

Plate and the Planet

Learn how shifting towards a “planetary health diet” can nurture both people and our environment.

Human diets inextricably link health and environmental sustainability, and have the potential to nurture both.¹ Increased food production over the past 50 years has helped improve life expectancy and reduce hunger, infant and child mortality rates, and global poverty. However, such benefits are now being offset by shifts towards unhealthy diets.

Globally, as nations have urbanized and citizen incomes have increased, traditional diets (typically higher in quality plant-based foods), have transitioned to a “Western-style dietary pattern,” characterized by high consumption of calories, highly processed foods (refined carbohydrates, added sugars, sodium, and unhealthy fats), and high amounts of animal products.² Along with the negative human health impacts associated with this nutrition transition, this dietary pattern is also unsustainable. Current food production is already driving climate change, biodiversity loss, pollution, and drastic changes in land and water use.

Transitioning towards healthy diets from sustainable food systems—especially with our global population slated to reach 10 billion by 2050—poses an unprecedented challenge. However, research by an international working group of

scientists shows this “Great Food Transformation” could be achievable through a combination of dramatic reductions in food losses and waste, major improvements in food production practices, and substantial dietary shifts toward mostly plant-based dietary patterns.¹

SUSTAINABLE DIET TARGETS

In 2019, the EAT-Lancet Commission developed the world’s first scientific targets for healthy and sustainable food systems, including a “planetary health diet” with defined daily consumption ranges for each food group. This dietary pattern—characterized by a variety of high-quality plant-based foods and low amounts of animal-based foods, refined grains,

added sugars, and unhealthy fats—is designed to be flexible to accommodate local and individual situations, traditions, and dietary preferences.

Created to meet nutritional requirements and promote health, all while staying within “planetary boundaries,” the Commission found that global adoption of this planetary health diet would provide major health benefits. Modeling studies show that between 10.9 to 11.6 million early deaths could be averted each year—a 19% to 23.6% reduction from current adult mortality rates.¹

Compared with current diets, this shift will require global consumption of foods such as red meat and sugar to decrease by 50%, while consumption of fruits, nuts, vegetables, and



“Transformation to healthy diets by 2050 will require substantial dietary shifts. Global consumption of fruits, vegetables, nuts and legumes will have to double, and consumption of foods such as red meat and sugar will have to be reduced by more than 50%. A diet rich in plant-based foods and with fewer animal source foods confers both improved health and environmental benefits.”³

- Dr. Walter Willett, Professor, Harvard T.H. Chan School of Public Health, and Co-Chair, EAT-Lancet Commission

LEARN: SIMPLE STEPS TO OPTIMIZE PERSONAL AND PLANETARY HEALTH

In just 10 minutes, this interactive learning program shows how key food choices can impact your health—and that of the planet. Learn why certain foods deserve special attention and discover a flexible approach that can work for everyone. This mini course is a collaboration between the educational nonprofit Gaples Institute and the Department of Nutrition at Harvard T.H. Chan School of Public Health.



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IMPACTS OF ANIMAL-BASED FOODS VS. PLANT-BASED FOODS:

Along with varying impacts on human health, different foods also have a range of impacts on the environment. The production of animal-based foods tends to have higher greenhouse gas emissions than producing plant-based foods—and red meat (especially beef) stands out for its disproportionate impact. Beyond emissions, it's also important to note that food production places an enormous demand upon our natural resources, as agriculture is a major contributor to deforestation, species extinction, and freshwater depletion and contamination.



legumes must double. That said, the Commission emphasizes the importance of tailoring these targets to local situations. For example, while North American countries currently consume almost 6.5 times the recommended amount of red meat, countries in South Asia eat only half the recommended amount.¹

Undoubtedly, making such a radical shift to the global food system is unprecedented, and will depend on widespread, multi-sector, multi-level action. Alongside dramatic reductions in food waste and major improvements in food production practices, the Commission's report calls for "international and national commitment" through a range of policy measures and actions needed to make healthy and sustainable foods more available, accessible, and affordable.

From governments and policymakers to marketers, industry, the media, educational institutions, farmers, chefs, physicians, and consumers—everyone has an important role to play in this Great Food Transformation.

PREPARING A PLANETARY HEALTH PLATE

It's clear that what we put on our plates has a major impact on the environment. Eating more healthfully and more sustainably go hand-in-hand, meaning we can develop sustainable eating practices that improve our own health while also benefiting the health of the planet. If you're interested in practicing a planetary health diet,³ here are some tips that may help:

- First of all, be sure to note that the diet's target ranges are based on daily energy intake of 2,500 calories for an average adult. That means your individual optimal intake will depend on age, body size, and level of physical activity. (The Commission's report includes special considerations for young children, adolescents, and pregnant and breastfeeding women.)
- This dietary pattern is also intended to be flexible enough to accommodate individual situations, traditions, and dietary preferences. Animal products are minimized, not completely excluded, so there is a range of options for omnivores as well as those who follow vegetarian or vegan diets.

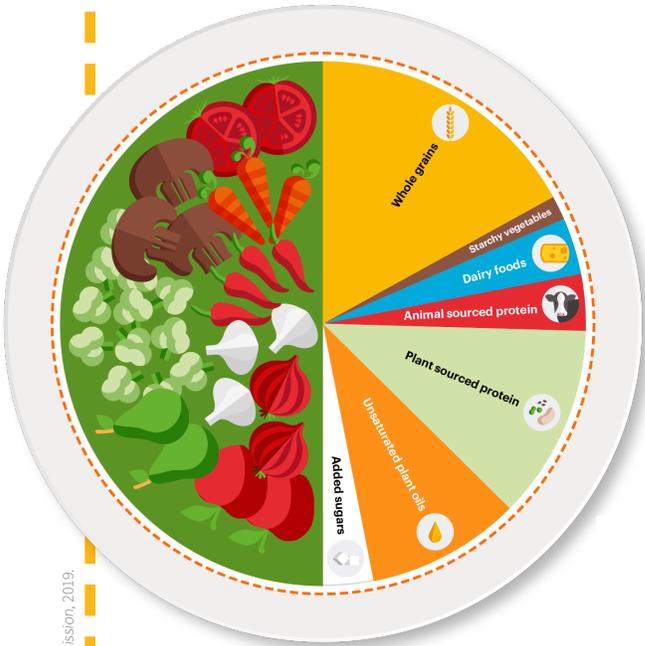
Seeing certain foods listed in grams per day may be unfamiliar. For exam-

Learn more about the different environmental impacts of the foods we put on our plate:
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TARGETS FOR A PLANETARY HEALTH DIET:

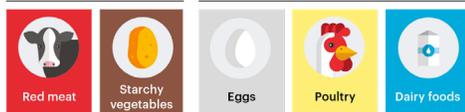
The table below features scientific targets for a planetary health diet, with possible ranges, for an intake of 2500 kcal/day.³ On the left these targets are visualized on a plate, where half is filled with fruits and vegetables (starchy vegetables like potatoes are limited), and the other half primarily whole grains and plant-based protein foods, with unsaturated oils and modest amounts of animal-based protein foods, if any. Look familiar? This guidance is closely aligned with Harvard's Healthy Eating Plate!



	Macronutrient intake grams per day (possible range)	Caloric intake kcal per day
Whole grains Rice, wheat, corn and other	232	811
Tubers or starchy vegetables Potatoes and cassava	50 (0–100)	39
Vegetables All vegetables	300 (200–600)	78
Fruits All fruits	200 (100–300)	126
Dairy foods Whole milk or equivalents	250 (0–500)	153
Protein sources Beef, lamb and pork Chicken and other poultry Eggs Fish Legumes Nuts	14 (0–28) 29 (0–58) 13 (0–25) 28 (0–100) 75 (0–100) 50 (0–75)	30 62 19 40 284 291
Added fats Unsaturated oils Saturated oils	40 (20–80) 11.8 (0–11.8)	354 96
Added sugars All sugars	31 (0–31)	120

Graphics source: Summary Report of the EAT-Lancet Commission, 2019.

Limited intake



Optional foods



Emphasized foods

ple, how to eat only 13 grams of eggs per day when a single large egg is about 50 grams? You might be able to stick to this amount if you scramble a single egg into a stir-fry serving for multiple people, however it's easier to think about your egg consumption on a weekly basis, where this equates to around 2 eggs.

The same goes for other animal products. Eating even the upper-limit of 14 grams per day of red meat (a fraction of a single hamburger patty) may not be as realistic as thinking about saving this daily amount for one day during the week (e.g. eating one whole hamburger patty). Aim to consume no more than 98 grams of

red meat (pork, beef or lamb), 203 grams of poultry, and 196 grams of fish per week.

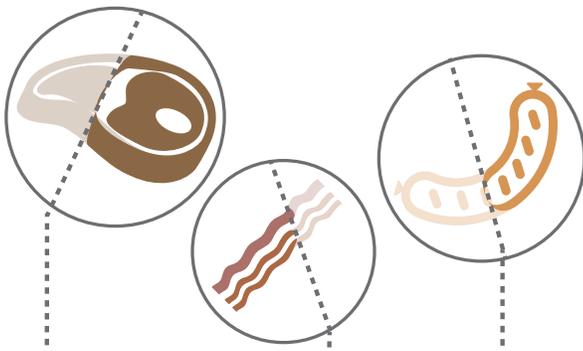
If you're looking to reduce your current meat consumption but aren't sure where to start, see the next page for four key approaches to cutting back the red meat while keeping your meals filling and flavorful.

SPOTLIGHT ON LEGUMES: Legumes (such as lentils, peas, beans, and peanuts) have a range of characteristics that make them a relatively sustainable crop. For example, legumes release up to seven times less greenhouse gas emissions per area compared to other crops, and can sequester carbon in soils. They can also make their own nitrogen from the atmosphere, thus reducing the application of nitrogen fertilizers. This leaves nitrogen-rich residues in the soil after harvesting; a benefit for the next crop planted in its place.



REFERENCES

1. Willett et al., *The Lancet*, 2019.
2. Popkin, Adair, & Ng, *Nutr Rev*, 2012.
3. EAT, *Summary Report of the EAT-Lancet Commission*, 2019.



Eat a little less red meat, any way you can

Try eating less of at least one type of red meat:

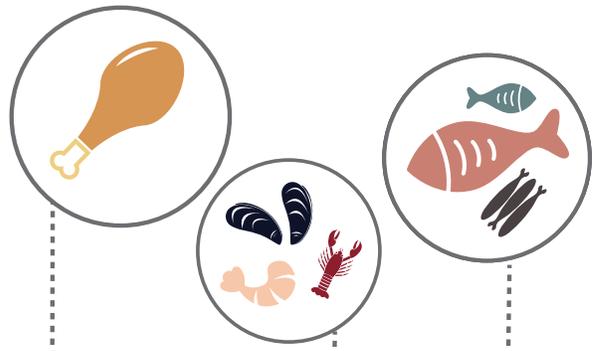
- For your health, perhaps start by reducing the processed meats in your diet like bacon, sausages, and cold cuts.
- Then move onto the red meat you consume most often, like beef, pork, and lamb. For your health and the health of the planet, try focusing on reducing your consumption of lamb and beef especially. Beef is one of the most impactful animal foods to produce. In the U.S. alone, beef accounts for 36% of all food-related greenhouse gas emissions—a key contributor to climate change.

If you often eat red meat multiple times a day—breakfast sausages, a ham sandwich for lunch, and steak at dinner—try cutting down your consumption to once a day.

If you eat red meat once a day, see if you're able to reduce the portion size a bit. A single instead of a double hamburger? A few fewer slices of bacon? Or, if a recipe calls for a pound of beef, maybe buy just a half pound and increase a few other ingredients.

From there, how about eating red meat fewer times per week? Or only eating it on the weekends? Once a week? Once every other week? A few times each month? Only when you're dining out? You could also try saving red meat only for special occasions, like a holiday or birthday.

It's important to remember when you're cutting out red meat to replace it with healthy options—not refined grains or ultra-processed foods of low nutritional value.



Swap out red meat for healthier “meats”

People have varying perceptions of what they consider to be “meat.” Although technically defined as any animal flesh consumed for food, some may only think of red and processed animal products as “meats,” while poultry and fish are viewed as separate categories. This may be a helpful approach, since the variety of meats and other animal products can have different effects on our own health, and the health of the planet.

While a key goal should be getting more veggies and other quality plant-based foods in your diet, this step towards reducing red meat is pretty straightforward: incorporate a reasonable amount of poultry (like chicken and turkey) and a variety of aquatic foods (from fish to mollusks).

If you were planning to make a dish with red meat as the featured ingredient, consider fish or poultry. Trying new recipes is a great approach; but here are some simple swaps that will come in handy for a range of preparations:

- Marinate and pan-fry chicken or fish instead of grilling burgers and ribs
- Swap in ground turkey for ground beef
- Think sliced fresh chicken or canned tuna in place of cold cuts
- Bake/sauté a chicken breast or some white fish, instead of frying a steak
- Roast a turkey, chicken, or salmon rather than beef, lamb, or ham



Elevate Your Plate

We know reducing red meat can benefit our own health and the health of the planet. However, if you've grown up (or have grown accustomed to) having beef, pork, and other red meats on your plate at most meals—such a change may seem daunting. But you don't have to completely cut it out to make a difference. If you're not quite sure where to start, here are four approaches to cutting back while keeping your meals filling and flavorful. Find your personal “starting point” and move forward with the strategies that work for you.



Consume less meat, enjoy more variety

This approach boosts healthy plant-based foods, while still providing ways to incorporate some of your favorite animal-based foods. First, build a filling and satisfying foundation for your meal with creative combinations of:

- Legumes (beans, soybeans, peas, lentils), nuts (almonds, walnuts, and pecans), and seeds (chia, hemp) can provide plenty of protein. Nuts and seeds also contain healthy fats, while legumes are full of fiber.
- Minimally processed whole grains can also be a source of protein and satiety. Brown rice is one option, but try a variety of grains for new textures and flavors: quinoa, farro, bulgur, buckwheat, and more.
- Fill half or more of your plate with vegetables and fruits, and incorporate a rainbow of colors.

Consider eggs beyond breakfast: hardboiled and chopped into salad; soft boiled and added to soup; scrambled into a stir-fry; or fried sunny-side up to top off roasted veggies, grains, and legumes.

If you enjoy dairy foods, include them in moderation (although not as much as beef, producing dairy foods also has a considerable environmental impact). For example, incorporate a bit of sharp cheese into a dish—parmesan grated over minestrone soup or cubed feta in a Greek salad. Try mixing a spoonful of yogurt with herbs, spices, and olive oil for a quick and creamy dressing on warm whole grains.

Get more “mileage” out of higher-priced meats by cutting/slicing/shredding and using them in small amounts (rather than a single large piece per person).

- Chicken and turkey can go further when: used as a topping over a scoop of lentils and crunchy green beans, and drizzled with zippy mustard dressing; mixed into a veggie-packed stir-fry; or rolled into a wrap with hummus, sundried tomatoes, cucumbers, and olives. Leftover fish also works great as an addition to salads, paired with veggies for a fish taco filling, or scrambled with eggs and placed atop some whole grain toast for a savory breakfast.
- This approach can even make some room for red meats on occasion, with processed meats used sparingly. Rather than a whole burger patty of beef, you can blend-in “meaty” and umami-packed chopped mushrooms. Or, if you particularly enjoy the taste of bacon, consider using a slice to flavor the base of a soup where beans, grains, and vegetables provide the bulk of the protein.

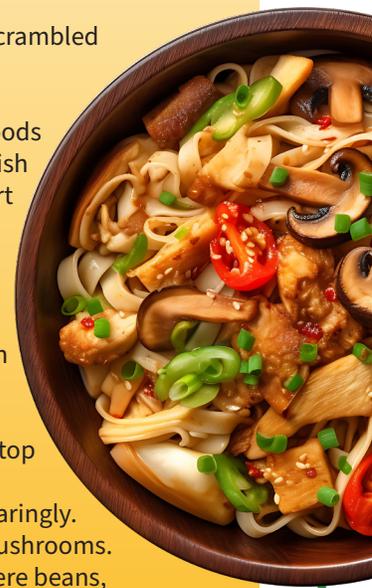
WHAT ABOUT PLANT-BASED MEAT ALTERNATIVES? Marketed as a way to accelerate the shift from industrial animal agriculture, popular plant-based meat alternatives have become widely available to consumers. Although these products are often considered healthier alternatives to their red meat counterparts, and have less impact on greenhouse gas emissions, the bottom line is that these novel products are not a substitute for minimally processed plant-based foods and eating patterns.



Prioritize hearty and savory plant-based preparations



Variety is a smart approach—but a meal doesn’t have to include meat or other animal-based foods in order to be tasty and satisfying. You might think a plate devoid of meat is incomplete—questioning whether it will fill you up, be too expensive, give you enough protein, or be lacking in flavor or texture. If that’s been your experience, don’t be discouraged. Visit the link for simple strategies to create filling, delicious, and even budget-friendly meals using only plant-based ingredients.



Stuffed Pepper Recipe Upgrades



WHAT IS A “BASIC” STUFFED PEPPER? If you aren’t familiar with this recipe, one serving typically packs about a quarter-pound of ground beef (sautéed with onion and mixed with white rice, tomato sauce, and mozzarella cheese) into a bell pepper. Not necessarily an optimal recipe for frequent consumption. Beyond the refined rice, this quantity of red meat combined with cheese serves up quite a bit of saturated fat—around 18 grams worth.

If you grew up in the United States, a bell pepper, stuffed with ground beef, rice, tomatoes, and cheese is likely a familiar dish. It’s a recipe that goes way back, with two types of “stuffed peppers” even featured in Fannie Farmer’s 1896 *Boston Cooking-School Cook Book*.

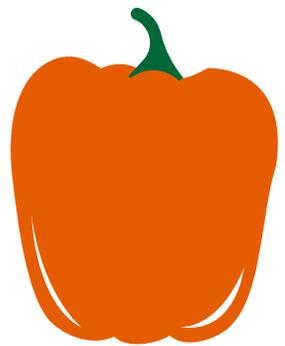
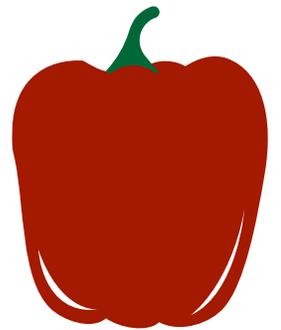
Of course, the idea of stuffing a bell pepper (or other pepper varieties) undoubtedly precedes this 19th-century culinary text. Recipes for stuffed peppers can be found in cuisines all over the world—from Denmark’s “fyldte peberfrugter” (stuffed with bulgur, kale, and mushrooms) to India’s “bharwa shimla mich” (stuffed with a mixture of spiced vegetables).

Indeed, using a bell pepper as a vessel can yield an endless number of delicious and creative filling combinations. Plus, exploring beyond the basic beef and rice combo is a perfect way to try some strategies to reduce red meat and elevate your plate. Stuffed peppers are also perfect for meal prep, portable for lunchboxes, and generally freeze well too if you want to make a larger batch ahead of time.

THE UPGRADED BASIC - Just a few minor tweaks can upgrade the classic recipe without changing the flavor if you’re looking to enjoy red meat on occasion. Using lean ground beef at half the amount (and just a little less cheese) cuts the saturated fat per serving down to about 9 grams. You’re still getting plenty of protein—nearly 22 grams per serving. We also added a bit more rice, but switched to brown rice for a nutritious boost, and swapped out tomato sauce for diced tomatoes to add texture and reduce the sodium.

THE NEW CLASSIC - This recipe takes a new approach while sticking to classic flavors. Hearty lentils, savory portabella mushrooms, umami-packed tomatoes, and sautéed onions combine with brown rice to deliver a surprisingly “meaty” filling—but without the red meat. At 12 grams of fiber and virtually no saturated fat per serving, this new classic is a major health upgrade. (Lentils are also known for helping replace nitrogen in the soil—an upgrade for the planet’s health as well!) Even better is that this recipe provides a solid base for further modification. For example:

- If you want to increase the plant-based protein content from 14 grams to 21 grams per serving, mix a half-cup of hemp seeds or hemp hearts into the filling—boosting heart healthy unsaturated fats in the process.
- If you want to incorporate a bit of your favorite animal-based protein, you can sprinkle over some flavorful cheese; or, try cracking an egg on top of the filling before baking.



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Get these recipes and other stuffed pepper variations