Special Health Report

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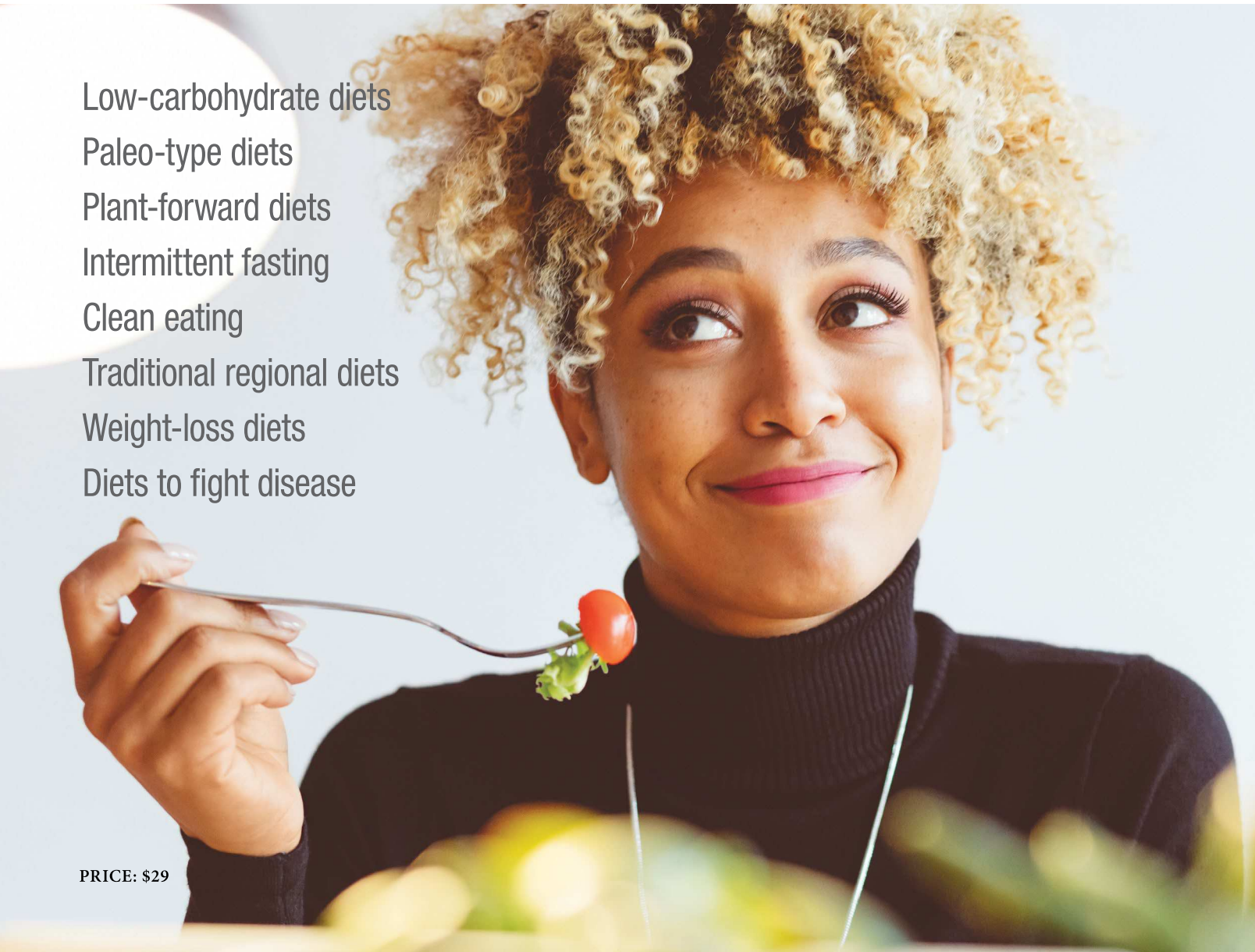
The Diet Review

39 popular nutrition and weight-loss plans and the science (or lack of science) behind them



- Low-carbohydrate diets
- Paleo-type diets
- Plant-forward diets
- Intermittent fasting
- Clean eating
- Traditional regional diets
- Weight-loss diets
- Diets to fight disease

PRICE: $29

THE DIET REVIEW
SPECIAL HEALTH REPORT

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Harvard Health Publishing
Trusted advice for a healthier life

Dear Reader,

These days, there are so many diet plans, it's almost impossible to keep them all straight. Any diet book that becomes a blockbuster inevitably spawns variations, as publishers seek to capitalize on a trend—until the next big idea comes along, and throngs rush to embrace yet another new approach. Each diet is different, yet it seems to be accompanied by a raft of testimonials and purported science showing why it is the ultimate diet for weight loss or health—or both.

Adding to the confusion are media reports of research studies that claim to "upend everything we thought we knew about nutrition." Statements like these have launched countless diet books. But when you see such dramatic claims, remember that the science of nutrition doesn't turn on a dime, and massive paradigm shifts don't happen overnight. Rather, new evidence gets added to existing knowledge, and the overall consensus about optimal nutrition—based on many, many studies—evolves.

You might wonder, if so many nutrition "experts" disagree about how to eat, who's right and who's wrong? The truth is that there's no one right way to eat. There are actually many ways to eat for health, but not every diet out there is one of those ways. This Special Health Report will help you sort through more than three dozen diet plans, so you can make the decision that's right for you. You'll learn about the common denominators of all healthy diets, and you'll see plenty of examples of which diet patterns get it right and which ones miss the mark. Along with that, you'll learn why the quality of the foods you eat matters more than choosing the "right" ratio of carbohydrates, protein, and fat.

For each diet we cover, we provide specific information—including any research that's been done on the diet, how it meshes with nutrition research in general, whether it provides a good balance of nutrients, and whether it's affordable and easy to follow.

What works for one person will not necessarily work for another. How will you know when you've found the right diet for you? It should provide balanced nutrition, appeal to your tastes, and be compatible with your cooking ability and schedule. Your diet should make your life healthier, but not more complicated. Although making dietary changes can take time, effort, thought, and planning—as does any new healthful habit—a diet plan that works for you will gradually feel normal, and some of your healthy behaviors will even come to feel effortless. It's the job of this report to help make sure that whatever diet you choose, it's one that's good for you.

Sincerely,

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Diets, diets everywhere

In the not-so-distant past, people didn't have a tremendous amount of choice about what they ate. Food was what they could hunt, grow, or scavenge. By definition, it had to be in season or else pickled, salted, or smoked. Today, you can eat almost anything year-round. You can buy berries in winter or exotic greens and beef from grass-fed cattle whenever your budget allows. Or, you can chow down on fast food and packaged foods at almost any time of day with little or no preparation.

In short, you have tremendous latitude in what you choose to eat—and the choices you make can have profound consequences for your health. But what should you choose? The range of diet plans is truly dizzying. Just some of the options you might encounter are vegan, pegan, and portfolio. Raw food, whole foods, and Whole 30. Keto, carnivore, and paleo. Clean eating and intermittent fasting. DASH, MIND, and Volumetrics. Mediterranean, Nordic, and Okinawan. What does it all mean? And how can you begin to make sense of it? This Special Health Report is here to help.

With such a dizzying array of diets to choose from, it's important to choose well, because your diet can have long-term consequences for your health. Rule No. 1: find a diet with plenty of fresh produce.

What does the word "diet" mean?

First, we have to ask the most basic question: what is a diet, anyway? In Ancient Greek, the word meant "food" and "nourishment" as well as "way of life." In the 13th century, the Old French and Medieval Latin words meant "regular food" or "daily food allowance." Today, the word "diet" can mean a number of things, depending on how you use it:

- a habitual eating pattern (your daily diet)
- a calorie-restricted regimen to help you lose weight
- a way of eating designed for overall health
- the kind and amount of food prescribed for a special reason (for example, a low-sodium diet to reduce blood pressure).

Technically, everyone's on a diet, because everyone eats. But a diet in the sense of "this is what I usually eat" is not the same as the restrictive "I start my diet on Monday." This report will cover diets of all types—diets for weight loss, diets for health (both overall health and specific health goals), and eating patterns in general.

Trying to find the right diet to meet your goals can be tricky. If you're overweight, you might start by looking for a diet that helps you trim off some pounds. But no matter what your weight is, it's important to keep health in mind, because a diet that promotes weight loss might not be a diet that promotes health. Yes, there can be some overlap, but all too often, diets that have weight loss as the primary goal unnecessarily restrict foods and food groups that contribute to good health and disease prevention. What's more, diets designed to promote weight loss often aren't sustainable—they aren't meant to be, because "success" is measured in pounds or inches lost during a limited time, with little thought given to whether those pounds and inches stay off.

Of course, some diets that promise improved

health fall into the same trap—putting so many foods on their "avoid" lists that it's impossible to eat anything you haven't prepared yourself. And all too many diets promising improved health are based on shaky science.

In this report, we will give you the tools to distinguish what's healthy from what isn't. Then we'll review the evidence on 39 popular diets. Some of the plans are designed purely for weight loss, while others are intended for particular health needs. However, most of the diets feature some combination of health and weight-loss goals.

What information we considered

As we started planning this Special Health Report, our first task was to choose which diets to review. Rating every existing diet would have been an impossible—and overly lengthy—task. Instead, we narrowed our selection to a mix of the old and the new. The older diets we selected have remained popular for decades, either consistently or by cycling in out of fashion. The newer diets we chose are either truly new or else recently entered public consciousness—and they are either gaining traction or garnering a lot of attention.

Second, we had to evaluate the diets we selected. As you will see, not all of them are equally healthful. When weighing the merits of each of the diet plans, we considered several factors:

What's the strength of the evidence for this diet? Is there specific research on the diet? If so, what type and how much? Is it direct evidence, testing the diet itself to see if it produces the intended benefit? Or is it indirect evidence, showing that similar diets are helpful? The media have trained people to expect to hear about studies, and people often take the existence of a study as scientific proof that a diet works. But the truth is, there are different types of studies, and they're not equally reliable (see "Understanding nutrition research," page 5).

Moreover, proponents of some diets take research out of context, or they apply results from one narrow group of people to the population as a whole. Equally worrisome, they often use short-term results to imply a long-term effect. But, as any dieter knows, losing 10 pounds in a month or two is considerably different from keeping those pounds off over the long haul.

In our evaluation, we tried to balance the entirety of the information about a diet, giving particular weight to well-designed, long-term trials, but also considering what we have learned from other studies.

What does general nutrition science research tell us? Even if no studies exist on a particular diet, general nutrition science can provide a reasonably good idea as to how healthful a diet plan is. For example, research is clear that eating a lot of minimally processed plant foods—vegetables, fruits, whole grains, and so on—is good for health, so almost any diet that includes a lot of plant foods is likely a good bet, as long as it's otherwise balanced.

An overall understanding of nutrition science can also help when evaluating studies, because raw numbers don't tell the whole story. For example, if people who start following a specific diet improve their health, is that because of something unique to that diet, or is it simply that the diet is healthier than what the participants were eating before? If so, they might have improved by following a different plan that's also healthy. If your diet has room for improvement, there are many ways you might make it healthier.

Is the diet balanced? Achieving an adequate intake of certain nutrients is more challenging with diets that exclude entire food groups (such as grains or animal-based protein). Such a diet therefore requires more thought and planning. Some diets may be balanced if executed perfectly, but unbalanced if you don't follow the diet as intended.

The authors of hundreds of diet books claim their plans are superior, even when the facts argue otherwise. When you're trying to decide which diet plan to follow, consider the factors named above.

Is it affordable and easy to follow? Some diets are easy to follow on any food budget, while others are less affordable because they call for avoiding certain inexpensive sources of nutrients or because they are strict about, say, choosing only organic food. In other cases, the core foods of a diet are not readily available in some parts of the country or at certain times of the year—or they are unappealing to people accustomed to a different way of eating.

Aside from the cost and availability of foods, other factors can make a diet easy or hard to follow. For example, the time and skills required for food preparation can play a significant role in whether you can stick with a plan. Some diets are restrictive enough that following them requires that you prepare all of your own food, which not only is difficult when you're juggling other demands of daily life, but also makes it almost impossible to dine out, socialize with friends over a meal, or let someone else cook for you.

How we present the information

We've divided the reviewed diets into key categories: low-carb diets, paleo-type diets, plant-forward diets, fasting plans, clean eating, traditional regional diets, diets to fight disease, and weight-loss diets. While some diets could easily fit into more than one category, we endeavored to group the reviews in a way that focuses on each diet's primary goal or distinguishing characteristics.

For every diet we discuss, we start with an overview about the origins of the diet—for instance, did someone specifically create the diet, and what are his or her credentials? We outline what foods are allowed or encouraged on the diet, and which are prohibited or discouraged. Then, we look at what the research says. Has the diet been specifically studied? Are its guidelines in agreement with the general body of research on nutrition and health? Does the diet promise more than it can deliver? Are its claims biologically plausible? Are they backed by research? Finally, because most eating plans have both pros and cons, we break those out into brief summaries called "the good," "the bad," and "the mixed bag."

We also provide two at-a-glance boxes for each diet plan. To give you an idea of what you would actually eat on each diet, a short box shows what one day's menu might look like. For an easy comparison between plans, a second box shows how each plan measures up, based on the criteria we named earlier:

- How strong is the diet's evidence base, including both direct and indirect evidence?
- Is the plan balanced?
- Is it affordable?
- Is it easy to follow?

The diet-health connection

Many diets make extravagant health claims—sometimes with only flimsy evidence to back them up. The more extreme a diet is, or the bigger the "cure" it promises, the more suspicious you should be.

That said, evidence has been accumulating for decades now that there are real benefits to a healthful diet, and they can be quite far-reaching. In particular, there is robust evidence that healthy eating patterns are associated with a reduced risk of cardiovascular disease. In fact, the CDC has concluded that 30% of heart disease deaths are potentially preventable through healthy lifestyle choices, including diet and physical activity. Certain foods have a protective effect on the cardiovascular system—for example, vegetables, fruits, whole grains, beans, nuts, and seeds, which work in a variety of ways to help maintain clear, flexible arteries. Other foods or food components are harmful—including saturated fat, sodium, and refined carbohydrates, which increase the risk of atherosclerosis (narrowing of the arteries) and high blood pressure. By favoring the protective foods and reducing the harmful ones, you can significantly improve your heart health.

Evidence also supports the role of a healthy diet in lowering the risk of type 2 diabetes and certain types of cancer, especially colorectal cancer. Excitingly, emerging evidence suggests that a healthy diet may also reduce the risk of age-related cognitive decline. As the Alzheimer's Association puts it, "What's good for the heart is good for the brain."

A common thread linking all of these may be the impact of diet on low-grade chronic inflammation throughout the body. Inflammation plays a role

Understanding nutrition research

In theory, the abundance of nutrition research should make us all more informed consumers. Unfortunately, nutrition research is frequently misunderstood or misinterpreted by the media, podcasters, influencers, and sometimes even health care providers. Plus, it's important to understand that not all types of research are equally reliable. Here's a brief primer that will help you be a better consumer of nutrition information, so you know which ideas to toss and which to trust.

Randomized controlled trials (RCTs). These are the gold standard for health research in general. In an RCT, researchers randomly assign participants to either the intervention group (which does the thing being studied) or a control group (which does not). This helps determine if any observed changes are actually because of the intervention, or whether they happened because of chance. The random assignment of participants to one group or another also helps reduce the risk of bias. The larger and longer the trial, the better.

This type of testing works well when studying a new drug. For example, you can put a group of heart patients on a new type of cholesterol medication for a few months and see how it stacks up against standard care or a placebo.

In nutrition research, too, RCTs are the most rigorous type of study, but they have limitations that don't apply in drug trials. For one thing, diets are far more complicated than drugs, which generally have a single active ingredient. Diets contain literally thousands of compounds with myriad effects on the body. Furthermore, some human studies rely on participants tracking and reporting what they ate, which may not be completely reliable—and is certainly harder to verify than whether a person took a pill each day. Other studies provide participants with all of the food they will be eating, which doesn't offer a real-world picture of whether a diet is easy to follow.

The other major challenge is that RCTs are expensive to perform, meaning that not only are these trials less common than other types of research, but they're almost always relatively short. When it comes to assessing long-term effects, most data come from observational studies.

Observational studies. Also known as epidemiological studies or population studies, these represent the next tier of research. Scientists follow a large group of people for years or decades, asking them about diet or lifestyle habits at least once, then watch to see who develops certain chronic diseases and who doesn't (or who lives longer or has lower blood pressure or meets some other endpoint, depending on the study). These studies provide important information about possible connections between diet, lifestyle, and health, but there's a major limitation: these studies can find associations between two things, but they can't prove that one thing caused the other. For example, if a study finds that more shark attacks happen when ice cream sales are higher, does that mean that buying ice cream causes shark attacks, or is it simply that in the summer more people eat ice cream, and more people swim in the ocean? Obviously, no one has done that study, but it illustrates the conundrum that researchers face. Are people who eat blueberries healthier because they eat blueberries, or because they're health-conscious to begin with—explaining why they're eating fresh produce? Researchers try to control for these factors, but nonetheless, observational studies can only show an association.

Clinical observations and "expert" opinion. Health practitioners may observe improvements in the health of patients who adopt a certain diet. These observations may provide useful lines of research to pursue. But by themselves, they don't constitute evidence that something works or doesn't work. Unlike RCTs, these observations don't have a control group for comparison. A well-designed RCT minimizes the risk of bias. Individual observations and opinions don't have that safeguard.

Animal and lab studies. Think test tubes, Petri dishes, and caged rodents that have every aspect of their environment carefully controlled. While these types of studies provide some important information—including whether it might be worth conducting human trials—it's overreaching to change our own habits based solely on this research. Fed a certain diet, mice may do a better job of remembering how to run a particular maze, but that is a long way from proving that the same diet will help human memory.

in every stage of heart disease. It is also believed to contribute to the insulin resistance that is at the core of type 2 diabetes. It causes cellular changes that can promote cancer. And cardiovascular effects can impair the blood supply to the brain, leading to cognitive problems. Certain foods nudge up disease-causing inflammation, while others tamp it down. Refined carbs are a particular culprit. A whole-foods diet helps reduce inflammation.

Diet can also help slow the loss of bone density that occurs with age. Adequate calcium and vitamin D are particularly important, although other nutrients such as vitamin K should not be neglected. There is also evidence for the role of diet in helping to ward

Beyond nutrition: Other components of a healthy lifestyle

While nutrition plays a significant role in promoting health and reducing the risk of chronic disease, it is not the only factor in a healthy lifestyle. Research based on the National Health and Nutrition Examination Survey found that four crucial habits can make a real difference:

- Eat at least five servings of fruits and vegetables per day.
- Exercise at least three times per week.
- Drink alcohol in moderation only.
- Avoid smoking.

People who have all four habits have the lowest risk of dying before their time, and that finding holds regardless of body weight. Why are the four together so powerful? The benefits of avoiding smoking and excess alcohol should be obvious. As for regular exercise, it can help prevent or alleviate numerous medical conditions by lowering high blood pressure, boosting HDL (good) cholesterol, helping control high blood sugar, reducing the risk of falls and fractures, counteracting the effects of weight-promoting genes, improving sleep, and boosting your mood, among other things. Perhaps the most reassuring part of this message is that those four habits do not require any radical restrictive diets or obsessive fitness regimens. Modest changes will help.

To those four habits we would also add stress management and adequate sleep, both of which can affect your health both directly and indirectly. For example, in the short term, stress hormones can raise your blood sugar, constrict your blood vessels, and release fatty acids into your bloodstream. Over time, this can contribute to anxiety and depression, high blood pressure, a variety of gastrointestinal disorders, and possibly diabetes. It can also promote fat accumulation around your middle, which is the unhealthiest place to store it. All of that can increase your risk of heart disease.

Stress and the resulting rise in stress hormones can also detour you from healthy eating by making you crave less-healthy, processed foods that are high in salt, sugar, and fat. Let's face it: we don't tend to munch on apples and green salads when we're stressed—we grab the carton of ice cream or the bag of potato chips.

Similarly, a lack of sleep has multiple, far-ranging effects on health, hindering the essential repair functions your body performs every night during sleep and hampering the immune system's ability to fight off everything from the common cold to cancer. On top of that, inadequate sleep affects your levels of hunger and satiety hormones, making you crave more refined carbohydrates. Plus, you'll be tired, making it harder to muster the energy to exercise or prepare healthy meals.

off certain eye problems, such as age-related macular degeneration.

If that's not enough, a balanced diet that includes adequate protein—especially when accompanied by regular exercise—can help you maintain, or even build, lean muscle as you age. This is important not only for feeling strong and capable while engaging in daily activities, but also for preventing the age-related muscle atrophy that can impair your mobility and independence.

That said, a healthy lifestyle consists of more than just diet and exercise (see "Beyond nutrition: Other components of a healthy lifestyle," above). And even with the most exemplary habits, there is no guarantee that you can wipe away all risk. Genetics and social factors—income, living environment, relationships, and oppression—also affect health. But you can vastly stack the odds in your favor by adopting a healthy diet.

As you read about different diets in this report, we hope you will find an approach that promotes your health and suits your needs. Equally important, if it works for you, we hope you'll stick with it because you like how you feel when you eat well.

What does a healthy diet look like?

What's the healthiest way to eat? It depends on whom you ask. Many medical and nutrition experts claim to know the "perfect" way to eat for health, yet some of these dietary advocates disagree with each other in some fundamental ways. So, who's right … and who's wrong?

The truth is that there is no single way to eat for good health. As a species, humans are quite similar on a genetic level, yet as individual specimens, we are amazingly diverse. That's why some people may feel great on a vegan diet while others prefer a paleo diet—two dietary patterns that would appear to be polar opposites. The paleo diet includes meat but excludes grains and legumes, while the vegan diet includes grains and legumes but excludes meat and other animal products.

How can both diets work? When carefully planned, each diet includes lots of vegetables and minimizes highly processed foods. Those are the common denominators of a healthy diet.

From there, you can fill in the blanks to suit your tastes and your unique physiological needs by adding your choice of high-quality fats (nuts, seeds, avocados, olive oil, fatty fish), carbohydrates (whole grains, fruit, starchy root vegetables), and plant- or animal-based protein (legumes, soy, fish, lean sustainably raised meat, poultry, eggs, dairy). It takes a varied diet to get the vitamins, minerals, and fiber required for optimal health, but there are many combinations of foods that can get you to that goal.

While everyone needs carbohydrates, fat, and protein, there is no "magic" ratio that you should be striving for, as long as you avoid extremes. In fact, a number of studies have found that the *quality* of the food you eat—particularly emphasizing whole foods over processed foods—is more important

There is no single "right" way to eat. But basing your diet on whole foods or minimally processed foods is an excellent start, with healthy fats from sources like nuts and avocados, lean protein from legumes, and a vast array of healthful compounds in fruits and vegetables.

than whether it's low-fat, low-carb, or somewhere in between (see "Low-fat or low-carb—which is best?" on page 12).

Five principles of a healthy diet

While details may vary from diet to diet, all healthy eating plans have these five principles in common:

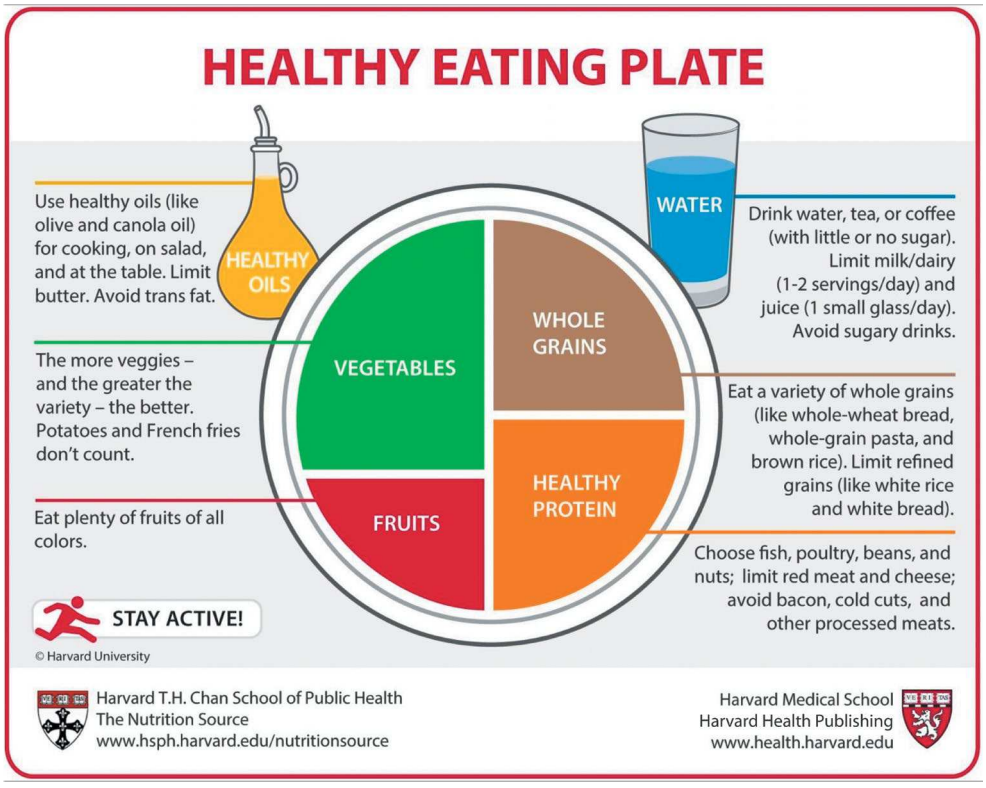
1. Lots of plants. Plant foods—vegetables, fruits, legumes, whole grains, nuts, and seeds—offer a wealth of vitamins and minerals, as well as fiber and healthful compounds called phytochemicals (literally "plant chemicals," natural substances in plants that offer humans a range of health benefits, including antioxidant, anti-inflammatory, and even anti-cancer activity). At the same time, while many plant foods are high in nutrients, they are relatively low in calories. The combination of high nutrient content and low calories—a quality known as nutrient density—means that a plant-heavy diet can be good for both health and weight loss. Because people often underestimate how large their portions of fruits and vegetables should be, Harvard nutritionists devised the Harvard Healthy Eating Plate (see Figure 1, below) to provide a graphic representation of a healthy dinner. Fully half the plate contains produce.

2. Adequate protein. Abundant research shows it's important to eat enough protein, but there are many ways to get that protein, and some are more healthful than others. People who limit how much meat they eat tend to have lower risks for chronic diseases. Plant protein sources (beans, lentils, soy foods, nuts, seeds) and seafood offer the most health benefits. Getting enough protein, along with physical activity, is important for staying strong, healthy, and independent.

3. Minimally processed foods. A 2019 National Institutes of Health study definitively showed that eating a diet high in ultra-processed foods causes weight gain and unhealthy shifts in blood sugar and blood cholesterol. For the healthiest diet, rely as much as possible on whole foods (that is, unprocessed foods, such as broccoli, apples, and almonds) and minimally processed foods (such as plain yogurt, canned tuna, and natural peanut butter). Processing tends to strip away nutrients while adding extra fats, sugars, and sodium, not to mention other additives and preservatives.

4. Limited saturated fats, added sugars, and sodium. The U.S. government's Dietary Guidelines for Americans recommend limiting saturated fat intake to less than 10% of daily calories. The same goes for added sugars (sugars added during processing). If you have a 2,000-calorie-a-day diet, that means that no more than 200 calories a day should come from added sugars. As for sodium, keep it below 2,300

Figure 1: The Harvard Healthy Eating Plate



milligrams (mg) per day. The average American consumes more than 3,400 mg per day.

5. Balance and variety. To meet nutrient needs, it's important to choose a variety of nutrient-dense foods across and within all food groups (see "What different food groups do for you," page 10). Choosing nutrient-dense foods helps you get the nutrients you need without taking in too many calories.

How the Dietary Guidelines define a healthy eating pattern

The principles listed above are met by the three different healthy eating patterns recommended in the 2020–2025 Dietary Guidelines for Americans. Why three eating patterns? Because a healthy diet isn't one-size-fits-all.

A healthy U.S.-style eating pattern. Consider this the baseline healthy eating pattern. It includes

- a variety of vegetables from all of the subgroups—dark green, red, and orange; legumes (beans, lentils and peas); starchy (potatoes, sweet potatoes, winter squash)
- fruits, especially whole fruits (as opposed to fruit juice or fruit leathers)
- grains, at least half of which are whole grains
- fat-free or low-fat dairy (milk, yogurt, cheese), or fortified soy beverages
- a variety of protein foods, including seafood, lean meats and poultry, eggs, soy foods (edamame, tofu, tempeh, soy beverages), nuts, and seeds, plus legumes (beans, lentils, and peas), which may be considered part of the protein group as well as the vegetable group
- oils containing polyunsaturated and monounsaturated fats.

A healthy Mediterranean-style eating pattern. There is no single Mediterranean diet today, as it varies from country to country, but multiple studies have shown Mediterranean-style eating patterns to be associated with good health. All share certain features, including a bounty of vegetables and fruits, whole grains, legumes, fish, nuts, seeds, and olive oil. This pattern contains more fruits and seafood and less dairy than the healthy U.S.-style eating pattern, which explains why it is slightly lower in calcium and vitamin D.

A healthy vegetarian eating pattern. Compared with the healthy U.S.-style eating pattern, the healthy vegetarian eating pattern includes more legumes (beans, lentils, and peas), soy products, nuts, seeds, and whole grains. It contains no meats, poultry, or seafood, but is identical to the healthy U.S.-style eating pattern in the amounts of all other food groups. This pattern is slightly higher in calcium and dietary fiber and lower in vitamin D, because it relies more heavily on foods like beans and tofu as sources of protein.

No matter which of these eating patterns you follow, you should be taking in a lot of vegetables and fruits. Most of us are used to thinking of the target as "five a day" for the two groups combined. But newer government recommendations urge everyone to aim for seven to 13 daily servings (exact amounts depend on your age and sex; see Table 1, below).

Table 1: Vegetables and fruits: How much is enough?

If you think eating "five a day" of fruits and vegetables is enough, think again. The USDA now recommends 2 to 4 cups of vegetables per day (roughly four to eight half-cup servings) in addition to 1½ to 2½ cups of fruit (roughly three to five half-cup servings). That comes to seven to 13 servings of produce a day. That's because fruit and vegetable consumption is linked with so many benefits, including weight control and lower risk of chronic diseases.

AGE	VEGETABLES PER DAY	FRUIT PER DAY
Women		
19–30	2½ to 3 cups	1½ to 2 cups
31–59	2 to 3 cups	1½ to 2 cups
60+	2 to 3 cups	1½ to 2 cups
Men		
19–30	3 to 4 cups	2 to 2½ cups
31–59	3 to 4 cups	2 to 2½ cups
60+	2½ to 3½ cups	2 cups

Source: 2020–2025 Dietary Guidelines for Americans.

What different food groups do for you

Nutritionists are always stressing the importance of a balanced diet, and for good reason. Each of the food groups we list below (and, for that matter, each food within a given group) offers a different nutrient package. This doesn't mean that you have to cover each group in every meal. But over the course of a day, you should have something from each group. And over the longer term—say, a week or a month—you should strive to eat a variety of foods from within each group, particularly vegetables and fruits.

Here's a quick overview of what each group has to offer—and how much we should all be consuming.

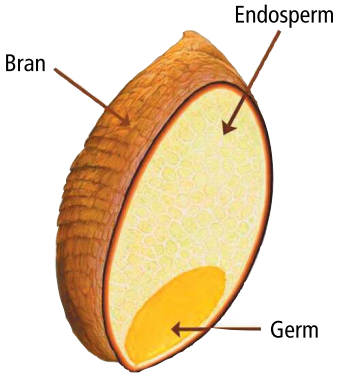
Vegetables and fruits. Fruit and vegetable intake is associated with reduced risk of a number of chronic diseases, including cardiovascular disease, diabetes, certain kinds of cancer, and dementia. Some of these benefits come from the nutrients and fiber in produce. These include not only the obvious vitamins and minerals, but also phytochemicals ranging from the anticancer isothiocyanates in cruciferous vegetables like broccoli and cauliflower to antioxidants like vitamin C and hesperetin in citrus fruits. Fiber, too, is associated with a host of benefits, including bowel health, increased insulin sensitivity, and slower digestion that makes you feel fuller longer. Increasing your intake of fruits and vegetables may also improve your overall diet simply by displacing less healthy foods. The USDA now recommends daily consumption of 2 to 4 cups (roughly four to eight half-cup servings) of vegetables and another 1½ to 2½ cups of fruit (three to five half-cup servings; see Table 1, page 9).

Whole grains. Carbohydrates are primarily an energy source to fuel your body. But whole grains—such as quinoa, barley, and brown rice—do even more for you. Whole grains come packaged with their natural fiber, vitamins, minerals, and phytochemicals, so they deliver additional health benefits. Perhaps that's why research shows that people who eat whole grains tend to live longer and have a lower risk of chronic diseases, especially cardiovascular disease. By contrast, refined grains (such as white flour) have been stripped of their fiber-rich bran (the outer coating of the kernel) as well as the vitamin- and mineral-packed germ (see Figure 2, below). For people up to age 50, the recommended intake is 31 to 34 grams for men and 25 to 28 grams for women (unless they are pregnant or breastfeeding, in which case the recommendation goes up to 25 to 36 grams and 31 to 34 grams, respectively). The recommendation is lower for people over age 50: 28 grams for men, and 22 grams for women.

Dairy. Our first food as infants is milk, and dairy is associated with improved bone health, especially in children and adolescents. While adults don't need to consume dairy products, dairy foods offer protein and an array of vitamins and minerals, including calcium. Some dairy foods (Greek yogurt, cottage cheese, other cheeses) are better sources of protein than others (milk, regular yogurt), but keep in mind that many types of cheese are high in sodium and saturated fat. If you can't consume dairy or prefer not to, make sure you meet your calcium needs through other foods or supplements.

Protein. You need protein in order to maintain your muscles, bones, skin, and every other organ and tissue in your body. Protein also helps you stay satisfied and manage hunger. Not only is protein important in your overall diet, but emerging research suggests that you should have some at all three meals, especially if you are older. However, keep in mind that while it's important to get enough protein, more is not necessarily better!

Figure 2: Whole-grain anatomy



Source: Oldways Whole Grains Council.

A whole grain is one that contains all the essential parts of the intact grain seed in their original proportions. The three basic constituents of the seed are the vitamin- and mineral-rich embryo, known as the germ; starchy endosperm that serves as the seed's initial fuel source as it begins to sprout; and the fiber-rich bran coating that surrounds them both. Refined grains, such as white flour, are stripped of bran and germ during processing, depriving them of these rich sources of nutrients.

Protein foods are a diverse group, including both animal sources (fish and seafood, meats, poultry, eggs, and dairy) and plant sources (soy products, pulses—that is, beans, lentils, chickpeas, and dry peas—and nuts and seeds). As with any food, quality counts: some protein-rich foods have more health benefits than others. Salmon and other oily fish provide heart-healthy omega-3 fatty acids. Pulses and whole or minimally processed soy foods like tofu, tempeh, and edamame offer phytochemicals and fiber. On the other hand, fatty or processed meats come with excess saturated fat and other components that don't support optimal health.

Fats and oils. Fat is an essential element of the diet. It's a major source of energy. In addition, the body requires fat to make cell membranes, provide a protective coating for nerves, maintain healthy skin and hair, and perform other vital functions.

After some decades of thinking that people needed to limit fat to be healthy, scientists now know that it's not how much fat we eat (within reason), but the type of fat. For example, in 2018 the FDA banned artificial trans fats—the hydrogenated vegetable oils that were once used in a variety of processed foods to help keep them from spoiling—because it was crystal clear that they contributed to heart disease. As for saturated fats—the kind found in animal products like meat and cheese—while limited amounts (less than 10% of daily calories) are fine for most people, they may contribute to a number of health problems, including increased LDL (bad) cholesterol and chronic inflammation, especially when eaten in excess.

Most of the fat we eat should be unsaturated. This includes polyunsaturated fats from fatty fish like salmon, walnuts, sunflower seeds, flaxseeds, and some vegetable oils, as well as monounsaturated fats from nuts, peanuts, avocados, olive oil, and canola oil. Unsaturated fats have a number of benefits for health, especially cardiovascular health. A shorthand way of thinking of the different types of fats is this: if they are solid at room temperature, like the marbling in meats, they may lead to stiffer arteries (and therefore high blood pressure) as your body deposits them in arterial linings. If they are liquid at room temperature, like the olive oil you drizzle on your salad, they will help keep arteries more flexible.

Choosing a plan you can stick with

It's wonderful that there are many ways to eat healthfully and well, but it means that to find your optimal diet, you need to trust your body to tell you what optimal looks like.

To start, choose from high-quality, nutrient-rich foods, and pay attention to how you feel. Are you energized for hours when you eat oatmeal for breakfast, or do you need more protein from, say, eggs or Greek yogurt to power you through the day? Do you run best on three square meals a day, three meals plus snacks, or six mini meals? Do certain "healthy" foods make you feel bloated? Then they probably aren't healthy for you.

Another benefit of this intuitive approach is that it allows your diet to evolve over time, if needed. The eating pattern that worked well for you when you were 20 may not work so well when you're 50. That's especially true when you consider that nutrient needs vary at different stages of life. For example, women need more iron during their reproductive years, especially during pregnancy. You might be happily vegetarian for years only to eventually discover that you feel better now when you include some seafood. Conversely, you may have thrived for years or decades on a diet that includes meat, only to find that you feel more energetic when you meet your protein needs with beans, soy, nuts, and seeds.

While it may feel easier to simply adopt a ready-made dietary plan, it's rarely sustainable or satisfying. Invest in yourself by creating your own personal eating plan from the common principles of healthy diets, or by tweaking one of the evidence-based diets reviewed in this Special Health Report to make it your own. This can help you feel satisfied by your meals while maintaining or improving your health over the long term. Nutritious food is good fuel to keep our bodies running optimally, but it's good to enjoy our food, too!

Low-fat or low-carb—which is best?

Before reviewing the diets themselves, we need to tackle one overarching question that has dominated the field for years—namely, which type of diet is best: low-fat or low-carb? Many of the diets reviewed in this report fall into one of these two categories—and many of them claim a unique hold on the truth. But despite several decades of debate and discussion about the relative merits of low-fat and low-carb diets, there is no scientific consensus on which way of eating is "best." Here's what the research does say.

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For weight loss, low-carb diets may have a slight short-term edge over low-fat diets. But for health, the levels of fat and carbs in your diet aren't as important as the sources from which you derive them.

Fat, carbs, and weight

It makes a certain intuitive sense that low-fat diets would be good for weight loss, given that a gram of fat contains 9 calories per gram versus just 4 calories per gram for both carbohydrates and protein. Indeed, if you reduce fat intake while keeping other components of your diet steady, you will trim off some pounds. But when food manufacturers glommed on to the low-fat philosophy in the 1980s and started producing low-fat cookies, ice cream, and other treats, Americans' waistlines did not benefit. The sad lesson was that calories are still calories, even if they come from nonfat products.

Enter the low-carb philosophy. This, too, makes sense, because all those low-fat treats were packed with refined carbohydrates—and refined carbs can lead to insulin spikes, which drive glucose out of the bloodstream and into cells. The result is storage of excess calories in fat tissue and increased hunger. Reduce your intake of carbs, the thinking goes, and you will lose weight. Furthermore, since fat and protein are satiating (making you feel full), you can be satisfied with less.

So which is right? When it comes to weight loss, research shows that low-carb diets may have a slight short-term edge on average. However, neither can claim true superiority. A 2007 Stanford University study comparing four diets—the low-carb Atkins and Zone diets and the low-fat Ornish and LEARN diets—found that average weight loss on three of the four diets was less than 5 pounds at the one-year mark. Participants assigned to the Atkins plan lost more weight initially, but also regained more. Even more interesting, there were people on each of the plans who actually ended up heavier than they were at the start. While some participants lost as much as 55 pounds, others put on 10 to 20 pounds.

The 2018 DIETFITS study by the same team looked more closely at the effects of low-fat and low-carb diets on weight as well as health biomarkers such as blood sugar and cholesterol. More than 600 participants from the Palo Alto, Calif., area were randomly assigned to follow either a low-fat or low-carb diet. Participants were asked to start as low as they could go for either carbs or fat, then increase only to the point where they felt the balance was sustainable. "Low-carb" ended up being about 30% carbs and 45% fat, while "low-fat" was almost exactly the reverse—about 29% fat and 48% carbs.

The participants lost a cumulative 6,500 pounds,

but again, there were virtually no differences in the numbers between the low-carb and low-fat diet groups. The average weight loss for each group differed by only about 2 pounds—and each group had individuals who lost as much as 65 pounds and others who gained up to 20 pounds. Neither group had an advantage when it came to the slowed metabolism and loss of lean muscle that typically happens with weight loss. The researchers thought that people who had insulin resistance would lose more weight on the low-carb diet, while those who did not would lose more on a low-fat diet. That turned out to not be true for everyone. And those health biomarkers? There was also little difference between groups.

The ultimate test, however, is not whether you can lose 20 pounds to look good at your college reunion. It's whether you can lose weight and keep it off. The fact that about 95% of dieters on *all* types of diets end up regaining the weight tends to confirm that, in the long run, neither type of diet is inherently superior.

Fat, carbs, and health

While weight management can be an important reason to choose a healthy diet, the ultimate goal of dietary modification for most people is to improve their health and reduce their risks of chronic diseases such as heart disease, diabetes, and cancer. Again, arguments are marshaled on both sides of the debate.

Saturated fat, which is found primarily in animal products, has been linked to higher levels of "bad" LDL cholesterol and lower levels of protective HDL cholesterol. This has obvious implications for heart disease, as these imbalances increase the risk of developing atherosclerosis, which sets the stage for high blood pressure, heart attacks, and strokes.

On the opposite side of the argument, there are those who claim that saturated fat is just fine. As evidence, they cite multiple studies showing that people who reduced dietary fat in general—and saturated fat in particular—did not necessarily reduce their risk for heart disease. But they overlooked a crucial distinction. Many of the participants in these studies replaced saturated fat with refined carbs, which are just as bad for the heart, canceling out the benefits that might have been gained from reducing saturated fats. In fact, other studies show that people who replaced saturated fats with polyunsaturated fats—or with whole grains—*did* reduce their risk for heart disease. In short, this is not a green light to eat all the butter and cheese you want.

The debate continues. But there are some important areas of consensus. A 2018 review article in *Science* magazine called "Dietary Fat: From Foe to Friend?" examined the evidence. The article was co-authored by four researchers—David Ludwig and Walter Willett from Harvard, Marian Neuhouser from the Fred Hutchinson Cancer Research Center in Seattle, and Jeff Volek from Ohio State University—who collectively represent a range of research perspectives, from low-fat to low-carb to ketogenic.

The authors agreed that while there is clear scientific support for *both* low-fat and low-carb diets—and there are populations around the globe who thrive on both—there's no clear "winner" for health. In part, that's because of the limitations of research. Clinical studies are relatively short-term—a few years at best. But chronic health problems like heart disease, diabetes, and cancer can be the result of decades of poor lifestyle choices. A study that lasts only a few years cannot capture that information.

Another lingering question is how an individual's genetic makeup and physical traits determine what proportion of carbs and fat suits him or her best. Even though we're all human, we're not all identical. When science is more advanced, perhaps there will be an answer to questions like these.

And the bottom line is …

If there is no clear winner, you may think that leaves you with no dietary guidance. Nothing could be further from the truth.

For people who are simply trying to figure out what to eat, the authors of the *Science* article cited above pointed to an important conclusion. While a prescribed carb-to-fat ratio might be warranted for treatment of specific health conditions—for example, individuals with insulin resistance or glucose intolerance may benefit from a lower-carb, higher-fat diet—

for most people, it's more important to focus on food quality. In other words, precise levels of fat and carbs aren't the most important thing. Most of us can do well eating low-fat, low-carb, or somewhere in between, provided our food provides the vitamins, minerals, phytochemicals, and fiber we need.

For that, we do need the "right" fats and carbs. That means fats that come mainly from polyunsaturated sources (plants) rather than saturated ones (animals). For carbs, that means selecting mainly unprocessed or minimally processed foods (whole grains, fruit, vegetables) rather than foods filled with refined carbs (cake, chips, packaged foods). Protein foods should include less saturated fat and more unsaturated fat (say, lean meat or lentils rather than fatty lamb).

Researchers from the Harvard T.H. Chan School of Public Health underscored the point with a 2020 study published in *JAMA Internal Medicine* showing that both low-carb and low-fat diets reduced the risk of premature death by 27% among 32,700 participants, but only if those diets emphasized high-quality fats and carbs. The people who did best filled their plates with whole grains, non-starchy vegetables, whole fruits, and nuts. By contrast, those who ate more refined carbs, animal protein, and saturated fat tended to die younger.

The corollary to this is that when you reduce something in your diet—such as carbs or fat—it's important to be mindful of what you replace it with. As we've already seen, when the public was advised to lower fat decades ago, many people swapped it for foods high in sugar and white flour, rather than with fruits, vegetables, and whole grains. Not ideal, and not what the experts who made the recommendation intended. Similarly, reducing carbohydrates and replacing them with foods high in saturated fat is not optimal, when making a swap to more fish, seafood, nuts, avocados, and olive oil would provide heart-healthy polyunsaturated and monounsaturated fats.

In the end, one reason why the DIETFITS study did not show a clear health advantage for either low-carb or low-fat diets may be that the participants chose high-quality foods. Those in the low-fat group were encouraged to choose whole grains, a variety of beans and lentils, seasonal organic fruit, organic low-fat milk, and lean meats. Those in the low-carb group were pointed toward high-quality oils and fats, organic avocados, hard cheeses, nut butters, meat from grass-fed animals, and eggs from pasture-raised chickens. All participants were encouraged to eat vegetables all day long, as much as they could, and have a salad every day. They were also encouraged to avoid added sugar and eat as little refined white flour as possible.

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One study by researchers from Harvard showed that both low-carb and low-fat diets can reduce the risk of premature death, but only if those diets emphasize high-quality fats and carbs.

As for weight loss, although participants in the DIETFITS study were not asked to cut calories, they naturally ended up eating an average of 500 calories less per day. The participants who lost the most on either diet were those who said their "relationship with food" had improved. They were less likely to eat while working, driving, or walking. They went to the farmers market more—which was of course relatively easy in California—and they cooked more meals with family.

So don't pin your hopes on either low-carb or low-fat diets—and certainly don't get caught up in the "my diet is better than your diet" competition (see "Avoiding the 'diet as identity' trap," page 30). Instead, eat the best-quality food that you can afford and have time to prepare. If you feel good when you eat that way, you will have a better chance of sticking with your diet—and both your weight and your health will benefit.

Low-carbohydrate diets

We begin our review of specific diets with low-carb plans, not because they're new—they aren't—but because a growing body of research in recent years has bolstered their popularity. That said, what passes as "low-carb" can vary widely. In this chapter, we'll look at some well-established low-carb diet plans, as well as some newer ones that are sparking interest.

Atkins diet

The classic low-carb weight-loss diet is the Atkins diet—developed by the physician Robert Atkins beginning in the 1960s and elaborated in books like *Dr. Atkins' New Diet Revolution, The New Atkins for a New You,* and *Atkins for Life.* While the initial iteration of the diet allowed people to eat unlimited fat—with meals of, say, bacon cheeseburgers (minus the bun)—more recent versions have struck a more moderate position on fat intake. Atkins now places greater emphasis on including vegetables. It restricts simple carbohydrates and emphasizes protein.

The diet begins with a two-week induction phase, during which you restrict "net carbs" (grams of total carbs minus grams of fiber) to 20 grams per day from low-carb vegetables like leafy greens. The second phase allows the addition of nuts, more low-carb vegetables, and small amounts of fruit. The third phase allows more carbs to be added back. The highest officially allowable amount of net carbs is 100 grams (you find your "personal carb balance" through trial and error, but cannot exceed this limit). Of those 100 grams, at least one-fifth must come from low-carb vegetables. All phases include three 4- to 6-ounce servings of protein and three servings of added fats, such as butter and olive oil, each day.

So what will you actually eat on Atkins?

- Allowed foods at all net carb levels include meat of all types (but bacon only in moderation, and meats processed with nitrates are to be avoided), seafood, eggs, low-carb vegetables (spinach, kale, broccoli, asparagus, other dark leafy greens), full-fat dairy, nuts, seeds, avocados, olive oil, vegetable and nut oils, and artificial sweeteners in moderation.
- As carbs are increased, the allowed list expands to include high-carb vegetables (carrots and other root veggies), high-carb fruits (bananas, apples, oranges, pears, and grapes), starches (potatoes, sweet potatoes, winter squash), grains, and legumes (beans, lentils, chickpeas).
- Still or sparkling water, coffee, diet soda, and green and herbal tea are allowed, but alcohol is limited, primarily spirits or dry wines.

Foods to avoid on all phases include sugar-sweetened foods and beverages.

Sample daily menu
(induction phase)

- **Breakfast:** Vegetable omelet, fried in butter
- **Lunch:** Green salad with chicken and almonds, dressed with olive oil and red wine vinegar
- **Dinner:** Beef stir-fry with vegetables
- **Snack:** Mozzarella string cheese or a hard-boiled egg

The Atkins diet is still promoted primarily for weight loss, although research gives only a slight edge to Atkins, especially in the long term. There's also no evidence showing that Atkins is superior for improving health. The Atkins diet counts butter as a healthy fat, but even research supporting the

Atkins diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	A few studies on weight loss; others on epilepsy (see "Ketogenic diet," page 17)
Indirect evidence	General research on low-carb diets shows better insulin control and sensitivity.
Balanced?	No
Affordable?	Moderately
Easy to follow?	No

healthfulness of full-fat dairy products does not extend that support to butter.

The good: The 100-gram net carb phase of this diet is based on unprocessed and minimally processed foods. Meeting fiber recommendations and nutrient needs is possible on the higher-carb phases. Because only the initial phase is extremely low-carb, the Atkins diet may be more sustainable than the ketogenic diet (see page 17).

The bad: The induction phase of the diet can have side effects such as headaches, fatigue, dizziness, and constipation. Even though the Atkins diet, when followed correctly, isn't as high in saturated fat as is often interpreted, it may still be too high because of the reliance on animal-based protein sources. Protein intake is higher than is necessary for health and satiety, and may be unhealthy for certain individuals.

The mixed bag: While randomized controlled trials have shown that some people benefit from low-carb diets, other people do not, and the Atkins program is less balanced than some low-carb plans. Additionally, the Atkins program actively promotes its bars, shakes, and other products, which are ultra-processed. Cooking three meals a day from scratch is challenging for most people, which means they will need to count carbs if they want to follow this diet correctly. The induction phase may not be affordable because of its reliance on animal protein, but affordability improves in later phases, when food variety increases.

Eco-Atkins diet

The Eco-Atkins diet is essentially the Atkins diet for vegetarians and vegans. Developed by researchers at St. Michael's Hospital in Toronto, it aims to combine a low-carb diet for weight loss with a diet low in saturated fat for heart health. Eco-Atkins has a similar ratio of protein and carbs as the original Atkins diet—26% carbs, 31% protein, and 43% fat—but instead of eating animal sources of protein and fat, you'll stick to plant sources for the most part. The diet favors quick weight loss, as it is very low in calories—roughly 1,200 calories per day versus 2,000 for a typical individual.

In contrast with classic Atkins, Eco-Atkins does not include an induction phase. (It would be difficult to reduce net carbs to 20 grams per day and still get enough protein, since plant protein sources contain more carbs than animal protein sources.) Allowable plant protein sources include soy foods (tofu, soy beverages, soy-based burgers and breakfast links), seitan (a meat substitute made from gluten), nuts, and beans. Eggs and cheese are also permissible for those who don't adhere to a strict vegan diet.

In studies, participants included small amounts of oats and barley for cholesterol-lowering fiber, and a "no starch" high-protein bread made from wheat gluten and ground almonds and hazelnuts.

There is some research on the Eco-Atkins diet, but it is not robust. There are only two small studies—both of them by the researchers who developed the diet and both short in duration (six months or less). Participants, all of whom were overweight and had high cholesterol, were randomly assigned to the Eco-Atkins diet (with 26% of calories from carbohydrates) or a high-carbohydrate vegetarian diet (with 58% of calories from carbohydrates). Both diets led to modest weight loss and reductions in blood pressure. But Eco-Atkins improved blood cholesterol levels more than the high-carbohydrate vegetarian diet.

The good: This diet includes more plant protein than the Atkins diet, and there is solid research showing that swapping at least some animal protein for plant protein has health benefits. In addition, study

Sample daily menu

Breakfast: Soy breakfast links, scrambled eggs with vegetables

Lunch: Salad with black beans, walnuts, and olive oil vinaigrette

Dinner: Tofu and vegetable stir-fry

Snack: Nuts

Eco-Atkins diet: A good choice?

Strength of evidence?	Weak
Direct evidence	Two small studies
Indirect evidence	Studies support the benefits of vegetarian and vegan diets for general health.
Balanced?	No
Affordable?	Yes
Easy to follow?	No

participants tended to feel satisfied on this diet.

The bad: Some of the allowed protein foods (soy burgers, faux turkey) are ultra-processed. This diet is very restrictive in ways that are at odds with the principles of a healthy diet.

The mixed bag: Nutritionally, Eco-Atkins is a better choice than Atkins, and it is also more affordable, but both are difficult to stick with for the long term. While there are plenty of Eco-Atkins recipes online for those who regularly eat at home, it may be difficult to eat out, and there's little guidance to help you follow this diet. Although this diet performed better at lowering cholesterol than a high-carbohydrate vegetarian diet, there's no research on other health outcomes.

Ketogenic diet

Originally developed in the 1920s as a way to help treat severe epilepsy in infants and children under medical supervision, the ketogenic diet has moved to the mainstream as a low-carbohydrate tool for weight loss and reduction of cardiometabolic risk factors, primarily elevated blood sugar.

The ketogenic diet is very low in carbs and very high in fat. After a week of this diet, your body is forced to burn fat instead of glucose (sugar) for fuel—a state known as ketosis. Your liver starts packaging fats into chemicals known as ketone bodies (or simply ketones, in a plethora of diet books) to serve as an alternative fuel for your brain, since they are able to cross the blood-brain barrier. A high level of ketone bodies often helps reduce seizures, explaining why the diet has been used under medical supervision to treat people with severe epilepsy.

In a clinical research setting, ketogenic diets limit carbs to 20 to 50 grams per day, primarily from non-starchy vegetables, with very low-carb ketogenic diets keeping carbs below 30 grams. Protein consumption is high enough to maintain muscle, but low enough to keep the body in ketosis. (Some amino acids, which are building blocks of protein, can be converted to glucose, so if protein intake is too high, this could nudge the body out of ketosis.)

The true ketogenic diet can have a ratio of 75% to 90% of calories from fat, 10% to 20% from protein, and just 5% from carbs. In some clinical research, not even vegetables are allowed. However, diets labeled as "ketogenic" vary widely. What most people on so-called ketogenic diets are following is simply a low-carb diet, such as a modified Atkins diet that keeps them in the induction phase of Atkins. However, with approximately 10% carbohydrates, 30% protein, and 60% fat, the modified Atkins diet is not a true ketogenic diet, as it's too high in carbs and too low in fat.

So what do you actually eat on the ketogenic diet?

- Allowed foods include meat, poultry, fish, other seafood, eggs, full-fat dairy, nuts, seeds, nut butter, avocados, olive oil and other oils, non-starchy vegetables, herbs and spices, vinegar, lemon juice water, and unsweetened coffee and green tea.
- The "avoid" list includes all grains and grain products, pulses, starchy vegetables, fruit (other than small amounts of berries), sweetened beverages, certain alcoholic beverages (beer and sugary mixed drinks), and high-carb condiments (ketchup, barbecue sauce, dipping sauces, and most salad dressings).
- Fast foods, processed meats such as hot dogs and deli meats, and foods with artificial sweeteners are not recommended.

Ketogenic diets appear to have an advantage for weight loss in the short term, but there are no long-term studies to offer evidence that people keep the weight off. The primary health claims are that the ketogenic diet can reverse type 2 diabetes and prediabetes. Short-term research does show benefits for improving insulin sensitivity—making it easier for insulin to clear glucose out of the bloodstream—and managing blood sugar levels, although the mechanisms aren't totally clear. Studies have also found that while "bad" LDL cholesterol tends to go up for some people, triglycerides tend to go down, and protective HDL cholesterol is likely to rise. Some researchers maintain that in people with type 2 diabetes, the benefits of improved blood sugar management outweigh potential risks of elevated LDL. Although the ketogenic diet may improve biomarkers of disease risk, there is no long-term research in humans showing that the diet directly reduces the risk of heart disease, heart attacks, strokes, or other health problems.

The good: Research supports some benefits for blood sugar management.

The bad: Although ketogenic diets eliminate sugar and refined carbohydrates (a good thing), they also curtail consumption of nutritious foods like pulses, whole grains, fruit, and starchy vegetables—all of which are important sources of vitamins, minerals, antioxidants, phytochemicals, and fiber, including the "prebiotic" fiber that promotes a healthy population of gut microbes. When following a ketogenic diet, it's important to monitor ketone levels, preferably with fingerstick testing—urine test strips aren't an accurate way to test whether your body is in ketosis—as well as energy levels and cognitive function. As you go in and out of ketosis, you may not have enough of either blood sugar or ketones to meet the brain's energy needs. This makes it challenging to follow the diet correctly without professional guidance. While a certain degree of muscle loss is common with calorie-restricted diets, some studies have found that muscle loss with ketogenic diets is greater if they are not followed correctly, possibly because the body is attempting to break down protein to create glucose. Cycling on and off the ketogenic diet makes it harder to get back into ketosis, especially for people with insulin resistance, and could be harmful if they eat high-carbohydrate meals while off the ketogenic diet.

The mixed bag: Although the ketogenic diet is very high in fat, it does not have to include a lot of bacon, butter, and other foods high in saturated fat. It is possible to get enough fat—as well as lean protein—from plant-based foods such as avocados, nuts, seeds, and coconut and olive oils. These foods supply not only heart-healthy fatty acids, but also a range of vitamins and minerals, although a diet high in these good-quality fats can be expensive. Additionally, getting professional guidance to ensure that you are following the diet correctly and staying in ketosis may not be affordable or practical. This diet makes it challenging to eat out or participate in social activities involving food. There is no long-term research to expand on the benefits found in short-term studies.

Sample daily menu

Breakfast: Fried eggs and sautéed greens

Lunch: Ground beef patty topped with cheese, sautéed mushrooms, and avocado, served on a bed of greens

Dinner: Steak with broccoli in cheese sauce

Snack: Nuts and turkey jerky

Ketogenic diet: A good choice?	
Strength of evidence?	Weak
Direct evidence	Clinical trials demonstrate benefits for blood sugar management.
Indirect evidence	None
Balanced?	No
Affordable?	No
Easy to follow?	No

Keyto diet

The Keyto diet is a Mediterranean-style, low-carb/high-fat diet that emphasizes plants, fish, and healthy unsaturated fats while eliminating refined carbohydrates and added sugar. It was developed in 2018 by Dr. Ethan J. Weiss, a preventive cardiologist at the University of California, San Francisco, and Dr. Ray Wu, who previously founded a social network for health and weight loss that was acquired by WW (Weight Watchers). They call the Keyto diet "keto optimized" or "keto 2.0."

As with the ketogenic diet, the Keyto diet's claim is that it switches the metabolism from burning sugar (glucose) to burning fat (ketones), reducing hunger and food cravings and leading to rapid weight loss. The most significant difference is that the Keyto diet emphasizes foods and fats that are more typical of Mediterranean-style diets: fish, olive oil, unsweetened Greek yogurt, and low-carb legumes such as lupini beans and black soybeans. As with the keto diet, berries are the only allowed fruit. The focus on unsaturated fats is an attempt to address the fact that the keto diet's high saturated fat content often raises LDL (bad) cholesterol levels.

The Keyto plan is available via app with a monthly or yearly paid membership. It includes meal plans, recipes, and a searchable food database. While the diet is touted for weight loss more than for health, its one study, which compared use of the Keyto app to that of the WW app, found that participants using the

Keyto diet: A good choice?	
Strength of evidence?	Weak
Direct evidence	One small, short-term study
Indirect evidence	Research on the keto diet and Mediterranean-style diet
Balanced?	No
Affordable?	No
Easy to follow?	No

Sample daily menu

Breakfast: Avocado toast with low-carb or keto bread, topped with scrambled eggs

Lunch: Large salad with greens, vegetables, and salmon, dressed with olive oil and vinegar and topped with grated cheese and nuts

Dinner: Roasted chicken thighs with broccoli and asparagus

Snack: Handful of plain raw nuts

Keyto app lost almost 12 more pounds on average over six months and improved their HbA1c, a marker for blood sugar control. However, such a short-term study isn't sufficient to assess whether these changes are maintained.

The good: It recommends limiting processed foods.

The bad: As with the "regular" keto diet, the high fat content may not be advisable for some people, including those with gallbladder problems or certain other digestive concerns. The restrictiveness also makes it inadvisable for anyone with a current or past eating disorder. If your body doesn't produce enough ketones or can't use them efficiently, it could lead to brain fog, headaches, fatigue, irritability, and difficulty focusing.

The mixed bag: Keyto is a high-fat diet, which means limiting fruit and many other healthy low-fat foods that provide fiber and important nutrients, but it emphasizes healthy fats such as avocados and olive oil, which makes it easier to avoid consuming excess saturated fat. Getting enough potassium is possible, but may be challenging, because potassium-rich bananas and potatoes aren't allowed. The diet's website recommends using breath sensors to gauge the level of ketosis, which is less accurate than checking blood ketone levels, but much more accurate than using urine test strips.

Carnivore diet

The carnivore diet is sometimes called the "zero carb" diet, because it only allows high-fat animal products—meat, poultry, fish, dairy—and water. Vegetables—even non-starchy ones—are off the table. The same goes for fruit, grains, legumes, nuts, and seeds.

The diet's originator, orthopedic surgeon Shawn Baker, claims the diet is "a revolutionary, paradigm-breaking nutritional strategy that takes contemporary dietary theory and dumps it on its head." The rationale behind the diet is that high-carb regimens are to blame for modern chronic diseases and that ancestral populations supposedly ate mostly meat and fish—something anthropologists deny. The diet has received significant media attention because of vocal followers who claim the diet cures depression and rheumatoid arthritis. However, the evidence for these claims is purely anecdotal, as there have been no studies testing them.

In his 2019 book, *The Carnivore Diet*, Dr. Baker claims that people don't need phytochemicals, antioxidants, or fiber—claims that run counter to abundant research. He also disputes established recommendations for vitamins and minerals. Some of the food beliefs that drive this diet's restrictions are the idea that legumes and grains contain "anti-nutrients" such as phytates and lectins that interfere with absorption of certain micronutrients—although these substances also provide health benefits—and

Sample daily menu

Breakfast: Eggs, bacon, sardines

Lunch: Turkey burger patty, strip steak, salmon (all at the same meal)

Dinner: Pork chops, scallops cooked in butter, a small glass of heavy cream

Snack: Beef jerky, hard-boiled egg, a small amount of cheddar cheese

Carnivore diet: A good choice?	
Strength of evidence?	Nonexistent
Direct evidence	Anecdotal
Indirect evidence	None
Balanced?	No
Affordable?	No
Easy to follow?	No

that all carbohydrate-containing foods are dangerous because the body converts them to "toxic" sugar. None of these claims are supported by modern science.

Allowed foods include meat of all types, poultry, eggs, lard, bone marrow, bone broth, dairy foods that are high in fat and low in lactose (heavy cream, hard cheese, butter), and water. Restricted foods include vegetables, fruit, grains, high-lactose dairy (milk, yogurt, soft cheeses), legumes, nuts, seeds, alcohol, sugar, and any beverages other than water.

The good: It eliminates ultra-processed foods that are high in refined sugar and other refined carbohydrates.

The bad: It's high in saturated fat and sodium, and lacks fiber, beneficial phytochemicals, and many vitamins and minerals—including those necessary before and during pregnancy. It's also high in cholesterol, which is a problem for people who are cholesterol hyper-responders, meaning they experience a dramatic rise in blood cholesterol when dietary cholesterol increases. There is no research to back any of the health claims. Finally, a meat-based diet has an adverse environmental impact, as animals require vastly more water, energy, and land to grow than plants, and they produce far more greenhouse gases.

The mixed bag: Getting enough protein on this diet is easy. Protein supports satiety and maintenance of lean muscle, but excessive protein is problematic for individuals with certain health conditions.

Optavia diet

Optavia is a reduced-calorie intensive meal replacement program that's a rebranding of Medifast's direct-sale Take Shape For Life program. Participants eat six times per day, every two to three hours. Most opt for the 800-to 1,000-calorie "Optimal Weight 5&1 Plan," which includes five interchangeable Optavia meal replacement products (or "fuelings," as the company calls them)—soups, shakes, bars, biscuits, or puddings—and one home-prepared "lean and green" meal based on lean protein and three vegetable servings. The plan limits total fat to 30% of calories, includes at least 72 grams of protein, and averages 80 to 100 grams of carbohydrates daily. Other Optavia plans include more calories and varying ratios of meals to "fuelings," including specialized plans for nursing mothers, teens, seniors, and people with diabetes or gout.

There's no research behind Optavia specifically, and most of the studies on Medifast or similar programs are small and had a high dropout rate. A 2015 review of studies on commercial weight-loss programs found that participants in low-calorie meal programs, such as Medifast, lost more weight than nonparticipants in trials lasting four to six months. The only long-term study showed no benefit for these plans at 12 months. Additionally, a 2017 study found that weight loss in online testimonials for Medifast was significantly higher than the weight loss demonstrated in randomized controlled trials. There is no research showing any health benefits.

The good: The program emphasizes lean protein and green vegetables for the allowed real-food meals.

The bad: The program's health coaches don't have to have any qualifications, and they're paid based on how many Optavia products they sell. There's no direct research supporting this program. It is restrictive and not affordable for everyone.

The mixed bag: This diet requires minimal cooking, which may appeal to some people. The meal replacement products are highly processed but they don't contain artificial colors, flavors, or sweeteners—and they do contain a probiotic to support digestive health.

Sample daily menu

Breakfast: Sweet Blueberry Biscuit (packaged)

Lunch: Hearty Red Bean & Vegetable Chili (packaged)

Dinner: 6-ounce portion of halibut, 1 cup broccoli, and ½ cup arugula

Snacks: Smoky BBQ Crunchers; Strawberry Yogurt Bar; Creamy Vanilla Shake (all packaged)

Optavia diet: A good choice?

Strength of evidence?	Weak
Direct evidence	None
Indirect evidence	Some studies showed weight loss on the related Medifast program.
Balanced?	No
Affordable?	No
Easy to follow?	Yes

Paleo-type diets

The idea behind paleo-type diets—also known as the hunter-gatherer diet, caveman diet, primal diet, or Stone Age diet—is that our bodies have not evolved to handle the highly processed foods that are plentiful in the modern food supply. Therefore, we should follow the nutritional patterns of early humans who lived in the Paleolithic era, which started 2.6 million years ago and ended about 10,000 BCE, before the beginning of agriculture. Estimates are that our early ancestors got 35% of their calories from fat, 35% from carbohydrates—mostly fruits and vegetables, since there were no cultivated grains—and 30% from protein.

The idea that "primitive" diets are superior dates back more than a century, but current interest began with a 1985 paper called "Paleolithic Nutrition," by radiologist S. Boyd Eaton and anthropologist Melvin Konner of Emory University in Atlanta, which was published in *The New England Journal of Medicine*. The idea was further popularized by Loren Cordain, an exercise scientist at Colorado State University in Fort Collins, with the 2002 publication of his book *The Paleo Diet*.

However, it's difficult to know exactly what early humans ate 100,000 years ago, and anthropologists have repeatedly stated that there is no single paleo diet, as our Paleolithic ancestors evolved to be flexible eaters. They had to be, because food availability and selection varied widely, based on the season, climate, habitat, and local flora and fauna. Many modern proponents of the paleo diet for health—including Dr. Eaton—acknowledge that this diet is not environmentally sustainable today because of the impact of animal-based agriculture. It raises potential health issues, too, as it restricts a number of healthful food groups, like whole grains and legumes.

Paleo diet

The typical "paleo" diet, as promoted in books such as *The Primal Blueprint* and *Practical Paleo* and on social media, includes unprocessed lean meat (preferably from grass-fed or wild animals), organ meats, fish, eggs, nuts, and fresh vegetables. Some versions allow starchy vegetables like potatoes and sweet potatoes if additional carbohydrates are needed to fuel exercise. One of the more controversial aspects of this diet is that it permits bacon, butter, coffee, and chocolate (which our Paleolithic ancestors would not have had access to), while excluding almost all fruit, with the exception of berries. Fruit plays such a small role in the modern paleo diet because most fruit available today has been bred for a higher sugar content than what our ancestors would have found in the wild.

Proponents of this diet claim that it will reduce the risk of chronic diseases such as heart disease, which are far more common today than they were thousands—or millions—of years ago. However, diet is only one aspect of our ancestors' lives that may have contributed to lower disease rates. For example, they were certainly more physically active than we are because they enjoyed no modern conveniences. They also died a lot younger than we do today, before reaching the

Sample daily menu

Breakfast: Scrambled eggs with vegetables, cooked in coconut oil, with fresh fruit

Lunch: Spinach salad with chicken, avocado, and walnuts

Dinner: Grass-fed steak with broccoli and asparagus

Snack: Apple and almonds

Paleo diet: A good choice?

Strength of evidence?	Weak
Direct evidence	Some very small clinical trials showed benefits for blood sugar management.
Indirect evidence	Research supports the benefits of eating vegetables.
Balanced?	No
Affordable?	No
Easy to follow?	No

ages at which chronic diseases typically develop.

Many paleo advocates claim that the diet heals autoimmune diseases, but this claim is unsupported, and true autoimmune diseases—such as celiac disease, rheumatoid arthritis, type 1 diabetes, inflammatory bowel disease, Hashimoto's thyroiditis, and multiple sclerosis—need medical care or nutritional therapy that is far less restrictive than the paleo diet. Another claim is that the diet reduces chronic inflammation, but any diet that includes a lot of vegetables and unprocessed foods (as long as it limits saturated fat and added sugars) could also make that claim.

The good: The paleo diet emphasizes vegetables—which are rich in a variety of nutrients, phytochemicals, and fiber—as well as other unprocessed foods. It consists of foods that are low on the glycemic index, meaning that they do not rapidly flood the bloodstream with glucose. It may therefore promote stable blood sugar levels.

The bad: This diet restricts a number of nutritious foods that contribute to good health, including dairy, whole grains, and legumes. It can be high in saturated fat, which—contrary to the diet's anti-inflammatory claims—can contribute to chronic inflammation and cardiovascular disease. Many proponents of the diet—including paleo bloggers—still consume many highly processed foods, albeit made with "paleo-approved" ingredients such as almond flour instead of grain-based flour. The emphasis on organic produce and meat from grass-fed animals makes this diet expensive, especially since inexpensive but nutritious foods like whole grains and legumes are not allowed.

The mixed bag: There's relatively little research on the paleo diet, and what research there is has been unable to make a strong case that this diet is superior to other diets that are based on unprocessed or minimally processed foods. Food-related social events can be challenging. While there's little chance of not getting enough protein, it is possible to get too much, which could damage the kidneys in some individuals.

Mediterranean paleo diet

This alleged hybrid of the paleo diet and Mediterranean diet reduces meat and replaces it with seafood, preferably wild-caught. Olive oil is the primary added fat—not butter or lard. As with the paleo diet, Mediterranean paleo includes lots of fresh vegetables (preferably seasonal), and it typically avoids all grains, legumes, and dairy. This diet makes similar claims as the standard paleo diet—also unsupported by evidence—that it can heal autoimmune diseases.

Mediterranean paleo diet: A good choice?	
Strength of evidence?	Weak
Direct evidence	None
Indirect evidence	Research supports the benefits of eating seafood and vegetables.
Balanced?	No
Affordable?	No
Easy to follow?	No

Sample daily menu

Breakfast: Vegetable and herb frittata, seasonal berries

Lunch: Spiced lamb stew, cauliflower "rice"

Dinner: Pistachio-crusted salmon, zucchini "noodles," beet and carrot salad

Snack: Roasted pepper dip with crudités

The good: Seafood is a healthy source of protein, and fatty seafood (such as salmon and sardines) is rich in heart-healthy omega-3 fats. Mediterranean cuisines make ample use of spices and herbs, which offer both beneficial phytochemicals and interesting flavors, enabling you to reduce added salt in food you cook.

The bad: There is no specific research on the Mediterranean paleo diet, and research on the regular paleo diet is minimal. As with the paleo diet, Mediterranean paleo excludes nutritious food groups like whole grains and legumes, which are key to the true Mediterranean diet and have been demonstrated to support good health. Many Mediterranean paleo authors include foods like "paleo cookies" and "paleo muffins," which may not be any healthier than their non-paleo counterparts.

The mixed bag: While most Americans don't eat enough seafood, and meeting recommendations to eat about 8 ounces per week is important for heart and brain health, using seafood as the primary source of protein could expose people to excess amounts of

mercury if they are not intentionally choosing fish and seafood species known to be lower in mercury. (In general, large, predatory deep-ocean fish—including shark, swordfish, tilefish, and king mackerel—contain the highest levels.) Additionally, many types of seafood are not affordable for individuals on a tight food budget. While there is abundant evidence to support seafood and vegetable intake, there's no evidence to support this diet specifically.

Pegan diet

Dr. Mark Hyman—founder of the UltraWellness Center in Lenox, Mass.—introduced this hybrid of the paleo diet and vegan diet in a 2014 blog post and then expanded on it in a section of his 2018 book, *Food: What the Heck Should I Eat?* Dr. Hyman has famously said that the pegan diet boils down to one simple rule: if God made it, eat it—if man made it, leave it. In other words, unprocessed and minimally processed foods are healthful. Processed and refined foods, not so much.

Sample daily menu

Breakfast: Green smoothie with apple, kale, almond butter, and chia seeds

Lunch: Kale salad with chopped red peppers, purple cabbage, nuts, avocados, and chickpeas

Dinner: Salmon, sautéed broccoli with garlic, baked sweet potato

Snack: Goat's milk yogurt with organic berries

If you want to go pegan, plan to shop for a variety of deeply colored fruits and vegetables—they'll make up about 75% of your diet, and they represent much of the "vegan" part of the diet. The diet also allows some saturated fat from grass-fed or sustainably raised meat, butter, and ghee—the "paleo" part of the diet—along with organic coconut oil and coconut butter. (Evidently, classifying this diet as vegan requires thinking of it in a compartmentalized way, since foods like beef, butter, and ghee do not qualify as vegan by any stretch of the imagination.) The diet emphasizes sources of essential omega-3 fats like fatty fish and flaxseed, as well as healthy unsaturated fats from nuts, avocados, olives, and associated oils.

Foods to avoid include gluten-containing grains (other than occasional intake of the ancient wheat einkorn) and any food grown or produced with pesticides, antibiotics, hormones, GMOs, chemicals, additives, preservatives, artificial colors, MSG, or artificial sweeteners. The diet limits foods with added sugars to occasional treats. Although dairy was originally prohibited because Dr. Hyman said it contributes to a number of chronic diseases (a claim unsupported by research), he now allows occasional consumption of organic yogurt, kefir, butter, ghee, or cheese, preferably from grass-fed goats or sheep.

While the pegan diet is more moderate—and potentially easier to follow—than either of its dietary parents, it does restrict many nutritious foods. For example, it warns adherents to eat beans only occasionally and limit them to ½ cup per day. The diet also limits amounts of gluten-free grains such as quinoa, brown rice, oats, and amaranth.

The good: The pegan diet is at its core a plant-based diet, which research shows is good for personal and planetary health. It's rich in fruits, vegetables, omega-3 fats, and fiber, which most Americans don't get enough of, and limits highly processed foods.

The bad: The detailed "avoid" list makes this diet extremely restrictive, which can make it almost impossible to dine out. The diet falsely claims that most wheat is genetically modified "Frankenwheat" and that all grains—including gluten-free grains—raise blood sugar and can trigger autoimmune responses. There isn't good science to support the autoimmunity claim for the general population, and all carbohydrate-containing foods, including vegetables, temporarily raise blood sugar. Finally, this diet restricts many nutrient-rich foods partly because they cause trouble for some people; while it's true that not everyone can tolerate

Pegan diet: A good choice?

Strength of evidence?	Weak
Direct evidence	None
Indirect evidence	Studies support the benefits of eating plant-based diets and limiting highly processed foods.
Balanced?	Moderately
Affordable?	No
Easy to follow?	No

lactose or gluten or comfortably digest the fiber in beans, that's not the case for most people.

The mixed bag: The pegan diet says to consider animal proteins a "condiment" and to choose fish and seafood with lower mercury levels—ideas that are completely in tune with a healthy flexitarian diet (see page 27). But it also limits beans, which may make it difficult to get enough protein. Beans are inexpensive, and limiting them highlights the diet's lack of affordability. Additionally, the emphasis on "organic," "sustainably grown," "pasture-raised," and "grass-fed" may have environmental and health benefits, but such foods can be costly. While the pegan diet has not been studied in randomized controlled trials, there is general nutrition research supporting a diet high in plant foods and low in animal foods.

Whole 30 diet

The premise of Whole 30 is that, by giving up certain foods for one month—including whole grains, legumes (soy, lentils, peanuts, and more), dairy, sugar, non-caloric sweeteners, alcohol, and a number of food additives—you will "change your life in 30 days," eliminate cravings, correct hormone imbalances, fix digestive issues, improve medical conditions, and strengthen your immune system.

These are outsized claims, with no direct research to support them, even though the diet's co-founders Melissa and Dallas Hartwig contend that their program is science-based. It's worth noting that the credential they both present—the designation CISSN, which stands for Certified Sports Nutritionist—requires only a four-year college degree in any subject and passing a test; it doesn't require an extended study of nutrition.

In some cases, the Hartwigs' claims fly in the face of current evidence. For example, having a healthy population of gut microbes is important for good immune and digestive functions, yet the Whole 30 diet excludes legumes and whole grains, which provide much of the fermentable fiber that nourishes the essential "good" bacteria and other microbes in the large intestine. Other claims are only partially true. For example, the contention that eating a particular way will correct hormone imbalances has become very popular in a segment of the diet and "wellness" world, but the claim is way too broad. While it is true that cutting sugar reduces insulin levels, there is no evidence that the diet will affect hormone levels as a whole.

The good: This diet is based on whole and minimally processed foods. The authors also discourage dieters from creating imitations of forbidden or processed foods out of ingredients that are technically allowed—for example, pancakes made with coconut flour or cake made with almond flour.

The bad: This diet is extremely restrictive, and if you go "off plan" at any point, even on day 29, you are supposed to start over. While the authors claim that this diet contributes to a better relationship with food, research actually shows that in susceptible people, restrictive diets can lead to binge eating and other eating disorders. The claims that it "cures" a number of health and psychological conditions may be dangerous, as many of these conditions need professional care. This diet makes social occasions involving food very difficult.

The mixed bag: If you have been previously eating a diet that is high in ultra-processed foods and low in vegetables, you may indeed feel better on this diet. However, you would likely feel better on any diet that relied more on whole or minimally processed foods. This diet will require most, if not all, meals to be prepared at home, which can be challenging for many people.

Sample daily menu

Breakfast: Spinach frittata, avocado, fruit

Lunch: Greek salad with hard-boiled eggs and fruit

Dinner: Ground beef with tomato sauce and spaghetti squash

Snack: Snacking is discouraged

Whole 30 diet: A good choice?

Strength of evidence?	Weak
Direct evidence	None
Indirect evidence	Studies support a few individual claims.
Balanced?	No
Affordable?	No
Easy to follow?	No

Plant-forward diets

In case you haven't noticed, plants are hot. Plant milk. Plant protein. Plant-based burgers, bacon, and cheese. The diets in this chapter all aim to foster a mindset that puts plants at or near the top of your dietary priorities. Call these diets what you will—plant-forward, plant-rich, plant-based (the most common term). The names are interchangeable. But what do they mean—and why should you care?

One common misconception is that "plant-based" necessarily equals "vegan." In fact, plant-based just means that the base, or foundation, of your diet is plants—vegetables, fruits, whole grains, pulses (beans and lentils), nuts, and seeds. A vegan diet would be one type of plant-based diet, but so would other eating plans that include meat, dairy, and seafood, as long as they have a hefty vegetable component as their foundation. A flexitarian diet, for example, is mainly vegetarian, but allows people to eat moderate amounts of animal-based foods.

There are good reasons to adopt a plant-based diet, beginning with health. There is abundant evidence that these diets can lower the risk of heart disease, type 2 diabetes, and cancer. However, the benefits depend on the quality of the foods chosen. A 2017 study that included participants from the large, long-running Nurses' Health Study and Health Professionals Follow-up Study found that participants who ate a plant-based diet rich in healthier plant foods (whole grains, vegetables, fruits, legumes, nuts, oils, tea, and coffee) had a substantially lower risk of developing heart disease, compared with those who ate a plant-based diet high in less-healthy plant foods (refined grains, potatoes, and foods and beverages high in added sugar). A 2019 analysis published in *JAMA Internal Medicine* found that while plant-based diets in general were associated with lower risk of developing diabetes, that association was much stronger when those plant foods were healthy ones.

Another reason for eating a plant-based diet is the environment. A 2018 study published in the journal *Nature* looked at how changes to food production and consumption could protect the environment. Globally, raising plants contributes less to climate change, loss of biodiversity, and water pollution than animal-based agriculture. The authors found that a flexitarian diet may help, especially when combined with reducing food waste and increasing efficiency of farming.

Vegan diet

The vegan diet is the most restrictive of the plant-based diets, excluding all foods of animal origin (meat, poultry, seafood, eggs, dairy, and often even honey). Individuals who are very concerned about animal welfare are likely to choose this dietary pattern, although many people select a vegan diet for health or environmental reasons.

The good: As with any plant-based diet high in healthful plant foods, this diet is rich in vitamins, minerals, phytochemicals, and fiber, while being low in saturated fat. This diet can be economical. For example, beans and lentils are cheap. They're also the most environmentally sustainable sources of protein, as they have low water needs and can adapt to climates and soils where most crops won't grow.

The bad: The restrictive nature of this diet may make it a poor choice for individuals who are recovering from, or are at risk for, an eating disorder. What's more, the absence of animal products can make it easy to develop a vitamin B_{12} deficiency. In addition, some plant-based food products that rely on isolated pea or soy protein, including many meat substitutes, are highly processed and may not be as healthful as they boast. Many plant-based dairy alternatives are low in protein, and some contain added sugars.

The mixed bag: While a variety of studies demonstrate that the vegan diet is more nutritious and healthful than some eating patterns, this doesn't mean

Vegan diet: A good choice?	
Strength of evidence?	Moderate
Direct evidence	Some clinical and observational research suggests that a vegan diet may reduce risks of heart disease, type 2 diabetes, and cancer.
Indirect evidence	Research supports the benefits of eating more plant foods.
Balanced?	Moderately
Affordable?	Yes
Easy to follow?	No

Sample daily menu

Breakfast: Oatmeal with nuts and fruit

Lunch: Veggie burger on a whole-wheat bun, green salad

Dinner: Vegetable and tofu stir-fry, brown rice

Snack: Celery and peanut butter

that it's the only, or the best, way to eat healthfully. Dining out can be very difficult, depending on geographic location. If someone is transitioning to a vegan diet, it may feel challenging to plan meals without meat, poultry, or fish as a centerpiece of the plate, or to incorporate soy foods (such as tofu and tempeh), which are unfamiliar to many Americans. While plant sources of protein have many health benefits, it takes more planning to get enough protein each day. Supplementation with vitamin B_{12} is necessary to prevent a deficiency. Some people may need to take iron supplements as well, and may need to incorporate calcium-enriched foods to get enough of that important mineral.

Vegetarian diet

In the simplest terms, a vegetarian diet excludes meat, fish, and poultry, but there are many variations on the plan, depending on how strict you want to be. Lacto-vegetarians include dairy foods in their diet, ovo-vegetarians include eggs, and lacto-ovo-vegetarians include both. As with other diets that consist predominantly of plant foods, the vegetarian diet can be very nutritious and health-promoting—but that depends on the quality of the plant foods chosen. For example, a lunch of a grilled cheese sandwich on white bread and French fries, while lacto-vegetarian, is not as healthful as a green salad topped with nuts, beans, and a hard-boiled egg.

Vegetarian diets are not a cultural tradition in the United States, generally speaking, as they are in some parts of the world, but in much of this country it's becoming easier to find healthy, tasty vegetarian fare in restaurants.

The good: A high-quality vegetarian diet includes lots of vegetables, fruits, whole grains, and legumes, which support good health. Beans are an inexpensive protein source, compared with meat, poultry, and seafood. Including eggs and dairy means that a vitamin B_{12} deficiency is unlikely, and that getting adequate protein is easier than on a vegan diet. The Dietary Guidelines for Americans include a "healthy vegetarian eating pattern" (see page 9), based on a wealth of research demonstrating the healthfulness of this way of eating.

The bad: Because fish and seafood are excluded, this diet is low in heart- and brain-healthy omega-3 fats.

The mixed bag: Dining out may be more challenging depending on where you live or travel. It can be easy to rely too much on cheese as a protein source. As with the vegan diet, it may feel challenging to plan meals that don't include meat, poultry, or

Sample daily menu

Breakfast: Greek yogurt with nuts and berries

Lunch: Tomato, mozzarella, and basil salad on greens, whole-grain roll

Dinner: Vegetarian chili served over brown rice, roasted broccoli

Snack: Apple and a low-fat cheese stick

Vegetarian diet: A good choice?	
Strength of evidence?	Moderate
Direct evidence	Some clinical and observational research suggests that vegetarian diets may reduce risks of heart disease, type 2 diabetes, and cancer.
Indirect evidence	Research supports the benefits of eating more plant foods.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	Yes

fish as a centerpiece of the plate, but the inclusion of eggs, dairy, or both makes this easier.

Flexitarian diet

Eating flexitarian means choosing mostly plant-based foods, with moderate amounts of fish, poultry, dairy, and eggs, and small amounts of red meat. It's a way to reduce meat intake without giving it up completely. No foods are forbidden, although it's always optimal to limit added sugars and highly processed foods.

Many people start by eating one meatless meal a day (about seven per week), then gradually increasing the number of meatless meals, aiming to limit animal protein of all types to 9 ounces—or to eat at least 15 meatless meals—per week.

The good: Flexitarian diets are exactly like the name suggests—flexible—and eating plant-based isn't an all-or-nothing proposition. If you've thought about going vegetarian but don't want to give up meat entirely, flexitarian is a middle way. If you don't want to eat meatless meals, you can focus on reducing the amount of meat per meal and fill in with more vegetables—for example, with stir-fries and entree salads. Or, if you're already used to eating vegetarian, the less restrictive flexitarian approach allows you to eat fish or poultry when you go to a friend's house for dinner. While there's little research on the "flexitarian diet" per se, research does support the benefits of meeting intake recommendations for fish and seafood, as well as for eating lots of plant-based foods.

The bad: Nothing.

The mixed bag: Understand what you're getting and what you're not when you swap out certain foods for others. If you want to replace some of the meat in your diet with soy foods, remember there's a difference between less-processed soy products (such as tofu and tempeh) and many of the highly processed soy protein powders and "faux" meats, which contain soy protein isolate as a major ingredient. Some plant-based "milks," such as almond milk, rice milk, and coconut milk, contain a small fraction of the protein you get from dairy milk or soy milk.

Sample daily menu

Breakfast: Steel-cut oatmeal with nuts and raisins

Lunch: Bean, whole grain, and vegetable salad; fresh fruit

Dinner: Fish with whole-grain pilaf and green salad

Snack: Yogurt with fresh berries

Flexitarian diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	Very limited clinical and observational research suggests benefits for reducing blood pressure and risk of type 2 diabetes.
Indirect evidence	Research supports the benefits of plant-based diets.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	Yes

VB6 diet

The VB6 plan, which stands for "vegan before 6 p.m.," was conceived by food writer and cookbook author Mark Bittman as a personal plan to lower his blood sugar and cholesterol. Bittman's doctor had recommended that he adopt a vegan diet, but Bittman did not want to completely give up animal products. His solution, as outlined in his book *VB6*, was to eat vegan (no meat, dairy, eggs, or other animal products) before 6 p.m. Also off the table for him before 6 p.m. are sugar, white flour, white rice, pasta, and processed foods. Snacks are allowed if hunger hits between meals. Then he eats whatever he wants, in moderation, for dinner. If you're having trouble eating only vegan fare until 6 p.m., Bittman suggests choosing a shorter or different time frame, as the timing itself is arbitrary.

The good: Some people might benefit from a framework for making more plant-based food choices, and following this plan will likely increase intake of vegetables, fruit, legumes, and whole grains. Bittman emphasizes flexibility, and the freedom at

Sample daily menu

Breakfast: Oatmeal with berries, nuts, and almond milk

Lunch: Kale salad with chickpeas, cooked whole grains, and nuts

Dinner: Vegetable stir-fry with lean beef and brown rice

Snack: Fresh fruit

VB6 diet: A good choice?	
Strength of evidence?	Moderate
Direct evidence	None
Indirect evidence	Research supports the benefits of plant-based diets.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	Yes

dinner makes dining out easy. Bittman offers tips and recipes in his book, on his website, and in his other writings.

The bad: While minimizing sugar and white flour is a good idea, completely banning them for part of the day may be challenging and unnecessary.

The mixed bag: There's no specific research on this plan. However, general nutrition research does support eating more plant foods and minimizing processed foods. This plan could be viewed as a more structured form of a flexitarian diet.

Nutritarian diet

The Nutritarian diet was developed by family physician Joel Fuhrman 20 years ago, then popularized in his 2011 book *Eat to Live* and his updated 2021 book *Eat for Life*. It's a low-calorie diet built around nutrient-dense plant foods. The idea is that these foods crowd out less nutritious higher-calorie foods and makes calorie counting unnecessary because nutrient-dense foods provide a lot of volume without many calories.

The diet emphasizes raw fruits and vegetables—especially greens, beans, mushrooms, onions, and berries—as well as avocados and raw nuts and seeds. Beans are a prominent source of protein. Whole grains are limited, and eggs, fish, and wild or "naturally raised" meat and dairy are allowed in very small amounts. Oil is not allowed for cooking. Sodium is limited to 400 mg per day—less than ¼ teaspoon—based on the claim that it deadens tastebuds and contributes to food addiction as well as high blood pressure (hypertension).

Dr. Fuhrman's website claims that the Nutritarian diet promotes an optimal weight because people who eat a plant-based diet tend to be leaner than those who don't, but this observation can't establish cause and effect. The numerous "before and after" photos and testimonials about weight loss don't provide information on whether, and for how long, these people kept off the lost weight. Dr. Fuhrman also claims that the diet can help prevent or reverse chronic disease, strengthen the immune system, and slow the aging process. Snacks between meals are discouraged based on the claims that this helps prevent cancer and promote longevity.

The good: The diet is based on fiber-rich plant foods, and most Americans don't eat enough fiber. Plant-based diets are good for personal and planetary health.

The bad: The diet's restrictive nature—especially the limits on salt and oil—makes it very difficult to eat out. It also makes the diet inadvisable for anyone with a history of eating disorders. The claims strongly imply that people can prevent and cure disease through diet, which ignores other factors that affect health.

The mixed bag: The diet restricts coffee and alcohol, which may be unpleasant for some people. It doesn't allow snacks between meals, which may feel challenging. While the included foods are nutrient-rich, many other foods are limited, meaning that

Sample daily menu

Breakfast: Berries and sliced banana with unsweetened almond milk, chopped nuts, and ground flaxseed

Lunch: Red lentil chili

Dinner: Thai curry with tofu and vegetables

Snack: Avocado chocolate pudding

Nutritarian diet: A good choice?	
Strength of evidence?	Weak
Direct evidence	Two uncontrolled pilot studies
Indirect evidence	Research supports the benefits of eating more plant foods and limiting highly processed foods.
Balanced?	Moderately
Affordable?	Yes
Easy to follow?	No

some people—including pregnant women and older adults—may find it hard to meet their calorie, protein, and nutrient needs. Dr. Fuhrman sells a line of supplements to "fill any nutritional gaps."

Raw food diet

The raw food diet began in the 1800s but has become trendy at various points in more recent history. The premise is that eating mostly raw foods is optimal for human health. The diet consists of unprocessed foods that are completely or mostly raw. (A food is considered raw if it has never been heated over 118° F.)

Allowed foods include all fresh and dried fruits and vegetables, raw nuts and seeds, grains and pulses, nut "milks," raw nut butters, cold-pressed oils, fermented foods (such as kimchi, sauerkraut, and kombucha), seaweed, dried meat (if desired), raw eggs or dairy (if desired), and raw meat or fish (if desired). Foods not allowed include any cooked foods—including roasted nuts and seeds, refined oils, pasteurized juices and dairy, and baked goods—table salt, refined grains, sugar, coffee and tea, alcohol, pasta, and other processed foods and snacks.

Sample daily menu

Breakfast: Overnight oatmeal with fresh fruit and raw almonds

Lunch: Salad with apple and nuts

Dinner: Sprouted quinoa with marinated vegetables

Snack: Fresh fruit and raw pumpkin seeds

The claim is that cooking foods is harmful because it reduces their nutrient content and destroys their natural enzymes, making food hard to digest. However, while cooking may degrade some nutrients (such as vitamin C and the B vitamins), it makes others (such as the antioxidants beta carotene and lycopene) more bioavailable, assuming they are cooked in or consumed with fat. As for enzymes, we don't need the enzymes in food—our own enzymes do a fine job of digesting our food for us.

In lieu of cooking with heat (steaming, sautéeing, frying, baking, roasting), the diet uses several other food preparation methods, including juicing, blending, dehydrating, soaking, and sprouting. The latter two methods are used to make raw grains and pulses edible by enhancing nutrient availability and breaking down compounds that could be toxic if consumed whole, such as lectins.

The good: This diet includes lots of vegetables, fruits, and other plants—and no ultra-processed food.

The bad: This diet is extremely restrictive, and there can be food safety issues with raw eggs, dairy, and meat. Some nutrients in food are better absorbed when the food is cooked. There is no science to support the idea that we should not cook any of our food, and some people have a difficult time digesting raw vegetables. One study found that people following a raw diet for a long period have an increased risk of low bone mass and don't get enough protein, calcium, and vitamin D.

The mixed bag: Because the diet does not allow you to cook with heat, food preparation takes significantly more time and effort. Further, while it's good to consume some of your vegetables raw, you get the best nutrition when you eat both raw and cooked vegetables.

Raw food diet: A good choice?

Strength of evidence?	Nonexistent
Direct evidence	One study suggests the diet is not good for health.
Indirect evidence	Research supports the benefits of eating more plant foods, but not necessarily raw ones.
Balanced?	No
Affordable?	Yes
Easy to follow?	No

Macrobiotic diet

The premise of the macrobiotic diet is that it allows you to eat in harmony with the natural environment, balancing the opposing cosmic forces of "yin" and "yang." The diet is strongly tied to Eastern philosophies, and is based on whole, unprocessed foods. It was introduced in this country from Japan by Michio Kushi in the 1950s and popularized in books such as *The Macrobiotic Way,* published in 1985.

Allowed foods include whole grains, vegetables (including sea vegetables), beans (limited to 5% to

Macrobiotic diet: A good choice?

Strength of evidence?	Weak
Direct evidence	Some clinical and observational research suggests benefits for heart health and type 2 diabetes control.
Indirect evidence	Research supports the benefits of plant-based diets.
Balanced?	No
Affordable?	No
Easy to follow?	No

Sample daily menu

Breakfast: Cooked grain, steamed kale, miso soup

Lunch: Grain and vegetable stew, green salad

Dinner: Rice and lentils, miso soup with vegetables, steamed kale with sunflower seeds, fresh fruit

Snack: Corn on the cob and carrot juice

10% of the diet), daily miso soup (a common component of the Japanese diet), nuts and seeds (limited to 1 cup per week), fish and other seafood (a few times per week), and fruit. Sweets are allowed once a week, and animal foods (eggs, dairy, meat, poultry) are allowed monthly, at most. Green tea and alcohol are allowed in limited amounts. Foods to avoid include nightshade fruits and vegetables (tomatoes, eggplant, peppers, white potatoes), tropical fruits and vegetables (such as bananas, mango, papaya, figs, dates, kiwi, and avocados) unless you live in a hot and humid climate, tropical nuts, herbs, spices, sweeteners, ice-cold foods and drinks (which traditional Chinese medicine says interferes with digestion), herbal and black teas, coffee, highly processed foods, and dietary supplements.

Macrobiotic diet proponents blame the modern diet for everything from heart disease to AIDS to drug-resistant tuberculosis. They also claim that cooking with electricity or microwaves is unhealthy.

The good: This diet includes lots of plant foods, is low in saturated fat, and does not include any ultra-processed foods. It allows some flexibility based on health, gender, age, and climate.

The bad: This diet is very low in protein, which may be unhealthy for many people, and is very low in fat, which is not appropriate for everyone. It is also highly restrictive in terms of food choices and flavors, which may make it unpalatable for many. It makes unsubstantiated claims about how certain foods affect our mental and emotional disposition.

The mixed bag: The diet recommends organic food, which may have benefits but can be expensive. The rule of chewing every bite of food 50 times might aid digestion but can also make meals last overly long, especially for people with limited time to eat lunch during the workday. While miso is a healthful food, it is unfamiliar to many Americans. As with many diets, adherents can fall into the "diet as identity" trap (see "Avoiding the 'diet as identity' trap," above).

Avoiding the "diet as identity" trap

Consumer research shows that more and more Americans are aligning themselves with dietary "tribes." These are communities of people that come together—in person or through social media—around food preferences, from low-carb to vegan to paleo. Sometimes these preferences are based on what food to eat. Other times they're more about what not to eat. In either case, lifestyle and values may hold more sway than evidence-based nutrition.

To some extent, having a food tribe can be a positive thing. Having friends or family who are comfortable in the kitchen, enjoy vegetables, and value balanced nutrition can be encouraging and even fun.

But taken to extremes, fixating on avoiding specific foods—such as meat or sugar—can make you dogmatic about your diet and turn your dietary choices into a core element of your identity. One peril of identifying too closely with your chosen eating pattern is that it's hard to change it if you find it's not working for you. Making a switch may even mean changing your social circle—not an easy thing to do.

Another peril of focusing on what you don't eat (like meat or grains), instead of being thoughtful about what you do eat, is that you may fail to see the big nutritional picture. This can easily lead to a "healthy diet" that isn't so healthy after all. For example, a paleo diet that includes lots of processed meats, paleo cookies, and coconut milk ice cream with very few vegetables isn't terribly healthy. Neither is a vegan diet that is low in veggies and high in white bread, pasta, vegan cookies, and soy ice cream.

Intermittent fasting

Over the past decade, intermittent fasting has become increasingly popular for its promises of improved health and weight control. On the latter front, the idea is that it's easier to sharply restrict calories a few days a week or to limit eating to a shortened "eating window" each day than it is to moderately cut calories at every meal, every day. As for health, proponents claim that extended fasting periods (beyond the usual time between meals) promote cellular repair, improve insulin sensitivity, increase levels of human growth hormone, and alter gene expression in a way that promotes longevity and disease protection.

There are many forms of intermittent fasting, some of them based on gimmicks rather than science. In this chapter, we'll cover the most common forms—alternate-day fasting, modified alternate-day fasting, periodic fasting, and time-restricted eating.

While no specific foods are allowed or not allowed on these diets, it's recommended that people who practice intermittent fasting eat healthfully when they aren't fasting. During fasting periods, only water, black coffee, and other non-caloric beverages are permitted.

Sample daily menu

No guidelines. Eat what you want on non-fasting days.

Fifteen years ago, most proponents of intermittent fasting were male personal trainers selling e-books on their blogs, citing very preliminary research that was mostly conducted in lab rodents. Although the volume of research studies on intermittent fasting is rapidly expanding—and we now have more, better designed studies—the evidence remains inconclusive. One randomized controlled trial followed 100 participants for a year and found no differences in weight or health outcomes between a variation on alternate-day fasting (eating 25% of calorie needs on one day, then 125% the next) and a standard calorie-restricted diet (providing 75% of calorie needs every day). Two similar-sized randomized controlled trials from 2020 and 2022 found that time-restricted eating did not have an advantage for weight loss or improving cardiovascular risk factors.

Depending on the length of the fasting period, people may experience headaches, lethargy, crankiness, and constipation. A 2018 study found that two common effects of calorie-restricted diets—a slowed metabolism and increased appetite—are just as likely when people practice intermittent fasting as when they cut calories every day. In studies of time-restricted eating, evidence is accumulating that eating that misaligns with a person's circadian rhythm may lead to metabolic trouble.

Alternate-day fasting: A good choice?

Strength of evidence?	Weak
Direct evidence	Only very short-term research in humans, with inconsistent results
Indirect evidence	None
Balanced?	No
Affordable?	Yes
Easy to follow?	No

Alternate-day fasting

This is exactly like it sounds: fasting every other day, all day. Most of the research on alternate-day fasting is in rats, which suggests what effects it *might* have in humans—but humans aren't rats. The few studies done in humans were very short in duration—even as short as one day—and produced conflicting results on markers of health like blood sugar, cholesterol, and triglyceride levels. In some studies, the participants reported extreme hunger, lower mood, distraction, or a perceived reduction in work performance.

A variation called the "eat stop eat" method uses a 24-hour fast only once or twice a week. It was devel-

oped by a fitness expert, and it has no research behind it. Most people who follow this plan eat dinner the night before their fasting day, then don't eat until dinner the next day. For example, if you finish eating dinner at 7 p.m. one night and then don't eat dinner until 7 p.m. the next night, you've fasted for 24 hours. You can also choose different meals as your start and end points.

The good: If you can stick to it, it's conceptually simple—either you're eating or you're not.

The bad: Many lab studies use this variation, but it's probably the least popular real-world option, as going to bed hungry for half the week is neither pleasant nor sustainable. Fasting days can get in the way of socializing, and for people with children at home, it may be hard to explain why Mom and Dad aren't eating. (Children should not try this diet.)

The mixed bag: As mentioned, it's unclear whether fasting every other day yields significant health benefits or increases the odds of successful weight management.

Modified alternate-day fasting

Modified alternate-day fasting, also called intermittent energy restriction, is similar to alternate-day fasting, but on the fasting days—every other day—you eat about 500 calories, or about 25% of usual intake, rather than going completely without food. On non-fasting days, you eat a regular, healthy diet. Over all, research fails to show that modified fasting is any better for metabolic health than simply keeping calories in check on a daily basis. In the studies that looked at mood or other side effects, about 15% of participants reported feeling hungry, cold, irritable, or low in energy, but mood improved over all.

Sample daily menu
(fasting days)

Breakfast: None

Lunch: Soup and a piece of fruit

Dinner: Grilled fish with vegetables

Snack: None

The good: There are no days when you have to completely forgo food.

The bad: Some people experience unpleasant side effects, including hunger and fatigue, even without totally fasting.

Modified alternate-day fasting: A good choice?

Strength of evidence?	Weak
Direct evidence	There is some research, but none showing that this diet is superior to simple portion control.
Indirect evidence	None
Balanced?	No
Affordable?	Yes
Easy to follow?	No

The mixed bag: This diet is no better for health or weight loss than simply watching portion sizes.

The 5:2 diet (periodic fasting)

The 5:2 diet is a variation of modified fasting in which you limit food to about 500 to 600 calories a day on only two days per week. On the other five days, you eat a normal, healthy diet. The two fasting days need to have at least one non-fasting day in between them. On fasting days, it's important to focus on high-protein and high-fiber foods to keep calories low while feeling as satisfied as possible.

A 2017 study in *JAMA Internal Medicine* randomly assigned 100 metabolically healthy but obese adults ages 18 to 65 to one of three eating plans—the 5:2 diet, a standard low-calorie diet,

Sample daily menu
(fasting days)

Breakfast: None

Lunch: Yogurt with berries

Dinner: Green salad with chicken

Snack: None

The 5:2 diet: A good choice?

Strength of evidence?	Weak
Direct evidence	A high-quality clinical trial found no unique benefits.
Indirect evidence	None
Balanced?	No
Affordable?	Yes
Easy to follow?	No

or the participants' normal way of eating (the control group). This yearlong study was longer and larger than previous studies on intermittent fasting.

The researchers thought the 5:2 group would have an easier time sticking to the diet, but the reverse was true. The dropout rate—that is, the rate of participants who failed to complete the trial—was highest in the 5:2 group, suggesting that the diet is harder to follow than a standard low-calorie diet. Weight loss and weight regain were similar between the two diet groups, as were changes to both fat and lean tissue, contradicting claims that intermittent fasting leads to less muscle loss than traditional calorie restriction. Reduction of cardiovascular risk factors, including blood pressure, total cholesterol, triglycerides, and fasting glucose, were also similar between the groups—except that the 5:2 group had significantly elevated levels of LDL (bad) cholesterol at the 12-month mark.

The good: There are fewer fasting days than in most fasting plans, and they aren't true fasts.

The bad: Hunger can be a barrier, and elevated LDL is worrisome.

The mixed bag: The diet is no better for weight loss or health than traditional calorie-restricted diets, and even those have downsides.

Time-restricted eating

Time-restricted eating limits your daily "eating window," although the exact time restrictions can vary. Many people limit the window to about eight hours, essentially extending the overnight fasting period to 16 hours (making it a "16:8 diet"). This can be done as frequently as desired—once or twice per week, or even daily. Some people follow this method with a slightly longer eating window. For people who want to try intermittent fasting for the first time, this is usually the least challenging way to test the waters.

There is a decent amount of research suggesting some benefits to an ample overnight fasting window—longer than, say, the 12 hours you would get if you finished dinner at 7 p.m. and ate breakfast at 7 a.m. In fact, research strongly suggests that if you can manage it, shifting the majority of your food intake to breakfast and lunch—making breakfast the largest meal if possible—and eating a small dinner has several advantages, including decreased hunger. Why? Because when the bulk of your daily food intake is later in the day, it may interfere with the synchronization of your circadian rhythms. We have two circadian clock systems: one central clock that's influenced by the daily light-dark cycle, and a set of peripheral clocks that are influenced by events of daily life, especially eating—our "feast/fast cycle." If your central and peripheral rhythms are out of sync, they send conflicting messages to your body about whether it needs to ramp up or wind down, leading to metabolic problems.

The good: This is the easiest type of intermittent fasting to follow, and the least likely to have side effects.

The bad: A narrow eating window can interfere with your social life.

The mixed bag: The schedule is not practical for many people—especially those who work outside the home. With fewer meals, it's important to plan well in order to meet nutrient needs.

Time-restricted eating: A good choice?	
Strength of evidence?	Moderate
Direct evidence	Some clinical research suggests that this eating pattern may reduce chronic disease risk.
Indirect evidence	Some research shows adverse health effects from behaving out of sync with our circadian rhythms.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	No

Sample daily menu

Breakfast (8 a.m.): Vegetable omelet, avocado on whole-grain toast, fresh fruit

Lunch (noon): Lentil and vegetable soup, baked salmon with brown rice and roasted vegetables

Dinner (4 p.m.): Green salad with white beans, walnuts, and olive oil vinaigrette

Snack: None

Clean eating

Clean eating has been a trend for the past decade, although there's no official definition of just what "clean eating" means. In fact, it's more a dietary approach than a specific diet, although quite a number of cookbooks have spun off of this trend. The foundation of clean eating is choosing whole foods and foods in their less processed states—vegetables, fruits, whole grains, pulses (beans, lentils, and peas), dairy, nuts, seeds, and high-quality animal and plant proteins. When possible, food choices are organic and based on what's in season in your geographic region. When choosing packaged foods with a label, foods with shorter ingredient lists are preferred, and added sugars should be avoided or minimized.

So far, so good. However, the movement can go to extremes. Many clean-eating advocates aim to avoid all traces of added sugar, high-fructose corn syrup, preservatives, artificial colors and flavors, and other additives—a position that might be admirable but is too stringent for most people. In many cases, a cult-like extremism is encouraged by wellness "experts" and celebrities who have no nutrition qualifications or evidence to back up some of their promises, including claims that their version of clean eating will change your life or cure your health issues.

Increasingly, food companies are picking up on the trend, using language in their marketing like "food should be clean" and "don't eat ingredients you can't pronounce." This not only taps into safety fears, but it implies that if food isn't "clean," it's dirty, or that if it's not chemical-free, it's chemical-laden. The truth is that foods don't fall into black-and-white categories. For example, even organic agriculture uses pesticides—most are natural, but some are manufactured.

The good: Some versions of clean eating offer a genuine way to eat a nutritious diet based on fruits, vegetables, beans, and whole grains, with healthy fats and either plant- or animal-based protein food for balance—while reducing sugar and ultra-processed foods.

The bad: Other interpretations of clean eating can lead to a rigid diet that bans entire foods or food groups like grains (especially gluten-containing grains), soy, legumes, and dairy. These extremes are not supported by research, and you can develop nutrient deficiencies if your food choices are too limited. In some cases, clean eating, especially in its more rigid forms, becomes less of a diet than an identity (see "Avoiding the 'diet as identity' trap," page 30) and could lead to disordered eating.

The mixed bag: There's real benefit in eating more whole and minimally processed foods, but not in fearing other foods that are nutritious. Because many consumers perceive that "clean" foods are safer and higher quality, "certified clean" labels are starting to appear on some processed foods, although there's no standard definition behind them. Even the least extreme version of clean eating typically requires cooking most meals at home, which isn't feasible for everyone.

Sample daily menu

Breakfast: Whole-grain hot cereal with walnuts and organic blueberries

Lunch: Avocado on whole-grain artisan bread, large green salad with free-range chicken

Dinner: Wild salmon with roasted sweet potato and garlic-sautéed broccoli rabe

Snack: Organic yogurt from grass-fed cows, with cashews and organic raspberries

Clean eating: A good choice?

Strength of evidence?	Weak
Direct evidence	None
Indirect evidence	Studies support the benefits of a whole-foods diet, but there is nothing on eliminating preservatives, artificial flavors, and other additives.
Balanced?	Varies with the specific plan
Affordable?	No
Easy to follow?	No

Traditional regional diets

When searching for the healthiest diets, many people look to the traditional diets of parts of the world where the populations enjoy better health and longer lives. There is a certain wisdom in this, given the emphasis nutritionists now place on overall dietary patterns as opposed to individual foods. Furthermore, traditional regional food patterns have been tested by time, not just by a lab. In this chapter, we'll look at three of the most talked-about traditional regional diets: Mediterranean, Nordic, and Okinawan.

Mediterranean-style diet

The classic Mediterranean diet is the eating pattern of the people who lived in areas bordering the Mediterranean Sea—especially the olive-growing areas of Crete, Greece, and southern Italy—in the late 1950s and early 1960s. This was the time period after the region overcame the food shortages and economic difficulties following World War II, but before socioeconomic changes introduced more meat, processed foods, and vegetable oils other than olive oil. Today, a Mediterranean-style diet refers to the traditional diets in a much broader region, including southern France and Spain as well as Morocco, Turkey, Syria, Israel, Lebanon, and Egypt.

The traditional Mediterranean diet is characterized by high consumption of vegetables, fruits, legumes, and whole or minimally processed grains. Other salient features are low consumption of meat and meat products (maybe two to three times per month) and low consumption of dairy products. The primary fat is olive oil, which is used to cook and to dress the abundant vegetables and legumes. Grains are whole or in the form of fermented sourdough breads or pasta cooked al dente, which lowers the glycemic index and the glycemic load (measures of how the carbohydrates in a specific food affect blood sugar levels). A glass or two of red wine was once seen as a key component of the diet, but is now considered optional.

The combination of the various components in a Mediterranean-style diet is more important than any one component

Sample daily menu

Breakfast: Vegetable frittata with whole-grain toast and fresh fruit

Lunch: Lentil, farro, and vegetable soup

Dinner: Salmon, whole-grain pilaf, roasted vegetables, green salad with olive oil vinaigrette

Snack: Raw vegetables with hummus, string cheese

The key to the Mediterranean-style diet isn't incorporating a single food. It's eating nutrient-rich combinations such as seafood with lemon or vegetables stewed in garlic, onions, olive oil, and herbs.

Mediterranean-style diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Abundant observational studies as well as some randomized controlled clinical trials demonstrate that the Mediterranean diet can reduce chronic disease risk.
Indirect evidence	Research supports the benefits of plant-based diets, as well as the benefits of olive oil.
Balanced?	Yes
Affordable?	Moderately
Easy to follow?	Moderately

in isolation. In other words, it's about more than just the olive oil. For example, when you stew vegetables in olive oil with garlic, onion, parsley, oregano, and basil, you are creating a dish rich in fiber, vitamins, minerals, and phytochemicals, as well as healthy monounsaturated fats.

A number of observational studies from around the world have found that a diet based on the traditional Mediterranean-style pattern is associated with reduced risk of developing several chronic diseases—including cancer, Parkinson's disease, Alzheimer's disease, type 2 diabetes, and cardiovascular disease. So have some clinical trials. The PREDIMED study enrolled 7,447 adults at high risk for cardiovascular disease and followed them for eight years. The participants were randomly assigned to follow one of three diets—a Mediterranean diet supplemented with olive oil, a Mediterranean diet supplemented with nuts, or a lower-fat diet (the control group). The results show that the benefits of a Mediterranean diet included a significant reduction in heart attacks, strokes, and cardiovascular deaths, as well as reduced risks of developing type 2 diabetes, peripheral artery disease, and breast cancer.

The good: Many research studies—both observational and clinical—support the health benefits of the Mediterranean diet. It's easy to find recipes for Mediterranean-style recipes. Because the Mediterranean region includes several countries with unique culinary histories, there is a lot of diversity in how to use and flavor the staple foods. Its principles could be even applied to cultural diets outside the Mediterranean.

The bad: Nothing.

The mixed bag: Following this diet closely may feel time-consuming since it involves more shopping and cooking than you may be used to. Staple foods may not be available or affordable in all parts of the country or during all times of the year.

Nordic diet

The "new" Nordic diet is an updated version of the traditional diet that was common in Scandinavia hundreds of years ago. As presented by the Finnish Heart Association, the Finnish Diabetes Association, and the University of Eastern Finland, it includes healthy foods that are produced locally in Denmark, Finland, Iceland, Norway, and Sweden. It was designed by a team of scientists, nutritionists, and chefs to improve public health and increase the culinary appeal of seasonal Nordic ingredients.

The diet is based on unprocessed (intact) whole grains, high-fiber vegetables, fish, low-fat dairy foods, lean meat of all types (beef, pork, lamb, veal), beans and lentils, fruit, dense breads (pumpernickel or sourdough produced using fermentation), tofu, and skinless poultry. Canola is the primary oil used. While there are no "banned" foods, this eating plan limits high-glycemic carbohydrates such as potatoes, instant oatmeal, and sugar. Other recommendations include the following:

- Choose organic, local, and seasonal foods when possible.
- Eat less (but higher-quality) meat, eggs, and dairy.
- Eat more wild foods, including foraged berries and greens, wild fish, and some game.
- Avoid food additives.

As befits a cold climate, the primary vegetables are cruciferous ones (broccoli, brussels sprouts, cabbage, cauli-

Sample daily menu

Breakfast: Plain Greek yogurt or Icelandic skyr with berries and muesli

Lunch: Sandwich on dense whole-rye bread with lean lunch meat, leafy greens, and pickles

Dinner: Chicken breast with a small sweet potato and a green salad; fruit compote with low-fat ricotta cheese for dessert

Snack: Small handful of nuts, hummus with raw vegetables

Nordic diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Some observational studies suggest reduced risk of heart attack, and clinical trials show possible benefits for reducing blood pressure, cholesterol, blood sugar, and inflammation.
Indirect evidence	Research supports the benefits of many individual components of the Nordic diet, including produce, low-glycemic carbohydrates, and seafood.
Balanced?	Yes
Affordable?	Moderately
Easy to follow?	Moderately

flower), dark leafy greens, and root vegetables. Berries, apples, and pears are the predominant fruits. Given the countries' proximity to the sea, local wild-caught fish—including salmon, sardines, cod, mackerel, and herring—takes precedence over meat. Rye, barley, and oats are the primary grains. Fermented fish, vegetables, and dairy also play a strong role, as do herbs and spices.

The Nordic diet recommends a 2-to-1 ratio of carbs to protein, with 50% of calories coming from carbs, 25% from protein, and the remaining 25% from fat. Randomized controlled trials have demonstrated that a Nordic dietary pattern reduces the risk of cardiovascular disease, and general nutrition research supports the health-promoting attributes of individual components of the diet.

The good: The Nordic diet is based on whole and minimally processed foods, and it is high in both fiber and heart-healthy omega-3 fats. Most carbohydrate foods are high-quality, nutrient-rich, and low-glycemic, and the recommended protein intake supports the maintenance of lean muscle as you age. The diet's protein and fiber content make it easy to feel satisfied after a meal. Canned fish and frozen fruits and vegetables are allowed, which can help with affordability.

The bad: Nothing.

The mixed bag: Some foods, such as dense pumpernickel or artisanal sourdough bread, may be difficult to find depending on where you live. Even though canola oil provides healthy fats, many people are hesitant to use it because it is more highly processed than olive oil, and it may be genetically modified. Organic produce that is local and seasonal, seafood, and high-quality meats may not be affordable or accessible for everyone, and the strong emphasis on cooking at home can be challenging.

The Nordic diet is based on whole and minimally processed foods, including fish and cruciferous vegetables, such as brussels sprouts. Its high protein and fiber content help you feel full after a meal.

Okinawan diet

Okinawa is a set of islands between Japan and Taiwan, and its population is one of the world's healthiest. Okinawans who have not abandoned their traditional diet in favor of modern, ultra-processed foods have extremely low rates of cancer, cardiovascular disease, and other chronic diseases, while enjoying long lives and good health. The Okinawa Centenarian Study, which began in 1976, has looked at the diet and lifestyle habits of more than 600 Okinawans who have made it to the age of 100, with the goal of identifying what's responsible for their health and longevity. The population of Okinawa has one of the highest proportions of centenarians in the world.

The Okinawan diet is based on

- high consumption of vegetables (green and yellow vegetables and root vegetables, especially purple sweet potatoes), soy foods (tofu, tempeh, miso, and natto), and other legumes
- moderate consumption of fish and other seafood
- moderate consumption of grains, primarily buckwheat and wheat noodles (soba and udon) and brown rice (a modern substitute for traditional sticky white rice)
- low consumption of meat, eggs, dairy foods, and fruit
- moderate alcohol consumption, if alcohol is consumed at all
- jasmine tea as the primary beverage.

This diet calls for minimizing red meat—and using moist cooking methods or low-temperature stir-frying when you do eat it—and limiting sweets to a few times per week. The diet is also low in sodium and fat. Many traditional herbs and spices play a role, a holdover from Okinawa's active participation in the spice trade centuries ago; the two that are most familiar to Americans are turmeric and fresh ginger.

Traditionally, Okinawans have observed the principle of *hara hachi-bu*, which means stopping eating when you're about 80% full. Accordingly, portion sizes are about half of what they are in the United States. Because the diet is nutritionally rich, it provides adequate nutrients, despite being lower in calories.

This diet—especially the westernized version presented in books published by the researchers behind the Okinawa Centenarian Study—overpromises, in a sense. While the authors don't actually claim that if you follow this diet you'll live to be a vibrant, active 100-year-old, it's easy to construe that after reading the descriptions of actual Okinawan centenarians. However, when it comes to the amazing longevity of Okinawans, it's unclear which plays a greater role: the truly traditional—and calorie-restricted—diet, as practiced before World War II, or the slightly diversified but not yet westernized diet from after the war. It's also unclear how much of their longevity can be attributed to diet, since research has found that Okinawans are a genetically distinct group. Some of those genetic differences may contribute to their long lives. Okinawans also get plenty of physical activity, including gardening, and they tend to have strong social connections and a sense of purpose in life. All of these lifestyle factors favor a long life, so diet cannot be solely responsible.

Sample daily menu
(using the more accessible, westernized adaptation)

Breakfast: Hot whole-grain cereal, fruit, jasmine tea

Lunch: Tuna sandwich on whole-grain bread, carrots, apple, jasmine tea

Dinner: Chicken and vegetable kabobs, cooked spinach, fresh fruit with yogurt, jasmine tea

Snack: Fruit and jasmine tea

Okinawan diet: A good choice?

Strength of evidence?	Weak
Direct evidence	There was a large lifestyle study, but diet was only one part of it, and it had no control group.
Indirect evidence	Research supports the benefits of eating vegetables and seafood.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	No

The good: The diet is rich in plant foods that provide fiber and phytochemicals. It has a focus on whole grains and a diversity of calcium-rich foods. There is some evidence to support it. It's adaptable to Western-style foods. All of the recommendations fall within standard evidence-based dietary guidelines.

The bad: Staples of the diet include purple sweet potatoes, which are challenging to find in this country, and natto, a form of fermented soybeans that is unlikely to appeal to American palates. Trying to navigate between truly traditional Okinawan foods and more westernized substitutes may be frustrating. Additionally, people who don't like soy could have trouble getting enough protein, since soy is the primary protein source. Even seafood is consumed far less than in the traditional Japanese diet. Following a calorie-restricted diet requires careful planning, so you don't miss out on a variety of key nutrients.

The mixed bag: This isn't just a diet; it's a lifestyle that includes physical fitness, a strong social support network, spirituality, and a strong connection to nature—all of which are important, yet may be challenging to incorporate into modern American lifestyles. Additionally, although many Western-style unprocessed foods can be substituted for foods traditionally found in Okinawa—which is how the diet is presented in books written for American consumers—it's unclear if this adaptation will alter the diet's potential health benefits.

Diets to fight disease

While many dietary patterns can help reduce the risk of developing chronic diseases such as heart disease, type 2 diabetes, and cancer, some eating patterns make explicit disease prevention claims. In this chapter, we'll discuss some of the emerging diets that make therapeutic claims, along with some of the classic ones that have withstood the test of time.

Anti-inflammatory diet

Inflammation is a big buzzword in health and nutrition—and for good reason, as low-grade, systemic inflammation is an underlying cause of many chronic medical conditions, including heart disease, certain types of cancer, and even Alzheimer's disease. That said, where there's buzz, there's hype, and many "anti-inflammatory" diets touted in books and online are not grounded in science.

One anti-inflammatory diet that does have science to support it comes from Harvard-educated Dr. Andrew Weil, one of the nation's leading practitioners of integrative medicine, who began talking about inflammation long before it became trendy. Beginning in the 1990s, he discussed the importance of an anti-inflammatory diet in such books as *Eating Well for Optimum Health* and *Natural Health, Natural Medicine*. It's essentially a Mediterranean diet—which itself has been shown to help reduce inflammation—with Asian influences.

Dr. Weil's diet is based on whole, unprocessed foods. The foundation of the diet—the foods you eat the most—are vegetables, along with moderate amounts of fruit. You supplement that with whole grains, beans, and modest amounts of pasta (cooked al dente to reduce its impact on blood sugar). Fats should come from healthy plant sources (extra-virgin olive oil, nuts, seeds, avocados), as well as seafood rich in anti-inflammatory omega-3 fatty acids (especially wild-caught salmon, black cod, and sardines). Whole soy foods (edamame, soy nuts, soy milk, tofu, tempeh) provide an additional source of protein. Herbs and spices—many of which contain anti-inflammatory compounds—are used liberally, and tea is the primary beverage. The most unusual element of the diet is cooked Asian mushrooms, which contain a variety of unique healthful compounds, some of them with anti-inflammatory properties.

The diet is not vegetarian—in addition to seafood, it includes lean meat, skinless poultry, eggs (enriched with omega-3s), yogurt, and cheese—but the amounts of these should be limited. Red wine and healthy sweets, such as plain dark chocolate, are also allowed in small amounts. Absent from the diet are highly processed foods, especially fast food and fried foods, which are to be avoided because research suggests they can contribute directly to inflammation.

Sample daily menu

Breakfast: Oatmeal with chopped nuts and fresh berries

Lunch: Tofu and vegetable stir-fry, fresh fruit

Dinner: Poached salmon with quinoa and broccoli

Snack: Hummus with raw vegetables

About 40% to 50% of calories on this diet come from carbohydrates, 30% from fat, and 20% to 30% from protein.

The good: This diet is rich in plant foods and prioritizes the healthiest sources of protein, as well as specific dietary components that have

Anti-inflammatory diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	None
Indirect evidence	Many studies support various components of the diet.
Balanced?	Yes
Affordable?	No
Easy to follow?	No

been shown to help reduce inflammation, including phytochemicals, omega-3 fats, and types of fiber that support health of the good bacteria that colonize your gut, or large intestine. It also strongly minimizes highly processed foods, which can contribute to inflammation.

The bad: This diet can be short on protein for people who don't like seafood and soy but who follow the guidelines to limit meat, poultry, eggs, and dairy.

The mixed bag: Parts of this diet may push the limits of affordability and accessibility—for example, Asian mushrooms and seafood. While saturated fat in excess has been shown to promote inflammation, strictly limiting animal protein to one to two servings per week (from lean meat, skinless poultry, and high-quality eggs and dairy products) may make it challenging for some people to get enough protein. It's important to note that many lifestyle factors can also contribute to inflammation—for example, smoking, stress, and lack of physical activity—so diet is only one tool in the toolbox. While general nutrition research supports the healthfulness of this diet's components, no trials have specifically tested it.

Ornish diet

The Ornish diet-and-lifestyle program was created in the late 1970s by Dr. Dean Ornish at the University of California, San Francisco, and studied in randomized controlled clinical trials, such as the Lifestyle Heart Trial in the 1980s. It was originally intended to treat heart disease—and Medicare has approved the program for coverage in hospital-based cardiac rehabilitation, based on studies showing reversals in atherosclerosis, plus reductions in blood pressure and cholesterol. Today, the Ornish program also promotes itself for the treatment of diabetes and prevention of cancer.

The classic Ornish diet is very low in fat (10% of calories), refined carbohydrates, and animal protein. The primary foods in this plan are whole grains, vegetables, fruit, beans and other pulses, and soy foods. Other than the small amount of naturally occurring fat found in those foods, the only other fat comes from a small amount of nuts and seeds. Egg whites and one cup a day of nonfat milk or yogurt are allowed, but not encouraged. Caffeine and alcohol are limited.

Foods to avoid include meat, poultry, seafood, low- and full-fat dairy, refined carbs (sugar, white flour, white rice), highly processed foods (ice cream, snack foods), and otherwise healthy foods that are too high in fat for this plan, such as avocados and olive oil.

While the classic diet is restrictive and difficult to follow, Dr. Ornish now allows for greater variation. In 2008, he published *The Spectrum,* which ranks foods from the healthiest (Group 1) to the least healthy (Group 5). It gives people the ability to choose how strict they want to be, depending upon their goals. Someone who's trying to reverse heart disease, for example, needs to be much more stringent than someone who is just hoping to lose a few pounds.

Dr. Ornish emphasizes that nutrition is just one aspect of a healthy lifestyle. The complete program—available at a number of Ornish-certified centers across the country—also involves exercising, managing stress, and cultivating relationships. Therefore, it's impossible to know how much of the benefit is directly due to diet.

The good: This is a whole-foods plant-based diet that is very low in saturated fat and refined carbohydrates. The com-

Sample daily menu

Breakfast: Egg white and vegetable frittata, mixed berries, whole-grain bread, nonfat milk

Lunch: Vegetarian chili, corn bread, green salad with homemade nonfat lemon-miso dressing

Dinner: Whole-grain pasta with meatless "meatballs" and tomato-basil sauce, green salad drizzled with balsamic or red wine vinegar

Snack: Carrots with hummus

Ornish diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Multiple randomized controlled trials show health benefits.
Indirect evidence	Research supports the benefits of eating vegetables, fruits, whole grains, and legumes.
Balanced?	No
Affordable?	Yes
Easy to follow?	No

plete Ornish program—including the lifestyle component—is the only program shown to reverse heart disease without drugs or surgery in randomized controlled trials.

The bad: Fish is not allowed on the classic diet, despite being rich in heart-healthy omega-3 fats, and a diet this restrictive and low in fat isn't sustainable—or necessary—for everyone.

The mixed bag: This diet isn't intended to stand alone, but instead is one part of a healthy lifestyle, which, while clearly beneficial, may be hard to implement. The diet recommends getting vitamin B_{12} from supplements, since animal foods—the primary source—are all but eliminated.

DASH diet

The Dietary Approaches to Stop Hypertension (DASH) plan—based on research studies sponsored by the National Heart, Lung, and Blood Institute—was originally developed to lower blood pressure without medication, but is now widely considered to be one of the healthiest eating patterns for overall disease prevention.

Sample daily menu

Breakfast: Oatmeal with chopped apple, whole-wheat toast with jam, low-fat yogurt, orange juice

Lunch: Turkey and low-fat Swiss cheese sandwich with lettuce on whole-wheat bread, minestrone soup, coleslaw

Dinner: Roasted chicken breast, baked potato, broccoli, spinach and tomato salad with vinaigrette, berries with light vanilla frozen yogurt

Snack: Nectarine, handful of almonds

The DASH plan includes lots of vegetables, fruits, and grains, with an emphasis on whole grains. Also permitted are low-fat or nonfat dairy foods, pulses, nuts, seeds, lean meats, poultry, and seafood. Added fats and sweets are allowed in limited amounts. DASH limits sodium to 2,300 mg per day, but notes that greater improvements in blood pressure are seen by limiting sodium to 1,500 mg. (For more information about the diet, go to www.nhlbi.nih.gov/education/dash-eating-plan.)

The original version of the DASH diet, researched in the 1990s, contained more refined grains, less protein, and fewer healthy fats. A decade later, the OmniHeart trial compared the original DASH diet to two later versions that replaced 10% of total daily carbohydrates with either protein or unsaturated fat, and found that both modified versions improved blood pressure and cholesterol levels slightly more than the original.

The good: This diet is rich in fruits and vegetables and contains adequate fiber and protein. The fats included are healthy fats. For individuals with high blood pressure, DASH is well tested in clinical studies. It's also a generally healthy diet even for people who have normal blood pressure.

The bad: Nothing.

The mixed bag: This diet is fairly high in carbohydrates, which may not be right for everyone, even though the emphasis is on healthy, high-fiber carbs.

DASH diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Multiple randomized controlled trials
Indirect evidence	Research supports the benefits of eating vegetables, fruits, and whole grains.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	Yes

MIND diet

Both the Mediterranean-style diet (see page 35) and the DASH diet (at left) have been shown to have benefits for brain health, reducing the risk of cognitive decline from dementia and Alzheimer's disease. The MIND (Mediterranean-DASH Intervention for Neurodegenerative Delay) diet takes the best of both and goes a step further, creating a diet that's tailored to fit the current science on diet and cognitive function. It was developed by Martha Clare Morris, a nutritional epidemiologist at Rush University Medical Center, through a study funded by the National Institute on Aging.

On the MIND diet, there are 10 food groups to include in specific amounts:

- green leafy vegetables: six or more servings per week

- other vegetables: seven or more servings per week
- nuts: five or more servings per week
- berries: two or more servings per week
- beans: four or more meals per week
- whole grains: three or more servings per day
- fish with fins, such as salmon (not fried): one or more meals per week
- poultry (not fried): two or more meals per week
- olive oil: use as primary oil
- wine: one glass per day.

There are also five food groups to limit in the MIND diet:

- red meat: less than four meals per week
- butter and stick margarine: less than one serving per week
- cheese: less than one serving per week
- pastries and sweets: less than five servings per week
- fast food: less than once per week.

Sample daily menu

Breakfast: Greek yogurt with blueberries and sliced almonds

Lunch: Mediterranean green salad with chicken and olive oil vinaigrette, whole-wheat pita

Dinner: Grilled salmon, broccoli, brown rice

Snack: Hummus with raw vegetables

The most significant differences between the MIND diet and its "parent" diets are in the specific recommendations for vegetables, fruit, and fish. As far as fish are concerned, studies show the biggest increase in brain health among people who eat one serving per week compared with those who eat none. This is especially the case among those at high risk for Alzheimer's, which is why the MIND diet sets a lower minimum intake than usual guidelines. The diet also emphasizes green leafy vegetables, because the research showing that eating a lot of vegetables is associated with slower cognitive decline is strongest for green leafy vegetables. When it comes to fruit, researchers saw a difference only with a few servings of berries—in particular, blueberries—each week, so these are emphasized in the MIND diet. Berries differ from other fruits because they are rich in anthocyanins, a type of phytochemical that has beneficial effects on the areas of the brain that affect learning and memory.

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The MIND diet, which aims to reduce the risk of Alzheimer's disease, recommends two servings of berries per week. Blueberries in particular are associated with benefits for the brain.

One observational study found that while the Mediterranean and DASH diets appear to reduce the risk of Alzheimer's disease only if followed strictly, the MIND diet was effective even when it was followed less closely. Another found that adherence to a MIND diet pattern was associated with a slower rate of cognitive decline in stroke survivors. However, 2023 results from a randomized controlled trial of people at risk for Alzheimer's found that cognitive improvements on the MIND diet, while measurable, were similar to those on a standard healthy diet with mild caloric restriction.

The good: Because there's no cure for Alzheimer's disease and current treatments aren't very effective, your best bet may be to try to prevent dementia through diet and lifestyle changes. There are no outlandish foods or overly restrictive rules on the MIND diet. It has the added benefit of being heart-healthy

MIND diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Observational studies suggest that the MIND diet may reduce cognitive decline, but results from a three-year randomized controlled trial failed to show that the MIND diet produced better results than a calorie-restricted diet.
Indirect evidence	General nutrition science confirms healthful effects of this diet's components.
Balanced?	Yes
Affordable?	Moderately
Easy to follow?	Yes

and nutrient-rich. The concepts of the MIND diet can be applied to any global cuisine.

The bad: Nothing.

The mixed bag: The MIND diet is an excellent way to eat for nutrition and health, but more research is needed to confirm whether it can prevent dementia and Alzheimer's. Some aspects of this diet are less affordable (seafood, nuts, and some types of produce), but there's enough flexibility that it can fit with many food budgets.

Portfolio diet

The portfolio diet is a vegan plan that emphasizes a "portfolio" of foods or food components that lower cholesterol. The idea is that when these foods are eaten together as part of a healthy diet, they can help lower LDL ("bad") cholesterol better than any one of the portfolio foods could alone. The diet was developed by Dr. David Jenkins, a professor of medicine and nutritional sciences at the University of Toronto, who also developed the glycemic index.

To get your portfolio of cholesterol-lowering foods, the diet recommends daily consumption of 2 grams of plant sterols (primarily from plant-sterol–enriched margarine), 50 grams of nuts (about a handful), 10 to 25 grams of soluble fiber from a variety of plant foods (vegetables, fruits, whole grains, and pulses), and 50 grams of soy protein—all based on an intake of 2,000 calories per day. Daily physical activity is also recommended. Not allowed are meat, poultry, seafood, dairy, and eggs.

Many aspects of this diet are supported by research and recommendations from organizations like the American Heart Association (AHA). For example, plant sterols lower LDL cholesterol, soluble fiber helps lower total and LDL cholesterol, and nuts are rich in heart-healthy unsaturated fats. However, the verdict on soy is unclear at the moment. In 2000, the AHA began recommending soy protein in the context of a diet low in cholesterol and saturated fat to help lower blood cholesterol levels. But several years later it noted that, according to newer research, soy protein may not lower cholesterol much after all. In 2017, the FDA announced it was considering revoking the allowed health claim that soy protein reduces the risk of heart disease; as of this printing, no final decision had been reached.

The diet as a whole has been tested in a handful of randomized controlled trials, including one looking at people with high cholesterol, and another focusing on patients with type 2 diabetes who had recently had bypass surgery. In both studies, the participants following the portfolio approach had better outcomes than participants who weren't assigned to follow the diet—even though the second trial required less of the cholesterol-fighting components (16 grams of soluble fiber, 34 grams of soy, and 44 grams of almonds for a 2,000-calorie diet, and no sterols). A 2018 review found that combining a portfolio dietary pattern with the National Cholesterol Education Program (NCEP) Step II diet improved cholesterol levels significantly more than the NCEP Step II diet alone.

Sample daily menu

Breakfast: Hot oat-bran cereal with soy beverage, raspberries, and psyllium fiber; oat-bran bread with plant sterol–enriched margarine

Lunch: Black bean soup; sandwich on oat-bran bread with soy deli slices, plant sterol–enriched margarine, lettuce, tomato, and cucumber

Dinner: Tofu baked with onions and sweet peppers, barley, steamed broccoli

Snack: Fresh fruit, almonds, soy beverage with psyllium

The good: This diet is rich in plant foods demonstrated to have benefits for cholesterol reduction, heart health, and general health. Randomized controlled trials have supported the diet's effectiveness.

The bad: Eliminating dairy foods isn't necessary to help reduce cholesterol, since reducing saturated fat is possible through nonfat and

Portfolio diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	A number of relatively short randomized controlled trials demonstrated benefits.
Indirect evidence	Research supports many of the individual components.
Balanced?	No
Affordable?	Yes
Easy to follow?	No

low-fat dairy products. This diet may be overly restrictive, and not sustainable, for many people.

The mixed bag: This diet excludes seafood, and individuals who don't love pulses and soy foods—or who have soy allergies—will find it very challenging to get enough protein.

Alkaline diet

The alkaline diet is based on the notion that the different foods you eat affect the overall pH balance of your body. Proponents claim that consuming "acid-forming" foods can make your pH level too acidic, contributing to cancer and osteoporosis, among other diseases. The cancer claim is based on the idea that tumor cells thrive in an acidic environment, promoting cancer. Similarly, proponents claim that an acidic diet forces the body to pull alkaline minerals from bones, causing osteoporosis. Other supposed harms of an acid-forming diet include arthritis, weight gain, and premature aging.

In fact, your body works hard to regulate and maintain its pH levels within a very narrow range, so it would be nearly impossible for your diet to affect the pH levels in your blood or cells. The foods you eat can only change the pH of your saliva and urine.

While not all lists of acidic and alkaline foods are identical, in general the alkaline diet emphasizes vegetables, fruits, tofu, fermented dairy, and some nuts, seeds, and legumes. Alcohol, caffeinated beverages, eggs, most dairy, meat, poultry, fish and seafood, processed foods, sugar, and grains—including whole grains—are limited or prohibited because they allegedly make the body more acidic. Some fruits and vegetables, such as blueberries, plums, and winter squash, are off limits because they are "too acidic."

The good: The diet encourages many fiber-rich plant foods and limits saturated fat and highly processed foods, which can benefit health. It's environmentally friendly. There are many recipes available online and in books. Many food lists are presented as a continuum, not as strict "eat" and "don't eat" lists.

The bad: It's a fad diet with claims that aren't backed by science. It can be challenging to remember which foods are "acid" and which are "alkaline," especially because there are inconsistencies between various food lists. It's also restrictive, which may make meeting nutritional needs difficult for some people. Some proponents have endorsed treating cancer with an alkaline diet, which would be dangerous.

The mixed bag: The high fiber content can be filling, but hunger may return quickly after a meal. Eating out may be difficult, and you'll be cutting out a lot of foods you may be used to eating. There's no evidence this diet has advantages over simply eating a plant-based diet.

Alkaline diet: A good choice?

Strength of evidence?	Weak
Direct evidence	None
Indirect evidence	Research supports the benefits of plant-based diets.
Balanced?	No
Affordable?	Yes
Easy to follow?	No

Sample daily menu

Breakfast: Berry smoothie

Lunch: White bean and vegetable stew, green salad with olive oil and vinegar, apple

Dinner: Salmon fillet, baked sweet potato, cooked greens

Snack: Handful of macadamia nuts

Gluten-free diet

A gluten-free diet excludes the protein gluten, which is found in the grains wheat, rye, and barley, as well as in many foods and condiments that include these grains. For individuals with celiac disease (an autoimmune condition in which the body's immune system attacks the lining of the intestine after gluten is eaten), a gluten-free diet is essential, even potentially lifesaving. At this time, 100% avoidance of gluten is the only treatment for celiac disease.

A gluten-free diet is also helpful for people with non-celiac gluten/wheat sensitivity, a condition that is not understood as well as celiac disease. Some people with this sensitivity may find it's best to avoid gluten completely, while others may find they only need to

reduce gluten intake enough to prevent symptoms.

However, the idea that everyone should avoid gluten is simply inaccurate. *For people who do not have celiac disease or non-celiac gluten sensitivity, there is no evidence to support a gluten-free diet.* Gluten-free foods do not necessarily make a diet healthier, even if you have ongoing bowel symptoms. And what might appear to be an intolerance of gluten may actually be something else—for example, many people with irritable bowel syndrome have trouble tolerating types of fiber found in wheat, rye, and barley; other individuals may have a food allergy to one of the many other proteins in these grains.

A gluten-free diet allows all foods that don't contain gluten, including fruits, vegetables, gluten-free whole grains, pulses, meat, poultry, fish, eggs, and dairy. Foods not allowed include several grains—wheat (including durum, einkorn, emmer, Kamut, and spelt), rye, barley, triticale (a cross between wheat and rye), and oats (in some cases)—and many processed foods, which may include "hidden" gluten as a thickening or binding agent, flavoring, or coloring.

Sample daily menu

Breakfast: Greek yogurt with berries and walnuts

Lunch: Green salad with salmon and olive oil vinaigrette, apple

Dinner: Roasted chicken with vegetables and quinoa

Snack: Hummus with gluten-free crackers and raw vegetables

Preventing cross-contamination is also important, as there is no known safe intake of gluten for people with celiac disease. At home, this means not sharing cutting boards, toasters, and peanut butter jars with family members who choose to consume gluten-containing foods. In restaurants, this means cultivating trusting relationships with chefs and wait staff if the restaurant is not 100% gluten-free, as few are. People who can't consume gluten need to read ingredient lists every time they purchase a packaged food—even if it's a frequently purchased food, because formulations can change.

The good: When necessary, compliance with a gluten-free diet can resolve symptoms of celiac disease and non-celiac gluten/wheat sensitivity. Many healthy whole or minimally processed foods are naturally gluten-free.

The bad: There's no evidence that avoiding gluten is healthful for people who do *not* have celiac disease or non-celiac gluten/wheat sensitivity. Whether or not you have one of these conditions, avoiding gluten may lower your intake of key nutrients. While refined wheat is enriched to make up for nutrients that are lost during processing, foods made from refined gluten-free grains are not necessarily enriched. Additionally, avoiding gluten-containing whole grains may reduce your fiber intake, unless you take care to introduce other food sources of fiber. It's very challenging to avoid gluten at any restaurant or home that isn't 100% gluten-free, because of the risk of cross-contamination or hidden sources of gluten.

The mixed bag: Gluten-free bread, crackers, and other grain-based products are widely available, but may be more expensive than wheat-based versions, and many use refined grains. To ensure that no gluten is "sneaking in," it's important to work with a registered dietitian who has experience with counseling people on gluten-free diets.

Gluten-free diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Many studies demonstrate that a gluten-free diet is the only effective treatment for celiac disease.
Indirect evidence	Not applicable
Balanced?	Moderately
Affordable?	No
Easy to follow?	No

Low-FODMAP diet

The low-FODMAP diet was developed by researchers at Monash University in Melbourne, Australia, with the aim of limiting foods that cause symptoms of irritable bowel syndrome (IBS). FODMAP stands for "fermentable oligosaccharides, disaccharides, monosaccharides, and polyols." All FODMAPs are types of carbohydrates—some are sugars, others are fibers—that are resistant to digestion in the small intestine; as a result, they are fermented by the bacte-

ria and other microbes in the large intestine. For most people, this is a good thing, because we want to feed our good gut microbes. For other people, particularly those with IBS, consuming foods high in certain FODMAPs causes a number of digestive symptoms, including abdominal pain and bloating, and diarrhea or constipation.

FODMAPs are found in many foods. Oligosaccharides are fibers found in many vegetables and other plant foods. The list of FODMAPs also includes one disaccharide (lactose) and one monosaccharide (fructose). Some polyols occur naturally in foods like cherries, peaches, and mushrooms, while others are in sugar alcohols such as sorbitol, xylitol, and erythritol.

Sample daily menu

Breakfast: Scrambled eggs with baby spinach and cheddar cheese, 1 slice of whole-wheat sourdough toast, medium orange

Lunch: Salad with mixed greens, cucumber, cherry tomatoes, cubed chicken breast, chickpeas, and olive oil vinaigrette

Dinner: Baked tilapia, baked potato (with skin) and lactose-free sour cream, baby spinach salad with red bell pepper and olive oil vinaigrette

Snack: Lactose-free cottage cheese with blueberries

The low-FODMAP diet is based on research demonstrating symptom relief in 68% to 76% of patients with IBS. The standard protocol is to eliminate all foods that are high in FODMAPs for two to three weeks. If you find that symptoms have lessened, the goal is then to pinpoint which of the FODMAPs cause you trouble, and in what amounts. To do this, you reintroduce FODMAPs one at a time for one to two days each, returning to the low-FODMAP diet for three days in between each "challenge." In the end, you might find (for example) that you need to strictly avoid all foods high in polyols and fructose, but can eat foods high in oligosaccharides once a day without problems, and have no symptoms from lactose-rich foods, even if you eat them at every meal.

The good: Many people with IBS find that they can manage their symptoms once they learn which high-FODMAP foods affect them.

The bad: Most foods high in FODMAPs are very nutritious, so people who need to avoid many of these foods run the risk of fiber and nutrient shortfalls. If you do feel better after eliminating high-FODMAP foods for a few weeks, you may be tempted to skip the challenge phase, which would help you determine which FODMAPs are giving you trouble; as a result, you may place unnecessary restrictions on your diet if in fact only a few FODMAPs are causing symptoms. If you "self-diagnose" IBS and delay medical care by trying the low-FODMAP diet on your own, you may delay the correct diagnosis of a more serious gastrointestinal issue, such as celiac disease or inflammatory bowel disease (IBD).

The mixed bag: The low-FODMAP diet is challenging to follow, and it's easy to forget that, say, asparagus is high in oligosaccharides. To get the full benefit of trying the low-FODMAP diet, it's crucial to follow the challenge phase carefully, with the guidance of a knowledgeable registered dietitian to help interpret the results. Avoiding FODMAPs can be more costly if you are relying on special low-FODMAP versions of processed foods.

Low-FODMAP diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Numerous randomized controlled trials demonstrate the diet's effectiveness.
Indirect evidence	Research confirms which types of carbohydrates are fermentable by gut bacteria.
Balanced?	No
Affordable?	Moderately
Easy to follow?	No

Weight-loss diets

Many of the diets that promote general health also end up helping you lose weight. Others specifically target weight loss as their primary outcome. The trouble with many such diets is that they are not balanced—and any health claims they make as secondary goals may be based on the weight loss itself, not on the nutritional quality of the diet (which, in the case of many fad diets, is poor). Most weight-loss diets are not backed by rigorous scientific research and cannot show that individuals who lose weight on the plan are more likely to keep the weight off than they would on a different plan.

In this chapter, we highlight half a dozen weight-loss plans with more balanced approaches. But check out the evaluations of each of these diets, because some are better than others.

Mayo Clinic diet

The Mayo Clinic Diet was created by a team of weight-loss specialists at the Mayo Clinic in Rochester, Minn. While the focus is on weight loss, the diet does emphasize healthy foods and increased physical activity, which have health benefits independent of weight loss.

The diet uses the food pyramid concept to illustrate which foods to favor and which to minimize. At the broad base of the pyramid (foods you should eat the most) are vegetables and fruits, which are allowed in unlimited amounts, since they have high levels of nutrients but low energy density, so you can eat more volume with fewer calories. Moving up the pyramid, you'll find whole grains, then lean protein (pulses, soy foods, lean meat, skinless poultry, fish, nonfat or low-fat dairy, eggs), healthy fats (olive oil, vegetable oil, nuts), and, at the top, sweets. The higher you go on the pyramid, the stricter the limitations on portion size.

The plan has two phases, "Lose it!" and "Live it!" The first phase is very restrictive and focuses on adding or subtracting 15 key habits—including exercising for at least 30 minutes per day, increasing fruit and vegetable intake, switching from refined grains to whole grains, keeping food and activity journals, avoiding eating while watching TV, and eliminating snacks and restaurant meals. It doesn't require calorie counting, but does ban sugar (other than from fruit).

The second phase is more flexible—allowing for "bending the rules" on avoiding sugar, restaurants, and snacks—but it requires calorie counting. The primary claims are that the diet will lead to weight loss and thereby reduce the risk of chronic diseases such as heart disease, diabetes, and cancer.

The good: The plan emphasizes nutrient-rich plant foods and has enough flexibility that it should fit a wide range of food budgets. The book includes guidance for behavior change, which is helpful whether you want to lose weight or simply form better food and exercise habits. No food group is completely off limits.

The bad: Dining out is challenging. The calorie counting and food tracking that are required

Sample daily menu

Breakfast: Small whole-grain bagel with fat-free cream cheese, medium orange, coffee or tea

Lunch: Vegetable soup, green salad with fat-free dressing, nonfat yogurt with berries

Dinner: Skinless chicken breast, red-skinned potatoes, steamed broccoli with margarine

Snack: Small pear

Mayo Clinic diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	None
Indirect evidence	Research supports the benefits of eating more plant foods.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	No

are not sustainable for many people. The plan uses the old "3,500 calories equal 1 pound" rule, which is now known to be inaccurate, since actual weight loss depends on your starting weight and the degree to which your body has adapted to reduced calories by slowing metabolism. Recommended calorie targets may be far too low for some individuals. Recommended snacks are often just fruit or vegetables, which may not be satiating enough without adding some protein. While aspects of the diet are based on nutrition science research, this diet itself has not been studied in randomized controlled trials.

The mixed bag: This diet requires more meal planning, shopping, and cooking than many people might be used to. This diet is intended primarily for weight loss, so for general healthy eating, other eating plans may be more suitable and sustainable. While most Americans don't eat enough fruit, an "eat as much fruit as you want" message may not be appropriate for everyone; even though the sugar in fruit is natural sugar—as opposed to added—some individuals need to limit even natural sugar.

Volumetrics diet

The Volumetrics diet plan—developed by Penn State University nutrition professor Barbara Rolls and explained in various *Volumetrics* books—focuses on foods with low energy (calorie) density and a high water and fiber content, such as fruits and vegetables. The idea is that by emphasizing these low-calorie yet nutritious foods, you can eat as much as you like. Dr. Rolls has done significant research on the role of energy density in eating patterns and found that when you eat meals that are high in volume but low in calories, you tend to eat less but are still satisfied.

The Volumetrics diet divides foods into four different categories:

- Group 1: very low-density (non-starchy fruits and vegetables, broth-based soup, and nonfat milk and yogurt)
- Group 2: low-density (starchy fruits and vegetables, whole grains, breakfast cereal, lean meat, pulses, and low-fat mixed dishes such as bean-based chili)
- Group 3: medium-density (meat, cheese, pizza, French fries, salad dressing, bread, ice cream, and cake)
- Group 4: high-density (chips, crackers, candy, cookies, butter, nuts, and oil).

There's no calorie counting, per se. Instead, you choose most of your foods from Groups 1 and 2, while watching portion sizes of Group 3 foods and minimizing your intake of foods from Group 4.

The good: The diet is well-researched and focuses on nutritious foods, particularly plant foods. No food is fully off limits as long as you stay within the food group guidelines. The focus is on foods that are both low-calorie and nutritious—not low-calorie, low-nutrient "diet foods." The plan has enough flexibility to accommodate a variety of food budgets.

The bad: While eating low-calorie, high-volume foods helps you feel full, that effect may be short-lived unless the meal or snack includes protein. While it's true that nuts are energy-dense and therefore discouraged, they are also healthy and associated with reduced disease risk, unlike other foods in Group 4.

The mixed bag: This plan requires a lot of home cooking, with the necessary planning and shopping, which may be difficult for some. People who aren't fans of vegetables, fruit, or soup would not be able

Sample daily menu

Breakfast: Hard-boiled egg; shredded wheat cereal with strawberries, sliced almonds, and nonfat milk

Lunch: Vegetarian chili, raw vegetables dipped in light Italian dressing, fresh raspberries

Dinner: Butternut squash soup, grilled salmon, small baked potato, steamed vegetables, low-fat yogurt

Snack: Air-popped popcorn and a glass of nonfat milk

Volumetrics diet: A good choice?

Strength of evidence?	Strong
Direct evidence	Randomized controlled trials show that reducing energy density contributes to weight loss.
Indirect evidence	Research supports the benefits of eating more vegetables.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	No

to follow this plan. Dining out is easier on this plan compared with some others. While there are randomized controlled trials demonstrating that a diet that's lower in energy density supports weight loss, there are no similar studies looking at whether reducing energy density directly benefits health.

WW (Weight Watchers) diet

WW—formerly known as Weight Watchers—has changed its core plan many times since its inception in the early 1960s. The current plan, called MyWW, continues to be based on a point system instead of counting calories.

While no foods are off limits, the diet's foundation is its ZeroPoint foods, which can be eaten in unlimited amounts. There are more than 200 of these foods, including vegetables, fruits, skinless chicken and turkey breast, fish and other seafood, tofu, eggs, corn, and pulses. Foods not on this list—which therefore count toward your daily point total—include nuts, avocados, olive oil, olives, and starchy vegetables (potatoes, sweet potatoes, yams, parsnips), all dairy foods except plain nonfat yogurt, and all desserts and snack foods.

Sample daily menu

Breakfast: Whole-grain waffle with ricotta and blueberries

Lunch: Green salad with chicken, walnuts, and grapes

Dinner: Steak with white beans and broccolini

Snack: Spinach dip with pita chips

The good: The program includes guidance on behavior change, which is important whether you want to lose weight or simply improve nutrition and physical activity habits. The focus is on nutritious whole foods.

WW diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	Testimonials from participants, but no trials
Indirect evidence	Research supports the benefit of having support when making behavior changes.
Balanced?	Yes
Affordable?	Moderately
Easy to follow?	Moderately

The bad: While WW gives a nod to health, it is primarily a weight-loss program, and while some people have maintained weight losses on this program, there's no substantial research evidence that people who lose weight on this plan are more likely to keep it off than they are on other plans.

The mixed bag: While it's good that some foods—the ZeroPoint foods—don't need to be weighed, measured, or tracked, the idea that you can eat as much as you want of any food, even nutritious foods, may not promote a balanced mindset, and some point tracking is still necessary. There is also a fee for participating in the program. While some elements of this program are supported by nutrition or psychology research, the current program as a whole has not been studied to assess if it produces lasting results or is superior to other diet plans.

Pritikin diet

The Pritikin diet is a low-fat, high-fiber diet that was originally created in the 1970s by engineer and nutritionist Nathan Pritikin as part of a lifestyle regimen to prevent and treat cardiovascular disease, although it's also strongly promoted for weight loss through its use of low-calorie, nutrient-dense foods. It consists of approximately 75% complex carbohydrates, 10% fat, and 15% lean or plant-based protein. The plan includes daily exercise as well as maintaining a healthy mind-body connection.

The diet is based on low-fat, high-fiber food and limits red meat, alcohol, and processed food. Meals generally start with soup, salad, fresh fruit, or whole grains, because the fiber and water in these foods can help you feel full so you eat less throughout the rest of the meal. Because of the low overall fat allowance, oils, including olive oil, are discouraged in favor of nuts and seeds. Sweeteners, salt, and refined grains are also minimized, and foods high in saturated fat and cholesterol, including processed meat and egg yolks, are allowed no more than once per month.

Daily recommendations are to consume

- at least five servings of vegetables, one cup raw or ½ cup cooked
- four servings of fruit daily

Pritikin diet: A good choice?

Strength of evidence?	Moderate
Direct evidence	A mix of studies with and without control groups have shown heart-health benefits and short-term weight loss.
Indirect evidence	Research supports the benefits of a plant-based diet.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	No

Sample daily menu

Breakfast: Egg white omelet with vegetables, fresh fruit bowl

Lunch: Large mixed vegetable salad with red wine vinegar, whole-wheat pasta with tomato-mushroom sauce, strawberries

Dinner: Lentil soup, chicken breast, sweet potato, pineapple

Snack: Nonfat cottage cheese with fresh fruit

- five servings of complex carbohydrates, which might include whole grains, starchy vegetables, or legumes
- two servings of fat-free dairy or dairy substitutes
- up to two egg whites
- 3.5 to 4 ounces of fish, poultry, or game meat.

The good: The diet is nutritious and balanced enough for all ages, so family members can eat together. It's low in processed foods, which keeps added sugar and sodium low. Between Pritikin books and websites, there are plenty of recipes available. The diet is environmentally friendly and can easily be adapted for a vegan or vegetarian diet.

The bad: There are a lot of rules to remember, and people may find the low fat content unpalatable. For some people, the high-fiber content causes digestive distress.

The mixed bag: Eating out may be difficult. Followers may find themselves doing more food prep than they are used to. While the high water and fiber content is filling, some people may still find themselves frequently hungry.

South Beach diet

The bestselling book *The South Beach Diet* was published more than 20 years ago by cardiologist Arthur Agatston. While considered a weight-loss diet, the plan is touted as a healthy way to eat regardless of whether weight loss is a goal. It is a modified low-carb diet, focusing on eating "good" carbs and avoiding "bad" carbs. It also restricts saturated fat.

Phase 1 of the diet eliminates most carbohydrate-rich foods for two weeks. During this phase, you eat lean protein (seafood, skinless poultry, lean meat, eggs, soy products), non-starchy vegetables, low-fat dairy, and foods high in healthy fats, such as avocados, nuts, and seeds. Pulses are allowed in limited amounts. Phase 2 allows users to gradually add back limited amounts of whole grains, including whole-grain bread and pasta, fruit, and more vegetables. Phase 3, considered the maintenance phase, allows all foods in moderation, but it caps carbs at about 28% of daily calories, or 140 grams for a 2,000-calorie diet. This is at the upper end of what might be considered a low-carb diet. (True low-carb diets range from 20 grams to 150 grams of carbohydrate per day.) On the "avoid" list in all phases are added sugar in all forms, foods made with refined flour, fruit juice, dried fruit, pineapple, watermelon, beets, corn, white potatoes, fatty meats and poultry, whole milk, butter, coconut oil, and most alcohol.

Sample daily menu
(phase 1)

Breakfast: Omelet with spinach and ham

Lunch: Large green salad with chopped vegetables and tuna

Dinner: Grilled chicken breast with roasted vegetables and a side salad

Snack: Cheese stick wrapped in a slice of deli turkey

One small study in 2007 found some improvements in fasting insulin levels and an

South Beach diet: A good choice?

Strength of evidence?	Weak
Direct evidence	One small, low-quality study found a few short-term benefits.
Indirect evidence	Research supports the benefit of low-carb diets for weight loss, at least in the short term.
Balanced?	Yes
Affordable?	Yes
Easy to follow?	No

increase in the "fullness hormone" cholecystokinin, along with moderate weight loss, but there was no control group, and patients weren't followed after the study to see if they maintained these improvements.

The good: This diet focuses on healthy unsaturated fat and minimizes saturated fat, a departure from some lower-carb diets, such as Atkins. You won't have trouble eating enough protein and vegetables on this diet, and there's no shortage of South Beach Diet recipes for all phases.

The bad: This diet isn't based on actual research. The list of prohibited foods, even in the maintenance phase, includes some nutritious foods, such as beets, watermelon, and dried fruits. Cutting out almost all carbs during Phase 1 could cause unpleasant side effects, including fatigue. The diet also makes dubious claims and comparisons—for example, that eating a banana is essentially the same as eating a brownie, or that cutting out sugar while allowing sugar substitutes helps reduce sugar cravings.

The mixed bag: This diet allows healthy carbs, but only after two weeks of avoiding them. It relies on artificial sweeteners more than most diets. Although this diet is fairly balanced after a few weeks of Phase 2, it's very restrictive before that point.

Noom diet

This app-based diet plan says it "combines the power of technology with the empathy of real humans," but it's essentially a straightforward calorie-controlled diet. Users complete a set of questions via the app or website. Based on their responses, users receive a 16-week "personalized plan" that's mostly just a daily calorie goal. Noom also uses interactive features like daily quizzes, chat-based support from fellow users, and check-ins with health coaches to help teach healthy habits and overcome psychological hurdles to losing weight and keeping it off. Users can track food and daily physical activity on the app.

Noom color-codes tracked foods as green, yellow, or red based on calorie density:

- Green includes vegetables, fruits, whole grains, egg whites, tofu, and nonfat dairy.
- Yellow includes lean proteins, legumes, low-fat dairy, avocados, refined grains, whole eggs, and tempeh.
- Red includes nuts, seeds, nut butters, full-fat dairy, orange juice, energy and snack bars, processed meats, fried foods, sweet baked goods, sugar, honey, pizza, hot dogs, and hamburgers.

A 2016 study found that 78% of almost 36,000 participants lost weight while using the app, and 60% kept off the weight for one year, which is too short a follow-up period to assess long-term success. A 2023 study of 840 people who lost weight using Noom found that they regained 35% of the weight, on average, after a year, and 43% after two years.

The good: Convenient, if you like apps. A job listing for entry-level Noom virtual coaches asks for a bachelor's degree in a related field of study, or an associate's degree plus 2,000 hours of related wellness experience. Registered dietitians and nutritionists oversee the food database.

The bad: No high-quality research to support the program. Recommended calorie levels may be too low.

The mixed bag: Some healthy, nutritious foods are labeled yellow or red, as the app's focus is on weight loss rather than nutrition. The necessary tracking can become tedious. You have to pay for the program, with discounts if you sign up for multiple months at a time with automatic payments. At times, you might be chatting with a bot, not a human coach.

Sample daily menu

Breakfast: Overnight oats

Lunch: Chicken, rice, and broccoli bowl

Dinner: Grilled salmon with baked potato and salad

Snack: Hummus and raw vegetables

Noom diet: A good choice?

Strength of evidence?	Weak
Direct evidence	One study showed successful weight loss for up to a year, but there was no control group, and another study showed significant weight regain when people went off the diet.
Indirect evidence	None
Balanced?	Yes
Affordable?	Moderately
Easy to follow?	Moderately

Resources

Organizations

Academy of Nutrition and Dietetics
120 S. Riverside Plaza, Suite 2190
Chicago, IL 60606
800-877-1600 (toll-free)
www.eatright.org

The academy is the largest organization of food and nutrition professionals worldwide, representing registered dietitians, dietetic technicians, and others. Its website provides information on nutrition, food safety, and special diets as well a "Find An Expert" online referral service to locate a dietitian in your area.

American Diabetes Association
2451 Crystal Dr., Suite 900
Alexandria, VA 22202
800-342-2383 (toll-free)
www.diabetes.org

The leading professional organization devoted to the prevention and treatment of diabetes, the association provides information on nutrition and healthy eating for people with diabetes. The website's Diabetes Food Hub includes recipes and a meal planner.

American Heart Association
7272 Greenville Ave.
Dallas, TX 75231
800-242-8721 (toll-free)
www.heart.org

The nation's oldest and largest volunteer organization, AHA is dedicated to fighting heart disease and stroke. The website offers extensive information on heart-healthy eating—including recipes—as well as other aspects of a heart-healthy lifestyle.

American Institute for Cancer Research
1560 Wilson Blvd., Suite 1000
Arlington, VA 22209
800-843-8114 (toll-free)
www.aicr.org

A member of the World Cancer Research Fund, AICR focuses on research and education to help people prevent and survive cancer. The website provides extensive information on cancer-protective diets, including recipes.

Celiac Disease Foundation
5850 Canoga Ave., 4th floor
Woodland Hills, CA 91367
818-716-1513
www.celiac.org

This nonprofit, which supports research, education, and advocacy about celiac disease, offers extensive information about both celiac disease and non-celiac gluten/wheat sensitivity as well as recipes, meal plans, and advice on how to live gluten-free.

Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30329
800-232-4636 (toll-free)
www.cdc.gov

Part of the federal government's Department of Health and Human Services, the CDC serves as the nation's health protection agency. The website provides information on prevention of several chronic diseases with nutrition and lifestyle.

Harvard Nutrition Source
Harvard T.H. Chan School of Public Health
677 Huntington Ave.
Boston, MA 02115
617-495-1000
www.hsph.harvard.edu/nutritionsource

The Department of Nutrition in Harvard T.H. Chan's School of Public Health sponsors this resource for evidence-based guidance on healthy eating and living.

Monash University FODMAP
Victoria 3800
Australia
www.MonashFODMAP.com

Researchers with Monash University who created the low-FODMAP diet developed this website, which provides information on FODMAPs and irritable bowel syndrome.

Office of Disease Prevention and Health Promotion
U.S. Department of Health and Human Services
1101 Wootton Parkway, Suite 420
Rockville, MD 20852
240-453-8280
www.health.gov

This agency produces both the Dietary Guidelines for Americans and the Physical Activity Guidelines for Americans, which are available at the website. Updated every five years, the Dietary Guidelines for Americans make nutrition and dietary recommendations for the general public based on the preponderance of current scientific and medical knowledge.

Produce for Better Health Foundation
5341 Limestone Road
Newark, DE 19711
302-235-2329
www.FruitsAndVeggies.org

This nonprofit organization seeks to promote daily consumption of fruits and vegetables. The website offers expert advice, nutrition information, tips for shopping and storage, healthy menus and recipes, and ways to save money using fruits and veggies.

USDA Center for Nutrition Policy and Promotion
Food & Nutrition Service
1320 Braddock Place
Alexandria, VA 22314
202-720-2791
www.MyPlate.gov

The USDA's MyPlate website offers information and visuals explaining the five food groups, as well as recipes and tip sheets.

Harvard Special Health Reports

The following reports from Harvard Medical School go into greater detail about some of the topics covered in *The Diet Review*. To order, call 877-649-9457 (toll-free) or go to www.health.harvard.edu/reports.

Resources *continued*

A Guide to Healthy Eating
This report explains how to put together a healthy diet, relying on the best sources of carbs, fat, and protein. It includes information on healthy snacking, meal planning, trimming salt, restaurant survival strategies, and discovering sneaky sources of sugar in your diet. A Special Section features 23 healthy recipes.

The Harvard Medical School 6-Week Plan for Healthy Eating
Knowing how you ought to eat and actually doing it are two different things. This Special Health Report from Harvard Medical School walks you through a set of weekly changes that will help you transform breakfast, lunch, dinner, and snacks in healthy ways, one step at a time.

Healthy Eating for Type 2 Diabetes
This report describes a healthy diet for people with diabetes as well as how to work with a dietitian, develop a meal plan, fit physical activity into your schedule, and make wise choices dining out—all while staying on track with your weight-loss plan.

Lose Weight and Keep It Off
This report will help you cut calories in healthful ways. Equally important, it addresses mental and emotional issues like comfort eating and cravings. It gives you strategies for preventing the munchies, making snacks healthier, and adopting lifestyle changes that help shed pounds. It also includes sections on weight-loss programs, medications, and surgery.

Glossary

antioxidants: Substances that may protect cells from damage caused by unstable molecules known as free radicals.

carbohydrates: Compounds (mostly found in plants) built from carbon, hydrogen, and oxygen that combine in various numbers and configurations to form sugars, starches, and celluloses.

dietary cholesterol: The cholesterol in certain foods (such as full-fat dairy, egg yolks, and shellfish). It contributes to your blood cholesterol levels, but most of your body's cholesterol is synthesized in your liver and intestines from saturated fat, sugars, and protein.

fats: Compounds containing fatty acids, which may be monounsaturated, polyunsaturated, saturated, or a combination.

high-density lipoprotein (HDL): "Good" cholesterol. It is made of fat (lipids) and protein that carries cholesterol from the body's tissues to the liver, which then removes it from the body.

insoluble fiber: Dietary fiber that does not absorb water, found in the skins and seeds of fruit as well as in whole grains. It can benefit digestive health, as well as help you feel full.

low-density lipoprotein (LDL): "Bad" cholesterol. It is made of fat (lipids) and protein that carries cholesterol from the liver to body tissues, including the blood vessels, where it can contribute to artery "hardening" and blockages.

monounsaturated fat: A type of healthy fat, found in olive, avocado, canola, and other vegetable oils. These fats are generally liquid at room temperature.

omega-3 fatty acids: Unsaturated fats that are associated with disease prevention. The major types are docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) in fish, and alpha-linolenic acid (ALA) in walnuts, flaxseeds, and some other plant foods.

phytochemicals: Compounds in plants that provide flavor, aroma, and color, and protect the plant from microbes and environmental damage. When consumed by humans, phytochemicals are believed to promote health and prevent disease. Many phytochemicals are antioxidants. Also called phytonutrients.

polyunsaturated fat: A type of healthy fat found in soybean, corn, sunflower, and other vegetable oils. These fats are generally liquid at room temperature.

protein: An essential component of all living cells. Dietary protein supplies the body with essential amino acids needed for formation, growth, and repair of cells and tissues in muscles, bones, blood, and skin, as well as the production of enzymes and hormones.

pulses: The edible seeds of plants in the legume family. They include dry beans and peas, lentils, and chickpeas.

saturated fat: A less healthy type of fat found primarily in animal foods, especially meats and full-fat dairy products, and in a few plant foods, such as coconut, palm, and palm kernel oils. These fats are generally solid at room temperature.

soluble fiber: Dietary fiber that absorbs water and becomes gel-like, found in such foods as oatmeal, beans and other pulses, nuts, and blueberries. Aids heart health and blood sugar management.

triglycerides: Fat molecules found in food, fat tissue, and the bloodstream. Calories you consume that are not used immediately by the body's tissues are converted to triglycerides and transported to fat cells to be stored. Elevated triglycerides in the bloodstream are a risk factor for heart disease.

unsaturated fat: A type of fatty acid that lowers cholesterol levels and reduces the risk for coronary artery disease when it is consumed in place of saturated fat. Monounsaturated and polyunsaturated fats fall into this category.

whole grains: Grains that contain all three of their natural parts—the bran, the germ, and the endosperm. Refined grains mostly contain just the starchy endosperm.

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COPD
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Depression
Diabetes
Diabetes & Diet
Diet Review
Energy/Fatigue
Erectile Dysfunction
Exercise
Exercises for Bone Strength
Eye Diseases
Foot Care
Grief & Loss
Hands
Headaches
Hearing Loss
Heart Disease
Heart Failure
High Blood Pressure
Incontinence
Inflammation
Joint Pain Relief
Knees & Hips
Leg Pain
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Memory
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Neck Pain
Nutrition
Osteoarthritis
Osteoporosis
Pain Relief
Positive Psychology
Prostate Diseases
Rheumatoid Arthritis
Running
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Sexuality
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