



NCCP Sport Nutrition

Reference Material





PARTNERS IN COACH EDUCATION

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When participants in sport make good nutrition choices, they significantly improve their ability to train, recover and perform well in competition. Yet, the impact of good nutrition extends beyond the world of sport. A good diet is also important for health, growth and development. Making good nutrition choices that support athletic performance can also contribute to an overall healthy lifestyle.

As a coach, you're in a unique position to positively affect the lives of sport participants. This reference material includes foundational information about sport nutrition. You'll also find simple, practical recommendations on what to eat and drink before, during and after activity, whether for training or competition.

With this knowledge, you can help participants make smart nutrition decisions. Those decisions will empower participants to perform their best and help them establish positive dietary habits that can last a lifetime.

Parents or caregivers will usually be the ones deciding what type of food participants eat on a day-to-day basis. Providing nutrition guidance to parents or caregivers is one way you can support the participants you coach.

Note: This reference material won't make you an expert in sport nutrition. Always consult an expert if you have questions on any topics covered in this material.

For more information on sport nutrition, consult the Coaching Association of Canada website at www.coach.ca or look for a sport dietitian in your area at www.dietitians.ca.



1 Nutrition basics



1.1 Nutrition needs of sport participants

The nutrition needs of sport participants are not significantly different from those of most healthy people.

Participants require a well-balanced diet that includes foods from each of the four food groups.











Participants also require **sufficient energy intake** to fuel their bodies and promote recovery after activity.

Each participant's specific energy requirements will vary based on several factors.

- » Age, gender and body composition
- » Amount and type of physical activity
- » Growth and development
- » Training and competition environment (exposure to heat or cold, for example)
- » Training volume and intensity

Energy requirements may increase as a result of:

- » Exposure to cold or heat
- » Fear or stress
- » High-altitude exposure
- » Some physical injuries
- » Some drugs or medications
- » Special dietary considerations



1.2 The role of nutrients

Participants must eat a variety of foods to get enough of each main nutrient group: **carbohydrates, proteins** and **fats**. These nutrient groups are also called **macronutrients**.



1.2.1 Carbohydrates

Carbohydrates are the body's **main source of energy**. Grains, starches, fruits, vegetables and meat alternatives are sources of carbohydrates. For example:

Bananas	Chickpeas	Oatmeal
Bannock	Corn	Pastas
Beans	Grapefruit	Potatoes
Breads	Lentils	Rice
Cereals	Mush	Squash

Carbohydrates provide participants with fuel for activity. Daily carbohydrate requirements will depend both on the participant and the **intensity** and **duration** of their sport.

Sport	Approximate daily carbohydrate targets (grams per kilogram of body mass)
Low-intensity or skill-based activities	3 to 5
Shorter duration and/or lower intensity	6
Longer duration and/or higher intensity	10

Carbohydrates stored in muscles can be depleted after 60 to 90 minutes of moderate to high-intensity activity.





1.2.2 Protein

Protein helps maintain muscle mass and supports body tissue growth and repair. Dairy products, meat and meat alternatives are sources of protein. For example:

Beans	Chickpeas	Milk
Beef	Eggs	Nuts
Cheese	Fish	Pork
Chicken	Lentils	Tofu

Participants younger than 18 years old generally require **less than 2 grams of protein per kilogram of body mass** each day. More protein may be required during intensified training or when reducing energy intake.

Not all protein is created equal. Some research suggests that proteins from dairy products are better for muscle recovery than other protein sources.





1.2.3 Fats

Fats can provide energy, facilitate absorption of some vitamins, reduce inflammation and promote concentration.

Dairy products, meat, meat alternatives and oils are sources of fat. For example:

Beef	Fish	Pork
Butter	Milk	Seeds
Cheese	Nuts	Sesame Oil
Eggs	Olive Oil	

There are general recommendations for daily fat consumption.

- » Fats should make up **25 to 35%** of total energy intake in participants between 4 and 18 years old.
- » Saturated and trans fats should make up **no more than 10%** of total energy intake.
- » Fats should make up **no less than 20%** of total energy intake.

Fat is an essential part of a healthy diet. Severely limiting fat intake will likely reduce the intake of other important nutrients.





1.3 Energy requirements

An individual participant's energy requirements will vary based on the type and amount of activity they're doing. Generally, the **longer the duration** and the **higher the intensity of the sport**, the **more daily nutrients** are required.

This table outlines **general nutrition plans** based on **average amount of activity.**

	An	nount of activity	
	1 to 2 hours 2 to 3 days/week	2 to 3 hours 3+ days/week	3+ hours 3+ days/week
Food group	Minimum number of daily recommended servings		
Grains and starches	8 to 11	12 to 14	14 to 16
Fruits and vegetables	8 to 10	10 to 13	13 to 15
Dairy products	2 to 3	3	3 to 4
Meat and alternatives	2 to 3	3	3 to 4
Oils and fats	2 to 3	3	3
Extras (simple sugars)	2	3 to 4	4 to 5
Total calories	1,800 to 2,200	2,300 to 2,800	2,900 to 3,300

Remember that these are general recommendations. The needs of individual participants will vary.

Participants should avoid severely restricting the intake of any one nutrient, unless advised to do so by a health care professional. The reduction in dietary variety will reduce the intake of other important nutrients.



These tables provide examples of a **single serving** of various foods from each food group.





Fruits and vegetables		Grains and starches	
Apple	1 medium	Bagel	1/2
Bamboo shoots	⅓ cup	Bannock	1 medium
Banana	1 small	Barley	½ cup
Berries	⅓ cup	Bread (white)	1 slice
Bok choy	⅓ cup cooked	Bulgur	½ cup cooked
Chayote	⅓ cup	Cereals	½ cup
Clementine	2 small	Congee	½ cup cooked
Dried fruit	¼ cup	Corn	½ cup
Edamame	½ cup	Couscous	½ cup cooked
Fig	2 medium	English muffin	1/2
Frozen or canned vegetables	½ cup	Granola/muesli	¼ cup
Grapes	20	Mush	3/4 cup cooked
Kiwi	1 large	Naan	1/4
Kohlrabi	½ cup	Oatmeal	³ / ₄ cup cooked
Lettuce	1 cup	Pasta	½ cup cooked
Mesclun mix		Pita	1/2
	1 cup raw	Polenta	½ cup cooked
Okra	½ cup	Potatoes	¹ ⁄₂ cup
Orange	1 medium	Quinoa	½ cup cooked
Pear	1 medium	Rice (brown or wild)	½ cup cooked
Seaweed	½ cup	Rice cakes	2 medium
Spinach	1 cup	Roll	1
Vegetable or fruit juice	⅓ cup	Tortilla	1/2
Wild plants	$\frac{1}{2}$ cup cooked 1 cup raw		







Meat and alternatives		
Beef	75 g	
Black beans	³ / ₄ cup	
Caribou	75 g	
Chicken/turkey	75 g	
Cottage cheese	¼ cup	
Deli meat (low-fat, low-salt)	75 g	
Deer	75 g	
Duck	75 g	
Eggs	2 small	
Fish	75 g	
Goat	75 g	
Ham	75 g	
Hummus	³ / ₄ cup	
Kidney beans	³ / ₄ cup	
Lentils	³ / ₄ cup	
Moose	75 g	
Nut butters	2 tbsp	
Nuts/seeds	¼ cup	
Pork/bacon	75 g	
Rabbit/hare	75 g	
Shellfish	75 g	
Tofu	³ / ₄ cup	
Whey or casein powder	30 to 35 g	

Oils and fats			
Butter	1 tsp		
Coconut milk	2 tbsp		
Cream cheese	1 tbsp		
Flax/chia/hemp seeds	1 tbsp		
Gravy	1 tbsp		
Margarine	1tsp		
Salad dressing (regular)	1 tsp		
Salad dressing (low-fat)	2 tbsp		
Vegetable oils	1tsp		







Milk and alternatives			
Cheese	50 g		
Cottage cheese	³ / ₄ cup		
Fortified soy beverage	1 cup		
Kefir	3/4 cup		
Milk (skim, whole)	1 cup		
Paneer	50 g		
Yogurt	3/4 cup		

Extras			
Brownie	1.25 inch		
Honey	1tsp		
Hot chocolate	1 packet		
Ice cream	½ cup		
Jam	1tsp		
Meal replacement beverage	¼ cup		
Molasses	1tsp		
Sport drink	1 cup		
Sport gel	1 gel		
Sugar	1 tbsp		



1.4 Reading nutrition fact tables

Participants can make smart nutrition choices using the information on nutrition fact tables.





Nutrition Facts Valeur nutritive

Serving Size: 1 cup (250 mL) portion: 1 tasse (250 mL)

- Calories 110
- % Daily Value*
 % valeur quotidienne*
- Fat / Lipides 2 g 3 % Saturated / saturés .5 g 3 % + Trans / trans 0 g
- Sodium 45 mg
 3 %

 Potassium 400 mg
 11 %

 Carbohydrate / Glucides 26 g
 0 %

 Fibre / Fibres 0 g
 0 %
- Sugars / Sucres 22 g 22 %

 Protein 25 g 50 %

 Vitamin A 2 % Vitamin C 2 %
 - * Percent based on 2,000 calorie diet

Calcium

* 5% or less is a little, 15% or more is a lot

10 %

* 5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Iron

- Serving Size: The amount of the food that the nutrition facts are based on.
 Remember: The amount of food eaten is not necessarily equivalent to serving size.
- 2. % Daily Value: The percentage of the daily recommended amount of a nutrient in one serving of the food. This value can be used to identify foods with high or low levels of a nutrient. Less than 5% is considered a little. More than 15% is considered a lot.
- 3. Calories: The number of calories per serving. Some tables also indicate the number of calories derived from fat.
- 4. Fat: The amount of fat per serving. This includes "good" fats (monounsaturated, polyunsaturated and omega-3) and fats that should be more limited (saturated and trans). The amount of saturated and trans fat is also displayed separately.

10 %

- **5. Sodium:** The amount of sodium per serving. Sodium is often "hidden" in foods, such as processed and canned foods. Items with a % daily value of less than 5% up to a maximum of 15% are generally recommended.
- **6. Carbohydrate:** The amount of carbohydrates per serving. The amount of fibre and sugar is displayed separately.
- 7. Protein: The amount of protein per serving.
- 8. Vitamins and minerals: The % daily value of several vitamins (such as vitamins A, B, C and E) and minerals (such as iron and calcium) per serving.





2.1 Fueling up

Participants need to fuel up before activity to ensure they have the energy they need to perform. Eating the right amounts of the right foods can help them perform their best.

Participants should eat pre-activity meals or snacks that are **rich in carbohydrates (65 to 70% of total calories), low in fat and moderate in protein.** Foods with carbohydrates provide fuel and are easy to digest. Foods high in fat and protein take longer to digest.

Pre-activity meals should also be **appropriate for the type of effort.** The amount participants should eat depends on the duration and intensity of the activity they're doing.

Pre-competition nerves can upset the stomach. Participants should eat foods they're familiar and comfortable with before activity.

2.2 Foods to avoid

Participants should avoid certain types of foods before activity.

Fatty foods take longer to digest.

Protein-rich foods take longer to digest and don't provide fuel for activity.

Spicy foods may be hard to digest.

Fibre-rich foods can cause stomach upset and may induce elimination.

Gas-producing foods can cause bloating.

High-fructose fruits, drinks or snacks can lead to a drop in blood sugar.



2.3 Eating before activity

2.3.1 Breakfast

Participants should eat and limit certain foods when breakfast is the preactivity meal.











High-fat, nutrient-poor foods



Carbohydrate-rich, low-fat foods

Egg dishes (not fried)

French toast and/or pancakes with little added butter or margarine

Fruit

Lean proteins, like poultry or jerky

Low-fat yogurt

Low-fibre cereal with low-fat milk

Low-fat, low-fibre muffins with jam or jelly

Meal replacement drinks

Mush

Noodles or pasta

Oatmeal

Potato (not fried)

Rice (not fried)

Toast with little added butter or margarine

Butter or margarine

Commercial muffins

Cream

Bacon

Cream or butter sauces

Croissants, danishes and doughnuts

French fries

Fried eggs

Fried rice

Sausage

High-fibre foods

Dried fruits

Whole-grain breads

Whole-wheat cereals



2.3.2 Lunch or dinner

Participants should eat and limit certain foods when lunch or dinner is the pre-activity meal.













Low-fat, nutrient-rich foods

Bannock

Bread

Broth or bone-based soups

Cheese (in moderation)

Fish (broiled, roasted, barbecued or poached)

Fruit or fruit salad

Low-fat cottage cheese

Low-fat yogurt

Lean cold cuts

Meat, such as beef, poultry, venison or wild game (broiled, roasted, barbecued or poached with fat trimmed and skin removed)

Meat alternatives, like beans, peas and lentils

Pasta (plain or with tomato sauce)

Potatoes without butter or margarine (baked, boiled or mashed)

Rice (steamed)

Salads with beans, peeled fresh vegetables and a small amount of dressing

Vegetables (steamed, boiled or baked)

High-fat, nutrient-poor foods

Butter or cream sauces

Buttered, sautéed or creamed vegetables or soufflés

Chips

Cookies, pies and pastries

Cream soups

Creamy coleslaw

Egg salad made with mayonnaise

Fried fish, meat or poultry

Fried potatoes

Granola bars (some)

Ice cream

Pâté or liverwurst

Potato or macaroni salad

(commercial)

Processed meats

Salad dressing

Sausage

Gas-producing foods

Broccoli

Cabbage

Carbonated drinks

Garlic

Kimchi

Onions



2.3.3 Allowing for digestion

Participants need time to properly digest when eating before activity. The time required depends on the **type** and **amount** of food eaten.

This table provides guidelines for planning meals before activity.

Time before activity (hours)	Portion size	Number of carbs servings	Number of protein servings	Example
3 to 4	Large meal (500 to 800 calories)	5 to 8	1 to 2	2 cups of stir fry (1 cup of rice or pasta with 1 cup of tofu, beans or meat) 1 roll or slice of bread 1 cup of vegetables 1 cup of fruit 1 cup of milk
2 to 3	Small meal (300 to 500 calories)	3 to 6	1 to 2	Chicken wrap 1 cup of fruit 1/2 cup of carrot sticks 1/2 cup of water
1 to 2	Snack or blender/ liquid meal	2 to 4	0.5 to 1	1 sport bar 1 cup of fruit 1 cup of sport drink 100 g of yogurt
0.5 to 1	Snack	2 to 3	0	1 medium banana 1 cup of water
0.5	Light snack	1 to 2	0	1 cup of sport drink

Individual participants will have different food tolerances. Experimenting with these guidelines can help establish an appropriate protocol for each participant.



2.4 Eating during activity

There may be limited opportunity, or need, to eat during many sports. However, consuming carbohydrates in some circumstances can improve performance.

Activity level	Activity duration	Carbohydrate needs	Recommendation
Brief activity	Less than 45 minutes	Not required	N/A
Sustained, high- intensity activity	45 to 75 minutes	Small amounts	Drinks with carbohydrates, such as 100% fruit juices or sport drinks
Endurance activity, including "stop and start" sports	1 to 2.5 hours	30 to 60 grams per hour	A range of everyday foods and specialized sport products (such as sport gels, gummies, drinks, bars or dried fruits) may be appropriate depending on the sport





3.1 The importance of fluids

During activity, body temperature rises, breathing increases and sweat is produced. The resulting loss of fluids and electrolytes (such as sodium and potassium) leads to **dehydration**. As little as **2 to 3% dehydration can negatively affect performance** by causing premature fatigue or cramping.

Participants will lose fluids and electrolytes at different rates. Be sure to watch for **signs of dehydration.**

Mild dehydration (2 to 5% body weight loss)

Chills

Headache or head rush

Loss of appetite

Slightly decreased urine output

Dark yellow urine

Dry or flushed skin

Slightly dry mucous

Constipation

Fatigue

Moderate dehydration (5 to 6% body weight loss)

Increased body temperature

Faster breathing

Increased heart rate

Little or no urine output

Decreased ability to sweat

Sunken eyes

Muscle cramps

Tingling hands and feet

Extreme fatigue

Severe dehydration (more than 7% body weight loss)

Rapid pulse

Rapid breathing

Low blood pressure

Inability to produce tears

Mottled/Shriveled skin

Impaired vision

Muscle spasms

Confusion

Seizure/Coma

Through proper hydration, participants can replace lost fluids and electrolytes, maintain energy levels and maximize performance.

Dehydration is a bigger risk for participants who compete in **hot or humid conditions** and/or **endurance activities**.



3.2 Assessing hydration levels

3.2.1 Thirst

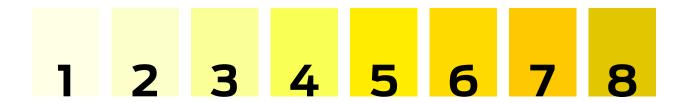
It's well-established that thirst is not a good indicator of hydration levels. In fact, by the time participants feel thirsty, they may have already lost about 2% of their body mass.

To stay hydrated, participants should drink on a schedule.

If participants drink only when they're thirsty, it can take 24 to 48 hours to re-establish ideal hydration levels.

3.2.2 Urine

Participants can assess hydration levels by inspecting the colour of their urine. The **clearer** their urine, the **more hydrated** they are. If their urine is light and straw-coloured, they are optimally hydrated.



If your urine matches the colours numbered 1, 2 or 3 you are hydrated.

If your urine matches the colours numbered 4 through 8 you are **dehydrated** and need to drink more fluid.

Be aware! If you are taking single vitamin supplements or a multivitamin supplement, some of the vitamins in the supplements can change the colour of your urine for a few hours, making it bright yellow or discoloured. If you are taking a vitamin supplement, you may need to check your hydration status using another method.



3.3 Hydrating before activity

Participants should drink fluids before activity to ensure they're properly hydrated.

In general, participants should start slowly drinking fluids **at least 4 hours before activity** (about 250 to 350 mL for a participant who weighs 50 kg).

If they haven't produced urine or their urine is dark, they should slowly drink more fluids **about 2 hours before activity** (about 150 to 225 mL for a participant who weighs 50 kg).

Drinking fluids well in advance of activity ensures that there's time for urine output to return to normal before activity.

Participants may not drink if they aren't thirsty. Eating small amounts of salted snacks or foods with sodium may stimulate thirst. Drinks with sodium or flavouring may also be easier to drink.

3.4 Staying hydrated during activity

Participants need to drink enough during activity to maintain weight and fluid balance. As a rule of thumb, they shouldn't lose more than 2% of their body weight.

Fluid and electrolyte loss will vary for each participant and is based on several factors.

Intensity and duration of activity

Environmental conditions

Sweat rate

Electrolyte content in sweat

Clothing or equipment required during activity



Participants should drink **400 to 800 mL of fluid per hour** of activity. To avoid discomfort, they should drink **smaller amounts (150 to 350 mL) every 15 to 20 minutes**.

These are **general recommendations**. Individual participants will have different needs and be able to tolerate different amounts and types of fluid during activity.

3.5 Hydrating after activity

Hydrating after activity replaces lost fluids and electrolytes.

Participants should drink approximately **1.5 L of fluid for each kilogram of body weight lost** during activity.

To maximize fluid retention, participants should consume fluid over time (and with sufficient electrolytes) rather than in large amounts.

Intravenous fluid replacement may be required in cases of severe dehydration (more than 7% loss of body weight). If a participant shows signs of severe dehydration, consult a medical professional.

3.6 Water vs. sport drinks

Sport drinks contain **carbohydrates and electrolytes**. Water doesn't.

This doesn't mean a sport drink is always a better choice than water. Sport drinks typically contain **high** levels of sugar and sodium, which should be consumed in moderation.



Research suggests that sport drinks can **improve performance** when activity lasts **longer than an hour** without interruption. Sport drinks may also provide benefits in **hot or humid conditions**. Otherwise, consuming a sport drink probably won't significantly improve performance.

Water is almost always sufficient for hydration before, during and after activity.





4.1 Promoting recovery

Participants need to refuel after activity, especially if more activity is scheduled the next day.

To promote recovery, participants should **drink plenty of fluids** and eat a post-activity meal that's **high in carbohydrates**, **adequate in protein and relatively low in fat**.

Participants can also promote recovery by eating:



Primarily carbohydrates (40 to 60 g) and **some protein** (20 to 35 g) within an hour of activity



A few portions of **salty food**, such as tomato or vegetable juice, canned soup or bouillon, pickles, ketchup, soy sauce, salsa, cheese or salted nuts



At least 3 portions of **potassium-rich foods**, such as vegetables, potatoes, fresh fruit or dried fruit

To refuel **between competitions** on the same day, participants should eat **high-carbohydrate snacks** and wait until the end of the day to eat a more substantial meal.



4.1.1 Eating before sleep

Does eating before sleep promote recovery? There has been a lot of debate surrounding this question.

Recent studies suggest that having a protein drink 2 hours after the last meal and 30 minutes before sleep can help with muscle recovery, repair and growth, as well as with overall metabolism.



4.2 Recovery foods

Participants can eat a variety of foods to promote recovery after activity.

December	
Recovery stage	Examples of good recovery food choices
Within one	Chocolate milk, granola bar, pear and water
hour after activity	Cottage cheese with fruit (fresh, frozen or dried) and a scoop of granola
	Greek yogurt, banana and juice
	Labneh, fresh fruit, slice of bread and milk or water
	Meal replacement drink
	Mush with berries and milk
	Peanut butter sandwich, milk and a cup of strawberries
	Smoothie made with yogurt and half a bagel
	Sports bar, grapes and juice or water
	Tabbouleh or hummus with crackers and milk/soy beverage or water
Within two hours after activity	Baked fish (such as salmon, char or pickerel), wild rice with squash and corn and milk or water
	Baked salmon, quinoa and mixed vegetables and milk
	Beans or lentils in a tortilla wrap and soy beverage
	Chapati with chicken tikki and water
	Cottage cheese or Greek yogurt, fruit salad, low-fat muffin and juice
	Dal with mixed vegetables, rice and water
	Grilled chicken fajita wraps with peppers or onions, side salad and milk or water
	Lamb with bulgur, eggplant, figs and milk or water
	Lean beef stir-fry with vegetables, brown rice and milk or water
	Omelette with vegetables and low-fat cheese, whole-grain toast, pear and water
	Pasta with meat sauce, side salad, fruit and milk
	Tuna sandwich with lettuce, apple and milk
	Venison (such as deer or moose), wild rice, vegetables and milk or water
	Yogurt with low-fat granola, fruit salad and juice or water





Participants may have a hard time following their regular nutrition habits while traveling. This can have an impact on both their performance and their general health.

There are several challenges to eating well on the road.

- » Food options are limited to what's available at accommodations, training/competition venues and restaurants or supermarkets in the surrounding area.
- » The length of the trip and mode of travel will affect how much and what kind of food participants can prepare and bring with them.





5.1 Before leaving

There are several things you can do *before* you get on the road to help plan your nutrition travel strategy.



Accommodations

Determine whether rooms at your accommodations have a fridge, microwave, coffee maker or other appliances. If the room isn't equipped with them, ask if they can be provided.

Check if the accommodations will allow a rice cooker, slow cooker or hot plate to be used in the rooms.

Identify if there are any supermarkets close to the accommodations and training/competition venues.



Food storage

Ensure that you store perishable foods, such as sandwiches, cheese, meat and milk at their safe temperature. Note that you cannot bring freezer packs on a plane.

Keep hot foods hot and cold foods cold.



Travel by air

Determine what (if any) meals will be served in-flight.

Order any special meals (like vegetarian or low-sodium) at least 48 hours in advance.



Destination country

Check customs regulations to see what foods can be transported into the destination country if traveling internationally.

Familiarize yourself with food safety at the destination country.



5.1.1 Coach's checklist for a travel team nutrition kit



Storage, cooking and cleaning

Aluminum foil

Containers for storing food (several different sizes)

Dish soap

Dish towel

Freezer packs

Instant pot/pressure cooker

Leak-proof bottles

Microwaveable containers for cooking (can also serve as eating bowls)

Paper towels or napkins

Parchment paper

Personal, collapsible cooler

Plastic bags for garbage

Plastic wrap

Scrubber sponge

Slow cooker

Ziploc bags





Utensils and gadgets

Can opener

Folding colander or collapsible strainer

Magic bullet

Plates

Re-useable coffee mug

Small grater

Small spatula

Spork

Utility knife



There are a variety of foods you can bring on the road.



Carbohydrates

Apple sauce fruit pouches

Bagels

Crackers

Dried fruit/fruit leathers

Dry cereal/granola

Granola bars

Homemade muffins

Instant mashed potatoes

Instant soups/hot cereal

Microwave popcorn

Pitas

Pre-cooked or instant rice, noodles, couscous, quinoa or lentils

Pretzels

Sport bars

Sport drink powder

Sport gels

Tortillas



Other

Meal replacement shakes

Protein

Beef/turkey jerky

Dried edamame, chickpeas or hummus mix

Nuts

Seeds



Condiments

Flax/chia/hemp

Honey

Hot chocolate mix

Ketchup packets

Maple syrup

Mayonnaise packets

Mustard packets

Nutritional yeast (sprinkle on salads, pastas, rice and potatoes)

Peanut butter packets

Portable spice dispenser

Powdered milk

Soy sauce packets





5.2 Traveling by air

Air travel is particularly dehydrating. Participants can reduce the risk of dehydration in several ways.

Drink at least 250 mL of fluid for every hour of travel.

Eat a high-carbohydrate meal prior to departure.

Limit consumption of pop, coffee and tea.

Pack nutritious snacks and avoid salty in-flight snacks.

Jet lag is another challenge when traveling by air. Participants can minimize the effects of jet lag by:

Setting their watch to the time at their destination after taking off

Spending time outside in the sunlight upon arrival

Bringing an eye mask, mattress pad, ear plugs or other items to help them sleep during the flight

Encourage participants not to limit fluid intake, which they may do in order to avoid using the restroom on the plane. Dehydration is worse for their body than a cramped restroom.





5.3 Traveling by land

There are several strategies for helping participants eat well when traveling by land.

Encourage them to bring entertainment to prevent eating from boredom.

Plan meal or snack times to avoid continuous eating.

Take breaks to walk around and stretch.

Avoid the fast-food trap by planning meals and snacks.

Emphasize choices that include whole grains, vegetables, fruit and lean meat when eating at restaurants or buying food at a supermarket.

Ensure that they continue to hydrate and don't limit fluid intake to avoid having to stop.





5.4 At your destination

At your destination, participants should try to eat as close to how they would eat at home as possible.

If the training or competition venue has a dining hall, participants should navigate the dining hall first and then choose foods based on their pre-established nutrition plan.



5.4.1 Food poisoning

Food poisoning is always a risk when traveling.

Participants can minimize the risk of food poisoning or other food-related illnesses in several ways.

Wash their hands with soap (or use hand sanitizers) before eating snacks or meals.

Check the "best before" date on purchased perishable foods.

Make sure all food is fully cooked and served hot (especially meats).

Ensure that dairy products have been pasteurized and are served cold.

Avoid raw foods and food or drink items from street vendors.

Eat in reliable restaurants.



5.4.2 Contaminated water

Participants should take extra precautions if the water supply is questionable.

Drink bottled water.

Eat only vegetables and fruits that can be peeled.

Avoid dishes with raw vegetables, like salads.

Use bottled water to wash vegetables and fruits before peeling them.

Use bottled water to brush their teeth.

Avoid ice cubes.



6 Promoting positive body image in sport

6.1 Body image challenges in sport

As adolescents mature, many become self-conscious about their bodies. They may face pressure to look a certain way from peers, coaches or even family members.

This pressure can be hard to ignore. Young people are constantly exposed to images of "perfect" bodies on tv, in magazines, and in the age of Instagram, especially online.

The outfits or equipment required for certain sports may create additional, more subtle pressures to look a certain way.

Studies have shown that **up to 62%** of female athletes in a variety of sports experience disordered eating and **more than 83%** of male athletes are unhappy with their body.

6.1.1 What you can do

Preoccupation with body shape and size can translate into poor eating habits, disordered eating, unrealistic weight goals, steroid or supplementation use and malnutrition. As a coach, you can help your participants understand the issues and risks.

You can also help your participants build their self-esteem and develop a positive body image by:

Promoting a well-balanced nutrition plan that includes a variety of foods

Encouraging them to eat a meal soon after activity, even if they don't feel hungry

Encouraging them to listen to their bodies (eat when you're hungry and stop eating when you're full, for example)

Emphasizing that there are no "good" or "bad" foods and that it's okay to eat foods they crave



Check out **www.bodysense.ca** for more information and tools for helping coaches, parents and participants develop positive body image environments.

6.2 Disordered eating

Disordered eating refers to irregular eating behaviours that result from unhealthy attitudes about food and body image. This differs from simply paying attention to nutrition.

These behaviours can hinder performance and negatively affect physical and emotional well-being. They may start as part of a reasonable goal (such as getting in shape), but get out of control or turn into an eating disorder.

6.2.1 Signs and symptoms

Some participants who exhibit disordered eating see their behaviour as a normal part of their sport. They aren't generally unhappy with their bodies. As a result, the behaviour often goes unreported.

As a coach, you need to be aware of potential signs of disordered eating behaviours, including:

Preoccupation with body weight or size, food, calories or eating behaviours of others

Mood swings and irritability

Inability to focus or concentrate on a task

Compulsive or excessive exercise even when tired or injured

A tendency to blame inconsistent or poor performance on body weight

Excessive fear of being overweight

Avoidance of food-related social activities

Chronic fatigue or illness

Slow recovery following activity

Restrictive or chronic dieting or fasting



6.2.2 Responding to signs and symptoms

If you have concerns about a participant's weight or believe there are signs of disordered eating, you should **share your concerns with parents or caregivers**.

Remember: It's not your job to evaluate a participant's shape or body size. Always express your concerns based on **specific signs and symptoms** of disordered eating, not your subjective perception of the way they look.

Participants may reach out to you if they think they have an eating issue. Consider using these questions to gather information and start a conversation that promotes a healthy body image.





Regarding food

How do you feel about food?

Do you feel you have a "relaxed" relationship with food?

What is your eating pattern?

How many meals do you eat per day?

Do you have any foods you try to avoid?

What did you eat and drink yesterday?

Regarding weight

What has been your highest and lowest weight in the last year?

What do you consider to be your competition weight?

Have you lost weight lately? How did you achieve the weight loss?

Are you satisfied with your present weight?

Do other people have opinions about your weight?

Regarding training

Have you changed your training regime (type, load or intensity)?

Do you do other forms of training beyond those related to your sport?

Have you experienced a stress fracture or a regular fracture?

Discussing the issue is one way you can support participants and potentially prevent the issue from escalating into a life-threatening problem.



6.3 Eating disorders

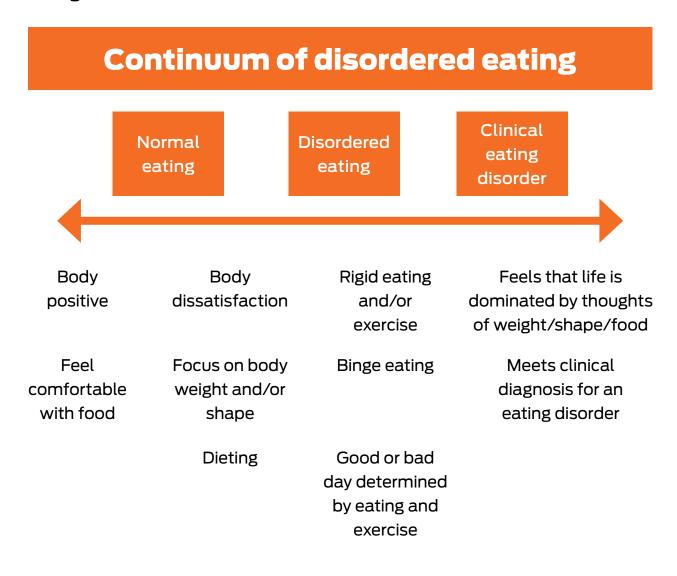
An eating disorder:

Involves a persistent disturbance in eating patterns or other behaviours intended to control weight

Develops when the emotional aspects of food and eating overpower the role of food as nourishment

Affects physical and nutritional health as well as psychological functioning

Disordered eating and **eating disorders** are different. However, disordered eating behaviours can turn into eating disorders. The **continuum of disordered eating** shows how the two differ.





6.3.1 Types of eating disorders

Commonly known eating disorders include:

Anorexia nervosa: Self-starvation

Bulimia nervosa: Binge eating followed by purging

Several other eating disorders are not as well known.

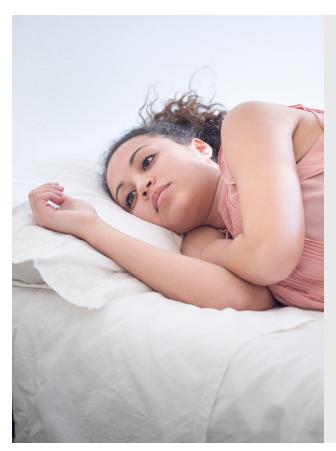
Orthorexia: Obsession with healthy eating (not necessarily related to being thin or losing weight)

Atypical anorexia nervosa: Self-starvation, but weight is not below normal

Purging disorder: Purging without binge eating

Night eating syndrome: Excessive night-time food consumption

6.3.2 Relative energy deficiency in sport (RED-S)



Relative energy deficiency in sport (RED-S) occurs when energy expenditure (EE) is higher than energy intake (EI). RED-S can result from a reduction in EI or increased exercise load. Note that it can occur even if EE and EI are balanced.

RED-S can result in impairment of a number of physiological functions.

- » Metabolic rate
- » Menstrual function
- » Bone health
- » Immunity
- » Protein synthesis
- » Cardiovascular health



6.3.3 The female athlete triad



The female athlete triad is a nutrition-related health issue unique to physically active women. It results from the interrelationship between three factors.

Energy deficiency. An imbalance between the amount of energy consumed and expended. This is the main cause of the triad. The deficiency may or may not be due to an eating disorder or disordered eating.

Irregular or absent menstrual cycles (amenorrhea). The most serious problem associated with the triad is the absence of menstruation for more than three months.

Loss of bone density. This can result in increased risk of fractures (including stress fractures) and osteoporosis.

If you believe a participant is displaying symptoms of the triad, consult with parents or caregivers immediately. Effective treatment may require care from medical professionals, nutrition counsellors and possibly mental health counsellors, if the energy deficiency is due to body image or other psychological issues.





7.1 Food allergies and intolerances

As a coach, it's important to be aware of any food allergies or intolerances your participants or other coaches may have. It's also important to be able to recognize the signs of a reaction.

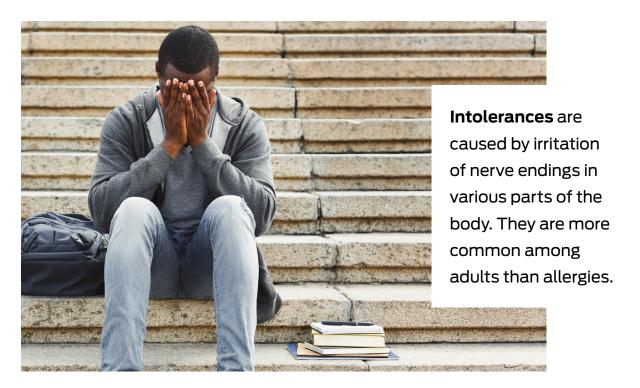
Allergies occur due to a hypersensitivity of the immune system to substances that are typically harmless. They tend to be more common early in life.





Common food allergies	Symptoms of a reaction
Cow's milk	Difficulty breathing
Eggs	Eczema
Gluten	Facial swelling
Peanuts	Hives
Seafood	Vomiting
Sesame	
Soy	
Tree nuts	
Wheat	









Common food intolerances

Dairy

Food additives, like artificial colours and preservatives

Soy

Various natural food chemicals

Wheat/gluten

Symptoms of a reaction

Aches and pains

Fatigue

Headaches

Hives

Mouth ulcers

Sinus congestion

Stomach/bowel irritation, including cramps, bloating, gas, pain or loose stools



7.1.1 Celiac disease/gluten intolerance

Celiac disease is an auto-immune condition that disrupts digestion of **gluten** (the main protein found in wheat, barley and rye), which in turn causes damage to the small intestines.

For people with Celiac disease or a **gluten intolerance**, eating foods containing gluten can cause diarrhea, abdominal cramping and bloating, skin rashes, hives and migraines.

Many foods containing gluten, such as **whole-wheat breads, cereals, pastas** and **some oats**, also contain carbohydrates.

Participants with Celiac disease or a gluten intolerance may therefore experience:

Increased fatigue

Decreased speed

Tired, lethargic or heavy muscles

Decreased intensity and mental clarity

Foods like rice, quinoa, amaranth, corn and buckwheat can be good sources of carbohydrates for participants with Celiac disease or a gluten intolerance. Always check to make sure they aren't produced with foods containing gluten.



7.2 Vegetarian diets

There are a variety of vegetarian diets. Depending on what foods are excluded, vegetarian diets may contain lower amounts of certain nutrients relative to non-vegetarian diets.

Diet	Description	Potentially low in
Semi- vegetarian (flexitarian)	Excludes certain animal products such as red meat or dairy products	Protein, iron, zinc, calcium, riboflavin, vitamin D, omega-3 fats, iodine
Lacto-octo- vegetarian	Excludes meat, fish and poultry, but includes milk products and eggs	Protein, iron, zinc, omega-3 fats
Vegan	Excludes all animal products	Protein, iron, zinc, omega-3 fats, calcium, vitamin D, riboflavin, vitamin B12, iodine

Vegetarian participants need to ensure they acquire nutrients that are typically found in meat and dairy products, particularly **protein** and **iron**.



7.2.1 Protein sources

Well-planned vegetarian diets can provide adequate protein without the use of special foods or supplements.



Plant protein sources

3/4 cup of cooked dried beans, canned beans, peas, lentils or baked beans (12 to 13 g)

3/4 cup of soy beans (17 g)

3/4 cup of tofu (12 to 23 g)

1/2 cup of nuts/seeds (8 to 14 g)

4 tbsp of peanut butter (12 to 13 g)



Animal protein sources

2 large eggs (13 g)

½ cup cottage cheese (16 g)

50 g cheddar cheese (8 to 13 g)

75 g cooked fish (18 g)

100 g cricket/insect protein (21 g)

Common protein combinations for vegetarians	Examples
Grains and legumes	Rice-bean casserole Pita with hummus Rice and tofu Veggie burger/dog with bun Tortilla with beans Toast with peanut butter
Grains and nuts/seeds	Almond vegetable stir-fry on rice Pasta with pine nuts Bagel and almond butter Wild rice and nuts
Grains and animal protein	Cereal with milk Egg or cheese sandwich Pasta and cheese Tuna with crackers Barley in fish head soup



7.2.2 Iron Sources



Plant iron sources



Notes
and tips

Legumes (such as chickpeas, lentils, cowpea and mung bean)

Enriched cereals and breads

Cream of wheat

Amaranth

Dark green leafy vegetables

Okra

Nuts

Dried fruit

Blackstrap molasses

Tofu

Clams

Oysters

Mussels

Fish

Iron from some vegetables, such as spinach and beets, is not as readily absorbed.

Regular or decaffeinated tea and coffee may interfere with iron absorption.

Consuming foods that are high in vitamin C (like oranges, grapefruit, lemon, tomatoes, green peppers, strawberries or cantaloupe) with a meal will improve the absorption of iron from plant foods.



7.3 Cultural considerations

7.3.1 Indigenous sport participants: Challenges

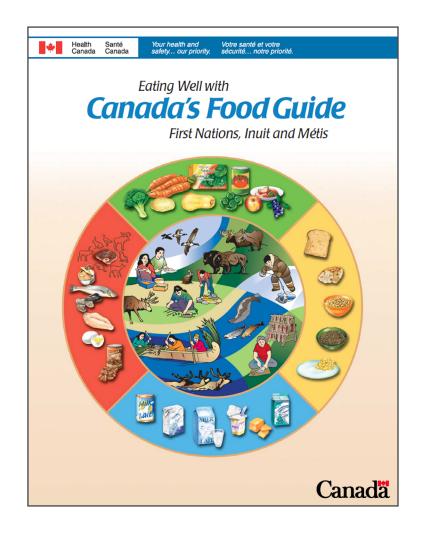
General nutrition requirements for Indigenous participants are the same as those for all participants. However, some Indigenous participants may face unique nutrition challenges that you should be aware of.

Over the years, physical access to traditional foods has declined in many Indigenous communities. At the same time, increasing costs have made healthy food less accessible for low-income families and families in remote communities.

This shift has increased reliance on readily available non-traditional foods. These foods tend to be higher in saturated fat, sugar and salt, and lower in fibre. It's estimated that Indigenous children in Canada are only getting 6 to 40% of their daily energy intake from traditional foods.

As a result, Indigenous participants face several challenges, including risk of malnutrition (both overnutrition and undernutrition), higher incidence of lactose intolerance and diabetes and a lack of healthy foods required to properly nourish their bodies for training, accelerate recovery and optimize overall performance while maintaining good health.

There are many health benefits associated with traditional Indigenous foods. Here are some examples of traditional foods for each of the four food groups.





To meet their sport-specific training and competition goals, Indigenous participants should blend as much traditional food as possible with healthy non-traditional foods.

Foods to recommend include:

Beans, peas and lentils (can be added to salads and soups)	Seasonal fruits and vegetables (fresh, canned or frozen)	
Brown rice	Stews and soups with added whole	
Fish, such as salmon, arctic char and	grains	
pickerel	Traditional breads, such as bannock,	
Game, such as moose, deer, caribou,	made with berries and raisins	
bison and snow goose	Whole-wheat pastas	
Natural honey, maple syrup and	Wild nuts and rice	
preserves		

Mush

7.3.2 Religious dietary customs

Some participants may have dietary restrictions based on religious or cultural considerations.

For example, participants who follow Muslim dietary regulations may only eat foods that are considered halal (which means "permissible"). Foods that are not **halal** include:

Pork and pork products

Meat that has not been prepared according to Islamic law

Fats and oils with animal shortening and lard

Dairy, cheese, yogurt or milk products made with animal rennet, gelatin, lipase, pepsin, vanilla extract or whey

Grain products (such as pasta, rice or bread) that have been prepared with lard, vanilla extract or alcohol

Meat and dairy products should be labeled if they're halal-certified.



Jewish dietary customs place restrictions on foods that are not kosher, including:

Pork and pork products

Certain fish

Meat that has not been prepared according to Jewish dietary regulations (meat and dairy must not be cooked, prepared or eaten together)

Dairy and egg products produced by non-kosher animals

You're not expected to be an expert on every possible dietary restriction. However, it's a good rule of thumb to ask participants, or their parents or caregivers, if they have any dietary restrictions.

Consider them when planning meals or snacks.



8 Self-assessment

This self-assessment on your ability to provide nutrition support to participants will allow you to reflect on your current coaching practices, and to identify areas of strength and areas for improvement.

For each statement, select the option that best represents your current level of performance.

I provide basic nutrition advice to my participants by	Never	Sometimes	Often	Always
Ensuring appropriate hydration before activity	0	0	0	0
Recommending what to eat before activity to maximize performance	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Identifying when to eat before activity to maximize performance	\circ	0	\bigcirc	0
Ensuring appropriate hydration during activity	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Identifying foods that should be restricted or eaten with caution	\circ	0	\bigcirc	\bigcirc
Providing information on food safety concerns	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Ensuring appropriate hydration following activity	\bigcirc	0	\bigcirc	\circ
Recommending what to eat after activity to maximize recovery	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Identifying when (how soon) to eat after activity to maximize recovery	\bigcirc	\circ	\bigcirc	\circ
Communicating with parents or caregivers to reinforce healthy eating habits	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Identifying strategies to ensure that appropriate foods are available for activity	\bigcirc	0	\bigcirc	0



8.1 Action planning

Based on your responses to the self-assessment, identify things that you will **start, stop and continue** doing with respect to providing nutrition support to participants.

I will start
I will stop
I will continue



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bodysense.ca

dietitians.ca/aboriginalnutrition



NCCP Code of Ethics



What is a code of ethics?

A code of ethics defines what is considered good and right behaviour. It reflects the values held by a group. These values are usually organized into a series of core principles that contain standards of behaviour expected of members while they perform their duties. It can also be used as a benchmark to assess whether certain behaviours are acceptable.

Why a code of ethics in coaching?

Core coaching values have been formalized and expressed as a series of principles in the NCCP Code of Ethics. These principles can be thought of as a set of behavioural expectations regarding participation in sport, coaching athletes or teams, and administering sports.

The NCCP Code of Ethics can help coaches to evaluate issues arising within sport because it represents a reference for what constitutes both "the good and right thing to do". For example, the code of ethics helps coaches make balanced decisions about achieving personal or team goals and the means by which these goals are attained.

Values underpinning the NCCP code of ethics

The NCCP Code of Ethics deals with the fundamental values of safety, responsible coaching, engaging in relations with integrity, respecting athletes, and honouring sport. These values are expressed as 5 core ethical principles.

- 1. Physical safety and health of athletes
- 2. Coaching responsibly
- 3. Integrity in relations with others
- 4. Respect of athletes
- 5. Honouring sport

The following chart provides a description of each principle and outlines some implications for coaches.



NCCP Code of Ethics



Ethical principles and their corresponding behaviours/expectations

Principle	Standards of behaviour expected of coaches
Physical safety and health of athletes	 » Ensure that training or competition site is safe at all times » Be prepared to act quickly and appropriately in case of emergency » Avoid placing athletes in situations presenting unnecessary risk or that are beyond their level » Strive to preserve the present and future health and wellbeing of athletes
Coaching responsibly	 » Make wise use of the authority of the position and make decisions in the interest of athletes » Foster self-esteem among athletes » Avoid deriving personal advantage for a situation or decision » Know one's limitations in terms of knowledge and skills when making decisions, giving instructions or taking action » Honour commitments, word given, and agreed objectives » Maintain confidentiality and privacy of personal information and use it appropriately
Integrity in relations with others	 » Avoid situations that may affect objectivity or impartiality of coaching duties » Abstain from all behaviours considered to be harassment or inappropriate relations with an athlete » Always ensure decisions are taken equitably



NCCP Code of Ethics



Principle	Standards of behaviour expected of coaches
Respect	 Ensure that everyone is treated equally, regardless of age, ancestry, colour, race, citizenship, ethnic origin, place of origin, language, creed, religion, athletic potential, disability, family status, marital status, gender identity, gender expression, sex, and sexual orientation Preserve the dignity of each person in interacting with
	others
	» Respect the principles, rules, and policies in force
Honouring	» Strictly observe and ensure observance of all regulations
sport	» Aim to compete fairly
	» Maintain dignity in all circumstances and exercise self- control
	» Respect officials and accept their decisions without questioning their integrity



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