

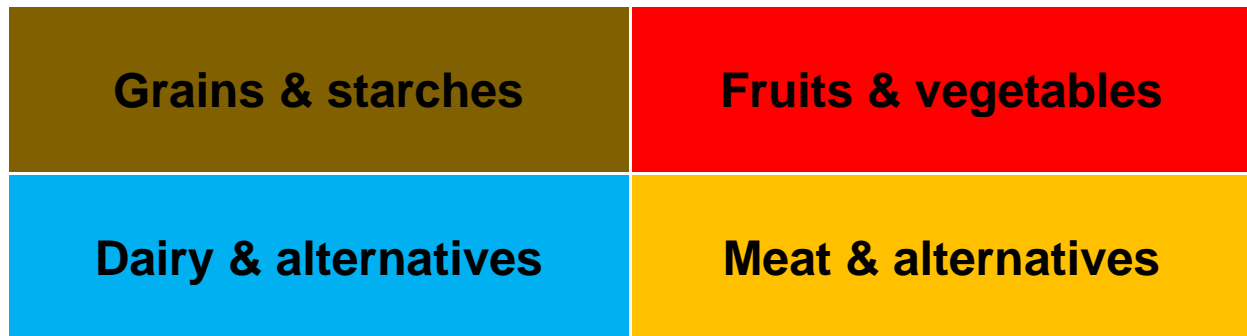
# NUTRITION BASICS

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## 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 the sport.

Sport	Approximate daily carbohydrate targets (grams per kg of body mass)
Low intensity or skill-based activities	3 – 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:

<b>Beans</b>	<b>Chickpeas</b>	<b>Milk</b>
<b>Beef</b>	<b>Eggs</b>	<b>Nuts</b>
<b>Cheese</b>	<b>Fish</b>	<b>Pork</b>
<b>Chicken</b>	<b>Lentils</b>	<b>Tofu</b>

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:

<b>Beef</b>	<b>Fish</b>	<b>Pork</b>
<b>Butter</b>	<b>Milk</b>	<b>Seeds</b>
<b>Cheese</b>	<b>Nuts</b>	<b>Sesame Oil</b>
<b>Eggs</b>	<b>Olive Oil</b>	

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**.

	Amount of activity		
	1 to 2 hrs 2 to 3 days/week	2 to 3 hrs 3+ days/week	3+ hrs 3+ days/week
Food group	Minimum # of daily recommended servings		
Grains & starches	8 to 11	12 to 14	14 to 16
Fruits & veggies	8 to 10	10 to 13	13 to 15
Daily products	2 to 3	3	3 to 4
Meat & alternatives	2 to 3	3	3 to 4
Oils & fats	2 to 3	3	3
Simple sugars	2	3 to 4	4 to 5
<b>Total calories</b>	<b>1,800 to 2,200</b>	<b>2,300 to 2,800</b>	<b>2,900 to 3,300</b>

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.

<b>Fruits &amp; Veggies</b>		<b>Grains &amp; Starches</b>	
<b>Apple</b>	<b>1</b>	<b>Bagel</b>	<b>½</b>
<b>Bamboo shoots</b>	<b>½ cup</b>	<b>Bannock</b>	<b>1</b>
<b>Banana</b>	<b>1</b>	<b>Barley</b>	<b>½ cup</b>
<b>Berries</b>	<b>½ cup</b>	<b>Bread (white)</b>	<b>1 slice</b>
<b>Bok choy</b>	<b>½ cup cooked</b>	<b>Bulgar</b>	<b>½ cup cooked</b>
<b>Chayote</b>	<b>½ cup</b>	<b>Cereals</b>	<b>½ cup</b>
<b>Clementine</b>	<b>2 small</b>	<b>Congee</b>	<b>½ cup cooked</b>
<b>Dried fruit</b>	<b>¼ cup</b>	<b>Corn</b>	<b>½ cup</b>
<b>Edamame</b>	<b>½ cup</b>	<b>Couscous</b>	<b>½ cup cooked</b>
<b>Fig</b>	<b>2 medium</b>	<b>English muffin</b>	<b>½</b>
<b>Frozen/canned Veg</b>	<b>½ cup</b>	<b>Granola/muesli</b>	<b>½ cup</b>
<b>Grapes</b>	<b>20</b>	<b>Mush</b>	<b>¾ cup cooked</b>
<b>Kiwi</b>	<b>1</b>	<b>Naan</b>	<b>¼</b>
<b>Kohlrabi</b>	<b>½ cup</b>	<b>Oatmeal</b>	<b>¾ cup cooked</b>
<b>Lettuce</b>	<b>1 cup</b>	<b>Pasta</b>	<b>½ cup cooked</b>
<b>Mesclun mix</b>	<b>1 cup raw</b>	<b>Pita</b>	<b>½</b>
<b>Okra</b>	<b>½ cup</b>	<b>Polenta</b>	<b>½ cup cooked</b>
<b>Orange</b>	<b>1</b>	<b>Potatoes</b>	<b>½ cup</b>
<b>Pear</b>	<b>1</b>	<b>Quinoa</b>	<b>½ cup cooked</b>
<b>Seaweed</b>	<b>½ cup</b>	<b>Rice (brown/wild)</b>	<b>½ cup cooked</b>
<b>Spinach</b>	<b>1 cup</b>	<b>Rice cakes</b>	<b>2</b>
<b>Veggie or fruit juice</b>	<b>½ cup</b>	<b>Roll</b>	<b>1</b>
		<b>Tortilla</b>	<b>½</b>

Meat & alternatives		Oils & fats	
Beef	75 g	Butter	1 tsp
Black beans	$\frac{3}{4}$ cup	Coconut milk	2 Tbsp
Caribou	75 g	Cream cheese	1 Tbsp
Chicken/turkey	75 g	Flax/chia/hemp	1 Tbsp
Cottage cheese	$\frac{1}{4}$ cup	Gravy	1 Tbsp
Deli meat (low fat)	75 g	Margarine	1 tsp
Deer	75 g	Salad dressing (regular)	1 tsp
Duck	75 g	Salad dressing (low-fat)	2 Tbsp
Eggs	2 small	Vegetable oils	1 tsp
Fish	75 g		
Goat	75 g		
Ham	75 g		
Hummus	$\frac{3}{4}$ cup		
Kidney beans	$\frac{3}{4}$ cup		
Lentils	$\frac{3}{4}$ cup		
Moose	75 g		
Nut butters	2 Tbsp		
Nuts/seeds	$\frac{1}{4}$ cup		
Pork/bacon	75 g		
Rabbit/hare	75 g		
Shellfish	75 g		
Tofu	$\frac{3}{4}$ cup		
Whey/casein powder	30 to 35 g		

Meat & alternatives		Oils & fats	
Cheese	50 g	Brownie	1.25 in
Cottage cheese	¾ cup	Honey	1 tsp
Fortified soy bev	1 cup	Hot chocolate	1 packet
Kefir	¾ cup	Ice cream	½ cup
Milk (skim/whole)	1 cup	Jam	1 tsp
Paneer	50 g	Molasses	1 tsp
Yogurt	¾ cup	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.

<b>Nutrition Facts</b>		<b>Valeur nutritive</b>	
<b>1</b>	Serving Size: 1 cup (250 mL) Portion: 1 tasse (250 mL)		
<b>3</b>	<b>Calories 110</b>	<b>2</b>	% Daily Value* % valeur quotidienne*
<b>4</b>	<b>Fats / Lipides</b> 2 g		3 %
	Saturated / saturés .5 g		3 %
	+ Trans – trans 0 g		
<b>5</b>	<b>Sodium</b> 45 mg		11 %
<b>6</b>	<b>Potassium</b> 400 mg		0 %
<b>6</b>	<b>Carbohydrate / Glucides</b> 26 g		0 %
	Fibre / Fibres 0 g		0 %
	Sugars / Sucres 22 g		22 %
<b>7</b>	<b>Protein</b> 25 g		50 %
	<b>Vitamin A</b> 2 %	<b>Vitamin C</b> 2 %	
<b>8</b>	<b>Calcium</b> 10 %	<b>Iron</b> 10 %	
* Percent based on 2,000 calorie diet * 5 % or less is a little, 15 % or more is a lot			

**1. 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.

**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.