruit	Lean meat
100% fruit juice or dried fruit	Fish
Bread, bun, pita, flat bread, or bagels	Poultry
Cereal	Tofu
Pasta	Beans and lentils
Rice	Nuts, seeds, or nut/seed butter
Couscous	Cheese (20% M.F. or less)
Quinoa	Cottage cheese (2% M.F. or less)
1% or skim milk or unsweetened fortified soy beverage	1% or skim milk or unsweetened fortified soy beverage
Yogurt 2% M.F. or less	Greek yogurt (2% M.F. or less)

Meal and snack ideas include:

- 1 medium banana with 250 mL (1 cup) of skim or 1% milk
- 175 mL ($\frac{3}{4}$ cup) bowl of granola with 250 mL (1 cup) of skim or 1% milk
- 175 mL ($\frac{3}{4}$ cup low fat yogurt) with 125 mL ($\frac{1}{2}$ cup) of fresh berries
- 1 slice wholegrain toast with 15 mL (1 Tbsp) peanut butter and 1 small apple

How Soon Should I Eat After Activity?

The timing of your snack or meal after activity depends on how soon you will be active again.

If you have less than 24 hours until your next activity:

Eat foods that provide both carbohydrate and protein within 30 minutes of your activity. It is important to eat within this time to make sure your muscles fill up their energy stores.

If you have more than 24 hours until your next activity:

Eat foods that provide carbohydrate and protein when you are hungry for your next regular meal or snack. There is no need to eat within 30 minutes of activity if you are not hungry.

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