



# Harvard Heart Letter

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## The lowdown on low-calorie sweeteners

*If you're addicted to sweet, bubbly beverages, diet sodas are a better choice than sugary ones. But try switching to healthier options.*

Despite the abundance of added sugar in America's food supply, our love affair with sugary drinks has been waning over the past decade or so.

"In adults, we've seen a 25% drop in the consumption of sugar-sweetened beverages, and I think this trend will continue, given the heightened awareness of the harmful effects of excess sugar," says Dr. Frank Hu, chair of the Department of Nutrition at the Harvard T.H. Chan School of Public Health. Sugary drinks (such as sodas, sports drinks, and lemonade) are the biggest source of added sugar in the American diet and are widely considered to be among the main drivers of the obesity epidemic. A high-sugar diet also has been linked to increasing rates of high blood pressure, high cholesterol, and diabetes, all of which contribute to heart disease.

But is the obvious alternative—switching to beverages with low- or no-calorie sweeteners—a good idea? The answer to this question has been somewhat muddled, thanks to limited and inconsistent findings from different studies. About one-third of the beverages that American adults drink contain low-calorie sweeteners.

To help sort out the science and give a public health recommendation, the American Heart Association published an advisory on the topic, says Dr. Hu. He's one of 10 co-authors of the report, which appeared in the July 30 issue of the journal *Circula-*

*tion*. The report uses the term "low-calorie sweeteners" to include the eight sweeteners currently on the market that contain zero or very few calories (see "Common low-calorie sweeteners," page 7). However, because there aren't any data directly comparing any of the sweeteners, the advisory doesn't distinguish between the different types, nor does it address foods that contain low-calorie sweeteners.



Try fruit-infused sparkling water instead of drinks with low-calorie sweeteners.

### Sweet surrender?

Short-term, controlled studies suggest that replacing regular soda with diet soda helps people control their weight, says Dr. Hu. But long-term, observational studies that rely on people reporting their soda-drinking habits aren't as conclusive, in part because of a problem known as reverse causation. In this example, people who are overweight may be more likely to drink diet soda than those who

aren't. As a result, diet soda would appear to cause weight gain when that might not be true. Studies of diet beverages and type 2 diabetes (which is also closely linked to overweight and obesity) have similar limitations.

Of note, two large, long-running Harvard studies, the Nurses' Health Study and the Health Professionals Follow-up Study, found no increased risk of obesity or diabetes among people who regularly drank beverages with low-calorie sweeteners.

Given the dearth of evidence for any

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## FIVE THINGS TO DO THIS MONTH

- 1 Swap your sweetened beverage for a low-calorie drink.** Better yet, make your own flavored water. (page 1)
- 2 Investigate a novel treatment for obstructive sleep apnea.** It may be an option for people who can't tolerate other treatments. (page 3)
- 3 Compare the symptoms of heartburn and a heart attack.** They can be hard to distinguish. (page 4)
- 4 Ask your doctor if you should take low-dose aspirin.** The downsides might outweigh the benefits. (page 6)
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## ASK THE DOCTOR

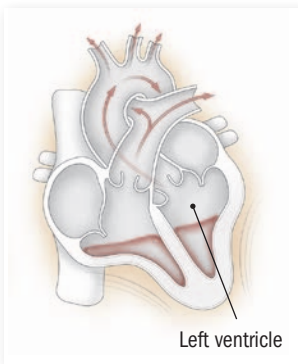
by DEEPAK L. BHATT, M.D., M.P.H., *Editor in Chief*

### Understanding ejection fraction

**Q** My doctor wants to measure my ejection fraction. What does that mean, and what should I expect?

**A** With every heartbeat, your heart contracts and relaxes. During the contraction, the heart's main pumping chamber, the left ventricle, ejects blood out to the rest of the body. When your heart relaxes, the ventricle refills with blood. The ejection fraction is the percentage of blood leaving the chamber each time it contracts.

Contrary to what many people believe, a normal ejection fraction is not 100%. Even a healthy heart pumps out only about half to two-thirds of the volume of blood in the left ventricle in one heartbeat. Therefore, a normal ejection fraction lies somewhere in the range of 55% to 65%. Values lower than 50% are considered reduced.



As the heart contracts, it pushes out most of the blood in the left ventricle.

The most common way to measure the ejection fraction is with an echocardiogram, which uses sound waves to produce images of your heart. A less common method relies on x-ray images taken during cardiac catheterization, in which a thin tube (catheter) is inserted into an artery in your arm or leg and then moved to your heart.

Sometimes, doctors use other imaging techniques—such as magnetic resonance imaging (MRI), computed tomography (CT), or a nuclear medicine scan—to measure ejection fraction. If you end up having more than one type of measurement, be aware that different tests may give slightly different values.

Damage to the heart's muscle—from a heart attack or heart muscle disease (such as cardiomyopathy)—can lead to a lower ejection fraction. Longstanding, uncontrolled high blood pressure also can decrease your ejection fraction; so can problems with your heart's valves.

An ejection fraction of 40% or lower may signal heart failure, a condition in which the weakened heart struggles to circulate blood throughout the body. However, ejection fraction is just one measure of how well the heart is working, and a normal ejection fraction does not ensure a healthy heart. Some people have a condition known as heart failure with preserved ejection fraction, while others have a reduced ejection fraction. Also, your ejection fraction does not necessarily determine how well you function. One person might have an ejection fraction of 20% and be very physically active, whereas another may be completely debilitated with a value of 35%.

For some people with heart failure, medications such as beta blockers and ACE inhibitors or angiotensin-receptor blockers can improve or stabilize the ejection fraction. Exercise can also help, as larger, more efficient limb muscles are better able to extract oxygen from circulating blood. This helps compensate somewhat for the heart's decreased pumping ability. But be sure to check with your doctor before starting an exercise regimen. If possible, find a supervised cardiac rehabilitation program, which is the safest way for people with heart failure to start to exercise. ♥



Illustration by Scott Leffington



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# Strategies for sleep apnea

*Treating sleep apnea—a condition closely linked to cardiovascular problems—can be challenging.*

Loud, explosive snoring is a hallmark of obstructive sleep apnea, which affects up to 25% of men and 10% of women. This nighttime breathing problem often disrupts sleep, leaving people tired and irritable during the day. But sleep apnea also can boost blood pressure and may increase the risk of clogged heart arteries, heart rhythm disorders, heart failure, and stroke.

The gold standard treatment, called positive airway pressure or PAP—which uses a bedside machine that provides a stream of air through a face mask—is very effective. But it’s a tough sell for many people, who find the device challenging to use consistently. Because of difficulty tolerating the device, some people don’t use their PAP machine every single night, while others remove it halfway through the night. However, troubleshooting some common issues with PAP may help (see “Tips for using a PAP machine”).

“For people who use PAP machines, it’s also important to get periodic check-ups with a sleep medicine specialist, who can adjust your machine’s programming and make it easier for you to use consistently,” says Dr. Lawrence Epstein, associate physician with the Division of Sleep and Circadian Disorders at Harvard-affiliated Brigham and Women’s Hospital.

## Understanding apnea

Obstructive sleep apnea occurs when excess tissue around the tongue and throat blocks the upper airway. The blockage causes a person to briefly stop breathing dozens or even hundreds of times a night.

Sleep apnea tends to be more common in people who are overweight and who have a narrow throat, large neck, and small lower jaw. If you think you might have the problem, talk to your doctor. In the past, diagnosing sleep



Current positive airway pressure devices are less cumbersome than earlier models. But people still find them challenging to use.

apnea required an overnight stay in a sleep lab. Today, about 60% to 70% of sleep studies for suspected obstructive sleep apnea are done with home-based tests, says Dr. Epstein. The tests use sensors and other devices that measure your breathing and blood oxygen while you sleep.

## Treating apnea

Losing weight can improve sleep apnea; so can treating nasal stuffiness, getting more exercise, and avoiding alcohol near bedtime. But these lifestyle changes don’t always work. If that’s the case, and using a PAP machine proves unsuccessful, another possible option is a therapy to stimulate the upper airway.

The FDA-approved therapy, called hypoglossal nerve stimulation, features a small device similar to a pacemaker that’s surgically implanted in the upper chest and a wire that runs under the skin to the neck. The system (commonly called by its trade name, Inspire) monitors your breathing and stimulates nerves around your tongue and airway to prevent them from collapsing.

Currently, the procedure is being done in specialized centers on people with moderate to severe sleep apnea and a body mass index of 32 or lower who are unable to use PAP. “People seem to tolerate the device well, and the success rate is about 60%, making it a promising new way to treat sleep apnea,” says Dr. Epstein. ♥

## Tips for using a PAP machine

The first PAP devices, called continuous positive airway pressure (CPAP) machines, produced an air stream that stayed the same as a person inhaled and exhaled. Newer machines lower the pressure during exhalation (bi-level or BPAP) or automatically adjust to the lowest pressure needed to prevent apnea (APAP). Many people find these systems easier to tolerate. These tips may also help:

**Make sure your mask fits properly.** If your mask is too large, tightening the straps that hold it to your face may irritate your skin. If your mask is too small, it won’t seal properly, and air may leak out around the edges, possibly into your eyes. Try a different mask if you can’t get comfortable with your first choice. Soft strap covers may feel better on your skin. Using a special bed pillow shaped for a CPAP mask and tubing may also help.

**At the beginning, use your PAP machine for short stints during the day while you read or watch TV.** You’ll become more comfortable wearing the mask, so it will feel more natural when you are trying to fall asleep.

**Treat any nose, mouth, or throat discomfort caused by PAP.** Try using a saline or decongestant nasal spray if your nose is dry or stuffy. Many PAP devices have a heated humidifier to ensure that you are breathing warm, moist air through your mask.

**Schedule a regular time to clean your equipment.** Clean your mask, tubing, and headgear once a week, ideally on the same day and time so you don’t forget.

# Heartburn vs. heart attack

The symptoms of these two health problems may overlap—and sometimes, so do the treatments.

During your regular after-dinner walk around the neighborhood, you feel a painful sensation in the center of your chest. Could it be your heartburn flaring up again, or something more serious?

Heartburn is a common symptom of gastroesophageal reflux disease (GERD), often called acid reflux. Acid from the stomach bubbles up into the esophagus, causing a painful burning just behind the breastbone. Not surprisingly, it's often mistaken for a heart attack. In fact, of the over eight million emergency room visits for chest pain each year, severe heartburn accounts for over half the cases in which actual heart problems are ruled out.

Chest pain caused by insufficient blood flow to the heart (angina) or a heart attack is often described as a feeling of tightness, constriction, or pressure, rather than a burning sensation (see "Heartburn or heart attack?"). But it's not always easy to tell the difference. "Chest discomfort brought on by exercise is more likely to be a heart-related problem," says Dr. Michelle O'Donoghue, cardiovascular specialist at Harvard-affiliated Brigham

and Women's Hospital. But you can also have angina that's not related to physical activity, she notes. If you have any symptoms you're not sure about, see a doctor. And call 911 if you feel chest tightness, have trouble breathing, break into a sweat, turn pale, or become very weak.

GERD and heart disease are both common, and many people take medications to prevent or treat both conditions.

## Avoiding clots

Many people take daily, low-dose aspirin to prevent heart attacks, which works by discouraging the formation of blood clots (see "Rethinking low-dose aspirin," page 6). Doctors prescribe clopidogrel (a more potent clot-preventing drug) with aspirin, mainly for people who receive stents, the tiny metal mesh tubes placed in clogged blood vessels to improve blood flow. But there's a downside. "Aspirin can increase the risk of bleeding from the stomach and the intestines, both by



Heartburn, also known as acid reflux, can cause symptoms similar to those of a heart attack.

directly irritating the stomach lining and by making existing areas of irritation more prone to bleeding," says Dr. O'Donoghue. Taking clopidogrel with aspirin can further increase that risk.

## Preventing bleeding

People with heartburn often take proton-pump inhibitors (PPIs). They include over-the-counter drugs such as omeprazole (Prilosec) and prescription drugs such as pantoprazole (Protonix). These drugs reduce the release of acid from the stomach lining. In addition to causing heartburn, excess stomach acid can also cause bleeding sores (ulcers) in the stomach; these, too, are treated with PPIs, among other drugs.

Thanks to these stomach-protecting effects, doctors sometimes prescribe PPIs for people who take drugs that increase the risk of bleeding—even if they don't have heartburn.

"I usually recommend PPIs for people who are taking long-term aspirin or clopidogrel if they have ever had a bleeding stomach ulcer or are at high risk of developing one," says Dr. O'Donoghue. Factors that can boost your odds include an infection with *Helicobacter pylori* bacteria and routine use of nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Motrin, others) and naproxen sodium (Aleve, Anaprox, others).

## Clopidogrel concern?

Some research suggests a possible problem with taking both a PPI and clopidogrel. Two popular PPIs, omeprazole and esomeprazole (Nexium), inhibit a liver enzyme that helps convert clopidogrel to its active form. In theory, this could make clopidogrel less effective for heart attacks and stroke prevention. But large clinical studies have not revealed any meaningful differences. Still, anyone with lingering concerns about a possible interaction could take a different PPI, such as pantoprazole, which does not affect the liver enzyme. ♥

## Heartburn or heart attack?

The symptoms of heartburn may mimic those of angina or a heart attack (or vice versa). If you're uncertain, don't hesitate to get to an emergency room for an evaluation as soon as possible.

### COMMON SYMPTOMS

#### ANGINA or HEART ATTACK

- ▶ Tightness, pressure, squeezing, stabbing, or dull pain, most often in the center of the chest
- ▶ Pain that spreads to the shoulders, neck, or arms
- ▶ Irregular or rapid heartbeat
- ▶ Cold sweat or clammy skin
- ▶ Lightheadedness, weakness, or dizziness
- ▶ Shortness of breath
- ▶ Nausea, indigestion, and sometimes vomiting
- ▶ The appearance of symptoms with physical exertion or extreme stress

#### HEARTBURN (GERD)

- ▶ Burning chest pain that begins at the breastbone
- ▶ Pain that moves up toward your throat but doesn't typically radiate to your shoulders, neck, or arms
- ▶ Sensation that food is coming back into your mouth
- ▶ Bitter or acidic taste at the back of your throat
- ▶ Pain that worsens when you lie down or bend over
- ▶ The appearance of symptoms after a large or spicy meal

# What to expect during an exercise stress test

*Although no longer routine, this test is still a common, safe way to assess people with heart disease symptoms.*

That chest discomfort you felt during your evening walk disappeared once you got back home. But a week later, you're carrying a laundry basket upstairs and the pain returns, although only briefly. It's time to call your doctor to discuss these symptoms—and possibly undergo an evaluation for coronary disease.

One test you may need is an exercise stress test, also called a treadmill test. As recently as a decade or so ago, doctors ordered these tests as part of a routine check-up in middle-aged and older men, regardless of their symptoms. Today, they're done mainly in people with symptoms that suggest heart disease, says Dr. Hicham Skali, a cardiologist at Harvard-affiliated Brigham and Women's Hospital. "In general, that means stable angina, which refers to chest pain that occurs in predictable patterns during exercise or other exertion," he says. Angina occurs when the heart muscle isn't getting enough blood, which is more likely during physical activity.

The exercise stress test uses an electrocardiogram (ECG) to record the heart's electrical activity. Changes in the ECG reading can signify blood flow abnormalities caused by blockages in the heart's arteries or other problems in the heart. The test is also done before a person starts a cardiac rehabilitation program, and in some cases, before starting an exercise regimen (see "Do I need a stress test before starting a new workout program?").

## At the clinic

An exercise stress test is conducted by a clinician (usually an exercise physiologist) and supervised by a physician.



An exercise stress test helps reveal whether your heart receives proper blood flow and enough oxygen when it needs it most—during exercise.

First, the clinician will review your medical history and ask questions about your heart-related symptoms, such as when they occur and how quickly they resolve. You'll also be asked about any problems with your hips, knees, or ankles and if you ever use a cane or walker. Although most tests are done

on a treadmill, people who have trouble walking can use an exercise bike. Those who can't use their legs can use an arm-powered exercise machine.

Next, you'll have a number of small adhesive pads stuck on your chest and abdomen. In men, this sometimes requires shaving some chest hair. Women can wear a bra; the chest pads are placed just above and below the breasts. Each pad is attached to a plastic-coated wire that feeds into the ECG system. A cuff on your arms periodically measures your blood pressure.

After a baseline recording taken at rest, you begin walking on a treadmill at a slow pace (under 2 mph). Every few minutes, the speed and steepness of the treadmill increase, making you work harder. The goal is to exercise until you're too tired or out of breath. But some people stop because of chest or leg pain. Sometimes the clinician stops the test because of worrisome changes on the ECG or in blood pressure.

You finish with a few minutes of slow walking to cool down, and then sit quietly for another 15 minutes or so. Your heart rate, ECG, and blood pressure are monitored the entire time, and the clinician keeps tabs on how you look and how you feel.

## What the results mean

Your test results can be either normal (a serious heart artery blockage is unlikely), abnormal (a serious blockage is likely), or in some cases, equivocal (the results are unclear). Keep in mind that no test is 100% accurate. About 10% to 15% of people with normal results may actually have significant coronary artery disease. The opposite is also true: up to 15% of people with abnormal results don't have heart disease. Abnormal results usually warrant additional tests (in addition to habits such as eating a healthy diet and practicing stress management techniques). And if your results are normal, be sure to stick to those healthy habits as well to keep the odds in your favor. ♥

## Do I need a stress test before starting a new workout program?

There's no one-size-fits-all answer to this question, says Harvard cardiologist Dr. Hicham Skali. It depends on your baseline risk for heart disease and what type of exercise you're planning to do. For example, say you're a man in your 60s who has diabetes and a family history of cardiovascular disease. If you decide to start taking daily walks with your dog, you probably don't need a stress test. "But if you've signed on for a 'couch-to-5K' program and haven't exercised in years, then it's advisable to get a test before you start training," says Dr. Skali.

# Rethinking low-dose aspirin

*New studies shed light on the role of aspirin for people without a previous heart attack or stroke.*

It costs just pennies per pill, doesn't require a prescription, and may be lifesaving for some people. But daily low-dose aspirin doesn't make sense for everyone. Now, three major studies that examined the benefits and risks of this widely used drug may alter the advice about who should take aspirin.

"Aspirin remains a cornerstone of treatment after a heart attack or stroke. But the question of whether people with a low to moderate risk of heart disease should take aspirin is a really important one," says Dr. Christopher Cannon, a cardiologist at Brigham and Women's Hospital and professor of medicine at Harvard Medical School. Tens of millions of people in the United States fall into that low-to-moderate-risk category. But until now, there weren't many large trials that included those people, he notes.

## Aspirin: Pros and cons

Aspirin helps thwart dangerous blood clots that can lead to a heart attack or stroke. But there's a price to pay for that protection: a higher risk of bleeding. This ranges from minor problems (such as noticeable bruising) to more serious but rare complications, such as bleeding in the brain. Aspirin also irritates the stomach lining, so gastrointestinal bleeding is a key concern for people who take aspirin regularly.

For people with known heart disease—those who've already experienced a heart attack or certain forms of stroke—a daily low-dose (81-mg) aspirin can help prevent a repeat of these serious events. This so-called secondary prevention is widely recommended. The benefit of avoiding a heart attack or stroke offsets the risk of serious bleed-



Healthy people with no history of a heart attack or stroke—especially those who are age 70 and older—probably should not take daily low-dose aspirin.

ing by about six to one. But taking aspirin to prevent a first heart attack or stroke (primary prevention) is more controversial.

## For people with risk factors

One of the new studies included more than 15,000 people with diabetes, a disease that boosts the risk of cardiovascular problems by two to three times. The study volunteers took a 100-mg aspirin tablet or a placebo for an average of nearly seven-and-a-half years.

Over all, the benefits of aspirin were partially counterbalanced by the risks. For every 1,000 people taking aspirin, 11 avoided a serious vascular event (heart attack, stroke, ministroke, or cardiovascular-related death). But nine experienced bleeding that was serious enough to result in hospitalization or death, which means the risks and benefits were about the same. The study appeared in the August 26 *New England Journal of Medicine*.

The second study, in the August 26 *Lancet*, included more than 12,500 people, all of whom had several risk factors for heart disease, such as elevated cholesterol, high blood pressure, or being a smoker (but not diabetes). They also took a daily 100-mg aspirin tablet or a

placebo. Over a five-year period, aspirin did not lower heart attacks or related events. Gastrointestinal bleeding was low, but it was twice as likely to occur in people who took aspirin.

## Older people, greater risk?

The third study focused on older people: whites ages 70 and older and blacks and Hispanics (whose baseline risk is slightly higher than that of whites) ages 65 and older. The 19,000-plus participants took 100 mg of aspirin or placebo daily for a median of 4.7 years.

Aspirin did not lower the risk of cardiovascular disease, dementia, or disability. But it did raise the risk of bleeding severe enough to require transfusions or hospitalization, as described in three papers in the September 16 *New England Journal of Medicine*.

## The take-home message

"Often, people come into my office and tell me they're taking aspirin because they've heard it prevents heart attacks," says Dr. Cannon. These new studies show that's not always the case—and that aspirin may do more harm than good for people who've never experienced a heart-related event.

In a nutshell, people with diabetes appear to benefit from aspirin, but the risk of bleeding offsets some of that benefit. These studies suggest that for people who don't have diabetes—as well as anyone who is age 70 or older—aspirin provides no heart benefit and seems to increase your odds of bleeding. This means some people currently taking low-dose aspirin should consider stopping it, says Dr. Cannon. (Note that these findings don't change the advice for people who've already had a heart attack or stroke; for them, aspirin is still recommended.)

The bottom line: The decision to take low-dose aspirin is complicated, so if you are otherwise healthy, talk to your doctor before considering aspirin for primary prevention. ♥

**Vegetable of the month**



**Sweet potatoes**

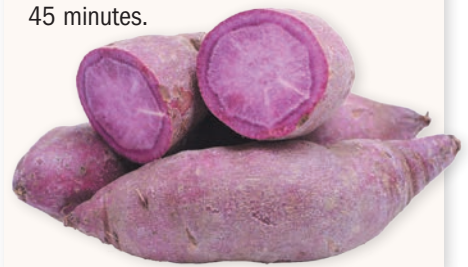
Although people often think of sweet potatoes as a Thanksgiving side dish, these root vegetables are available year-round. They're becoming more popular, too: sweet potato consumption rose by nearly 42% between 2000 and 2016, according to the USDA.

The many varieties of sweet potatoes belong to the morning glory family, Convolvulaceae. The skins range in hue from almost white to dark red, with a few types sporting purple skin. Those unusual varieties may also have lavender or purple flesh. But the most common flesh colors range from white to deep orange.

When cooked, some sweet potato varieties stay firm, while others soften. These "soft" varieties are often referred to as yams. But true yams (from the African word *nyami*) belong to an entirely different plant family related to lilies and grasses.

**Nutritional info:** Sweet potatoes are higher in beta carotene than many other vegetables and are a good source of potassium, fiber, and vitamins A and C.

**Easy recipe:** Pierce sweet potato skins several times with a fork. Place on a foil-lined baking sheet and bake at 400° F until tender, about 45 minutes.



**Low-calorie sweeteners ... from p. 1**

potential harmful effects relative to the possible benefits of low-calorie sweeteners, the advisory deems them acceptable. But they recommend a narrow pattern of use: for people who regularly drink sugar-sweetened beverages, low-calorie sweetened beverages may be a good way to curb that unhealthy habit.

**Transition to healthier drinks**

"We definitely don't want to encourage people to drink a lot of diet soda," says Dr. Hu. Instead, think of diet soda as a temporary solution to help you kick an addiction to sugary drinks, such as using a nicotine patch to quit smoking. "Our hope is that people will eventually drink healthier beverages, such as water, coffee, or tea," he says.



You can buy zero-calorie flavored water, both still and sparkling, in many different flavors. Or make your own by adding a wedge of lime, a slice of cucumber, or some fresh mint to your glass. If you rely on soda for the caffeine, try coffee or tea, both of which contain plant-based chemicals sometimes linked to heart health. If desired, add a few pinches of a low-calorie sweetener to cut the bitterness.

You may find that your taste buds will adapt to less sugar over time, says Dr. Hu. That's good not only for your waistline, but also because the empty calories from sugar can crowd out other healthy foods (such as fruits and vegetables) in your diet that benefit your heart. ♥

**Common low-calorie sweeteners**

Name (brand names)	Common uses	Sweetness compared to table sugar
<b>acesulfame potassium</b> (Sunett, Sweet One)	Baked goods, frozen desserts, candies, beverages, cough drops, breath mints	200 times
<b>aspartame</b> (Equal, NutraSweet; the "blue packet")	Tabletop sweetener, carbonated soft drinks, soft drink mixes, chewing gum, confections, gelatins, dessert mixes, puddings and fillings, frozen desserts, yogurt, and some medications	200 times
<b>monk fruit extract</b> (Monk Fruit in the Raw, Nectress, PureLo; the "orange packet")	Tabletop sweetener, soft drinks, baked goods, yogurts, sauces, desserts and candies	150-200 times
<b>rebaudioside A, extract of the stevia plant</b> (Truvia, Pure Via; the "green packet")	Tabletop sweetener, soft drinks, fruit juices	200-400 times
<b>saccharin</b> (Sweet'N Low; the "pink packet")	Tabletop sweetener, baked goods, soft drinks, jams, chewing gum	200-700 times
<b>sucralose</b> (Splenda; the "yellow packet")	Tabletop sweetener, beverages, chewing gum, frozen desserts, fruit juices, gelatins	600 times

Source: FDA.

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### Detecting afib with a smartphone camera?

Picture this: One day, you may be able to use your smartphone camera to detect atrial fibrillation. Also known as afib, the irregular heart rhythm raises the risk of stroke. New research suggests that the technique, which relies on a special app, is almost as accurate as an FDA-approved mobile electrocardiogram.

Here's how it works: You place your index finger on the smartphone camera, which uses the camera's light to detect changes in your pulse. The app algorithm then uses that information to determine whether your pulse is steady and regular (normal rhythm) or fast and irregular (afib).

The study, published online July 31 in the journal *Europace*, included 562 people, about 40% of whom had afib. Researchers found that a five-minute recording with the smartphone app correctly classified afib nearly 90% of the time. The app still needs to be tested in a large-scale screening study of afib. But if future trials prove successful, it could be a cost-effective, convenient way to screen people for this common problem.



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### “Prehabilitation” may improve heart surgery recovery

After heart surgery, patients often enroll in cardiac rehabilitation, a multiweek program of structured exercise paired with lifestyle and nutrition education. A new review suggests that a similar program done prior to surgery, known as “prehabilitation,” may help older, frail people to recover better from heart surgery.

The prehab approach goes by the acronym NEW, which stands for nutritional status, exercise capacity, and worry reduction. Targeting those three factors seems to improve people's physical and psychological readiness for undergoing

surgery, according to the article, published in the July *Canadian Journal of Cardiology*.

In Canada, people who need non-urgent heart surgery are placed on waiting lists for up to two months. During that time, they often don't exercise and may worry about the upcoming procedure. The resulting physical and mental deconditioning may compromise their recovery. Two large studies are currently testing the NEW prehab protocol in older, frail adults who are awaiting various heart procedures, including bypass surgery and heart valve replacement.

### Spectator sports: How a high-stakes game may affect your heart

Stressful events—even positive ones, such as watching an exciting sporting match—can affect your heart. During World Cup soccer and the National Football League's Superbowl, rates of heart attacks and heart rhythm problems (arrhythmias) increase, both among sports fans and within the local population. A study published online August 20 by the *American Journal of Cardiology* takes a closer look at this risk.

Researchers examined data from 133 people with implanted cardiac devices in St. Louis, Mo., during two 10-day periods. The

first was in early September of 2011 (the control period). The second was six weeks later during the World Series, when the St. Louis Cardinals played a series of dramatic games against the Texas Rangers.

During the baseball playoffs, the devices detected nearly twice as many arrhythmias than during the control period. Spikes in adrenaline, a hormone that increases heart rate, probably explain the differences. But the arrhythmias were nearly all harmless; only one person required a device-delivered shock to restore the heart's regular rhythm. Future research may clarify the timing of arrhythmias with regard to major sporting events, as well as in people without implanted cardiac devices. ♥



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## What's coming up:

- ▶ More cautions about taking dietary supplements
- ▶ Smart carbohydrate choices
- ▶ Depression, anxiety, and heart disease
- ▶ Swimming for heart health