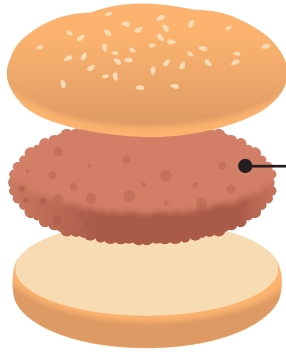


Plant-Based Meat Alternatives



Health Impact of Beyond and Impossible Burgers

Nutritional Comparison: Beef vs. Plant-Based Meat*¹



	Beef	Impossible	Beyond
Trans fat (g)	1.5	0	0
Saturated fat (g)	8	8	5
Sodium (mg)	230	370	390
Cholesterol (mg)	80	0	0
Fiber (g)	0	3	2

* based on one (113g) patty

Unlike meat from animals, plant-based meat alternatives:

- ▶ are always free of hormones and antibiotics
- ▶ have not been designated as a probable human carcinogen (that is, probably cancer-causing) by the World Health Organization

The SWAP-MEAT study out of Stanford found that switching people from regular beef, pork, and chicken to plant-based beef, pork, and chicken led to beneficial drops in TMAO, cholesterol, and weight loss.²

When it comes to saturated fat in plant-based burgers, Impossible and Beyond are outliers. Saturated fat levels of other plant-based patties only average about 2 grams per serving,³ which is much better than the animal-based equivalents.

Sodium is problematic throughout the plant-based meat sector, just as it is for nearly every other processed food in the marketplace.

Pea and Soy Protein Isolates

Animal protein intake is associated with a higher risk of mortality, particularly dying from cardiovascular disease. In contrast, higher intake of plant protein is associated with lower all-cause mortality, meaning lower risk of dying from all causes put together.⁴

- ▶ Soy protein intake is associated with significantly lower risk of dying from breast cancer.⁵
- ▶ Switching out about a third of your protein from animal sources with plant sources can yield significant improvements in your long-term blood sugar control, fasting blood sugars, and insulin.⁶
- ▶ Choosing protein from plants instead of animals also decreases LDL cholesterol.⁷

1. Gordon W, Gantori S, Gordon J, Leemann R, Boer R. The food revolution: the future of food and the challenges we face. UBS. July 2019.

2. Crimarco A, Springfield S, Petlura C, et al. A randomized crossover trial on the effect of plant-based compared with animal-based meat on trimethylamine-N-oxide and cardiovascular disease risk factors in generally healthy adults: Study With Appetizing Plantfood-Meat Eating Alternative Trial (SWAP-MEAT). *Am J Clin Nutr.* 2020;112(5):1188-99.

3. Curtain F, Grafenauer S. Plant-based meat substitutes in the flexitarian age: an audit of products on supermarket shelves. *Nutrients.* 2019;11(11):2603.

4. Song M, Fung TT, Hu FB, et al. Association of animal and plant protein intake with all-cause and cause-specific mortality. *JAMA Intern Med.* 2016;176(10):1453-63.

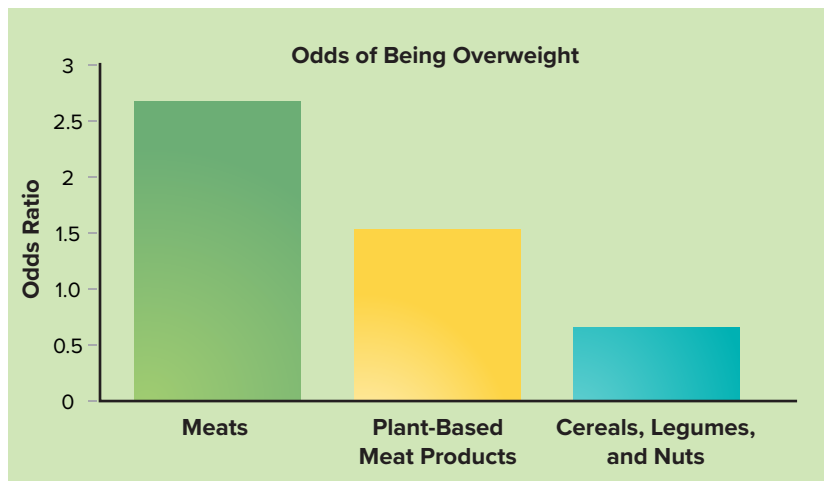
5. Kang HB, Zhang YF, Yang JD, Lu KL. Study on soy isoflavone consumption and risk of breast cancer and survival. *Asian Pac J Cancer Prev.* 2012;13(3):995-8.

6. Vigiiliouk E, Stewart SE, Jayalath VH, et al. Effect of replacing animal protein with plant protein on glycemic control in diabetes: a systematic review and meta-analysis of randomized controlled trials. *Nutrients.* 2015;7(12):9804-24.

7. Li SS, Blanco Mejia S, Lytvyn L, et al. Effect of plant protein on blood lipids: a systematic review and meta-analysis of randomized controlled trials. *J Am Heart Assoc.* 2017;6(12):e006659.

Plant-Based Meat Alternatives vs. Whole Foods

Meat consumption is associated with double the odds of schoolchildren being overweight, compared to the consumption of plant-based meat. Whole-food sources of plant protein, such as beans, did even better, though. Compared to plant-based meat, they were associated with only half the odds of kids being overweight.⁸



Daily intake of plant-based meats appears to reduce the risk of hip fracture by nearly half, but daily intake of **legumes**—beans, split peas, chickpeas, and lentils—may drop the risk of hip fracture by nearly two-thirds.⁹ This is why I consider plant-based meats more as a useful stepping stone towards a healthier diet, rather than the endgame ideal.

Health Benefits of Mycoprotein (Quorn) Products

Quorn is a plant-based meat made from mycoprotein derived from the mushroom kingdom.

High in protein and fiber, and low in fat, cholesterol, and sodium, Quorn may help control cholesterol, blood sugar, and insulin levels, as well as improve satiety.¹⁰

Compared with chicken, Quorn's meat-free chicken causes up to 41 percent less of an immediate insulin reaction.¹¹

Quorn's mycoprotein itself is fermentable by our good gut bacteria, so it can also act as a prebiotic for our friendly flora.¹²

Allergic reactions may only be on the order of about one in nine million.¹³

Environmental Impact of Beyond and Impossible Burgers

Switching from meat to the plant-based Beyond or Impossible Burger drops greenhouse gas emissions, land use, and water footprints down about 90 percent.¹⁴

If you went straight to the peas and soybeans from which the Beyond and Impossible Burgers are made, you could get a 99 percent lower impact.¹⁵

Learn more: To view all of our videos on this topic, visit our [Meat Substitutes](#) topic page. You can also check out the latest research about heme in Impossible Burgers, as well as the environmental and health effects of cultivated meat.



8. Sabat  J, Wien M. Vegetarian diets and childhood obesity prevention. *Am J Clin Nutr.* 2010;91(5):1525S-9S.

9. Lousuebsakul-Matthews V, Thorpe DL, Knutsen R, Beeson WL, Fraser GE, Knutsen SF. Legumes and meat analogues consumption are associated with hip fracture risk independently of meat intake among Caucasian men and women: the Adventist Health Study-2. *Public Health Nutr.* 2014;17(10):2333-43.

10. Finnigan TJA, Wall BT, Wilde PJ, Stephens FB, Taylor SL, Freedman MR. Mycoprotein: the future of nutritious nonmetal protein, a symposium review. *Curr Dev Nutr.* 2019;3(6):nzz021.

11. Bottin JH, Swann JR, Cropp E, et al. Mycoprotein reduces energy intake and postprandial insulin release without altering glucagon-like peptide-1 and peptide tyrosine-tyrosine concentrations in healthy overweight and obese adults: a randomised-controlled trial. *Br J Nutr.* 2016;116(2):360-74.

12. Harris HC, Edwards CA, Morrison DJ. Short chain fatty acid production from mycoprotein and mycoprotein fibre in an in vitro fermentation model. *Nutrients.* 2019;11(4):800.

13. Finnigan TJA, Wall BT, Wilde PJ, Stephens FB, Taylor SL, Freedman MR. Mycoprotein: the future of nutritious nonmetal protein, a symposium review. *Curr Dev Nutr.* 2019;3(6):nzz021.

14. Gordon W, Gantori S, Gordon J, Leemann R, Boer R. The food revolution: the future of food and the challenges we face. UBS. July 2019.

15. Nijdam D, Rood T, Westhoek H. The price of protein: review of land use and carbon footprints from life cycle assessments of animal food products and their substitutes. *Food Policy.* 2012;37:760-70.