

NIH News in Health

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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 sea-water 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.

The chemical name for dietary salt, or table salt, is sodium chloride. Since 90% of the sodium we ingest is from salt, it's difficult to separate the effects of salt and sodium in many studies. However, it's the sodium part most doctors focus on.

"The best known effect of sodium on health is the relationship between sodium and blood pressure," explains Dr. Catherine Loria of NIH's National Heart, Lung and Blood Institute (NHLBI). Dozens of studies, in both animals and people, have shown



beats. The numbers 120/80 mmHg are the ones you should aim to keep your blood pressure below.

Some research also suggests that excessive salt intake might increase 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," Loria says. Certain groups of people see greater reductions in blood pressure when they lower their salt intake: African-Americans, older people and people with blood pressure above normal.

"Within those groups,

there's a lot of variation between people," Loria says. But about 1 in 3 adults nationwide has high blood pressure right now. Another third have "prehypertension," meaning their blood pressure 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 the population to reduce their blood pressure."

Experts recommend that people take in less than 2,400 milligrams of

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that a higher salt intake raises 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 2 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



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.

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sodium a day—that's what's in about 6 grams of salt, or about a teaspoon. People with high blood pressure should shoot for 1,500 milligrams or less—about 3.7 grams of salt. But right now, the average man in the United States takes in over 10 grams of salt per day and the average woman over 7.

Dr. Kirsten Bibbins-Domingo at the University of California, San Francisco, recently 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



Wise Choices Cut Back on Sodium

- Look at Nutrition Facts labels and try to choose 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.
- In cooking and at the table, cut back on salt and flavor foods with herbs, spices, lemon, lime, vinegar or salt-free seasoning blends.



Web Links

For links to more information about salt, see this story online:

<http://newsinhealth.nih.gov/2010/March/feature1.htm>

day 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.

Some countries have already begun to tackle this problem 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 has achieved a 10% reduction in salt consumption over the past 4 years.

But wouldn't we all miss the taste? "Several studies have shown that as you gradually reduce sodium intake, you lessen your desire for salty food," Loria says. And surveys of people across the UK have 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 sprinkle on our food actually accounts for less than 10% of our salt consumption. Most of the salt we eat salt 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 over 20% of the salt 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," Loria 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.

Even small reductions can have an effect on 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 NHLBI's Dietary Approaches to Stop Hypertension (DASH) eating plan at www.nhlbi.nih.gov/health/public/heart/hbp/dash. 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. And 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. ■

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When Blood Vessels Bulge

All About Aneurysms

An aneurysm—a balloon-like bulge in an artery—can develop and grow for years without causing any symptoms. But an aneurysm is a silent threat to your health.

If an aneurysm grows too large, it can burst open, or rupture, and lead to dangerous bleeding inside the body. Aneurysms can also cause a split within the layers of an artery wall. This split, called a dissection, can lead to bleeding within the artery's layers. Aneurysms that rupture or dissect can cause sudden death.

Many aneurysms occur in deep inside the chest, abdomen or brain. Most appear in the aorta—the main artery that carries blood from the heart down through the center of the body. About 14,000 Americans die each year from aortic aneurysms. Three-fourths of these aneurysms arise in the lower part of the aorta. These are called abdominal aortic aneurysms (AAA). Aneurysms that occur in the chest are called thoracic aortic aneurysms (TAA).

About 1 in 50 people has some type of aneurysm in the brain. Many of these are small and cause no real problems. But each year about 27,000 people in the U.S. have a

ruptured brain aneurysm, which is a type of stroke.

Who's at risk for aneurysm? "We know that family history plays a role," says Dr. Eser Tolunay of NIH's National Heart, Lung and Blood Institute. "About 20% of aortic aneurysms have a genetic component." Other factors that can

weaken the walls of arteries and lead to aneurysms include smoking, high blood pressure, atherosclerosis (the buildup of fatty deposits in the arteries), infections and trauma, such as a car crash.

Age and gender also contribute to risk. Aortic aneurysms are most common in men after age 65. Brain aneurysms appear more often in women between 30 and 60 years of age.

The symptoms of an aneurysm can vary widely and depend on its location and size. Large AAAs might cause a throbbing in the abdomen. Large TAAs may lead to pain in the back, jaw, neck or chest. Brain aneurysms can cause pain around the eye or numbness on one side of the face.

If an aneurysm ruptures or dissects, get immediate medical attention. Sudden, severe pain in the lower abdomen and back can indicate a ruptured AAA. Dissected or ruptured TAAs may cause sharp pain that travels from the upper back to the abdomen. Ruptured brain aneurysms can cause a sudden, intense headache.

However, because most aneurysms have no symptoms, they're often found by chance during a doctor visit. "Many aneurysms are found when a patient is getting images—like MRI or CT scans—done for another



reason," says Tolunay. "Sometimes, if an abdominal aortic aneurysm is big enough, the doctor might be able to feel it during a routine physical."

If you have an aneurysm, medications can help lower your blood pressure and reduce the risk of rupture. If the aneurysm is small, your doctor may recommend regular checkups to monitor its size. Large or quickly growing aneurysms may be treated with surgery, although surgery for brain aneurysms carries many risks. Options for aortic aneurysms include open surgery, which removes the aneurysm, or endovascular repair, which strengthens the aorta by inserting a tube, or stent.

Talk with your doctor if you have a family history of aneurysms or other risk factors. People at high risk may need routine screening to find and monitor an aneurysm. "If you're concerned, get checked," says Tolunay. "And certainly lifestyle changes—like stopping smoking—can help." ■



Wise Choices Aneurysms: Reduce Your Risk

You can't control your genes or certain other risk factors, but taking these steps might lower your risk of aneurysm and its complications:

- Quit smoking.
- Keep your blood pressure and cholesterol levels in check.
- Follow a healthy diet and exercise regularly.
- If your family members have had aneurysms, talk to your doctor about being screened.



Web Links

For links to more information about aneurysms, see this story online:
<http://newsinhealth.nih.gov/2010/March/feature2.htm>

Health Capsules

For links to more information, see these stories online:
<http://newsinhealth.nih.gov/2010/March/capsules.htm>

How Light Boosts Migraine Pain

Light can make migraine pain worse. A new study of blind patients may help explain why. The finding could eventually lead to better treatments.

More than 1 in 10 people nationwide get recurring migraines—often described as a pulsing or throbbing in one area of the head. To discover how light can worsen the pain, NIH-funded scientists studied 20 blind patients who suffer from migraines.

Six of the volunteers couldn't detect any light, either because their eyes were removed due to disease or because of damage to the optic nerves, which connect the eyes to the brain. The other 14 patients could detect some light but couldn't

perceive images.

When the 14 patients were exposed to light, their migraine pain got worse. In contrast, light had no effect on the 6 volunteers who were totally blind. The scientists concluded that the optic nerve must play a key role in light-induced migraine.

The researchers then searched for the cells in the eye that might trigger the pain. They knew that the eye's main light-detecting and image-producing cells were not responsible, because these cells were damaged in the 14 blind patients. Instead, the researchers focused on rare light-sensing cells that help maintain the sleep-wake cycle and help the eye's

pupil enlarge or shrink in response to light.

Animal studies showed that these rare cells carry light signals through the optic nerve and on to brain cells that transmit pain. The research suggests that non-image-forming eye cells may help trigger migraines.

"Clinically, this research sets the stage for identifying ways to block the pathway so that migraine patients can endure light without pain," says lead researcher Dr. Rami Burstein of Harvard Medical School. ■

Health on the Go

Wondering what the side effects are for your new prescription? Or the symptoms of H1N1 flu when the school nurse calls to say your child doesn't feel well? A new NIH web site called Mobile MedlinePlus can help.

Mobile MedlinePlus lets you gain ready access to reliable health information that's optimized for your mobile phone. It's available in English at <http://m.medlineplus.gov> and Spanish at <http://m.medlineplus.gov/spanish>.

Some experts predict that within the next 5 years, more people will connect to the Internet using mobile devices than with desktop or laptop computers. NIH's National Library of Medicine created Mobile MedlinePlus based on the popular MedlinePlus web site at <http://medlineplus.gov>.

MedlinePlus provides authoritative consumer health information to over 10 million visitors per month.

The mobile version of MedlinePlus includes summaries for over 800 diseases, wellness topics, the latest health news, an illustrated medical encyclopedia and information on prescription and over-the-counter medications.

You can use the site to get tips on healthy food choices when grocery shopping, or select an over-the-counter cold medicine at the drug store. Or you can learn about safe drinking water when you're traveling abroad.

If you access the Internet with mobile devices, bookmark Mobile MedlinePlus. It puts reliable health information at your fingertips. ■

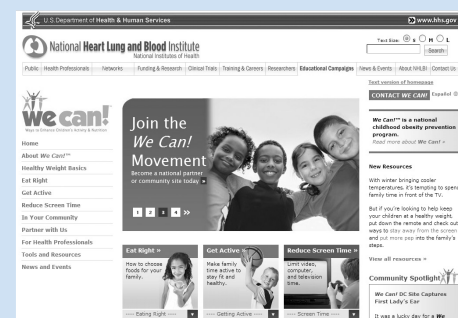


Featured Web Site

We Can!

<http://wecan.nhlbi.nih.gov>

Want to help your family avoid excess pounds? Check out the newly redesigned web site for *We Can!*, a national education program designed to give parents and communities ways to help kids stay at a healthy weight. Get tips on choosing low-calorie snacks, getting active and cooking fun, healthy meals.



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