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Harvard Heart Letter

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The wholesome goodness of grains

Eating more whole grains is linked to a lower risk of heart disease.

The word "refined" often describes things that have been stripped of impurities or other unwanted elements. But when it comes to wheat, rice, and other grains, the refining process instead removes the most healthful parts of these nutritious foods.

For example, white flour and white rice have far less of the vitamins, minerals, healthy fats, fiber, and other plant-based chemicals called polyphenols found in whole-wheat flour and brown rice. The combination of those beneficial nutrients may explain why people who eat more whole grains have a lower risk of developing and dying from heart disease.

"With grains, I always say that the whole is greater than the sum of its parts," says Dr. Frank Hu, chair of the Department of Nutrition and professor of nutrition and epidemiology at the Harvard T.H. Chan School of Public Health. It's difficult to tease out the effects of individual nutrients because they all come together as a whole package, he explains. For example, fiber helps you feel full (which prevents weight gain) and may lower cholesterol, and magnesium may help reduce blood pressure. But whole grains also contain many other nutrients that dampen oxidation and inflammation—two harmful processes that underlie many chronic diseases.

Gains from grains

People who eat about four servings of whole grains a day are approximately 23% less likely to die from heart disease than those who eat little or no whole-grain foods. That's according to a 2016 study in the journal *Circulation* by Dr. Hu and colleagues. But it's possible that other dietary factors contribute to the heart-related benefits, says Dr. Hu. People who eat more whole grains also typically eat more fruits and vegetables as well as fewer unhealthy foods (such as white flour, sugar, red meat, and processed meat).

The current dietary guidelines recommend three or more servings of whole grains daily. But on average, adults in the United States eat less than a single serving per day. Why? This quiz (https://media.heart.org/fc/quiz/) from the American Heart Association (AHA) mentions three possible reasons. Here they are—along with some commentary and solutions.

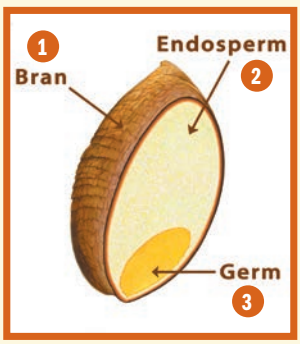
A I don't like them, and refined grains taste better.

It's hard to argue with taste preferences—people like what they like. But consider that some of your preference for white bread and

continued on p. 7 ▸▸

What makes a grain whole?

Each whole-grain kernel contains all three edible layers of the original plant seed:



1. Below the outer layer of inedible husk lies the **bran**, which contains most of the grain's fiber.

2. The starchy **endosperm** makes up the largest portion of the kernel and provides the young plant with a source of stored energy. This is the only part of the grain in white flour.

3. The innermost layer, called the **germ**, contains many of the vitamins, minerals, and healthy oils.

Image courtesy of Whole Grains Council

INSIDE

FIVE THINGS TO DO THIS MONTH

1 Learn how to perform hands-only CPR. If you witness a cardiac arrest, you could save a life. (pages 2 and 3)

2 Go for a bike ride. Pedaling down a bike path or indoors on a stationary bike can be a good way to exercise. (page 4)

3 Learn how thyroid hormone levels may affect your heart. But treating mildly low thyroid levels may not be necessary. (page 5)

4 Eat more heart-healthy whole grains. Check out these cooking tips and recipes. (page 7)

5 Explore exercise routines designed for couch potatoes. Working out four times a week may help restore heart health. (page 8)

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ASK THE DOCTOR

by **DEEPAK L. BHATT, M.D., M.P.H.,** *Editor in Chief*

Does "cough CPR" work?

Q *A friend of mine shared a Facebook post about how to survive a heart attack when you're alone. It says that you should cough very forcefully every few seconds until help arrives. Can that actually help?*

A This "advice" has been circulating around the Internet for nearly 20 years. I was reluctant to even address this question out of concern for perpetuating the idea of "cough CPR" or causing undue worry. However, I think it's important to clear up the confusion around this topic.

You should be aware that many people survive heart attacks, although they can cause lasting, serious heart damage. And sometimes, a heart attack can trigger cardiac arrest, during which the heart goes into a very fast, abnormal rhythm (arrhythmia) or stops beating altogether. (For more details, see "Heart attacks: Clarifying the causes and consequences," on page 3.) If cardiac arrest does occur, the person will lose consciousness within seconds.

For most heart attacks—that is, those that do not trigger an arrhythmia—coughing would not make any difference. Obviously, an unconscious person in full cardiac arrest cannot cough. So the real question is this: can coughing help in the event of a sudden, dangerous, abnormal heart rhythm? In theory, yes. Forceful coughing increases pressure in the chest, which helps maintain blood flow. A conscious, responsive person, by coughing forcefully and repetitively, might be able to keep enough blood flowing to the brain to remain conscious for a minute or two until the arrhythmia is treated. This has been mislabeled "cough CPR," although it is not a form of traditional cardiopulmonary resuscitation (CPR). However, doctors sometimes ask their patients to cough if an arrhythmia—particularly a slow heart rate—occurs during a heart catheterization.

The recommended form of CPR, known as hands-only CPR, involves pushing hard and fast on the center of the chest. This repetitive motion keeps blood circulating until the heart can be shocked back into a normal rhythm with an automated external defibrillator (AED). Emergency personnel will bring and use this device. They're also found in many public places, including fitness centers, sports arenas, airports, and train stations.

Heart attack? Chew aspirin instead of coughing.

Remember, if you think you're having a heart attack, first call 911. Next, chew one regular-strength aspirin (or four low-dose 81-mg aspirin) and lie down. If you feel like you're going to pass out, there is no harm in trying forceful coughing to try to terminate a possible arrhythmia.

For peace of mind, learn CPR and encourage your family, friends, and neighbors to do so as well. The American Heart Association and other organizations offer in-person classes on CPR and using an AED. Four out of five cardiac arrests happen at home, so the life you save is likely to be that of someone you love.

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Because of the volume of correspondence we receive, we can't answer every question, nor can we provide personal medical advice.

Heart attacks: Clarifying the causes and consequences

Not all heart attacks result from a blocked artery—and even small ones can have serious outcomes.

Perhaps you've heard heart attacks described in various ways, from "mild" to "massive," or even the ominous-sounding "widow maker." But these terms may sow confusion and anxiety.

The good news: Most people who have a heart attack survive. The bad news? "Any heart attack can be fatal, no matter how big, how small, or where it occurs in the heart," says Dr. James Januzzi, a cardiologist at Harvard-affiliated Massachusetts General Hospital. There's a lot of misunderstanding among the general public about what a heart attack actually is, he adds.

Heart attacks usually result from blockages in the heart's arteries, but not always.

Attack vs. arrest

Perhaps the most common source of confusion is the difference between a heart attack and cardiac arrest. A heart attack (what doctors call a myocardial infarction, or MI) is defined as damage to part of the heart muscle caused by inadequate blood flow to that area. Most of the time—in what's known as a type 1 heart attack—this happens because of a blockage in one of the heart's arteries. Such blockages typically occur when cholesterol-laden plaque lining an artery ruptures. A clot forms, obstructing the vessel. But doctors are increasingly recognizing that many heart attacks result instead from an imbalance in blood supply and demand (see "What is a type 2 heart attack?").

While a heart attack is essentially a plumbing problem, cardiac arrest is an electrical problem. Cardiac arrest happens when the heart's electrical system malfunctions, causing it to beat rapidly and chaotically—or to stop beating altogether. Without blood circulating to the brain, lungs, and other organs, the person gasps or stops breathing and becomes unresponsive within seconds.

A heart attack is a common cause of cardiac arrest—but most heart attacks do not lead to cardiac arrest. Other possible causes of cardiac arrest include heart failure, a clot in the lungs, an extreme imbalance of potassium or other minerals in the blood, a drug overdose, or a blow to the chest.

Does size matter?

Some heart attacks cause more harm than others. During an attack, blood levels of a protein released by damaged heart muscle (troponin) give some sense of severity. Afterward, an ultrasound of the heart (echocardiogram) can reveal the extent of the damage. "A large heart attack will significantly reduce the squeezing strength of the heart muscle," says Dr. Januzzi.

The term "widow maker" refers to a heart attack caused by a blockage near the top of the left anterior descending (LAD) artery—the main artery that supplies blood to the front of the heart. But such heart attacks are not necessarily fatal, and those involving other arteries can be deadly, too.

What to do

Call 911 right away if you or someone near you has symptoms of a heart attack or cardiac arrest. Common heart attack symptoms include

- uncomfortable pressure, squeezing, or pain in the chest
- pain or discomfort in an arm, the back, neck, jaw, or stomach
- shortness of breath
- sudden nausea or vomiting
- lightheadedness or dizziness
- unusual fatigue.

Signs of cardiac arrest are a sudden loss of responsiveness and abnormal breathing. Give hands-only cardiopulmonary resuscitation (CPR) until help arrives; learn how at the American Heart Association's website: www.heart.org/HandsOnlyCPR.

What is a type 2 heart attack?

Type 2 heart attacks occur when there's a mismatch between blood supply and demand. For example, a person whose arteries are narrowed from heart disease who develops internal bleeding or very low blood pressure may not be able to deliver a sufficient supply of blood to meet the heart's oxygen demands.

Or the opposite problem can occur: if a person has a very fast heart rate or very high blood pressure, the demand for blood can outstrip the available supply. Both problems are more common in people hospitalized with other health problems in addition to heart disease.

Type 2 heart attacks can also occur in people who don't have heart disease. In general, these people are younger and healthier and therefore more likely to survive. Sometimes, one of the heart's arteries temporarily contracts, an event known as a coronary spasm. Another possible but rare cause of heart attacks is a tear in the wall of a heart artery, called a spontaneous coronary artery dissection.

Pedal your way to better heart health

Riding a bike—either outdoors or inside—can be a good way to exercise at different levels of intensity.

Spring's milder temperatures often encourage people to exercise outside. Riding a bike can offer a nice break from walking, the exercise that doctors recommend most often. If you're bored of your walking route and looking for bit of a challenge, consider cycling. Biking enables you to travel faster and farther than jogging or running but puts far less stress on your joints.

"I have many patients who bike, and they find it's a great way to get some exercise, especially when the weather's favorable," says Dr. Brendan Everett, a cardiologist at Harvard-affiliated Brigham and Women's Hospital. Cycling may not burn as many calories as jogging over a given period of time, but jogging is difficult for many people, he notes. Also, you can chose a route that suits your fitness level—from a short, flat loop to a longer ride with gently rolling hills.

Riding rewards

There's not a great deal of research on the cardiovascular benefits of biking. Still, a 2016 study in the journal *Circulation* found that people who biked regularly had about 15% fewer heart attacksthan did noncyclists. Even as little as half an hour of biking per week was linked to lower rates of heart disease. Another study found that bicycle commuters were less likely to have conditions that raise heart disease risk (including high blood pressure, high cholesterol, or prediabetes) compared with people who used public transit or drove to work.

Depending on where you live and work, commuting via bicycle can be an enjoyable way to get to work that avoids the stress of driving and parking, says Dr. Everett, who often commutes to work by bike from April to October. But if you're new to cycling or haven't ridden a bike in years, it's best to ride on a paved bike path or in a quiet, low-traffic neighborhood until you get up to speed.

Gearing up

If you don't already have a bike, consider renting several different types to try them out before buying. Take advantage of the shop's bike-fitting service to make sure your bike is properly adjusted for your body. Many people choose hybrid bikes, which are good for all-purpose riding; they range in price from less than $200 to over $1,000 for higher-end models. Older people may want to look for a comfort bike, which puts less stress on the body. These bikes have high-rise handlebars that enable you to sit upright, wide tires for a smooth ride, shock-absorbing seat posts, and low top tubes so you don't have to swing your leg too high to mount the bike.

Other bike types include tricycles, which are helpful if you are less stable on your feet, and recumbent bikes that allow you to lean back and ride. Another option is an electric bike, which looks and handles like a regular bike but with a battery-operated motor that provides assistance when needed. For all bikes, a helmet is the only mandatory accessory, but padded bike shorts make for a comfier ride.

For a weekend workout, biking offers a nice change of pace—as well as more varied scenery—from walking for the same amount of time.

Some stationary bikes offer adjustable inclines and screens that display different workouts.

© Christopher Futcher | Getty Images

Indoor options

When the weather's bad, a stationary bike may be appealing. Instead of buying one, however, you can get a special stand (known as an indoor bike trainer) to pedal your own bike at home. Health clubs and fitness centers tend to have higher-end stationary bikes with adjustable resistance and varied workout programs.

If you're looking for a more vigorous workout, try a spinning class, a group indoor cycling class accompanied by motivating music. Some centers offer classes geared for seniors that are more moderately paced. The classes, which usually last 45 to 60 minutes, are led by an instructor who guides you through a series of heart-pumping workouts. For instance, you might pedal fast for brief periods followed by periods of rest and recovery. You also may do incline workouts, where you increase the bike's resistance so it feels like you are cycling uphill.

Whatever type of pedaling you pursue, pay attention to your body. Stick to a pace that feels manageable, and increase the intensity when you feel ready. As always, talk to your physician before ramping up your exercise routine, whether you venture into the great outdoors, go to a fitness center, or do a workout at home.

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Hypothyroidism and your heart

Treating a borderline low thyroid hormone level may be unnecessary—perhaps even undesirable—in older people.

Your thyroid, a butterfly-shaped gland at the base of your throat, releases hormones that affect your entire body, including your heart. An underactive thyroid, or hypothyroidism, can trigger a range of symptoms, including fatigue, feeling cold, and unexplained weight gain. If left untreated, hypothyroidism can slow the heart rate and make the arteries less elastic, causing blood pressure to rise. Elevated cholesterol levels are another possible consequence.

True hypothyroidism is not common; it affects between 1% and 2% of people, mostly women. These people clearly need replacement thyroid hormone, which should alleviate their symptoms and protect their hearts.

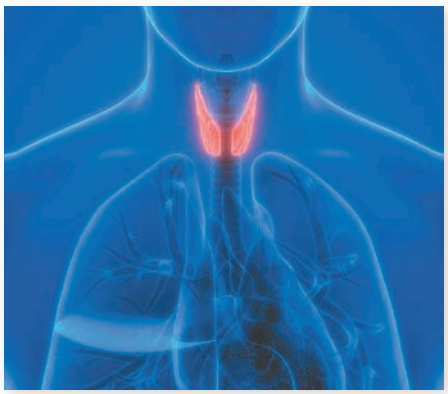
However, far more people—nearly 20% of women ages 65 and older—have what's known as mild or subclinical hypothyroidism. Treating this condition is common but contentious.

Subclinical hypothyroidism

To diagnose thyroid problems, doctors rely on a blood test that measures thyroid-stimulating hormone (TSH), which is released by the pituitary gland in the brain. TSH tells your thyroid gland how much thyroid hormone to make. So a high TSH indicates a low thyroid hormone level.

A normal TSH value ranges between 0.45 and 4.12 milli-International Units per liter (mIU/L). A slightly elevated TSH (between about 4 and 9 mIU/L) but a normal level of thyroxine (T4, the main thyroid hormone in the body) is considered subclinical hypothyroidism.

In people without symptoms, routine TSH testing isn't recommended because there's not enough evidence to suggest a benefit. But because the two main symptoms of hypothyroidism—fatigue and weight gain—are so common, some physicians test patients, just in case.



The thyroid gland (in red) wraps around the windpipe and releases hormones that have wide-ranging effects on the body.

Even when people have symptoms of hypothyroidism and the test results show a slight elevation in TSH, it's hard to know whether their fatigue and weight gain are the result of a slightly sluggish thyroid or something else (for instance, insufficient sleep and lack of exercise). Also, TSH levels normally tend to rise slightly as people age.

"For people with TSH of 10 or higher, there's no question that they should be treated," says Dr. Carol Bates, associate professor of medicine at Harvard-affiliated Beth Israel Deaconess Hospital and associate dean for faculty affairs at Harvard Medical School. A daily pill of synthetic thyroid hormone (levothyroxine) will stabilize thyroid hormone levels, although finding the correct dose may require some trial and error and several repeat blood tests.

However, many abnormal TSH values fall between 4 and 9 mIU/L, indicating subclinical hypothyroidism, says Dr. Bates. "For those people, I wouldn't recommend treatment, although this is a controversial area," she says.

Questionable benefits

Is treating subclinical hypothyroidism helpful? A 2017 study in *The New England Journal of Medicine* suggests the answer is no, at least for older people. Researchers randomly assigned 700 people ages 65 and older with subclinical hypothyroidism to take thyroid hormone or a placebo. After one year, there were no differences in symptoms or quality of life between the two groups.

"We know that hypothyroidism has adverse effects on cholesterol levels, so it makes intuitive sense that treatment would benefit cardiovascular health," says Dr. Bates. But what about someone with only mild hypothyroidism and no symptoms? If that person was on the cusp of needing a cholesterol-lowering statin, Dr. Bates might try levothyroxine to see if it helped. But otherwise, she's less apt to suggest levothyroxine and would instead recommend a statin for treatment of elevated cholesterol.

Possible harms

One reason for her reluctance is the risk of "medicalizing" a harmless condition, which can happen when people take a daily pill and undergo repeated blood testing simply to treat a slightly abnormal lab value. Also, for proper absorption, levothyroxine must be taken an hour before eating or taking vitamin and mineral supplements. If people don't follow those rules (or occasionally skip a few doses), their TSH levels may vary unpredictably, possibly triggering dosage adjustments that lead to under- or overtreatment.

In fact, a fair amount of hyperthyroidism (a condition marked by too much thyroid hormone) occurs when people are overtreated for hypothyroidism, says Dr. Bates. Hyperthyroidism can increase the risk of atrial fibrillation, a heart rhythm disorder that raises the risk of stroke.

If you're diagnosed with subclinical hypothyroidism and have symptoms, consider a short-term trial of levothyroxine to see if you feel better, Dr. Bates suggests. If you don't have symptoms, consider getting your TSH retested annually to see if it rises to a level that definitely should be treated.

Zap away atrial fibrillation?

Catheter ablation, a procedure that destroys faulty electrical pathways in the heart, is gaining ground.

Atrial fibrillation—called afib for short—is a rapid, irregular heartbeat caused by errant electrical signals in the heart's upper chambers (atria). This heart rhythm disorder becomes more prevalent with age, affecting about one in 11 people ages 65 and older.

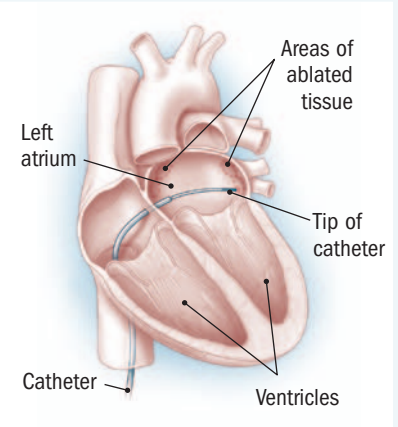
The chaotic heartbeat that characterizes afib usually comes and goes and may last anywhere from a few seconds to many hours—or much longer (see "Atrial fibrillation: Defined by its duration"). Although about 20% of people with afib don't notice any symptoms, it can trigger a range of unsettling problems. These include a fluttering or thumping sensation in the chest, breathlessness, dizziness, anxiety, weakness, fainting, confusion, and fatigue.

Treatment goals and trends

Treating atrial fibrillation focuses on two main goals. One is to prevent stroke, the most feared complication of afib. During a bout of afib, blood pools inside the atria and tends to form clots, which can then travel to the brain and cause a stroke. To reduce this risk, many people with afib take an anti-clotting drug. The other goal is to tame the fast, irregular heart rate. Although certain medications (anti-arrhythmia drugs) can slow down the heart or help it stay in a normal rhythm, they aren't always effective. But another option, a procedure called catheter ablation, is gradually becoming more widely used, says Dr. Paul Zei, director of the Comprehensive Atrial Fibrillation Program at Harvard-affiliated Brigham and Women's Hospital.

"The most recent guidelines for treating atrial fibrillation have shifted catheter ablation more to the forefront of therapy decisions," he says. During a catheter ablation, a doctor gently guides a thin, flexible tube (catheter) into a large vein and threads it up to the heart (see illustration).

Catheter ablation for afib



During catheter ablation, a device at the tip of the catheter emits energy that destroys (ablates) tiny patches of heart tissue responsible for the erroneous electrical signals that cause afib.

Atrial fibrillation: Defined by its duration

Episodes of afib are often unpredictable and may be fleeting or last far longer. Over time, afib can become constant. Experts classify the disorder into three main categories based on its duration:

- **Paroxysmal.** Episodes that occur intermittently (anywhere from daily to several times a year) but resolve spontaneously or with intervention within seven days of starting.
- **Persistent.** An episode that lasts for longer than seven days. It will not resolve on its own and requires some type of treatment.
- **Permanent.** Continuous afib that has lasted longer than a year.

When quality of life suffers

Currently, catheter ablation is an option for people with either paroxysmal (intermittent) or persistent afib who have tried medications without success. "For people considering ablation, it really boils down to quality of life. Many people are truly disabled by their symptoms," says Dr. Zei.

Some people with disabling symptoms from paroxysmal afib might undergo ablation even without trying drugs first, he adds. This shift stems from the observation that ablation tends to be more successful in people with paroxysmal afib than persistent afib. Experts are beginning to realize that afib is a progressive, chronic condition that becomes more challenging to treat as time goes on, says Dr. Zei. For people with permanent afib, the benefits of catheter ablation remain unclear.

The overall success rate for catheter ablation is about 75%. Sometimes, people undergo a second procedure if the first one doesn't work, which boosts the success rate to nearly 90%. The risks range from bleeding at the catheter insertion site to serious but very rare complications, such as heart attack or stroke. In addition, some people must still take anti-arrhythmic drugs after the procedure; the drugs tend to work better following an ablation.

People often wonder if they also need to take anti-clotting drugs after an ablation, says Dr. Zei. These drugs, which include warfarin (Coumadin), apixaban (Eliquis), dabigatran (Pradaxa), and rivaroxaban (Xarelto), help prevent dangerous blood clots that can lead to a stroke. Because afib increases the risk of stroke by up to five times, doctors often prescribe anti-clotting drugs to people with afib. But having an ablation does not necessarily change the equation. The decision to prescribe anti-clotting drugs depends on a person's overall risk of stroke, which takes into account age as well as other health conditions, such as high blood pressure, diabetes, or a previous heart attack or stroke.

Illustration by Scott Leighton

Whole grains ... from p. 1

white rice might stem more from habit than a dislike of whole grains. Learning how to cook whole grains (see C, below) may help; so might trying more whole-grain products, such as ready-to-eat cereals and breads. But be sure to read the labels closely: words such as "organic," "multigrain," "enriched," and "stone ground" on a package do not mean that the contents are whole grains. Look for "whole" before the name of the grain. Cracked wheat and crushed wheat are also considered whole grains; so are brown rice, oatmeal, and barley. You can also seek out products with the Whole Grains Council's "100% Whole Grain" stamp, which indicates that all the grain ingredients in a product are whole.

Try adding an extra serving of whole grains to your diet each day (ideally by replacing refined grain products) and gradually build up to at least three servings per day. Examples include

- one slice of whole-grain bread
- half a cup of cooked whole grains or cooked whole-grain pasta
- half of an eight-inch whole-grain tortilla or pita
- two medium brown-rice cakes
- a cup of dry whole-grain cereal
- about an ounce of whole-grain crackers.

Eat whole grains at every meal, starting at breakfast.

B I have a gluten intolerance.

Gluten is a protein found in wheat, rye, barley, and other grains. In people with celiac disease, gluten triggers an immune reaction that damages the intestines and other parts of the body. Less than 1% of the population has this condition, which requires following a strict, gluten-free diet. Yet some people who test negative for celiac disease report symptoms such as bloating, diarrhea, and cramps when they eat gluten-containing foods. Some may have wheat allergy, which can be diagnosed by skin testing. But others consider themselves gluten-intolerant or gluten-sensitive—a diagnosis that remains somewhat controversial.

Last year, a study in *The BMJ* (also co-authored by Dr. Hu) found that people who try to avoid gluten eat fewer whole grains and therefore tend to have diets that are lower in fiber, vitamins, and other beneficial nutrients. Also, many gluten-free products are high in sugars and unhealthy fats, which manufacturers add to make the products taste better, says Dr. Hu. The bottom line: Don't avoid gluten simply to follow the latest diet fad. If you're convinced you feel better off without gluten, be sure to include plenty of gluten-free whole-grain foods in your diet, such as brown rice, amaranth, buckwheat, quinoa, millet, and sorghum.

C I do buy whole grains but I don't know how to prepare them.

For the record, this is the reason most people don't eat more whole grains, according to the AHA. But cooking with whole grains isn't complicated—they just require a bit more time, and in some cases, a little more water. The Whole Grain Council has a handy chart and recipes for cooking whole grains (see www.health.harvard.edu/cwg). Also, some grocery stores carry precooked brown rice that takes just a few minutes to warm in a microwave. For additional whole-grain recipe ideas, see those from the Harvard T.H. Chan School of Public Health's Nutrition Source at www.health.harvard.edu/wgr.

Vegetable of the month

Asparagus

Asparagus is often available year-round. But spring is the peak season for this popular vegetable, with April being the prime month. In the market, look for bright green stalks with firm, tight tips (which may have a purplish cast).

If you notice that your urine smells a bit unpleasant after you eat asparagus, you're definitely not alone. The odor comes from sulfur-containing chemicals that form when your body metabolizes asparagusic acid, a compound found in the vegetable. Not everyone notices this phenomenon, however, either because they metabolize the chemical differently or because of an inherited inability to perceive the smell.

Nutritional info: A serving of asparagus (five spears) has just 20 calories and contains an array of vitamins and minerals—especially folic acid.

Easy recipe: Trim or snap off the woody ends of the asparagus spears. Place on a baking sheet, drizzle with a little olive oil, toss, and roast in a 400° F oven for five to seven minutes or until tender. Or chop the spears into bite-sized pieces and sauté in olive oil over medium-high heat until tender. Top the cooked asparagus with a squeeze of lemon juice, a sprinkle of Parmesan cheese, or both.

An exercise prescription for couch potatoes

© adamkaz | Getty Images

Decades of sedentary behavior (for example, sitting during most of your waking hours) can cause your heart muscle to shrink and stiffen. But for longtime couch potatoes, a mash-up of different types of aerobic exercise may help restore heart health, a new study suggests.

For the study, 53 healthy but sedentary middle-aged adults were divided into two groups. One (the exercise group) did high- and moderate-intensity aerobic training four or more days a week for two years. The other (the control group) engaged in regular yoga, balance training, and weight training three times a week for two years.

Each week, the exercise group did at least one long session of aerobic exercise (such as an hour of tennis or cycling) and one high-intensity session (for example, doing four-minute bursts of intense exercise alternating with three minutes of less intense exercise). They also did two or three sessions of moderate-intensity exercise (such as brisk walking) and one session of strength training per week.

People in the exercise group showed significant improvements in how their bodies used oxygen as well as less stiffness in the heart, whereas those in the control group experienced no such changes. The study was published April 10, 2018, in *Circulation*.

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What a drag: The dangers of a daily cigarette

Smoking just one cigarette a day appears to raise the risk of heart disease and stroke by between 48% and 74%, according to a study in the Jan. 24, 2018, issue of *The BMJ*.

Researchers pooled data from 141 studies done in 21 countries and regions, together involving millions of people. They analyzed the risks associated with smoking one, five, or 20 cigarettes per day, taking into account age, sex, and other possible confounding factors. Just one cigarette per day accounted for half of the risk seen with smoking 20 cigarettes a day in men, and for one-third of the risk in women, they discovered.

As an editorial accompanying the study notes, "Light smoking, occasional smoking, and smoking fewer cigarettes all carry substantial risk of cardiovascular disease." To protect your heart, just cutting back won't cut it—you need to quit completely. For advice, see the Harvard Medical School Guide *Quit Smoking for Good* (www.health.harvard.edu/qs).

Statin use: Uncommon in younger heart attack patients

Cholesterol-lowering statins may be underused in younger people at risk for heart attack, new research suggests.

The study, in the Jan. 23, 2018, *Journal of the American College of Cardiology*, included more than 1,600 people ages 50 and younger who had experienced a heart attack. Only one in eight was taking a statin before the heart attack.

On average, taking a statin lowers a person's risk of experiencing a heart attack by about 20%. However, most of the untreated people in the study didn't meet the criteria for taking a statin, based on guidelines from the American College of Cardiology and the American Heart Association.

The guidelines recommend statins according to a risk score that considers factors such as cholesterol and blood pressure values. But because age accounts for much of the score, the guidelines may underestimate heart attack risk in people ages 50 and younger. One way to address this problem would be to consider whether people have a family history of early heart attack (before age 55 in men and before age 65 in women)—an important predictor that is overlooked in most risk scores, according to an editorial accompanying the report.

What's coming up:

- Overcoming barriers to exercise
- Drink your fruits and veggies: Good idea—or not?
- COPD: A risk for heart disease
- Preventing heart problems after breast cancer