

Proteins

planted versus animal styles

Olaf Mertens & Wendy Ward

January 10, 2023



Olaf Mertens: olafcooks@gmail.com

Wendy Ward: wward@brocku.ca

Canada's Food Guide

Make it a habit to eat vegetables, fruits, whole grain and protein foods.

✓ Plant-based protein foods more often

Consume higher levels of:

- Fruits & vegetables
- Nuts & plant proteins
- Fiber

Consume lower levels of:

- Processed meat
- Lower saturated fat

Water

- Tea (unsweetened)
- Polyphenols

Have plenty of vegetables and fruits

Eat protein foods
Especially plants!

Make water your drink of choice

Choose whole grain foods

<https://food-guide.canada.ca/en/>



Have plenty of
vegetables and fruits

Eat protein foods

Make water
your drink
of choice



<https://food-guide.canada.ca/en/>

Choose
whole grain
foods

Why the emphasis on plants?

Lower risk of

- Cardiovascular disease
- Type 2 diabetes
- Unhealthy body weight
- Some cancers

Healthy eating is more than the foods you eat. It is also about where, when, why and how you eat.

Be mindful of your eating habits

- Take time to eat
- Notice when you are hungry and when you are full

Cook more often

- Plan what you eat
- Involve others in planning and preparing meals

Enjoy your food

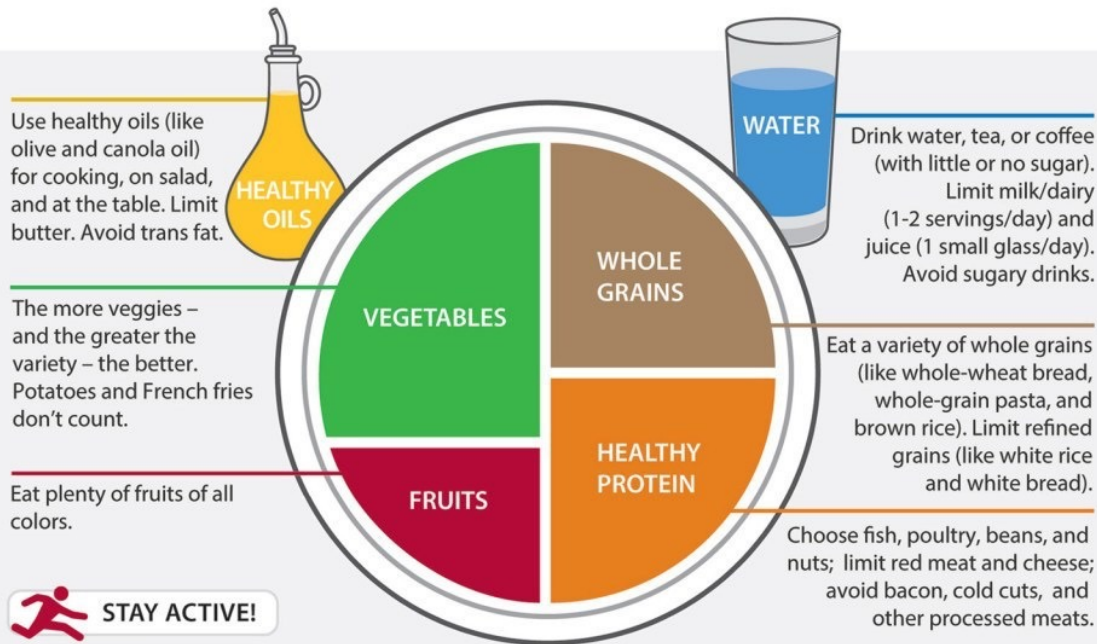
- Culture and food traditions can be a part of healthy eating

Eat meals with others

<https://food-guide.canada.ca/en/healthy-eating-habits/>

Coexistence

HEALTHY EATING PLATE



© Harvard University



Harvard T.H. Chan School of Public Health
The Nutrition Source
www.hsph.harvard.edu/nutritionsource

Harvard Medical School
Harvard Health Publications
www.health.harvard.edu



How to consume 48 – 64 g protein per day? (0.8 g protein/kg body weight/day)

Food	Serving Size	Protein (g)	Energy (kcal)
Chicken	3 oz / 85 g	28	141
Steak	3 oz / 85 g	26	158
Ground Beef	3 oz / 85 g	22	140
Salmon	3 oz / 85 g	22	155
Greek Yogurt (plain)	6 oz / 170 g	18	100
Milk	1 cup / 250 mL	8	86
Peanut Butter	2 tbsp / 30 g	8	190
Egg	1 large	6	71
Quinoa	½ cup / 125 g	4	111
'Beans'	½ cup / 125 g	6-11	94-134
'Nuts'	1 oz / 28 g	4-12	120-163
Flax Seed	1 tbsp / 15 g	2.7	80

'Scoop' of Whey Protein or Plant Protein (pea): 25 g protein, approximately 113 kcal

How to consume 48 – 64 g protein per day? (0.8 g protein/kg body weight/day)

Food	Serving Size	Protein (g)	Energy (kcal)
Chicken	3 oz / 85 g	28	141
Steak	3 oz / 85 g	26	158
Ground Beef	3 oz / 85 g	22	140
Salmon	3 oz / 85 g	22	155
Greek Yogurt (plain)	6 oz / 170 g	18	100
Milk	1 cup / 250 mL	8	86
Peanut Butter	2 tbsp / 30 g	8	190
Egg	1 large	6	71
Quinoa	½ cup / 125 g	4	111
'Beans'	½ cup / 125 g	6-11	94-134
'Nuts'	1 oz / 28 g	4-12	120-163
Flax Seed	1 tbsp / 15 g	2.7	80

Energy = Calories

Consider different food sources of protein in terms of protein and energy content.....

Consider energy intake but also food sources of bone supporting micronutrients:

- ✓ **Calcium**
- ✓ **Vitamin D**
- ✓ **Magnesium**

'Scoop' of Whey Protein or Plant Protein (pea): 25 g protein, approximately 113 kcal

How to consume 48 – 64 g protein per day? (0.8 g protein/kg body weight/day)

Food	Serving Size	Protein (g)	Energy (kcal)
Chicken	3 oz / 85 g	28	141
Steak	3 oz / 85 g	26	158
Ground Beef	3 oz / 85 g	22	140
Salmon	3 oz / 85 g	22	155
Greek Yogurt (plain)	6 oz / 170 g	18	100
Milk	1 cup / 250 mL	8	86
Peanut Butter	2 tbsp / 30 g	8	190
Egg	1 large	6	71
Quinoa	½ cup / 125 g	4	111
'Beans'	½ cup / 125 g	6-11	94-134
'Nuts'	1 oz / 28 g	4-12	120-163
Flax Seed	1 tbsp / 15 g	2.7	80

✓ Protein

✓ Calcium
✓ Magnesium
✓ Different fat profile

'Scoop' of Whey Protein or Plant Protein (pea): 25 g protein, approximately 113 kcal

How to consume 48 – 64 g protein per day? (0.8 g protein/kg body weight/day)

Food	Serving Size	Protein (g)	Energy (kcal)
Chicken	3 oz / 85 g	28	141
Steak	3 oz / 85 g	26	158
Ground Beef	3 oz / 85 g	22	140
Salmon	3 oz / 85 g	22	155
Greek Yogurt (plain)	6 oz / 170 g	18	100
Milk	1 cup / 250 mL	8	86
Peanut Butter	2 tbsp / 30 g	8	190
Egg	1 large	6	71
Quinoa	½ cup / 125 g	4	111
'Beans'	½ cup / 125 g	6-11	94-134
'Nuts'	1 oz / 28 g	4-12	120-163
Flax Seed	1 tbsp / 15 g	2.7	80

- ✓ Similar protein
- ✓ Calcium
- ✓ Vitamin D

- ✓ Different fat profile

'Scoop' of Whey Protein or Plant Protein (pea): 25 g protein, approximately 113 kcal

How to consume 48 – 64 g protein per day? (0.8 g protein/kg body weight/day)

Food	Serving Size	Protein (g)	Energy (kcal)
Chicken	3 oz / 85 g	28	141
Steak	3 oz / 85 g	26	158
Ground Beef	3 oz / 85 g	22	140
Salmon	3 oz / 85 g	22	155
Greek Yogurt (plain)	6 oz / 170 g	18	100
Milk	1 cup / 250 mL	8	86
Peanut Butter	2 tbsp / 30 g	8	190
Egg	1 large	6	71
Quinoa	½ cup / 125 g	4	111
'Beans'	½ cup / 125 g	6-11	94-134
'Nuts'	1 oz / 28 g	4-12	120-163
Flax Seed	1 tbsp / 15 g	2.7	80

- ✓ Similar protein
- ✓ Vitamin D
- ✓ Calcium (if canned)
- ✓ Different fat profile

'Scoop' of Whey Protein or Plant Protein (pea): 25 g protein, approximately 113 kcal

How to consume 48 – 64 g protein per day? (0.8 g protein/kg body weight/day)

Food	Serving Size	Protein (g)	Energy (kcal)
Chicken	3 oz / 85 g	28	141
Steak	3 oz / 85 g	26	158
Ground Beef	3 oz / 85 g	22	140
Salmon	3 oz / 85 g	22	155
Greek Yogurt (plain)	6 oz / 170 g	18	100
Milk	1 cup / 250 mL	8	86
Peanut Butter	2 tbsp / 30 g	8	190
Egg	1 large	6	71
Quinoa	½ cup / 125 g	4	111
'Beans'	½ cup / 125 g	6-11	94-134
'Nuts'	1 oz / 28 g	4-12	120-163
Flax Seed	1 tbsp / 15 g	2.7	80

✓ Higher protein

✓ Similar calcium, vitamin D

'Scoop' of Whey Protein or Plant Protein (pea): 25 g protein, approximately 113 kcal

Complete versus Incomplete Proteins... *what does this mean?*

- ✓ Essential Amino Acids (n=9)
- ✓ Non-Essential Amino Acids (n=11)
- Many plants are labelled 'incomplete' proteins because they don't contain all 9 essential amino acids
beans, peas, lentils, seeds, whole grains, vegetables, nuts
- **Combine proteins! 'protein complementation'**
Consuming a mixture of protein sources allows you to consume sufficient levels of all essential amino acids!



Food Labels: “Nutrition Facts”

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g	
+ 0.1g Trans fat	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

Nutrition Facts table:

- Learn about calories & nutrients
- Make it easy to compare similar foods
- Look for foods with a little or lot of a certain nutrient (% Daily Value)
- Select foods for special diets

Food Labels: “Nutrition Facts”

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g	
+ 0.1g Trans fat	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

Serving Size (points to Per 3/4 cup (175g))

Calories (energy) (points to Calories 140)

% Daily Value (DV) (bracketed around the % Daily Value column)

Nutrition Facts table:

- Learn about calories & nutrients
- Make it easy to compare similar foods
- Look for foods with a little or lot of a certain nutrient (% Daily Value)
- Select foods for special diets

Food Labels: “Nutrition Facts”

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g	
+ 0.1g Trans fat	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

✓ **Serving Size**

✓ **Calories (energy)**

✓ **% Daily Value (DV)**

5% DV or less is a little

15% DV or more is a lot

-helpful when comparing foods

-mandatory reporting for 13 nutrients

(optional reporting for other vitamins & minerals)

$\% \text{ DV} = \text{Amount in food} / \text{Dietary Reference Intake} \times 100\%$

% DV for Calcium:

$= 300 \text{ mg Ca per serving} / 1000 \text{ mg} \times 100\%$

Let's Compare 'Yogurts'

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g	
+ 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

PC Skyr Plain Yogurt, 4% mf

Nutritional Information	
Serving Size Per 3.0 / 4 cup 175 g	
Amount	% Daily Value
Calories 160 cal	
Fat 6 g	8%
Saturated Fat 4.0 g	
Trans Fat 0.2 g	21%
Cholesterol 30 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Carbohydrate 7 g	
Sugars 2 g	2%
Protein 18 g	
Calcium	13%
Iron	1%

Silk Unsweetened Almond Dairy Free Yogurt-Style

Nutrition Facts	
Valeur Nutritive	
Per 3/4 cup (175 g) / pour 3/4 tasse (175 g)	
Amount	% Daily Value*
Calories 180	% valeur quotidienne
Fat / Lipides 15 g	20%
Saturated / saturés 1 g	
+ Trans / trans 0 g	5%
Carbohydrate / Glucides 11 g	
Fibre / Fibres 7 g	25%
Sugars / Sucres 1 g	1%
Protein / Protéines 6 g	
Cholesterol / Cholestérol 0 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Calcium 125 mg	10%
Iron / Fer 1 mg	6%

*5% or less is **a little**, 15% or more is **a lot**
 *5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Let's Compare 'Yogurts'

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g + 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

PC Skyr Plain Yogurt, 4% mf

Nutritional Information	
Serving Size Per 3.0 / 4 cup 175 g	
Amount	% Daily Value
Calories 160 cal	
Fat 6 g	8%
Saturated Fat 4.0 g	21%
Trans Fat 0.2 g	
Cholesterol 30 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Carbohydrate 7 g	
Sugars 2 g	2%
Protein 18 g	
Calcium	13%
Iron	1%

Silk Unsweetened Almond Dairy Free Yogurt-Style

Nutrition Facts	
Valeur Nutritive	
Per 3/4 cup (175 g) pour 3/4 tasse (175 g)	
	% Daily Value* % valeur quotidienne
Calories 180	
Fat / Lipides 15 g	20%
Saturated / saturés 1 g + Trans / trans 0 g	5%
Carbohydrate / Glucides 11 g	
Fibre / Fibres 7 g	25%
Sugars / Sucres 1 g	1%
Protein / Protéines 6 g	
Cholesterol / Cholestérol 0 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Calcium 125 mg	10%
Iron / Fer 1 mg	6%

*5% or less is **a little**, 15% or more is **a lot**
*5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Let's Compare 'Yogurts'

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g + 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

PC Skyr Plain Yogurt, 4% mf

Nutritional Information	
Serving Size Per 3.0 / 4 cup 175 g	
Amount	% Daily Value
Calories 160 cal	
Fat 6 g	8%
Saturated Fat 4.0 g	21%
Trans Fat 0.2 g	
Cholesterol 30 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Carbohydrate 7 g	
Sugars 2 g	2%
Protein 18 g	
Calcium	13%
Iron	1%

Silk Unsweetened Almond Dairy Free Yogurt-Style

Nutrition Facts	
Valeur Nutritive	
Per 3/4 cup (175 g) pour 3/4 tasse (175 g)	
Amount	% Daily Value*
Calories 180	% valeur quotidienne
Fat / Lipides 15 g	20%
Saturated / saturés 1 g + Trans / trans 0 g	5%
Carbohydrate / Glucides 11 g	
Fibre / Fibres 7 g	25%
Sugars / Sucres 1 g	1%
Protein / Protéines 6 g	
Cholesterol / Cholestérol 0 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Calcium 125 mg	10%
Iron / Fer 1 mg	6%

*5% or less is **a little**, 15% or more is **a lot**
*5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Let's Compare 'Yogurts'

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g + 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

PC Skyr Plain Yogurt, 4% mf

Nutritional Information	
Serving Size Per 3.0 / 4 cup 175 g	
Amount	% Daily Value
Calories 160 cal	
Fat 6 g	8%
Saturated Fat 4.0 g	21%
Trans Fat 0.2 g	
Cholesterol 30 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Carbohydrate 7 g	
Sugars 2 g	2%
Protein 18 g	
Calcium	13%
Iron	1%

Silk Unsweetened Almond Dairy Free Yogurt-Style

Nutrition Facts	
Valeur Nutritive	
Per 3/4 cup (175 g) pour 3/4 tasse (175 g)	
Amount	% Daily Value*
Calories 180	% valeur quotidienne
Fat / Lipides 15 g	20%
Saturated / saturés 1 g + Trans / trans 0 g	5%
Carbohydrate / Glucides 11 g	
Fibre / Fibres 7 g	25%
Sugars / Sucres 1 g	1%
Protein / Protéines 6 g	
Cholesterol / Cholestérol 0 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Calcium 125 mg	10%
Iron / Fer 1 mg	6%

*5% or less is **a little**, 15% or more is **a lot**
*5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Let's Compare 'Yogurts'

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g + 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

PC Skyr Plain Yogurt, 4% mf

Nutritional Information	
Serving Size Per 3.0 / 4 cup 175 g	
Amount	% Daily Value
Calories 160 cal	
Fat 6 g	8%
Saturated Fat 4.0 g	21%
Trans Fat 0.2 g	
Cholesterol 30 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Carbohydrate 7 g	
Sugars 2 g	2%
Protein 18 g	
Calcium	13%
Iron	1%

Silk Unsweetened Almond Dairy Free Yogurt-Style

Nutrition Facts	
Valeur Nutritive	
Per 3/4 cup (175 g) pour 3/4 tasse (175 g)	
Amount	% Daily Value*
Calories 180	% valeur quotidienne
Fat / Lipides 15 g	20%
Saturated / saturés 1 g + Trans / trans 0 g	5%
Carbohydrate / Glucides 11 g	
Fibre / Fibres 7 g	25%
Sugars / Sucres 1 g	1%
Protein / Protéines 6 g	
Cholesterol / Cholestérol 0 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Calcium 125 mg	10%
Iron / Fer 1 ma	6%

*5% or less is **a little**, 15% or more is **a lot**
*5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Let's Compare 'Yogurts'

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g + 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

PC Skyr Plain Yogurt, 4% mf

Nutritional Information	
Serving Size Per 3.0 / 4 cup 175 g	
Amount	% Daily Value
Calories 160 cal	
Fat 6 g	8%
Saturated Fat 4.0 g	21%
Trans Fat 0.2 g	
Cholesterol 30 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Carbohydrate 7 g	
Sugars 2 g	2%
Protein 18 g	
Calcium	13%
Iron	1%

Silk Unsweetened Almond Dairy Free Yogurt-Style

Nutrition Facts	
Valeur Nutritive	
Per 3/4 cup (175 g) pour 3/4 tasse (175 g)	
Amount	% Daily Value*
Calories 180	% valeur quotidienne
Fat / Lipides 15 g	20%
Saturated / saturés 1 g + Trans / trans 0 g	5%
Carbohydrate / Glucides 11 g	
Fibre / Fibres 7 g	25%
Sugars / Sucres 1 g	1%
Protein / Protéines 6 g	
Cholesterol / Cholestérol 0 mg	
Sodium 60 mg	3%
Potassium 250 mg	5%
Calcium 125 mg	10%
Iron 1 mg	0%

*5% or less is **a little**, 15% or more is **a lot**
*5% ou moins c'est **peu**, 15% ou plus c'est **beaucoup**

Comparing Full Fat versus Lower Fat Yogurt

Hewitt's Plain Yogurt, 3.3% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 140	
Fat 5.5g	8%
Saturated 2.5g	
+ 0.1g	13%
Cholesterol 15mg	
Sodium 140mg	6%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 13g	
Proteins 10g	
Vitamin A	6%
Vitamin C	0%
Calcium	30%
Iron	0%

Hewitt's Plain Yogurt, Skim, 0% mf

Nutrition Facts	
Per 3/4 cup (175g)	
Amount	% Daily Value
Calories 90	
Fat 0.5g	1%
Saturated 0.2g	
+ 0g	1%
Cholesterol 5mg	
Sodium 120mg	5%
Carbohydrate 13g	4%
Fibre 0g	0%
Sugar 9g	
Proteins 9g	
Vitamin A	10%
Vitamin C	0%
Calcium	30%
Iron	0%

Physically Active Individual

Greater protein needs.....fuel, recovery
≥ 1.2 g protein/kg body weight/day
rather than
0.8 g protein/kg body weight/day

Plant-based athlete:

- **nutrients of concern**
(calcium, vitamin D, iron)
- **careful dietary planning**
- **sports dietitian**

[https://journals.lww.com/acsm-
msse/Fulltext/2016/03000/Nutrition_and_Athletic_Performance.25.aspx](https://journals.lww.com/acsm-msse/Fulltext/2016/03000/Nutrition_and_Athletic_Performance.25.aspx)



Nutrition and Athletic Performance

Position of Dietitians of
Canada, the Academy
of Nutrition and Dietetics
and the American College
of Sports Medicine

February 2016
Revised December 2016

Copyright © 2016 by Dietitians of Canada, the Academy of Nutrition and Dietetics and the American College of Sports Medicine; including revision – December 2016 (p 34; per p 45). All rights reserved. Permission to reprint in its entirety. For noncommercial use only.

Concurrent publication of this joint position paper:
- DC website www.dietitians.ca/sports
- Canadian Journal of Dietetic Practice and Research (abstract, position statement)
- Journal of the Academy of Nutrition and Dietetics
- Medicine & Science in Sports and Exercise®

