

PLANT-BASED MEAT AND YOUR HEALTH: THE FACTS

Compared with conventional meat, plant-based meat is better across a wide range of factors, including carbon footprint, land use, water use, and air and water pollution. And plant-based meat doesn't require antibiotics, while antibiotic overuse in industrial animal agriculture is a global health issue on a par with climate change. But is plant-based meat healthier than conventional meat?

Anyone who reads the news has seen an abundance of differing views on the best diet. However, there is a general consensus on some steps we should take:

- Eat less fat, especially saturated fat.
- Eat less cholesterol.
- Eat more complex carbohydrates.
- Eat more fiber.
- Avoid excess sodium.
- Maintain a healthy weight.

Although some plant-based meats are higher in sodium than unseasoned animal-based meat—the Impossible Burger and the Beyond Burger each have 16 percent of the RDA for sodium, for example—almost all plant-based meats have a better nutritional profile across all the other factors above. For example, compared with a conventional beef Whopper, the plant-based Impossible Whopper boasts these benefits:

- Less total fat.
- Less saturated fat.
- No trans fat.
- No cholesterol (when served without mayo).
- More complex carbohydrates.
- Healthy fiber (beef, chicken, pork, and seafood have no fiber at all).
- Fewer calories.



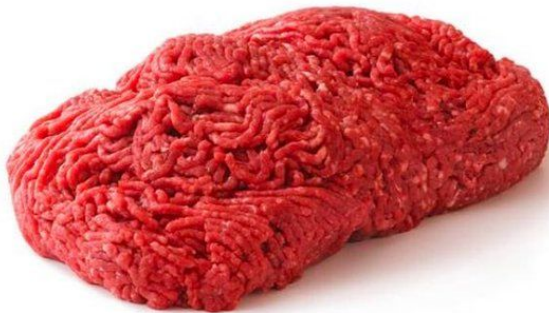
The Truth About Ingredient Lists

The healthiness of a product isn't determined by the number of ingredients. Lard has just one ingredient and your average store-bought loaf of whole-wheat bread has many, but no one would argue that lard is healthier than whole-wheat bread.

Plant-based meat labels must list all ingredients. Conventional meat labels don't have to list what makes up animal meat or everything that went into the animal.

Consider the components of ground beef from a cow:

GROUND BEEF FROM A COW



Ingredients:

Water (63%), **Triglycerides** (19%) (Oleic Acid (7%), Palmitic Acid (5%), Stearic Acid (3%), Palmitoleic Acid (1%), Myristic Acid (<1%), Trans-Fatty Acid (<1%), Linoleic Acid (<0.5%), Margaric Acid (<0.5%)), Pentadecanoic Acid (<1%), Conjugated, Linoleic Acid (<1%), Margaroleic Acids (<1%). **Protein** (17.6%) (Alanine (1%), Arginine (1%), Aspartic Acid (2%), Glutamic Acid (3%), Glycine (1%), Histidine (1%), Isoleucine (1%), Leucine (2%), Lysine (2%), Methionine (<1%), Phenylalanine (<1%), Proline (1%), Serine (<1%), Tyrosine (<1%), Valine (<1%)). Less Than 2%. Acetic Acid, Ash, Heme, Glucose, Ribose, Glycerol, Fructose, Taurine, Creatine, E306 (Tocopherol), E260 (Acetic Acid), E160A (Beta Carotene), E101 (Riboflavin), Histamine, Cadaverine, Putrescine, Cholecalciferol (Vit D), Thiamine, Cyanocobalamin (Vit B12), Folate, Niacin, Pantothenic Acid, Vitamin B6, Aluminum, Calcium, Cobalt, Copper, Iron, Magnesium, Phosphorus, Potassium, Sodium, Titanium, Zinc. **Flavors:** 2,5-Dimethyl-Pyrazine, Acetoin, 2,3-Butanedione, 1-Hydroxy-E-Propanone, Hexanal, Benzeneacetamide, 1-Pentanol, 1-Octen-3-Ol, 2,3-Pentanedione, 1-Hexanol, E,E-2,4-Decedienal, Methional, Pentanal, (E)-2-Decenal, Butyrolactone, 4-Penten-2-Ol, Tetradecanoic Acid, Tetradecanoic Acid, 4-Hydroxy-4-Methyl-2-Pentanone, 5-Methyl-5-Hexen-2-One, Formamide, 2,4-Di-Tert-Butylphenol, Fufural, Alpha-Actin, Myosin-2, Fructose-bisphosphate aldolase A, Serum albumin precursor, myosin-7, Creatine kinase M, Cytoplasmic-actin, Myosin-8, Beta-enolase, Myosin-4, Carbonic anhydrase, Myoglobin, Glyceraldehyde-3-phosphate dehydrogenase, Myosin-6, Pyruvate kinase, Myosin light chain, myosin-3, L-lactate dehydrogenase, Myosin regulatory light chain, Triosephosphate isomerase.

Fundamentally, the nutritional components of meat come from everything farmed animals are fed. In the United States, farmed animals typically eat monocropped GMO corn and soy. They are also fed plastic pellets, additives, animal byproducts, and animal waste (e.g., chicken feces). None of these ingredients or the chemicals they contain are listed on the label of a conventional meat product.

Conventional meat also often contains drug residues and toxins. Johns Hopkins University found Prozac, Benadryl, and arsenic in most chicken they sampled.¹









Sampling chicken, pork, and beef, Consumer Reports found banned and severely restricted drugs, including ketamine, “a hallucinogenic party drug and experimental antidepressant,” phenylbutazone, “an anti-inflammatory deemed too risky for human use,” and chloramphenicol, “a powerful antibiotic linked to potentially deadly anemia.”²

Chicken meat in the United States is soaked in chlorinated water in order to reduce contamination and rot. However, this does not remove pathogens like listeria and salmonella, both of which are often found in conventional meat.³

Consumer Reports also found that “almost all seafood contains mercury.”⁴ Seafood also contains various other heavy metals and contaminants, such as dioxin. Even in freshwater fish, “mercury and PCBs were detected in all the fish samples,” according to a report from the Environmental Protection Agency.⁵

Yet pathogens, toxins, drug residues, and heavy metals are not listed as ingredients on conventional meat labels.

In contrast, labeling regulations provide full transparency into plant-based meat production. Rather than feeding animals many different and undisclosed inputs to make “beef” or “chicken,” plant-based meat producers let the consumer know exactly what went into their products.

PLANT-BASED MEAT = MEAT WITHOUT:	
 Cholesterol	 Antibiotics
 Trans Fat	 Hormones
 Feces	 Banned Drugs
 Pathogenic Bacteria and Viruses	 Heavy Metals

The Truth About “Processed Food”

Processed food can be less healthy because of what is taken away. Compared to the same product made from whole grains, removing fiber and complex carbohydrates can lead to a product that is less healthy. This is what happens with conventional meat: we lose 100 percent of the fiber and complex carbohydrates originally in the soy, wheat, corn, and other crops fed to animals.

Conversely, processing and adding ingredients can increase a product’s nutritional composition and bioavailability. The FDA mandates the fortification of certain foods with nutrients that may otherwise be lacking in a typical diet—the addition of Vitamin D to cow’s milk, for example. In their article “Let’s All Just Chill About Processed Foods,”⁶ *Wired* summarized:

For one, processed doesn’t have to mean unhealthy, and indeed it’s only because of certain processed foods that people around the world get the

nutrition they need. Two, processed foods keep better, cutting down on food waste. And three, if we expect to feed a growing population on a planet with finite arable land, we have to engineer new sources of food, protein in particular.



Wired notes that “virtually everything you put in your mouth is processed.” Connie Weaver, a nutrition scientist at Purdue University, observes that “highly refined foods like yogurt, olive oil, and bread have many, many processing steps, and they don't look anything like the original product they started with.”

The question isn't whether a food is processed but how it is produced. Compared with animal-based meat companies, plant-based meat producers are entirely transparent. Beyond Meat founder and CEO Ethan Brown makes this offer:

You can come to our facility anytime. Don't call me, just knock on the door. I invite you to do the same with [other] meat-processing facilities. They won't let you, and if they did, you wouldn't want to see it. We are about transparency.⁷

Current Meat Production Is a Health Hazard

Conventional animal meat sickens and kills people every day. According to the Centers for Disease Control, each year in the United States, 48 million people get sick from a foodborne pathogen, 128,000 are hospitalized, and 3,000 die.⁸



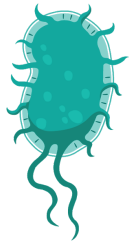
Source: Centers for Disease Control

Industrial animal agriculture causes much of this. Slaughtering animals involves feces and thus fecal viral and bacterial pathogens. Consumer Reports found that 97 percent of chicken breasts tested were contaminated with pathogenic bacteria.⁹

The problem is getting worse. According to a survey by the U.S. Public Interest Research Group, “Class I recalls (the most significant, in terms of health risk) of meat and poultry increased 83 percent from 2013 to 2018.”¹⁰ Even contamination of produce, like romaine lettuce, is caused by animal feces.¹¹

An Even Greater Long-Term Threat to Public Health

The vast majority of all antibiotics are fed to animals being raised for slaughter. Because of chronic antibiotic use by industrial animal agriculture, more and more antibiotic-resistant “superbugs” threaten the very structure of our civilization.



Superbug (noun):

a strain of bacteria that has become resistant to antibiotic drugs.

Dr. Margaret Chan, former director general of the World Health Organization, has warned: “A post-antibiotic era means, in effect, an end to modern medicine as we know it. Things as common as strep throat or a child’s scratched knee could once again kill.”¹² Without significant change, new superbugs could kill 10 million people every year.¹³

In comparison, plant-based meat is made in clean environments without exposure to fecal pathogens. No antibiotics are needed, so no superbugs are created. These are enormous public health benefits.

Plant-Based Meat for Your Health, Global Health, and Our Environment

When the former president of the American College of Cardiology Dr. Kim Williams¹⁴ moved from chicken and fish to an entirely plant-based diet, he shifted his protein consumption largely to plant-based meat. This led to much better health, including an LDL cholesterol level 80 points lower.



Dr. Williams

“There are dozens of products to sample and there will obviously be some that you like and some that you don’t,” Dr. Williams stated. “For me, some of the items, such as chicken and egg substitutes, were actually better-tasting.” His favorite? An “Italian sausage that is hard to distinguish from [animal-based] meat.”¹⁵

Plant-based whole foods are, of course, highly nutritious and environmentally friendly. However, less than 1 percent of the U.S. population follows a whole-foods plant-based diet.¹⁶ Despite decades of appeals for plant-rich diets by nutritionists, climate scientists, and animal activists, per capita meat consumption continues to rise.¹⁷

America’s food culture centers on meat—from family recipes and holiday dinners to haute cuisine and dollar menus. With plant-based meat that looks, cooks, and tastes like conventional meat, we can change outcomes much more quickly than if we tried to change food culture.

For instance, most U.S. consumers regularly eat at restaurants like White Castle, Carl’s Jr., and Burger King.¹⁸ On any given day, one-third of Americans eat fast food.¹⁹ By sourcing these meals directly from plants, we can keep giving people the food they want while increasing transparency and decreasing environmental impact, antibiotic use, exposure to contaminants, and risk of foodborne illnesses.

With limited time and resources to address the challenges we face, plant-based meat is a critical part of the solution. Whether at Michelin-rated Momofuku or at Carl’s Jr., choosing a plant-based burger over the alternative is better for the person who eats it, for farmed animals, for the environment, and for public health.

Endnotes

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About GFI

The Good Food Institute is a global nonprofit building a sustainable, healthy, and just food system. With expertise across the scientific, regulatory, industry, and investment landscape, we are accelerating the transition of the world's food system to alternative proteins, using the power of food innovation and markets.



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