

Busting Red Meat Myths

1. Is red meat is bad for you?

A substantial body of evidence shows the nutrients in red meat, such as high-quality protein, iron, zinc and B-vitamins, play a powerful role in nourishing Canadians – from fueling physical activity and helping manage weight, to developing cognitive skills and aging vibrantly.^{1,2,3,4} Red meat, such as pork and beef, provide nutrients that can be difficult to obtain in adequate quantities from plant-source foods alone. As one of the most nutrient dense foods available, red meat makes an important contribution to the food security and diet quality of Canadians.

2. Are plant-based simulated meat products healthier than meat?

Red meat is often imitated but never duplicated; it is the one and only. Although these plant-protein foods are often perceived and marketed as healthier options to meat, most of these products are largely ultra-processed. Nothing can match the taste, simple satisfaction and nourishment provided by meat: nature's one single ingredient protein food.

3. Are plant-based proteins better for you than animal proteins?

Plant and animal proteins are not equivalent. Animal proteins contain all nine essential amino acids in amounts that can be used to grow and maintain our bodies. These essential amino acids remain available for absorption and protein synthesis even after digestion. Evidence suggests high quality animal-based proteins stimulate muscle protein synthesis more effectively than plant-based proteins.⁵

Conversely, cereal proteins are limited in lysine, threonine and tryptophan and legumes are limited in sulphur amino acids. Consequently, food combining is important to ensure all the amino acids are available simultaneously.⁶ Although foods like almonds and seeds are sources of protein, these foods are generally consumed as snacks making it less likely to look like the Healthy Eating Plate: ½ vegetables and fruits, and a ¼ plate each of protein foods and whole grains.

The discrepancies in quality between animal and plant proteins become dramatic when the energy equivalents of the food sources are accounted for in the expression of quality. High-quality animal proteins require far less energy intake to meet essential amino acid needs than lower quality plant

¹ Westerterp-Plantenga MS, et al. 2006. Dietary protein, metabolism, and body-weight regulation: dose–response effects. *Int J Obes.* 30:S16-S23.

² Paddon-Jones D, et al. 2008. Protein, weight management, and satiety. *Am J Clin Nutr.* 87:1558S-61S.

³ Georgieff MK. Iron deficiency in pregnancy. *Am J Obstet Gynecol.* 2020.

⁴ Bradlee, ML et al. High-protein foods and physical activity protect against age-related muscle loss and functional decline. *J Gerontol A Biol Sci Med Sci*, 2017; 73(1):88-94.

⁵ Gorissen SHM and Witard OC. Characterizing the muscle anabolic potential of dairy, meat and plant-based protein sources in older adults. *Proc Nutr Soc*, 2018; 77(1):20-31.

⁶ Wolfe R et al. Protein quality as determined by the Digestible Indispensable Amino Acid Score: evaluation of factors underlying the calculation. *Nutr Rev.* 2016 Sep; 74(9): 584-99.

proteins.⁷ This is an important consideration given that obesity is one of today’s largest public health challenges.

4. Do Canadians eat too much red meat?

On average, only three of 21 meals a week (7 days x 3 meals a day) include a 100-gram serving of pork, beef, lamb, or veal.⁸

Average Meals* per Week			
	Both sexes	Males	Females
Pork, beef, lamb, veal	3	4	2

* 21 meals a week, 100 grams/meal

Reducing meat consumption further is not warranted and may have a negative impact on the health of those Canadians with inadequate dietary intakes of protein, iron, zinc, vitamin B6, and vitamin B12; notably older adults and women.⁹ Consequences of these nutrient shortfalls include low energy levels, reduced work capacity, lower resistance to infections, fatigue, sarcopenia and osteoporosis.^{10,11,12}

5. Are Canadians eating too much protein?

Recent evidence indicates the current recommended dietary allowance (RDAs) substantially underestimate minimum protein requirements by up to 50%.¹³ Experts suggest 1.5–2.2 g/(kg·day) of a variety of high-quality proteins is optimal.¹⁴ The acceptable macronutrient distribution range (AMDR) of 10% to 35% of calories from protein for adults allows considerable flexibility to recommend protein intakes above the current RDA. The 2015 CCHS data found adults are at the lower end of the acceptable range at 17% of calories.¹⁵

The assumption underlying recommendations for dietary protein is that it consists of high-quality protein. The term protein quality refers to the balance of the amino acids, the digestibility of the

⁷ Pencharz, P et al. Recent developments in understanding protein needs – How much and what kind should we eat?. *Applied Physiology, Nutrition, and Metabolism*. 41(5): 577-580. <https://doi.org/10.1139/apnm-2015-0549>

⁸ Canadian Community Health Survey 2015 - Nutrition - Food and Nutrition Surveillance - Health Canada

⁹ Evidence Review for Dietary Guidance Technical Report, 2015, Health Canada.

¹⁰ Institute of Medicine. 2001. Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc <https://www.nap.edu/read/10026/chapter/1>

¹¹ Institute of Medicine. 2001. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline <https://www.nap.edu/read/6015/chapter/1>

¹² Institute of Medicine. 2005. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10490>.

¹³ Pencharz, P et al. Recent developments in understanding protein needs – How much and what kind should we eat?. *Applied Physiology, Nutrition, and Metabolism*. 41(5): 577-580. <https://doi.org/10.1139/apnm-2015-0549>

¹⁴ Wolfe R et al. Protein quality as determined by the Digestible Indispensable Amino Acid Score: evaluation of factors underlying the calculation. *Nutr Rev*. 2016 Sep; 74(9): 584-99.

¹⁵ Statistics Canada. Protein sources in the Canadian diet, 2015. <https://www150.statcan.gc.ca/n1/pub/11-627-m/11-627-m2018004-eng.htm>

protein to release the amino acids for absorption, and the availability of the absorbed amino acids for protein synthesis. High-quality animal proteins require far less energy intake to meet essential amino acid needs than lower quality plant proteins.

6. Is saturated fat harmful?

A recent review of the literature found limits on saturated fats (SFA) are not justified by the science. This meta-analysis of randomized trials and observational studies found no beneficial effects of reducing SFA intake on cardiovascular disease (CVD) and total mortality, and instead found protective effects against stroke.¹⁶ Researchers suggest high carbohydrate diets and insulin sensitivity are more the likely culprit of elevation of LDL cholesterol – often referred to as the "bad" cholesterol - than saturated fat consumption.¹⁷

The healthfulness of fats is not a simple function of their SFA content, but rather is a result of the various components in the food, often referred to as the "food matrix." A focus on total SFAs has had the unintended effect of misleadingly guiding governments, consumers, and industry toward foods low in SFAs but rich in refined starch and sugar. Recommendations should, therefore, emphasize food-based strategies that translate into understandable, consistent recommendations for healthy dietary patterns.

7. Is red meat a cause of obesity and diabetes?

It's alarming that 63% of Canadian adults are obese or overweight (27% and 36% respectively).¹⁸ That's over 17 million Canadians who have increased health risks due to excess weight. For perspective, in 1978, 14% of Canadian adults were obese.¹⁹ Obesity rates have doubled since then.

Also concerning is the number of Canadians living with diabetes. Between 2000 and 2016, the number of diabetes cases have increased almost two and a half times.²⁰ Diabetes Canada estimates 29% of Canadians currently live with diabetes or prediabetes.²¹

It is important to note that as obesity and diabetes rates increased among Canadians, many Canadians were reducing their red meat consumption.

¹⁶ Saturated Fats and Health: A Reassessment and Proposal for Food-Based Recommendations
Astrup et al, *J Am Coll Cardiol*. 2020.

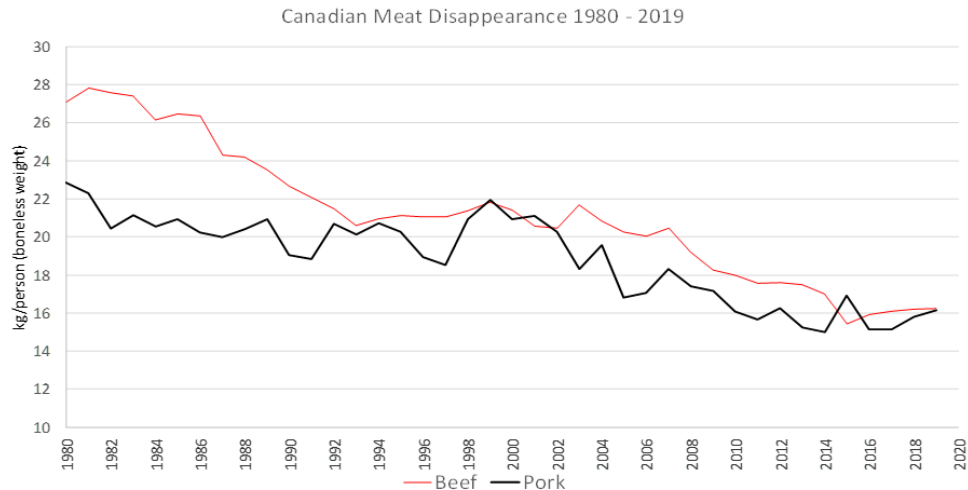
¹⁷ Diamond et al, Dietary Recommendations for Familial Hypercholesterolaemia: an Evidence-Free Zone. *BMJ Evidence-Based Medicine*, 2020.

¹⁸ Overweight and obese adults, 2018 Health Fact Sheets, Statistics Canada
<https://www150.statcan.gc.ca/n1/pub/82-625-x/2019001/article/00005-eng.htm>

¹⁹ Obesity in Canada: Prevalence among adults, Public Health Agency of Canada <https://www.canada.ca/en/public-health/services/health-promotion/healthy-living/obesity-canada/adults.html#figure-1>

²⁰ Twenty Years of Diabetes surveillance using the Canadian Chronic Disease Surveillance System, Public Health Agency of Canada; 2019.

²¹ Diabetes in Canada: Background. Ottawa: Diabetes Canada; 2020.



Source: Statistics Canada

8. Does red meat causes cancer?

Red meat does not cause cancer.

The most comprehensive quality assessment of the evidence, using the authoritative GRADE system for epidemiological data, found there is no convincing evidence of a link between fresh red meat and cancer.²² Similar conclusions were obtained when assessing dietary patterns with less intake of red or processed meats.²³ The authors therefore suggested that based on the low-certainty of evidence of the negative health outcomes of eating meat, that the majority of people continue their current red meat consumption.

Furthermore, in 2019, Health Canada reported there was no longer convincing evidence for red meat intake and increased risk of colorectal cancer.²⁴

The most important dietary advice people can follow to decrease cancer risk are to enjoy a nutrient-rich, balanced diet of fruits, vegetables, whole grains, lean meat and low- and nonfat dairy. Not smoking, responsible alcohol consumption, maintaining a healthy weight and regular physical activity are much more important to your cancer risk than eating any individual food.

²² Han MA, et al. Reduction of Red and Processed Meat Intake and Cancer Mortality and Incidence: A Systematic Review and Meta-analysis of Cohort Studies. *Ann Intern Med.* 2019 Nov 19;171(10):711-720. doi: 10.7326/M19-0699. Epub 2019 Oct 1. PMID: 31569214.

²³ Vernooij RWM, et al. Patterns of Red and Processed Meat Consumption and Risk for Cardiometabolic and Cancer Outcomes: A Systematic Review and Meta-analysis of Cohort Studies. *Ann Intern Med.* 2019 Nov 19;171(10):732-741. doi: 10.7326/M19-1583. Epub 2019 Oct 1. PMID: 31569217.

²⁴ Food, Nutrients and Health, Interim Evidence Update, For Health Professionals and Policy Makers, Health Canada, 2019.