

# NIH News in Health

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## Plan Your Plate

### Shifting to a Healthy Eating Style

What's the eating style that's best for health? Is it a Mediterranean eating plan? Vegetarian? Low carb? With all the eating styles out there, it's hard to know which one to follow.

Healthy eating is one of the best ways to prevent or delay health problems. Eating well, along with getting enough physical activity, can help you lower your risk of health problems like heart disease,

diabetes, obesity, and more. To reach your goals, experts advise making small, gradual changes.

"The best diet to follow is one that is science based, that allows you to meet your nutritional requirements, and that you can stick to in the long run," says Dr. Holly Nicastro, an NIH nutrition research expert. "It's not going to do you any good to follow a diet that has you eating things that you don't like."

The main source of science-based nutrition advice is the Dietary Guidelines for Americans. These guidelines describe which nutrients you need and how much. They also point out which ones to limit or avoid.

"Every five years, an expert panel reviews all available scientific evidence regarding nutrition and health and uses that to develop the dietary guidelines," Nicastro explains.

The guidelines are regularly updated, because our scientific understanding of what's healthy is continuously evolving. These changes can be confusing, but the key recommendations have been consistent over time. In general, healthy eating means getting a variety of foods, limiting certain kinds of carbs and fats, watching out for salt, and being aware of your portion sizes.



### Limit Added Sugars

Added sugar is the extra sugar added to foods and drinks during preparation. Corn syrup, high-fructose corn syrup, brown sugar, and honey are examples of sweeteners added to foods and drinks, especially regular sodas.

"The sugars present normally in milk and fruit are not considered added sugar," explains Dr. Kimber Stanhope, a nutrition researcher at the University of California, Davis.

Stanhope's research focuses on the effects of added sugar on the development of disease. Her studies have shown that consuming too much high-fructose corn syrup may increase the risk of weight gain and heart disease.

The Dietary Guidelines for Americans suggest a daily limit on added sugar of no more than 10% of calories. That's about the amount in 16 ounces of regular soda (190 calories). You can find information about added sugars on most Nutrition Facts labels now.



## Special Issue

### Healthy Eating

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“Anybody can improve their diet by substituting fruits and vegetables for sugar as their snacks, as part of their dessert, and as part of their meals,” says Stanhope. “There are no advantages of consuming added sugar.”

**In general, healthy eating means getting a variety of foods, limiting certain kinds of carbs and fats, watching out for salt, and being aware of your portion sizes.**

### Consider Your Fats

Fat is high in calories. Getting too many calories can contribute to obesity, which raises your risk for heart disease and other health problems. But there are different kinds of fats.

Fats that are liquid at room temperature, or oils, are generally healthier than those that are solid. Solid fats are found in high amounts

in beef, chicken, pork, cheese, butter, and whole milk. Solid fats have more saturated fats than liquid oils. Liquid oils—such as canola, corn, olive, or peanut oil—have mostly unsaturated or polyunsaturated fats.

The dietary guidelines encourage consuming liquid oils rather than solid fats. Nicasastro advises that you examine the fat content on the Nutrition Facts label. The label shows how much saturated fat a product contains. Experts suggest that you aim for getting less than 10% of your calories from saturated fats.

“For the average person, that’s going to be less than 20 grams of saturated fat per day,” Nicasastro says.

For example, a small cheeseburger may have 5 grams of saturated fat, a typical cheeseburger may have 13, and a double cheeseburger with bacon may have 24!

### Check Labels for Salt

The Nutrition Facts label also shows salt, or sodium. Experts advise you to limit salt, which tends to be very high in processed foods.

If you eat salty, highly processed food, you can quickly go over the daily limit of one teaspoon of salt (2,300 milligrams, or mg, of sodium). Two hot dogs might have 900 mg of sodium. A can of ravioli might have 1400 mg. Other examples of salty, highly processed foods are bacon, frozen pizzas, and salad dressings.

**“Stuff that comes in a box or a bag that has a whole lot of different ingredients—many of which you can’t read and understand or pronounce—those things are highly processed and generally bad for your health.”**

Along with a lot of added salt, processed foods might have preservatives, sweeteners, and other substances added during preparation.

“Stuff that comes in a box or a bag that has a whole lot of different ingredients—many of which you can’t read and understand or pronounce—those things are highly processed and generally bad for your health,” explains Dr. David C. Goff, Jr., a public health expert at NIH.

### Make a Meal Plan

“Figuring out what to eat is less than half the battle,” Nicasastro says. “Sticking to your plan is a bigger challenge. So that’s why it helps to be really prepared and plan ahead.”

You’re much more likely to stick to your meal plan if you have healthy food that is ready to go. Some people find it helpful to prepare meals for the week in advance so that healthy food is within reach.

The DASH eating plan is a good start. DASH was developed by NIH-supported researchers to help people lower blood pressure without medicine, but it’s for anyone. Studies have shown that it reduces the risk of many diseases.

“The DASH diet is very flexible because you can follow DASH without going to a specialty grocery store. You can follow it with items that are very familiar to most people in this country,” Nicasastro says.

The DASH eating plan is rich in fruits, vegetables, whole grains, beans, seeds, nuts, and fish. Compared to the typical American diet, it’s lower in salt, added sugars, fats, and red meat. It’s also higher in fiber, potassium, magnesium, and calcium than the typical American diet.

“Anybody can follow it, despite specific preferences or culture,” Nicasastro says. It even works for people who are vegetarian or only eat Kosher foods.

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You can use the weekly DASH menus and a form to track your food and physical activity habits at [www.nhlbi.nih.gov/health-topics/dash-eating-plan](http://www.nhlbi.nih.gov/health-topics/dash-eating-plan).

### Get Expert Advice

The Dietary Guidelines for Americans are designed to help people avoid developing obesity, diabetes, and heart disease. But everyone is different. You may have needs and risks that aren't like the average American. Talk to your health care provider about your unique nutritional needs.

"A great resource for someone to help you with your diet is a registered dietitian nutritionist, or DN," Nicaastro says.

You can find this type of expert in your area by visiting the Academy of Nutrition and Dietetics at [www.eatright.org/find-an-expert](http://www.eatright.org/find-an-expert). ■



### Wise Choices

#### Make Healthy Diet Choices

- Eat a variety of foods—vegetables, fruits, whole grains, beans, nuts, seeds, lean meat, seafood, eggs, milk, yogurt, and cheese.
- Limit foods that are low in vitamins and minerals.
- Avoid foods with added sugar.
- Replace foods containing saturated fats (like butter or lard) with healthier unsaturated fat options.
- Watch out for foods high in salt.



### Web Links

For more about healthy eating, go to: [newsinhealth.nih.gov/special-issues/eating/plan-your-plate](http://newsinhealth.nih.gov/special-issues/eating/plan-your-plate)

## Sweet Stuff

### How Sugars and Sweeteners Affect Your Health

Most of us love sweet foods and drinks. But after that short burst of sweetness, you may worry about how sweets affect your waistline and your overall health. Is sugar truly bad for us? How about artificial or low-calorie sweeteners? What have scientists learned about the sweet things that most of us eat and drink every day?

Our bodies need one type of sugar, called **glucose**, to survive. "Glucose is the number one food for the brain, and it's an extremely important source of fuel throughout the body," says Dr. Kristina Rother, an NIH pediatrician and expert on sweeteners.

**"Sugar has a bad reputation that's mostly deserved, because we consume too much of it. It's now in just about every food we eat."**

But there's no need to add extra glucose to your diet. Your body can extract glucose from the sugars and other **carbohydrates** in your food. It can also produce new glucose, mostly in the liver. That's why you can survive for a long time without eating.

Some sugars are found naturally in foods, such as fruits, vegetables, and milk. "These non-processed natural foods are healthful additions to your diet," says Dr. Andrew Bremer, a pediatrician and NIH expert on sweeteners. "When you eat an orange, for instance, you're getting a lot of nutrients and dietary fiber along with the natural sugars."



Although sugar itself isn't bad, Rother says, "sugar has a bad reputation that's mostly deserved, because we consume too much of it. It's now in just about every food we eat."

### Added Sugars

Experts agree that Americans eat and drink way too much sugar, and it's contributing to the obesity epidemic. Much of the sugar we eat isn't found naturally in food but is added during processing or preparation.

Sugars are usually added to make foods and drinks taste better. But such products can be high in calories and lack the healthful



### Definitions

#### Glucose

A type of sugar used by the body for energy. When blood glucose levels get too high, it can damage tissues and organs over time.

#### Carbohydrates

A class of food molecule that includes sugars, starches, and fibers.

benefits of fruits and other naturally sweet foods.

Sugar-sweetened beverages like soda, energy drinks, and sports drinks are the leading source of added sugars in the American diet. Juices naturally contain a lot of sugar. But sometimes, even more is added to make them taste sweeter.

“Juices offer some vitamins and other nutrients, but in general, I think those benefits are greatly offset by the harmful effects of too much sugar,” Bremer says.

Over time, excess sweeteners can take a toll on your health. “Several studies have found a direct link between excess sugar consumption and obesity and cardiovascular problems worldwide,” Bremer explains.

## Cutting Back

Because of these harmful effects, many health organizations recommend that Americans cut



### Wise Choices Cut Added Sugars

- Choose water, milk, or unsweetened tea or coffee instead of sodas, sports drinks, energy drinks, and fruit drinks.
- Reduce sugar in recipes. If a recipe says 1 cup, use 2/3 cup.
- To enhance flavor, add vanilla, cinnamon, or nutmeg.
- Eat fresh, canned, frozen, and dried fruits without added sugar. Choose fruits canned in their own juice or water rather than syrup.
- Use fruits to top foods like cereal and pancakes rather than sugars, syrups, or other sweet toppings.
- Read the ingredients list to pick food with little or no added sugar.
- Use the Nutrition Facts label to choose packaged foods with less sugars.

back on added sugars. About 15% of the calories in the American adult diet now come from added sugars. Experts recommend a daily limit on added sugar of no more than 10% of calories.

But added sugars can be hard to identify. On a list of ingredients, they may be listed as sucrose (table sugar), corn sweetener, high-fructose corn syrup, fruit-juice concentrates, nectars, raw sugar, malt syrup, maple syrup, fructose sweeteners, liquid fructose, honey, molasses, or anhydrous dextrose. Added sugar can also be listed with any word ending in “-ose,” the chemical suffix for sugars. If any of these words are among the first few ingredients on a food label, the food is likely high in sugar. To find the total amount of sugar in a food, look for “Sugars” on the Nutrition Facts label under the category “Total Carbohydrate.”

### To find the total amount of sugar in a food, look for “Sugars” on the Nutrition Facts label under the category “Total Carbohydrate.”

Many people try cutting back on calories by switching from sugar-sweetened to diet foods and drinks that contain low- or no-calorie sweeteners. These artificial sweeteners—also known as sugar substitutes—are many times sweeter than table sugar, so smaller amounts can create the same level of sweetness.

People have debated the safety of artificial sweeteners for decades. To date, researchers have found no clear evidence that any artificial sweeteners approved for use in the U.S. cause cancer or other serious health problems like birth defects in humans.

But can they help with weight loss? The scientific evidence is

mixed. Some studies suggest that diet drinks can help you drop pounds in the short term. But their long-term effects on weight—and other health aspects—are unclear. Rother and other NIH-funded researchers are now working to better understand the complex effects that artificial sweeteners may have on the human body.

Studies of rodents and small numbers of people suggest that artificial sweeteners can affect the gut microbes that help us digest food. This in turn can alter the body’s ability to use glucose, which might then lead to weight gain. But until further studies are done in people, the long-term impact of these sweeteners on gut microbes and weight remains uncertain.

## Beyond the Gut

“There’s much controversy about the health effects of artificial sweeteners and the differences between sugars and sweeteners,” says Dr. Ivan de Araujo at the Mount Sinai Icahn School of Medicine. “Some animal studies indicate that sweeteners can produce physiological effects. But depending on what kind of measurement is taken, including in humans, the outcomes may be conflicting.”

### The key to good health is eating a well-balanced diet with a variety of foods and getting plenty of physical activity.

De Araujo and others have been studying the effects that sugars and low-calorie sweeteners might have on the brain. They are finding that sugar and sweeteners tap differently into the brain’s reward circuitry, with sugars having a more powerful and pleasurable effect.

“The part of the brain that mediates the ‘I can’t stop’ kinds of

behaviors seems to be especially sensitive to sugars and largely insensitive to artificial sweeteners,” de Araujo says. “Our long-term goal is really to understand if sugars or caloric sweeteners drive persistent intake of food. If exposed to too much sugar, does the brain eventually change in ways that lead to excess consumption? That’s what we’d like to know.”

Some research suggests that the intensely sweet taste of artificial, low-calorie sweeteners can lead to a “sweet tooth,” or a preference for sweet things. This in turn might lead to overeating. But more studies are needed to confirm the relative effects of caloric versus non-caloric sweeteners.

### Don’t Sugarcoat It

“In the long run, if you want to lose weight, you need to establish a healthy lifestyle that contains unprocessed foods, moderate calories, and more exercise,” Rother says.

When kids grow up eating a lot of sweet foods, they tend to develop a preference for sweets. But if you give them a variety of healthy foods like fruits and vegetables early in life, they’ll develop a liking for them, too.

“It’s important for parents to expose children to a variety of tastes early on but realize that it often takes several attempts to get a child to eat such foods,” Bremer says. “Don’t give up too soon.”

The key to good health is eating a well-balanced diet with a variety of foods and getting plenty of physical activity. Focus on nutrition-rich whole foods without added sugars. Get tips on healthy eating and weight control at [go.usa.gov/xEjmc](http://go.usa.gov/xEjmc). ■



### Web Links

For more about sugar and sweeteners, go to: [newsinhealth.nih.gov/special-issues/eating/sweet-stuff](http://newsinhealth.nih.gov/special-issues/eating/sweet-stuff)

## The Skinny on Fat

### The Good, the Bad, and the Unknown

Fat is an essential nutrient for our bodies. It provides energy. It helps our guts absorb certain vitamins from foods. But what types of fat should you be eating? Are there any you should avoid?

Recommendations about dietary fat have shifted over the last two decades. From the 1970s through the 1990s, nutrition researchers emphasized eating a low-fat diet.

This was largely because of concerns about **saturated fats**, explains Dr. Alice H. Lichtenstein, who studies diet and heart health at Tufts University. Saturated fat that’s in the bloodstream raises the levels of LDL cholesterol—the “bad” cholesterol. This in turn raises the risk of heart disease.

But when people started following low-fat diets, they didn’t only cut saturated fats. In many cases, they replaced healthy **unsaturated fats** with processed carbohydrates, explains Lichtenstein.

“Initially, when we recommended cutting total fat, we did not anticipate people would replace it with fat-free foods, like cookies, crackers, and ice cream, made with refined grains and sugar,” says Lichtenstein. “It is what we refer to as an unanticipated consequence.”

As scientists have learned, those replacement calories matter. Studies have shown that replacing saturated fat with unsaturated fat reduces the risk of heart disease. However, replacing saturated fat with simple carbohydrates, such as added sugar and white bread, does not.

“There’s still this misconception that eating fat—any kind of fat—is bad, that it will lead to heart attacks or weight gain. That’s not true. People really should be encouraged to eat healthy fats,” says Dr.



Frank Sacks, a nutrition expert at Harvard University.

### Healthy Fats

Research has shown that unsaturated fats are good for you. These fats come mostly from plant sources. Cooking oils that are liquid at room temperature, such as canola, peanut, safflower, soybean, and olive oil, contain mostly unsaturated fat. Nuts, seeds, and avocados are also good sources. Fatty fish—such as salmon, sardines, and herring—are rich in unsaturated fats, too.

Large studies have found that replacing saturated fats in your diet with unsaturated fats can reduce your risk of heart disease by about the same amount as cholesterol-lowering drugs.



### Definitions

#### Saturated Fats

Fats that are solid at room temperature; found in butter, lard, full-fat milk and yogurt, full-fat cheese, and high-fat meat.

#### Unsaturated Fats

Fats that tend to be liquid at room temperature; found in vegetable oils, seafood, and nuts.

People should actively make unsaturated fats a part of their diet, Sacks says. You don't need to avoid healthy fats to lose weight, he adds.

In an NIH-funded study Sacks led, called the POUNDS LOST trial, people who ate higher-fat or lower-fat diets had similar rates of weight loss. They were also both successful at keeping the weight off.

“Low-fat diets have the same effect on body weight gain or weight loss as higher-fat diets or higher-protein diets,” he explains. “For weight loss, it's about getting a handle on whatever foods in your diet are giving you excess calories.”

## Replacing “Bad” Fats

So are there fats you should avoid? Only a few years ago, doctors still had to advise people to avoid so-called trans fats in their diets. These largely manufactured fats could be found in things like margarine and many processed

foods. They have been shown to raise the risk of heart disease.

Since 2015, the U.S. Food and Drug Administration has taken steps to remove artificial trans fats from the food supply. Most trans fats now in food come from the small amounts found naturally in animal products, like meat and butter.

Experts already recommend that people limit their intake of animal fats. “So that takes care of those trans fats as well,” Lichtenstein says.

As for saturated fat, it's complicated. Not all of the saturated fat in the bloodstream comes from the saturated fat that we eat, explains Dr. Ronald Krauss, who studies cholesterol at the UCSF Benioff Children's Hospital Oakland. Instead, it's produced when the body breaks down simple carbohydrates and sugars. That's one reason why replacing saturated fat in the diet with simple carbohydrates doesn't reduce the risk of heart disease.

Nutrition experts still recommend that people minimize the amount of saturated fat in the diet. But researchers are now looking at whether the type of food that saturated fat is found in matters. For example, the influence of plant-based saturated fats, such as those in coconut and palm oil, is still unclear and being researched further.

Recent studies suggest that some full-fat dairy products, such as yogurt, may actually have benefits for the heart, Krauss says.

Krauss and his colleagues recently ran a small study looking at the effects of replacing some of the sugar allowed in the DASH diet with saturated dairy fats. The DASH diet was developed by NIH to help lower blood pressure.

Participants who ate saturated dairy fat instead of sugar had less of a fat called triglycerides in their bloodstream. The higher-fat diet was also as effective at lowering blood pressure as the standard DASH diet.

More research is needed to understand which foods that contain saturated fats may influence the body in a good way.

## Individual Needs

Researchers know that there are big differences in how people's bodies react to different types and amounts of fat. But they still don't know why. Studies have found that genes aren't likely responsible, Sacks explains.

Lichtenstein and Krauss are both studying how the microbes that live in the gut interact with dietary fats. The makeup of the microbiome—all the microorganisms that normally live in the body, mainly in the gut—can differ widely between people.

It may turn out that different types of gut bacteria produce different compounds from fats. These compounds could then affect the body in different ways, Lichtenstein explains. Or different types of fats could promote the growth of different bacteria in the gut, which may then have varying effects on health.

“We just don't know yet, but there is tremendous interest in trying to understand the role of the gut microbiome in human health,” she says.

If there's one thing that the research has shown, it's that the science of diets is very complex. Experts have moved away from focusing on single nutrients—such as fat—by themselves. Instead, Sacks says, researchers now talk about healthy dietary patterns: ways of eating that take all aspects of the diet into account. Learn more about healthy dietary patterns at [health.gov/dietaryguidelines](http://health.gov/dietaryguidelines). ■



## Wise Choices Choosing Fats

- **Eat plant-based foods.** Plants can contain healthy fats, as well as important vitamins and minerals.
- **Include plant oils in your diet.** Healthy choices include canola, peanut, olive, safflower, soybean, sunflower, corn, and nut oils.
- **Replace foods containing saturated fats** (like butter or lard) with healthier unsaturated fat options.
- **Limit fatty red meat.** Instead, eat more fish, poultry, or lean meats.
- **Reduce sugars and replace processed grains,** such as white bread and white rice, with whole grains and brown rice. The body can use simple carbohydrates to make saturated fats.



## Web Links

For more about dietary fat, go to: [newsinhealth.nih.gov/special-issues/eating/skinny-fat](http://newsinhealth.nih.gov/special-issues/eating/skinny-fat)

# The Salty Stuff

## Salt, Blood Pressure, and Your Health

Salt is essential to our body's fluids. That's likely why we evolved to enjoy its taste. On the other hand, anyone who's gotten a mouth full of seawater knows that too much salt tastes terrible. Maybe your body's trying to tell you something. It turns out that too much salt can lead to a host of health problems.

Dietary salt, or table salt, is made from two chemical elements: sodium and chloride. That's why its chemical name is sodium chloride. It's the sodium part that's been tied to health problems. But since most of the sodium we ingest is from salt, it's difficult to separate the effects of salt and sodium in many studies.

### Health Effects

"The best-known effect of sodium on health is the relationship between sodium and blood pressure," explains Dr. Holly Nicastro, an NIH nutrition research expert. Dozens of studies, in both animals and people, have linked a higher salt intake with higher blood pressure. Reducing salt intake, on the other hand, lowers blood pressure.

Blood pressure is the force of blood pushing against the walls of **arteries** as the heart pumps out blood. When this pressure rises—a condition called high blood pressure, or hypertension—it can damage the body in many ways over time. High blood pressure has been linked to heart disease, **stroke**, kidney failure, and other health problems.

There are two blood pressure numbers, and they're usually written with one above or before the other. Systolic, the first, is the pressure when the heart beats, pumping blood through the arteries. Diastolic is the pressure when the heart is at rest between beats. The numbers 120/80 mmHg are the ones you should aim to keep your blood



pressure below.

Some research also suggests that excessive sodium intake increases the risk of stomach cancer. Scientists continue to investigate this possible connection.

Researchers do know that not everyone is equally sensitive to salt. "From our experiments, we know there's lots of variation in the blood pressure response to sodium intake," Nicastro says. Certain groups of people see greater reductions in blood pressure when they lower their salt intake: African-Americans, older adults, and people with blood pressure above normal.

"Within those groups, there's a lot of variation between people," Nicastro says. But about 1 in 3 adults nationwide has high blood pressure right now. Another third have elevated blood pressure, meaning their numbers are high enough to put them at risk to develop high

blood pressure. In light of this, she says, "It's really important for the majority of U.S. adults to reduce their blood pressure."

### How Much Salt?

Experts recommend that adults take in less than 2,300 milligrams (mg) of sodium a day—that's what's in about 6 grams of salt, or about a teaspoon. People with high blood pressure



### Definitions

#### Arteries

The vessels that carry blood from your heart throughout your body.

#### Stroke

When normal blood flow to the brain is stopped, usually by ruptured or blocked blood vessels.

should shoot for 1,500 mg. But right now, American adults eat an average of about 3,600 mg of sodium per day.

Dr. Kirsten Bibbins-Domingo at the University of California, San Francisco, led an NIH-funded study that used computer modeling to explore the effects of a modest reduction in salt intake in the United States. The researchers found that reducing salt intake by 3 grams per day (1,200 mg of sodium) could cut the number of new cases of heart disease each year by as many as 120,000, stroke by 66,000, and heart attack by nearly 100,000. It could also prevent up to 92,000 deaths each year.

All segments of the population would benefit, with African-Americans having the greatest improvements overall. Women would particularly benefit from reductions in stroke, older adults

from a decline in heart disease, and younger adults from fewer deaths.

## Reducing Salt

Some countries have tried to lower salt intake using various strategies, such as working with industry to reduce the salt content in processed foods, requiring labels on ready-to-eat foods, and educating the public. The UK achieved a 15% reduction in salt consumption between 2003 and 2011. During this time, deaths from stroke fell by 42% and from heart disease by 40%.

But wouldn't we miss the taste? "Several studies have shown that as you gradually reduce sodium intake, you lessen your desire for salty food," Nicastro says. And surveys of people across the UK found that most people didn't notice any difference in the taste of their food.

"A very modest decrease in the amount of salt, hardly detectable in the taste of food, can have dramatic health benefits for the U.S.," Bibbins-Domingo stresses.

The salt we add to our food actually accounts for about 10% of our salt consumption. Most of the salt we eat comes in processed foods from stores, restaurants, and dining halls. You may already know that fast food, cold cuts, and canned foods tend to have a lot of salt.

"Many people don't realize that a lot of our salt is from breads and cereals," Bibbins-Domingo says. Studies have found that about 15 to 20% of the sodium in the average American's diet comes from grain products, such as breads, cereals, crackers, and chips.

"In terms of advice, I think the best guidance we have is for people to pay attention to nutrition facts on the labels," Nicastro says. "The percent daily value is a better guide than the language that's used on food labels like 'low-salt.' These labels can be confusing, because they have very defined technical meanings."

Try to select foods, she advises, with less than 5% of the daily value of salt per serving.

**"In terms of advice, I think the best guidance we have is for people to pay attention to nutrition facts on the labels."**

## Making Changes

Even small salt reductions can affect your blood pressure. If you can't find a low-salt alternative to a particular food, it still helps to pick something that's lower than what you're already consuming.

"You can find remarkable variation in the amount of salt across major brands of food," Bibbins-Domingo says. "Even without choosing something labeled 'low sodium,' you can often find a lower-sodium alternative."

Beyond salt, a healthy eating plan can help keep your blood pressure under control. Check out NIH's Dietary Approaches to Stop Hypertension (DASH) eating plan at [go.usa.gov/xEjmy](http://go.usa.gov/xEjmy). Other lifestyle measures can help you keep your blood pressure down, too. Lose weight if you're overweight or obese. Get regular physical activity. Quit smoking. Manage your stress. The more of these steps you take, the more likely you'll be to avoid related health problems.

Why not start now? Make small changes at first, and then keep working to gradually lower your family's salt intake. ■



## Wise Choices Cut Back on Sodium

- Look at Nutrition Facts labels and try to choose prepared foods that have less than 5% of the Daily Value of sodium per serving.
- Use fresh poultry, fish, and lean meat, rather than canned, smoked, or processed.
- Choose fresh or frozen vegetables that have no added salt.
- Rinse canned foods to remove some of the sodium.
- Add less salt—or none—when cooking.
- Use reduced-sodium bouillon, dressings, and sauces like soy sauce.
- Use fresh herbs and buy spices and blends without added salt.
- Cook at home instead of eating out, when possible. But when eating out, ask that no extra salt be added to your food.



## Web Links

For more about salt, go to: [newsinhealth.nih.gov/special-issues/eating/salty-stuff](http://newsinhealth.nih.gov/special-issues/eating/salty-stuff)

# Rough Up Your Diet

## Fit More Fiber Into Your Day

Fiber—you know it's good for you. But if you're like many Americans, you don't get enough. In fact, most of us get about half the recommended amount of fiber each day.

Dietary fiber is found in the plants you eat, including fruits, vegetables, and whole grains. It's sometimes called bulk or roughage. You've probably heard that it can help with digestion. So it may seem odd that fiber is a substance that your body can't digest. Much of it passes through your digestive system practically unchanged.

"You might think that if it's not digestible, then it's of no value. But there's no question that higher intake of fiber from all food sources is beneficial," says Dr. Joanne Slavin, a nutrition scientist at the University of Minnesota.

### Types of Fiber

Different types of fiber can affect your health in different ways. That's why the Nutrition Facts labels on some foods may list two categories of fiber: soluble and insoluble. Soluble fiber is found in oats, beans, peas, and most fruits. Insoluble fiber is found in wheat bran and some vegetables.

Some soluble fiber is broken down by the complex community of bacteria and other microbes that live in the human gut. These microbes, called gut flora or microbiota, help with our digestion. Emerging research shows they can affect our health in various ways. Studies suggest that they may play a role in obesity, type 2 diabetes, colon cancer, and other conditions. Researchers are now looking at how different types of dietary fibers affect the gut microbiota—and how that, in turn, affects our health.

But soluble and insoluble fiber aren't always listed separated on

labels. Many foods contain both. And both types have health benefits. Experts suggest that men aim for about 38 grams of fiber a day, and women about 25 grams. Unfortunately, in the United States, we take in an average of only 16 grams of fiber each day.

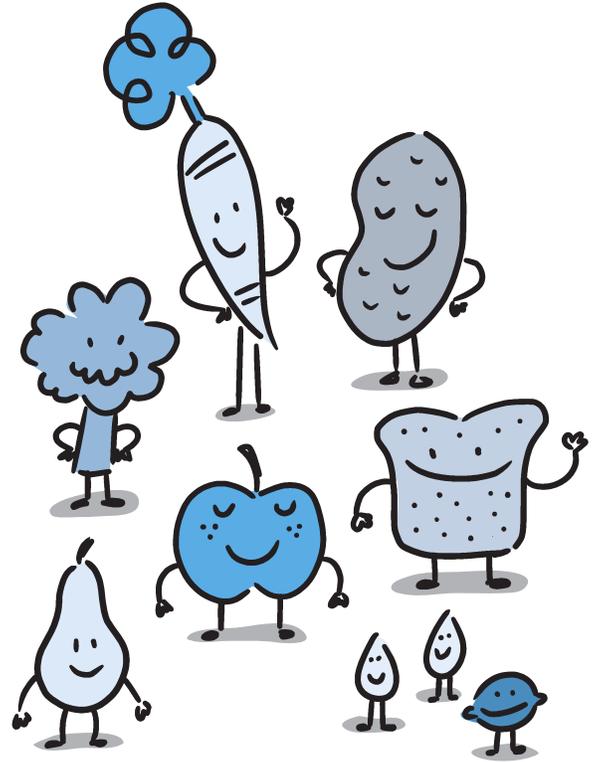
### Health Benefits

Some of fiber's greatest benefits are related to **cardiovascular** health. Several large studies have found that people who eat the most fiber had a lower risk for heart disease.

**"You might think that if it's not digestible then it's of no value. But there's no question that higher intake of fiber from all food sources is beneficial."**

High fiber intake—particularly soluble fiber—seems to protect against several heart-related problems. "There is evidence that high dietary fiber consumption lowers 'bad' **cholesterol** concentrations in the blood and reduces the risk for developing heart disease, stroke, and high blood pressure," says Dr. Somdat Mahabir, a nutrition and disease expert with NIH's National Cancer Institute.

Fiber can help relieve constipation and normalize your bowel movements. Insoluble fiber is often used to treat or prevent constipation and diverticular disease, which



affects the large intestine, or colon.

Fiber may also play a role in reducing the risk for **type 2 diabetes**, the most common form of diabetes. Fiber in the intestines can slow the absorption of sugar, which helps prevent blood sugar from spiking. "With diabetes, it's good to keep glucose levels from peaking too much," explains Dr. Gertraud

## Definitions

### Cardiovascular

The system of heart and vessels that circulates blood through the body.

### Cholesterol

A waxy, fat-like substance that your body needs to function. However, a high level in the blood is a major risk factor for heart disease.

### Type 2 Diabetes

A disease in which blood levels of glucose—a type of sugar—are too high.

Maskarinec of the University of Hawaii.

In an NIH-funded study, Maskarinec and her colleagues followed more than 75,000 adults for 14 years. Consistent with other large studies, their research found that diabetes risk was significantly reduced in people who had the highest fiber intake.

“We found that it’s mostly the fiber from grains that protects against diabetes,” Maskarinec says. However, she notes that while high fiber intake may offer some protection, the best way to reduce your risk of diabetes is to exercise



## Wise Choices

### Tips to Get More Fiber in Your Diet

- **Bulk up your breakfast.** Choose a high-fiber cereal (5 or more grams per serving) or make a bowl of oatmeal and top it with nuts and fruit.
- **Switch to whole grains.** Look for bread that lists whole-grain flour as the first ingredient. Experiment with barley; wild or brown rice; quinoa; whole wheat pasta; and bulgur.
- **Add a non-starchy vegetable.** Keep a bag of frozen mixed vegetables, spinach, or broccoli florets for a quick addition to any pasta sauce or rice dish. Start dinners with a tossed salad.
- **Don’t forget legumes.** Try peas, different kinds of beans (pinto, kidney, lima, navy, and garbanzo), and lentils.
- **Snack on fruit, nuts, and seeds.** Grab a piece of fruit such as an apple, pear, or banana. Keep some almonds, sunflower seeds, and pistachios handy. Low-fat popcorn or sliced vegetables and hummus also make a great snack.

and keep your weight in check.

Your weight is another area where fiber might help. High-fiber foods generally make you feel fuller for longer. Fiber adds bulk but few calories. “In studies where people are put on different types of diets, those on the high-fiber diets typically eat about 10% fewer calories,” Slavin says. Other large studies have found that people with high fiber intake tend to weigh less—although that may be because their diets are healthier.

Scientists have also looked into links between fiber and different types of cancer, with mixed results. For example, there is evidence that a high intake of dietary fiber may reduce the risk for colon cancer and colon polyps.

### A Fiber-Rich Diet

Experts say that the type of fiber you eat is less important than making sure you get enough overall. “In general, people should not be too concerned by the specific type of fiber,” Mahabir says. “The focus should be more on eating diets that are rich in whole grains, legumes, beans, vegetables, fruits, nuts, and seeds to get the daily fiber requirement.”

Whole grains, fruits, and vegetables are also packed with vitamins and other nutrients, so experts recommend that you get most of your fiber from these natural sources. “Unfortunately, a lot of people tend to pick low-fiber foods. They go for white bread or white rice. Most of the processed foods—foods that are really convenient—tend to be low in fiber,” says Slavin.

For people who have trouble getting enough fiber from natural sources, store shelves are filled with packaged foods that tout added fiber. These fiber-fortified products include yogurts, ice cream, cereals, snack bars, and juices. They

generally contain isolated soluble fibers, such as inulin, polydextrose, or maltodextrin. These isolated fibers are included in the product label’s list of ingredients.

However, the health benefits of isolated fibers are unclear. Research suggests they may not have the same effects as the intact fibers found in whole foods. For instance, there’s little evidence that isolated fibers help lower blood cholesterol. They’ve also shown inconsistent effects on the regularity of bowel movements. On the plus side, some studies suggest they might boost the growth of good bacteria in the gut.

**“The focus should be more on eating diets that are rich in whole grains, legumes, beans, vegetables, fruits, nuts, and seeds to get the daily fiber requirement.”**

The bottom line is that most of us need to fit more fiber into our day, no matter what the source. “It would be great if people would choose more foods that are naturally high in fiber,” Slavin says.

Increase your fiber intake gradually, so your body can get used to it. Adding fiber slowly helps you avoid gas, bloating, and cramps. Eat a variety of fruits, vegetables, whole grains, and nuts to add a mix of different fibers and a wide range of nutrients to your diet. A fiber-rich diet can help your health in many ways. ■



### Web Links

For more about fiber and health, go to: [newsinhealth.nih.gov/special-issues/eating/rough-up-your-diet](https://newsinhealth.nih.gov/special-issues/eating/rough-up-your-diet)

# Better Nutrition Every Day

## How to Choose Healthier Foods and Drinks

We make countless decisions every day, both big and small. When it comes to deciding what to eat and feed our families, it can be a lot easier than you might think to make smart, healthy choices. It takes just a little planning.

The foods and drinks we put into our bodies are our fuel. They provide us with energy and nutrients—like vitamins, minerals, and proteins—that our bodies need to function and thrive. Research shows that healthy food and drink choices are especially important for children’s growing bodies and minds. Healthy choices have both immediate and long-lasting benefits for you and your family.

“My best advice is for parents to be good role models by eating healthy and being physically active with their children,” says Dr. Holly Nicastro, a nutritionist at NIH. “Keep healthy foods around the house for meals and snacks. Involve children in the meal planning and cooking, and they will be more likely to eat the meals.”

“Parents can begin teaching their children about healthy eating from the day they are born,” says Dr. Donna Spruijt–Metz, whose research at the University of Southern California focuses on preventing and treating obesity in minority youth. “Setting a good example is very important.”

### Healthier Choices

All foods and drinks can fit into a healthy diet. But when making choices for you or your family, try to choose ones that have lots of nutrients and aren’t too high in sugar, fats, and calories. These include fruits; vegetables; whole-grain cereals, breads, and pastas; milk, yogurt, and other dairy products; fat-trimmed and lean meats; fish; beans;

and water.

Some foods and drinks should be consumed less often. These include white bread, rice, and pasta; granola; pretzels; and fruit juices. Others are best to have only once in a while—like french fries, doughnuts and other sweet baked goods, hot dogs, fried fish and chicken, candy, and soda.

“Healthier diets don’t have to cost more, provided that you have the right attitude, make the right food choices, and try to cook at home,” says Dr. Adam Drewnowski, a nutrition expert at the University of Washington in Seattle. With some planning, he says, you can prepare meals that are tasty, affordable, and nutrient rich.

Get the whole family to help slice, dice, and chop. NIH has developed several resources to help you learn how to improve your eating habits (see the Links box in the online version of this story). You might be surprised how easy healthy cooking and snacking can be.

### Outside the Home

These days, much of our food isn’t eaten at home. It’s eaten on the go. One easy way to get the nutrients you need is to pack healthy lunches—both for yourself and your kids.

“You can work with your child to make a lunch using whole-grain bread, wraps, or pita pockets filled with lean meats or cheese, vegetables, and nut butters or



spreads, such as hummus,” Nicastro says. “Pack vegetables such as carrots, snap peas, and cucumbers or any fresh fruit that’s currently in season. Teens can learn to pack their own lunches with a healthy variety of foods.”

**With some planning, you can prepare meals that are tasty, affordable, and nutrient rich.**

If your kids buy lunch, talk to them about making healthy choices when buying food from the school cafeteria and vending machines. “Parents should encourage their children to choose the important food groups for lunch: a lean protein, fruit and vegetable, whole grains,” Nicastro says. “If a salad bar is available, this is a great opportunity for kids to make their own salad with vegetables, lean protein, and fruit.”

If you have a busy day with your

family planned, pack healthy snacks in a small cooler or tote bag before you leave. Consider water, fresh fruit, veggies, and low-fat cheese sticks. Pack small portions of unsalted nuts, whole-grain crackers, or a low-sugar cereal.

Fast-food restaurants can also be a challenge, but sometimes fast food is your only option. At restaurants, use the menu labels and information about calories and other nutrients to make healthier food and beverage choices. Healthy choices can include salads, sliced fruit instead of french fries, and grilled options instead of fried.

### Using Labels

When you're grocery shopping, the Nutrition Facts label is a great

resource to help you compare foods and drinks. It can help you confirm whether products marked with healthy-sounding terms really are healthy. For example, "low-fat" foods aren't necessarily healthy; they can be very high in sugar and calories.

Use the Nutrition Facts label to help guide you to limit the nutrients you want to cut back on, such as sodium or added sugar. You can also use it to make sure you're getting plenty of the nutrients you need, such as calcium and iron.

**"Food provides our bodies with needed nourishment. Teaching children to read labels while shopping as they get older is a good way to help them learn to shop for healthy foods."**

When reading the label, start at the top. Look at the serving size. Next, look at the calorie count. Then move on to the nutrients, where it lists the amount and daily values experts recommend.

Remember that what you might eat or drink as one portion can be multiple servings. For example, if you eat one bag of chips but the label says there are three servings in a bag, you need to multiply all the numbers on the label by three to find out how many calories you just ate.

### Working Together

Sometimes it can be hard to find healthy food and drink choices when shopping locally. People in some communities have been working together to make it easier

## Take time to build healthy eating decisions into every aspect of your family's life.

to find healthy foods in their neighborhoods.

For instance, in some neighborhoods, people have joined together to tend community garden plots. "Learning to garden, planting rooftop gardens, box gardens, or small planters can provide some easy growing veggies like tomatoes right at home," Spruijt-Metz says. "Another possibility is finding a fruit and vegetable truck that would be willing to come to the neighborhood."

Take time to build healthy eating decisions into every aspect of your family's life. If you're a parent or guardian, start talking with kids at an early age about health and nutrition. And practice what you preach. Make healthy food and drink choices yourself so you can set a good example for your kids.

"Food provides our bodies with needed nourishment. Teaching children to read labels while shopping as they get older is a good way to help them learn to shop for healthy foods," Spruijt-Metz says. "Teaching them to cook simple, tasty, and healthy meals when they're young is a skill that will stay with them throughout their lives." ■



### Wise Choices Tips for Eating Out

- Choose foods that are steamed, broiled, baked, roasted, poached, or lightly sautéed or stir-fried.
- Ask for food without butter, gravy, or sauces.
- Ask for salad dressing on the side and use only some of it.
- Pick drinks without added sugar, such as water, milk, and unsweetened tea or coffee. Order regular coffee or tea instead of high-calorie specialty drinks.
- Trim visible fat from meats and remove skin from poultry.
- Share your meal or take half home for later.
- Choose fruit or another healthy option for dessert.



### Web Links

For more about healthy food and drink choices, go to: [newsinhealth.nih.gov/special-issues/eating/better-nutrition-every-day](https://newsinhealth.nih.gov/special-issues/eating/better-nutrition-every-day)

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