

Considering A Plant-Based Burger?



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A new generation of plant-based meat alternatives is garnering attention from vegetarians as well as from those interested in cutting down on their meat intake for health or environmental reasons. Will trading your beef burger for a plant-based burger, like Beyond or Impossible, really improve your health and the health of the planet?

These next gen fake meats have come a long way from the original “veggie” burgers made from ingredients such as black beans and quinoa. While the newer versions are also based on simple plant proteins, these proteins are altered, and numerous ingredients are added to simulate the appearance, texture, and taste of the burgers, sausages, or nuggets they replace. Fat, often coconut oil, is added to provide the mouthfeel of animal fats. Yeast extract and other flavorings, are added to provide a meaty taste. Impossible Foods uses soy-derived leghemoglobin to mimic the color and flavor that myoglobin provides in beef. How does all of this affect the healthfulness of these products?

Nutrition experts tell us to choose a dietary pattern high in fiber and limited in red meat, saturated fat, sugar, sodium, and highly processed foods.^{1,2} Replacing a beef burger with a plant-based alternative obviously helps reduce red meat intake and also provides more fiber than beef. But these alternatives can contain a significant amount of

saturated fat and are often higher in sodium content than beef (see Table). In addition, they are extensively processed to make them look, cook, and taste like meat. Do the benefits of reducing red meat and increasing fiber intake outweigh the concerns with nutrient content and degree of processing? Unraveling this dichotomy requires a deeper look into these products.

Comparison of 4 oz Beef and Plant-Based Burgers				
	Lean ground beef	Impossible Burger	Beyond Meat Burger	Black bean quinoa burger
Calories	288	230	230	238
Total Fat (g)	23	13	14	8
Saturated Fat (g)	9	6	5	0.7
Cholesterol (mg)	81	0	0	0
Carbohydrate (g)	0	9	7	33
Fiber (g)	0	5	2	1.8
Protein (g)	20	19	20	10
Sodium (mg)	75	370	390	424
Potassium (mg)	306	670	330	628
Iron (mg)	2.2	4.2	4	3.5
Zinc (mg)	4.7	5.8	4.6	0.5
Vitamin B₁₂ (mcg)	2.4	3.1	2.4	0

The recommendation to reduce meat intake is based on epidemiologic evidence that shows an association between a dietary pattern high in animal products and an increase in cardiovascular disease (CVD) risk.³ Much of this increase in risk is thought to be related to the high saturated fat content of red meat, which is linked to an increase in blood levels of LDL cholesterol.⁴ Data continue to support an increase in CVD risk with higher red meat and saturated fat intakes, while newer hypotheses suggest that metabolites of red meat digestion may also play a role.⁵ High blood levels of TMAO (trimethylamine N-oxide), and other metabolites produced by the gut microbiome after eating red meat, have been linked to a higher risk of CVD.⁵ A randomized 8-week crossover trial that replaced 2 or more servings a day of red meat with Beyond products found reduced levels of several CVD risk factors, including blood levels of both LDL cholesterol and TMAO.⁶ From this, we can assume that replacing some meat with plant-based options is a healthier choice.

What about the processing aspect of these new plant-based alternatives? The admonition to limit highly processed foods is based on the fact that processing can cause nutrient losses and highly processed foods often contain added fat, sugar, and

sodium.^{7,8} Diets high in these foods are associated with an increased risk of obesity and other chronic diseases.⁹ Plant-based meat alternatives are highly processed. For example, the soy protein in Impossible burgers is isolated and concentrated from soybeans that have been cleaned, crushed, dehulled, and flaked.¹⁰ The label on Impossible beef (see figure) lists over 20 ingredients, including coconut oil, which is high in saturated fat, and added salt. However, this burger also contains high-quality soy protein and has added iron, zinc, vitamin B12, and other micronutrients to match the amounts of these in beef. Therefore, even though these products are highly processed, they have nutritional benefits that put them in a different category than many other highly processed foods, such as cheese puffs or fruit punch.



INGREDIENTS: Beef, ground

INGREDIENTS: Water, Soy Protein Concentrate, Coconut Oil, Sunflower Oil, Natural Flavors, and 2% or less of: Potato Protein, Methylcellulose, Yeast Extract, Cultured Dextrose, Food Starch Modified, Soy Leghemoglobin, Salt, Soy Protein Isolate, Mixed Tocopherols (Vitamin E), Zinc Gluconate, Thiamine Hydrochloride (Vitamin B1), Sodium Ascorbate (Vitamin C), Niacin, Pyridoxine Hydrochloride (Vitamin B6), Riboflavin (Vitamin B2), Vitamin B12.

Plant-based meat alternatives contain many more ingredients than beef. The long list of ingredients, shown here for Impossible burger, is an indication of the extent of processing necessary to create a product that mimics the taste and texture of beef.

While the full impact of plant-based meat alternatives on our health is not completely understood, they may be healthier for the planet. Raising livestock is environmentally costly; it generates nearly 15% of total global greenhouse gas emissions contributing to climate change, and uses 50 to 75% of agricultural land, contributing to deforestation and water pollution.¹¹ Producing these meat alternatives has been reported to have less of an effect. A study conducted by the University of Michigan Center for Sustainable Systems, commissioned by Beyond Meat, found that producing a Beyond burger generated 90% fewer greenhouse gas emissions, had 99% less impact on water scarcity, and 93% less impact on land use than a traditional beef burger.¹² Skeptics of the data suggest they do not consider the total amount of greenhouse gas emissions across all of the company's operations and supply chains or from consumer waste. It is well known that livestock production has a significant impact on the environment, but the impact of plant-based meats is still not fully established.

So, as to the original question: "Will choosing a plant-based burger be healthier for you or the planet?". While no single food can make or break a diet, choosing a pattern that limits red meat is probably better for you and the planet. Simply replacing a beef patty served with fries and a sugar-sweetened beverage with a Beyond burger patty does not result in a healthier overall dietary pattern. But reducing the amount of red meat in your diet by choosing smaller portions or eating it less frequently, while increasing less processed plant food choices, like whole grains, vegetables, fruits, and legumes, will be good for your health and the environment. Replacing meat with plant-based burgers, sausages, crumbles, and nuggets can be a first step in reducing the amount of meat in your diet. These products are readily available in restaurants and grocery stores and are easy to substitute into meat-containing recipes. Plant-based meat alternatives can help vegans and meat eaters alike eat more sustainably while enjoying the taste of beef.

References

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