

Nutrition *Action*

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HEALTH LETTER®
CENTER FOR SCIENCE IN THE PUBLIC INTEREST

CAN YOU HEAR ME NOW?

How to prevent
—or deal with—
hearing loss

MICROBIOME
It takes a village

How **NOT** to measure
blood pressure

The bean
scene

MEMO FROM MFJ

What a Year!



This has been a great year for achieving some of the top goals of the Center for Science in the Public Interest (publisher of *Nutrition Action*).

In 2016, the U.S. Food and Drug Administration:

■ Told chain restaurants and some other food outlets to **post calories**

on their menus and menu boards by May 5, 2017. In

the seven years since the law mandating calories was passed, supermarkets, movie theaters, and convenience stores have tried to weaken it.

■ Told companies to **dis-close added sugars** on

Nutrition Facts labels, along with the percentage of the Daily Value (recommended limit), by July 2018.

■ Proposed **voluntary salt targets** for 150+ food categories.

Margo Wootan, Jim O'Hara, Bonnie Liebman, and others at CSPI (and other organizations) worked tirelessly to achieve all that progress. And as with the FDA's 2015 ban on partially hydrogenated oil (trans fat), food companies and restaurants worked their hearts out to block those measures.

Among our top goals for 2017:

■ **Fight for front-of-package symbols.** Chile now requires foods with excess calories, saturated fat, sugar, or sodium to put can't-miss, stop-sign-like octagons on front labels

stating "High in ____." In response, some companies have begun to reformulate foods or not import them. We need something similar here.

■ **Cut sodium.** Cutting sodium intake in half could save as many as 100,000 lives a year. We will press companies to cut the salt to meet the FDA's targets. It's ridiculous that many restaurant meals provide two or three days' worth of sodium. Yes, I'm talking to you, Cheesecake Factory, Chili's, and P.F. Chang's.


■ **Eliminate food dyes.**

We're going to turn up the heat on companies that use synthetic dyes, such as Red 3 or Yellow 5, which trigger hyperactivity or inattention in some children.

General Mills, Mars, Kellogg, Nestlé, Panera, and others are replacing dyes with natural colors—or nothing. But every company should eliminate dyes—and other questionable additives—from their foods...and soon!

I hope that next year I'll be able to report back to you on our great progress in 2017.

Want to help? Visit cspinet.org/actnow.



Michael F. Jacobson, Ph.D., President
Center for Science in the Public Interest



"High in Sugars." "High in Calories." Chileans don't have to guess about this soft drink.

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For Women ONLY

- The signs of a **heart attack** or **stroke** are different in women than in men.
- Women have a higher risk of **breast cancer** and **bone** and **muscle loss**.
- Women are more likely to suffer from **irregularity** and **urinary leakage**.

Here, from the pages of *NAH*, is what women need to know to stay healthy.

Visit NutritionAction.com/women or send a check for \$20 and your name & address to CSPI—Women, Suite 300, 1220 L St. NW, Washington DC 20005.



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CAN YOU HEAR ME NOW?

How to prevent—or deal with—hearing loss

BY BONNIE LIEBMAN

Age takes a toll on your ears. A quarter of people in their 60s, and two-thirds of those aged 70 and up, have trouble hearing. That works out to 30 million of us...and counting.

But hearing loss isn't inevitable. Here's what may protect your hearing ...and what new devices can help when it's hard to hear.

Hearing 101

"Hearing depends on two basic processes," says Frank Lin, associate professor of otolaryngology at the Johns Hopkins University School of Medicine.

The first step occurs in the cochlea, a cavity in the inner ear that looks like a snail shell (see "All Ears").

"The cochlea takes in sound vibrations and converts them into a neural signal," explains Lin. Then the auditory nerve sends those signals to the brain for decoding.

"When we talk about hearing loss as we age, we're talking about damage to the cochlea over time," says Lin. The cochlea starts to fail, and no one has figured out how to repair it.

"That doesn't necessarily mean you can't hear," notes Lin. "It means that instead of sending this crystal clear signal, the cochlea sends a much more garbled signal to the brain."

So you can hear someone talking, but you have trouble detecting the words.

"It's as though you're trying to have a conversation on a cell phone while walking down a busy street," says Lin. "You may still make out what is being said, but it doesn't sound as clear."

Some people don't even realize that their hearing is on the fritz.

"People will say things like, 'I don't have hearing loss—my wife mumbles all the time,'" says Lin. "That's what it sounds like, so it's very easily ignored."

Clues to Protect Ears

What intrigues researchers is that although hearing loss is common, it's not universal.

"When we started our studies in the early '90s, people thought this was a normal part of aging—that it was inevitable, and that everyone would experience these problems as [they got] older," Karen Cruickshanks, a professor at the University of Wisconsin School of Medicine and Public Health, told students in a [September lecture](#).

"Over the course of the work here in Wisconsin, we've discovered how not true that is."

Cruickshanks is a leader of both the Epidemiology of Hearing Loss Study and the Beaver Dam Offspring Study, which examine a total of roughly 7,000 participants every five years for changes in hearing, vision, memory, and more.

On average, in the two studies, hearing declined with age. But that average "is made up of two populations—a group that does really well over time and a group that has clinically significant hearing loss,"

said Cruickshanks.

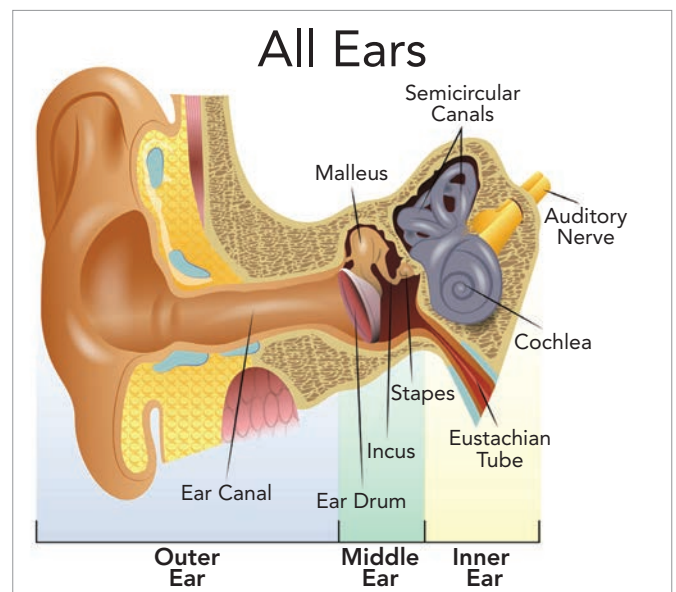
That led her to ask: If hearing loss "is not normal aging, then what's causing that decline in function over time?"

So her team started to look at what distinguishes people who lose their hearing from those who don't. Among her findings: male ears are at greater risk.¹

"Men are about twice as likely to develop hearing impairment as women, and they get it a little bit earlier," said Cruickshanks. "Women have about six more years of healthy hearing than men do."

Years in school also matter. "If you had less education, you were more likely to develop a hearing loss," she explained.

Noise on the job didn't seem to matter, even though loud noise can damage the cochlea. (See "How Loud Is Too Loud?" p. 6.) However, people are less exposed to noise at work than they were 50 years ago, thanks to a shift from blue collar to white collar jobs and regulations that require



Inner ear trouble. For most people, damage to the cochlea means that words sound garbled.

PSST...WANNA TRY A PSAP?

Cost, stigma, inconvenience. Those and other barriers may explain why millions of Americans with impaired hearing don't use hearing aids. Could over-the-counter PSAPs—personal sound amplification products—fill the gap? Here's a guide to choosing and using them.

What's the difference between a hearing aid and a PSAP?

"PSAPs are devices that amplify sound but are not marketed for hearing loss," explains Nicholas Reed, an audiologist and research fellow at Johns Hopkins University. "They can be marketed for things like improving your hearing if you're a hunter or you want to hear better at a concert or a noisy restaurant."

Any device that's marketed for someone with hearing loss would be regulated by the Food and Drug Administration as a hearing aid.

"Other than the marketing, PSAPs can have some of the exact same interior circuitry, and they can do the same things" as hearing aids, says Reed.

At least that's true for people with mild to moderate hearing loss.

"Once you get into the severe to profound hearing loss range, you need a hearing aid," notes Reed. "Hearing aids can amplify a lot of sound without a ton

of distortion. Most PSAPs couldn't handle that. They would just be squealing with noise."

And PSAPs can't adjust as easily from one situation to another.

"A hearing aid can see you through everything from the theater to a boardroom to sitting quietly in the park or at home with your family.

PSAPs aren't going to move across these situations so fluently," explains Reed.

"In the future, they may. But right now, the hearing aid is vastly superior when it comes to situational fluidity."

There's another difference: PSAPs typically cost \$200 to \$450 per ear, far less than hearing aids, which average \$4,700 per pair. But with no regulations, there's

no way for you to know how well a PSAP works. That's what led Reed to test them.

Testing, Testing...

How can people tell which PSAPs are good? "That's the million-dollar question," says Reed. So his lab started with the most basic, electroacoustic tests.

"Electroacoustic testing means you basically hook up a microphone on the device, put in sound, and measure the output," he says.



You can use a smartphone to customize the Sound World Solutions CS50+, which performed better than other personal sound amplifiers in a not-yet-published study.

workers to wear earplugs or other devices that protect their ears.

"In addition to those age, sex, and education factors, adiposity—your waist circumference—was a predictor of developing hearing loss," noted Cruickshanks.

Smokers were also at higher risk, as were people with poorly controlled diabetes.¹

People who were highly educated, never smoked, and had normal weight and blood sugar had a lower risk. But for men, the risk was "almost double if you have all of the risk factors," explained Cruickshanks. And it almost triples if you're a woman.

Cruickshanks also found a higher risk of hearing loss in people with more atherosclerosis (artery clogging) in their carotid (neck) arteries.²

"If you had plaque, a more severe

manifestation of atherosclerotic disease," said Cruickshanks, the risk rose by 16 percent for each plaque site.

People with higher levels of low-grade inflammation over long periods of time were also at increased risk.³ In an Australian study, hearing declined faster in people with high blood pressure.⁴

And in the Nurses' Health Studies, "we found that women who walked at least four hours a week had a 15 percent lower risk of hearing loss," says Sharon Curhan, a Harvard Medical School and Brigham and Women's Hospital physician and epidemiologist.⁵

But overall, we're in the early stages of research into hearing loss. Until more studies track people over time, these findings are still a work in progress.

Diet

Could certain foods or nutrients affect your hearing? Only a handful of studies have looked, but they offer some tantalizing clues:

■ **Folate.** "In our studies, people who had higher intakes of folate over time had a lower risk of hearing loss," says Curhan.^{6,7}

That's backed up by a Dutch study that gave 728 older men and women either a high dose of the B vitamin (800 micrograms a day) or a placebo for three years.⁸

"Individuals who received the folate had a slower decline in their hearing sensitivity," says Curhan, who is a leader of the Conservation of Hearing Study (CHEARS).



“If a device amplifies sound across a good frequency range and doesn’t provide a ton of distortion or internal noise, it basically meets the minimum standard for what a hearing aid should do.”

Some PSAPs are so terrible that they make hearing worse.

“One device we tested amplifies only a few very low frequencies, and it adds a ton of distortion and internal noise levels and feedback, so it’s like hearing a motor in your ear,” says Reed. “People hear better with nothing than with that device.”

Now Reed, who works with Hopkins’ Frank Lin, is testing PSAPs on people.

“The patient goes into a booth, and we produce a lot of background noise, just like you’d hear in a restaurant, and then we present sentences to them, and they repeat them,” says Reed.

“The next step is testing them in the real world. But in our very controlled setting, we’re finding that a couple of the devices are comparable to hearing aids.”

The only one currently available: the Sound World Solutions CS50+.

The Set-Up

You can buy a PSAP online from the manufacturer or Amazon. To customize



The Sound World Solutions CS50+ sells for \$349 and comes with a 45-day money-back guarantee.

it, you may need a smartphone.

“Most people who are savvy with a smartphone can follow the instructions,” says Reed.

But beware of a common error. “Most hearing loss is high frequency,” notes Reed. “That takes away the clarity of

sound, but not the volume.”

But most people turn up the bass (the low frequency), because that sounds like they’re turning up the volume.

“If you turn up the bass on your car stereo, you really notice it,” says Reed. “But if you turn up the treble, which adds clarity, you have to pay attention to notice it. So most people should turn up the high frequencies and let the lows sit where they are.”

Some PSAPs, like the Sound World Solutions CS50+, look like a Bluetooth headset—a device that connects wirelessly to a cellphone. “What a great idea,” says Reed. “It looks slick and completely removes any stigma.” Bonus: You can use it to talk or listen to music on your cell phone.

The bottom line: PSAPs could help the millions of people who aren’t getting hearing aids.

“They may not have the access, the awareness, or the funds to pursue hearing aids,” says Reed. “And many people in their 50s and 60s aren’t ready to admit that they’re starting to experience hearing loss.”

“PSAPs would be fantastic for those people because they can get a relatively inexpensive device that would improve the quality of their lives.”

However, the Dutch food supply wasn’t fortified with folic acid, like ours is. “It’s much harder to find people in the U.S. who have very low intakes of folate,” says Curhan.

(Fruits, vegetables, and beans are rich in folate. Since 1998, the B vitamin has been added to most breads, cereals, pasta, and other foods made with refined grains. That fortification has cut the risk of spina bifida and other neural tube birth defects by nearly 30 percent.)

■ **Omega-3 fats.** Curhan’s team also found that nurses who reported eating fish two to four times a week had a 20 percent lower risk of hearing loss than those who ate less than one serving a month.⁹ The omega-3 fats in fish may explain why. “A higher intake of omega-3 fats may

improve blood flow to the cochlea,” suggests Curhan. “The cochlea is highly metabolically active, so it is critically dependent on having an adequate blood supply.”



What’s more, she adds, “omega-3 fats help stabilize cell membranes so they become less vulnerable to injury, and they may help protect against inflammation and blood clots.”

Still, says Curhan, “it’s hard to disentangle what’s due to omega-3s and what’s due to fish, which is a rich nutritional package.”

■ **Carotenoids.** Among women—but not men—those who consumed the most beta-carotene and beta-cryptoxanthin

had a lower risk of hearing loss.^{6,7} Both carotenoids are found in fruits and vegetables. Why might they matter?

“The ear works so hard, and it has such a high metabolic rate, that it can generate byproducts of metabolism that can be potentially toxic,” explains Curhan. “Beta-carotene and beta-cryptoxanthin are effective antioxidants that may help prevent that damage.”

■ **Vitamin C.** “We found that women who consumed at least 1,000 milligrams a day of vitamin C, mostly from supplements, had a 22 percent higher risk of hearing loss,” says Curhan.⁶ But the link didn’t show up in men.⁷

Overall, the data on diet and hearing is still emerging. “For a long time, hearing loss



was considered an inevitable part of aging," says Curhan, "but it's becoming more and more clear that there may be things that we can do to prevent or delay it."

Hearables

In the meantime, if you're having trouble hearing, you're not alone.

"By the time we get to 70 and above, two out of every three Americans has a

clinically meaningful hearing impairment," says Johns Hopkins' Frank Lin. "But the rate of hearing aid use is phenomenally low—about 15 percent of those who need one."

That's partly because Medicare and most insurance plans don't cover hearing aids. So consumers have only one option: pay out of pocket for hearing aids that are bundled with services.

"You plunk down a bunch of money for upfront costs and for visits back and forth to an audiologist or a technician trained to fit hearing aids," explains Lin.

"And the average cost is \$4,000 to \$5,000, which is absurd. That model is good for people who have more complicated kind of hearing loss, so they need a lot of customization. But many others don't."

Take a 60-year-old who has trouble hearing only in noisy settings, says Lin. "They don't want to go through that whole process just to get a hearing device that they need only part of the time."

That's where over-the-counter personal sound amplifiers may help. (See "Psst...Wanna try a PSAP?" p. 4.) The problem: many are junk.

"The vast majority of devices you see in the back of magazines—the ones that say '\$50 miracle device!'—are complete garbage," Lin cautions. "They just make everything louder. The sound quality is terrible. Those companies are just out to make a buck."

In contrast, he notes, "a few are excellent, but consumers don't know which are good and which are bad."

Lin recently served on a National Academy of Medicine Committee on Accessible and Affordable Hearing Health Care for Adults. One of its recommendations: the Food and Drug Administration should create a category of over-the-counter "wearable hearing devices" that meet basic standards.¹⁰

(Lin is on a scientific advisory board for the drug company Pfizer, serves on a safety monitoring board for Autifony, a



Want to take a quick screening test for hearing loss by phone?

The National Hearing Test—created with funding from the National Institutes of Health—costs only \$5. It tests how well you can hear speech with noise in the background. You'll need a landline (not a cell phone) and a quiet room. Ready? Go to nationalhearingtest.org.

company that develops drugs for hearing loss, and has a research grant from Cochlear Ltd, which designs and manufactures cochlear implants. He has no financial ties to any PSAP makers.)

"If you buy a pair of reading glasses at a drugstore, you know they're going to work to a certain degree," says Lin.

Once the FDA sets benchmarks for PSAPs, big box stores might carry them, and people could shop for the best.

"It would be like buying a new phone," says Lin. "You'd see a plethora of ratings in places like *Consumer Reports*." 🍌

- ¹ *J. Am. Geriatr. Soc.* 63: 918, 2015.
- ² *Atherosclerosis* 238: 344, 2015.
- ³ *J. Gerontol. A Biol. Sci. Med. Sci.* 69: 207, 2014.
- ⁴ *J. Gerontol. A Biol. Sci. Med. Sci.* 67: 997, 2012.
- ⁵ *Am. J. Med.* 126: 1142.e1, 2013.
- ⁶ *Am. J. Clin. Nutr.* 102: 1167, 2015.
- ⁷ *Otolaryngol. Head Neck Surg.* 142: 231, 2010.
- ⁸ *Ann. Intern. Med.* 146: 1, 2007.
- ⁹ *Am. J. Clin. Nutr.* 100: 1371, 2014.
- ¹⁰ nationalacademies.org/hmd/Reports/2016/Hearing-Health-Care-for-Adults.aspx.



Bottom Line

- Avoid loud noises.
- Don't smoke.
- Keep a lid on your blood sugar.
- Lose (or don't gain) excess pounds.
- Aim for 30 to 60 minutes a day of exercise like brisk walking.
- Fill half your plate with fruits and vegetables.
- Eat fish twice a week.

The (Blood) Pressure's ON

BY CAITLIN DOW

"Blood pressure is measured incorrectly about half the time," says physician William B. White, editor of the medical journal *Blood Pressure Monitoring*.

Here are some common mistakes that can cause your systolic blood pressure reading to be off by

2 to 20 points. If you have hypertension, the error is more likely to be at the higher end.

Your doctor should take your blood pressure at least twice on at least two separate occasions before diagnosing hypertension.

Posture

Sitting on an exam table or a chair with no back support can raise your diastolic pressure.¹ (That's the lower number.)

¹[Am. J. Hypertens. 3: 240, 1990.](#)

Arm Position

Your upper arm should be supported at heart level by the person taking your blood pressure, not by you. Your pressure is higher if your arm rests below your heart level, and is lower if your arm rests above your heart.¹

¹[Circulation 111: 697, 2005.](#)

Feet Position

If your feet aren't flat on the floor or your legs are dangling or crossed, your blood pressure reading may be higher.¹

¹[Blood Press. Monit. 4: 97, 1999.](#)



Talking

Even a casual conversation can raise your pressure.¹

¹[Arch. Psych. Nurs. 6: 306, 1992.](#)

Miscuffing

Wrapping the cuff around clothing can lead to a higher reading. So can a cuff that's too tight (too small for your arm or wrapped too tightly). And a cuff that's too loose or too large can lead to lower readings.¹

¹[Epidemiology 2: 214, 1991.](#)

Caffeine

Consuming caffeine 30 minutes to two hours before the measurement can raise your pressure.¹

¹[Ann. Pharmacother. 42: 105, 2008.](#)

Cigarettes

Smoking within half an hour of the measurement can increase blood pressure.¹

¹[N. Eng. J. Med. 295: 573, 1976.](#)

Bladder

A (very) full bladder can raise your pressure.¹

¹[Hypertension 14: 511, 1989.](#)

Exercise

Aerobic exercise within 30 minutes of the measurement can lower your pressure.^{1,2}

¹[Clinics 65: 317, 2010.](#)

²[J. Hum. Kinet. 43: 49, 2014.](#)

Checking Pressure at Home

"You want to make sure that the device you use was independently assessed and validated," says *Blood Pressure Monitoring* editor William B. White.

The American Heart Association [recommends](#) an automatic, cuff-style, bicep (upper-arm) monitor. You should be able to find one for \$50 to \$100. Wrist and finger monitors give less reliable readings, says the AHA.

For a list of validated monitors, see dableducational.org/sphygmomanometers/recommended_cat.html or [Consumer Reports](#), which rated monitors in May 2015.

Tip: To verify your monitor's accuracy and that you're using it properly, take it with you to your next doctor's appointment.



Calcium Cleared



“Calcium supplements could increase risk of heart disease, new study finds,” said a [Washington Post headline](#) in October.

Relax. That study found a 27 percent lower risk of calcification in coronary arteries among people who got the most calcium (from food plus supplements). Oddly,

it also found a higher risk only among those who took low—but not high—doses of calcium supplements.

But that’s one study (with somewhat inexplicable results). Two weeks later, the American Society for Preventive Cardiology and the National Osteoporosis Foundation concluded that calcium supplements have no impact on heart attacks, strokes, or other cardiovascular disease. That was based on a new review of the evidence (including four clinical trials and 27 observational studies) by an expert panel, which found no increased risk in people who consumed up to 2,000 to 2,500 milligrams of calcium a day.

What to do: If you don’t get the Recommended Dietary Allowance for calcium (1,000 to 1,200 mg a day, depending on your age and sex) from food, it’s fine to take a supplement. Odds are, you only need about 500 mg (or less), since each serving of milk, yogurt, cheese, or most fortified foods has 150 to 300 mg, and most people get about 250 mg from the rest of their diet. (Note: many multivitamins have 200 to 500 mg.) Taking a daily supplement with 1,000 mg or more may raise the risk of kidney stones and hip fractures. Taking 2,000 mg or more may raise the risk of prostate cancer.

[J. Am. Heart Assoc. 2016. doi:10.1161/JAHA.116.003815.](#) [Ann. Intern. Med. 2016. doi:10.7326/M16-1165 & doi:10.7326/M16-2193 & doi:10.7326/M16-1743.](#)

Butter vs. Margarine...Again

Does butter beat margarine? It depends on the margarine.

Researchers tracked roughly 71,400 women aged 50 to 79 who participated in the Women’s Health Initiative Observational Study for 13 years.

Among those who used just one type of spreadable fat, every teaspoon per day of tub margarine instead of butter was linked to an 8 percent lower risk of heart attack. Every teaspoon of tub margarine per day instead of stick margarine was linked to a 13 percent lower risk of heart attack.

(Stick margarines were high in artery-clogging trans fat when the study began. Some brands are instead now high-



er in saturated fat, though not as high as butter.)

What to do: An occasional pat of butter won’t hurt, but tub margarine—or, better yet, olive oil—is a better spread.

[Epidemiol. 2016. doi:10.1097/EDE.0000000000000557.](#)

Cool & Fizzy

What quenches thirst? Is there something about cold soda or fizzy water that makes it popular?

Scientists made 98 people thirsty by feeding them a breakfast of toast with jelly but no liquids after a 12-hour overnight fast. Then the people drank roughly 13 ounces of a “test water” and, five minutes later, drank as much unchilled water from a jug as they wanted.

The participants drank less water from the jug—that is, their thirst was more quenched—after drinking test water that was cold rather than unchilled or carbonated rather than still. Adding sugar or citric acid to the water had no impact on thirst.

And people guessed that they had consumed more of the test water when it was cold and carbonated than unchilled and uncarbonated, suggesting that fizzy, cold drinks make you feel more full.

The study was partly funded by Suntory, a Japanese beverage maker.

What to do: You may feel less thirsty after a cold, carbonated drink. But would you drink more of an unchilled, uncarbonated beverage? This study can’t say.

[PLoS One 2016. doi:10.1371/journal.pone.0162261.](#)

Goodbye, Garlic Breath?

Garlic? Yum. Garlic breath? Yuck. So researchers had someone chew a clove’s worth of raw garlic for 25 seconds and then consume a few ounces of raw apple, heated apple, apple juice, raw iceberg lettuce, heated lettuce, green tea, mint juice, or water or 2 tablespoons of mint leaves.

Results: the raw apple, raw lettuce, and mint leaves were best at neutralizing the volatile compounds that cause garlic breath. The heated foods and juices were less effective, and the green tea was no better than water.

What to do: Love garlic chicken, shrimp, bread, pasta, or pizza? Eating them with a green salad may help. 🍋

[J. Food Sci. 2016. doi:10.1111/1750-3841.13439.](#)

MICROBIOME

It takes a village

BY DAVID SCHARDT

"So much of our human history of exposure to bacteria and viruses has been through infectious diseases and plagues," says Lita Proctor.

"It's hard to wrap our heads around the idea that microbes also play a major role in supporting our health."

They break down undigested food, make vitamins, prime our immune system, secrete neurotransmitters that allow nerve cells to communicate with each other, help defend us against invading bugs, and more.

"But there's still so much that we don't know," says Elisabeth Bik, of Stanford University, who publishes microbiomedigest.com, a website that updates investigators on new research.

SOME OF WHAT WE KNOW

Your microbiome begins at birth. You're colonized with your mother's vaginal microbiome as you pass through the birth canal. Babies born by caesarean section, who miss that journey, are colonized instead largely with microbes from the hands of their mothers and the nurses, doctors, or others who hold them.

That may matter later. Children born by C-section, for example, are nearly twice as likely to have asthma.¹

Rob Knight, a leading microbiome expert, and his wife, Amanda, knew the importance of that first microbiome when their daughter was born by emergency C-section.

"We took matters into our

"Without bacteria, viruses, fungi, and other microorganisms, there wouldn't be life on earth, and we wouldn't be here," says Lita Proctor. "Every kind of living thing is dependent on communities of microbes we call microbiomes, and that includes humans."

Proctor is director of the [Human Microbiome Project](http://HumanMicrobiomeProject.org), an eight-year research mission of the National Institutes of Health to explore the role of the microbiome in human health and disease. Here's some of what we know so far...and what we still need to find out.

own hands," the University of California, San Diego, scientist wrote in his recent book ["Follow Your Gut."](http://FollowYourGut.com)

Using sterile cotton swabs, they took samples of Amanda's vaginal microbiome, "which we then transferred to various parts of our newborn: the skin, the ears, the mouth—all the places mi-

crobes would have ended up naturally had she passed through the birth canal," wrote Knight. "Our baby needed those microbes."

You have many microbiome communities in and on your body. The microbiome in the large intestine is by far the

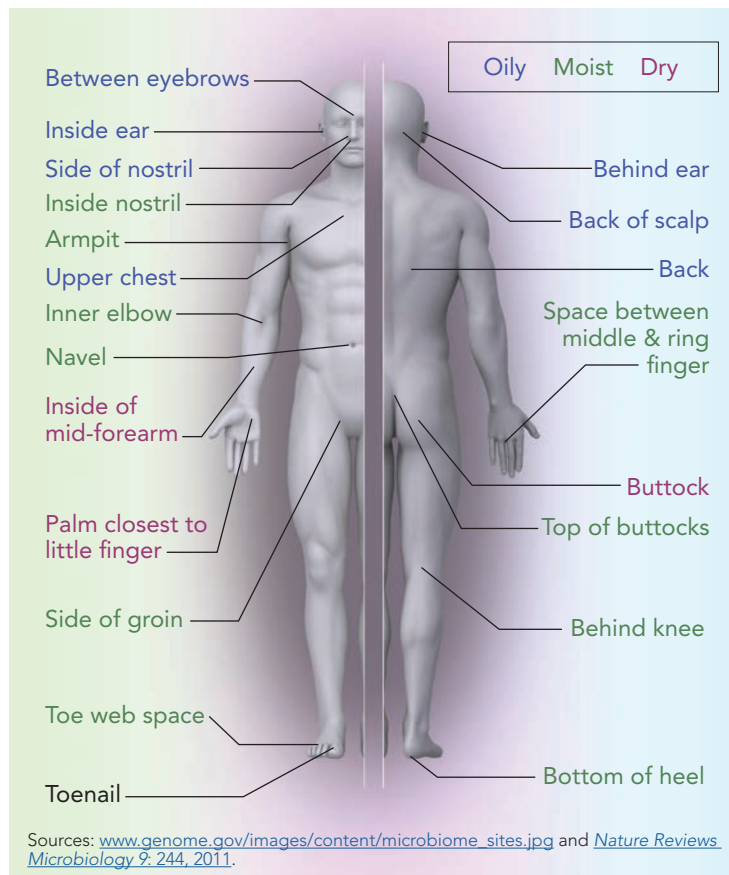
largest and most complex. "The average adult carries three to five pounds of microbes there," notes Proctor.

Our fingers, hands, ears, navels, toes, mouth, and other nooks and crannies each have their own unique community of bacteria, viruses, and yeasts.

The environment affects your microbiome. If you live with other people, your microbiome bears some resemblance to theirs, even if they're not blood relatives. Have a dog, cat, or other pet? You've picked up some of its microbiome, too.

No two people have the same microbiome. As a group, humans have similar microbiomes. "But if you drill down deeper, you'll see differences in the composition of the microbiomes between one person and another," says Proctor.

For example, University



Welcome home! Your skin (see above) and other sites on your body are home to distinct communities of bacteria, fungi, and viruses.



of Colorado researchers could link nine people to their computer mice by matching the bacteria left on the mice to the microbiomes on the owners' fingers.²

But that doesn't mean that different microbiomes function differently.

"Microbes are metabolically incredibly versatile," Proctor explains. You can have two microbiomes that look very different but function in the same way. "That's because microbiomes are communities of microbes, not individuals acting independently."

There is no "best" microbiome.

"There is no one healthy microbiome," notes Bik. "There's a huge variety of microbiomes among healthy people."

What's more, a healthier *gut* microbiome has many families of microbes. But for the *vaginal* microbiome, less diversity seems to be healthier.

"This drives researchers crazy," says Proctor, "because they want clear rules of the road."

The best food for your gut microbiome is fiber.

"Eating dietary fiber is associated with a very different microbiome, one that's richer, with a higher number of bacterial species compared with eating a low-fiber diet," says Bik.

"But you can't get the fiber from a drink or a pill," notes Proctor. "You have to present your microbes with a diverse array of fibers from a lot of different plant materials, such as beans and green vegetables."

Think of yourself as a zookeeper for the community of little creatures inside you, says Bik. "Eating fiber is good not just for us: It also keeps them happy."

Antibiotics disrupt your gut microbiome.

"When we take antibiotics, we lose good and bad bacteria and some of the diversity in our gut," says Bik.

"Some of the microbes will bounce back, but some probably won't."

Your gut microbiome changes as you age.

It gets "noisier," says Proctor. "We find less diversity—fewer families of microbes—in the microbiomes of people 65 and older, and there's a lot more variability between older people than between younger folks."

That could be the result of repeated antibiotic use, says Bik. "Or maybe they're eating softer, less fibrous food or spending less time outdoors exposed to microbes."

Bottom line: Don't cut back on fiber-rich plant foods as you get older, says Proctor.

SOME OF WHAT WE DON'T KNOW

How does the microbiome affect weight?

During the exhilarating first years of microbiome research, scientists reported differences in the makeup of gut bacteria between lean and overweight people.

varying weights.³

Their finding: knowing which microbes are in a person's gut microbiome isn't very good at predicting whether he or she is normal weight or obese. In other words, they could find no clear "lean" or "obese" gut microbiome.

"It is possible that each individual has his or her own signatures of obesity," the researchers speculated.

That makes sense to Lita Proctor.

"You can have different bacteria performing the same functions, so knowing only their identity may not tell you what you need to know," she notes.

It's what those microbes do, not who they are, that may matter.

"Researchers are now measuring the activity of these microbes—what proteins and other metabolites they're producing as a community, for example—to get closer to knowing how a particular microbiome affects our health," says Proctor.

Can the microbiome prevent or treat disease?

Scientists are hot on the trail, but have yet to figure out how—or even if—it does. Exception: treating *Clostridium difficile* infections. (See "Poop Power?")

Some examples:

■ **Diabetes.** In 2010, Dutch researchers reduced insulin resistance—which often leads to type 2 diabetes—in nine men by transplanting into their intestines solutions containing the feces of men who were not insulin resistant.⁴

Can fecal transplants actually prevent—or even help reverse—diabetes? Several studies are looking.

■ **Depression.** In an Irish study, the gut microbiomes of 34 people with serious depression had fewer and less diverse microbes than the gut microbiomes of 33 similar depression-free people.⁵

Interestingly, rats that got transplants of fecal microbes from the people with depression were more likely to show signs of anxiety and less interest in

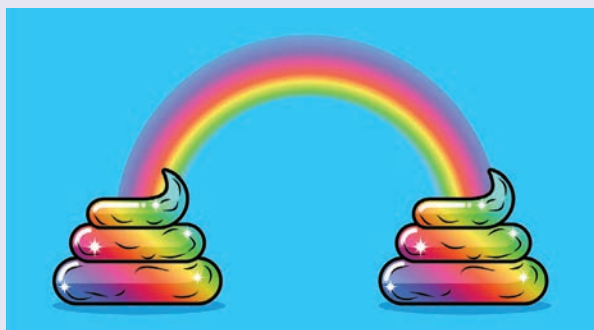


Where the bugs are. Fresh fruits and vegetables are a much richer source of healthy microbes than processed foods.

Researchers even succeeded in fattening lean mice by transferring microbes from overweight people into their colons. That raised the hope that obesity could one day be treated with microbes.

But this summer, two University of Michigan researchers pooled the results of 10 studies on nearly 2,800 people of

POOP POWER?



The most dramatic use of the gut microbiome so far has been the cure of difficult-to-treat, sometimes life-threatening *Clostridium difficile* infections using fecal transplants.¹ Those are transfers of a solution containing a healthy donor's stool to another person, either through a tube down the throat or an enema-like injection.

But the Food and Drug Administration has said that it will allow fecal transplants only to treat *C. diff*, and only when all other treatment options have been exhausted. Why? Concerns about safety and effectiveness.

Case in point: a 32-year-old near-normal-weight woman became obese after a fecal transplant to treat her *C. diff* infection.² "This patient's weight gain was dramatic and disturbing," her physician told *Scientific American*. The donor was her 16-year-old daughter, who also became obese.

Coincidence? Researchers don't know. But that hasn't stopped websites like thepowerofpoop.com from helping people who want to do their own fecal transplants at home.

¹ *World J. Gastroenterol.* 21: 5359, 2015.

² *Open Forum Infect. Dis.* 2: ofv004, 2015.

appealing food than rats that got transplants from people without depression.

■ **Autism.** Small pilot studies find that the gut microbiomes of children with autism are different from other children's gut microbiomes.⁶ But that doesn't mean that the microbiomes caused the autism. Autistic children often have diarrhea or constipation or abnormal eating habits, which could alter their microbiomes.

But when researchers at the California Institute of Technology transferred gut microbes from autistic children into mice, the animals started exhibiting repetitive behaviors and had trouble interacting with others, two characteristics

of people with autism. The study hasn't yet been published.

■ Colorectal cancer.

People with colorectal cancer have different gut microbiomes than others, but that could be either a cause or a result of the cancer.⁷

The evidence for the microbiome as culprit isn't clear. After being exposed to a carcinogen, mice that got fecal transplants from other mice with colorectal cancer developed more and larger tumors than mice that got fecal transplants from healthy mice.⁸

But when researchers exposed mice to a carcinogen after giving them fecal transplants from humans with colon cancer, the mice had no more tumors than mice that got transplants from healthy people.⁷

■ **Heart disease.** Red-meat eaters have bacteria in their gut microbiomes that convert the carnitine in meat into what eventually becomes

TMAO, a compound that speeds up artery clogging.⁹ That may help explain why people who eat red meat have a higher risk of heart disease.

Vegetarians have less of that kind of bacteria, and they don't produce much TMAO when given a carnitine supplement.

To play it safe, avoid supplements that contain carnitine, unless they've been prescribed.

■ **Vaginosis.** Bacterial vaginosis—the most common vaginal infection in women up to age 44—occurs when the normal balance of bacteria in the vagina is disrupted.

But vaginal microbiomes in healthy

women can differ among ethnic groups, and within the same group depending on age, birth control methods, and sexual practices.¹⁰

For example, *Lactobacilli* dominate most vaginal microbiomes, but a microbiome that's short on *Lactobacilli* isn't necessarily unhealthy.

So far, two studies—in Brazil and Benin, Africa—suggest that an oral probiotic with *Lactobacillus rhamnosus* GR-1 and *Lactobacillus reuteri* RC-14, along with an antibiotic, helped clear up vaginosis better than an antibiotic alone.^{11,12} But more studies are needed.

■ **Asthma.** Children who are exposed to a host of microbes in the environment while growing up—if they live on a farm, for example—are less likely to have asthma. But studies looking at whether more diverse gut microbiomes are linked to a lower risk are inconsistent.¹³ Nor have studies consistently implicated a specific group of microbes as risky.

And in four trials, children aged five months and younger who were given probiotics for 3 to 9 months were just as likely to develop asthma or wheezing as those given a placebo.¹⁴

■ **Ulcerative colitis.** The gut microbiomes of people with chronic inflammation and sores in the lining of their colon have lower diversity and a different makeup of microbes than the microbiomes of healthy people.¹⁵ But it's not clear whether that's a cause or a result of the disease.

Canadian researchers gave 38 patients weekly fecal-transplant enemas for six weeks. By the end of the study, 9 were in remission, compared with just 2 of 37 who got placebo enemas.¹⁶ 🍌

¹ *Thorax* 64: 107, 2009.

² *PNAS* 107: 6477, 2010.

³ *MBio* 7: e01018-16, 2016.

⁴ *Gastroenterology* 143: 913, 2012.

⁵ *J. Psychiatr. Res.* 82: 109, 2016.

⁶ *Microb. Ecol. Health Dis.* 26: 26914, 2015.

⁷ *Microbiome* 2: 20, 2014.

⁸ *MBio* 4: e00692-13, 2013.

⁹ *N. Engl. J. Med.* 368: 1575, 2013.

¹⁰ *Clin. Lab. Med.* 34: 747, 2014.

¹¹ *Can. J. Microbiol.* 55: 133, 2009.

¹² *Eur. J. Obstet. Gyn. Reprod. Biol.* 168: 75, 2013.

¹³ *Yale J. Biol. Med.* 89: 309, 2016.

¹⁴ *Pediatrics* 132: e666, 2013.

¹⁵ *Transplant Proc.* 48: 402, 2016.

¹⁶ *Gastroenterology* 149: 102, 2015.

Beans & Rice!

BY KATE SHERWOOD



To turn either of these two easy combos into a healthy meal, just toss a salad for the red beans or pair the black beans with roasted chicken.

Got a question or suggestion? Write to Kate at healthycook@cspinet.org.

Red Beans & Rice

- 2 Tbs. olive oil
- 1 bunch scallions, chopped
- 1 yellow pepper, chopped
- 2 cups cooked brown rice
- 1 15 oz. can no-salt-added red kidney beans, drained
- 2 fully cooked chicken or turkey sausages, chopped
- ¼ tsp. kosher salt

Per serving (1½ cups): calories 330
total fat 9 g | sat fat 2 g | carbs 45 g
fiber 12 g | protein 19 g | sodium 440 mg

Directions

1. In a large non-stick pan, heat the oil over medium heat until shimmering hot.
2. Stir in the scallions (or onion) and pepper. Cook, stirring often, until they start to brown, 3-5 minutes.
3. Stir in the rice, beans, and sausage (or rice and beans) and heat through, 1-2 minutes.
4. Stir in the remaining ingredients.

Serves 4



Black Beans & Rice

- 2 Tbs. olive oil
- 1 onion, chopped
- 1 red pepper, chopped
- 2 cups cooked brown rice
- 1 15 oz. can no-salt-added black beans, drained
- 2 Tbs. Worcestershire sauce
- ¼ cup cilantro sprigs, chopped
- ¼ tsp. kosher salt

Per serving (1 cup): calories 280
total fat 8 g | sat fat 1 g | carbs 45 g
fiber 8 g | protein 9 g | sodium 220 mg



Photos: Kate Sherwood/CSPI.



Veggie Nice!

From *White Beans with Roasted Cherry Tomatoes* to *Chipotle Tofu Lettuce Tacos*, 31 vegetarian main dishes from Kate Sherwood, *Nutrition Action's Healthy Cook*.

Visit NutritionAction.com/VeggieNice or send a check for \$16.99 and your name & address to CSPI—Veggie Nice, Suite 300, 1220 L St. NW, Washington DC 20005.

THE BEAN SCENE

Where—and why—to find the best

BY LINDSAY MOYER & BONNIE LIEBMAN



Finally. Beans, peas, and other legumes are trending. Maybe it's because people are looking for more plant protein. Maybe it's because companies are pushing everything from bean chips to bean pasta to bean brownies. Maybe it's because the United Nations named 2016 the International Year of Pulses—aka legumes. (Okay, probably not.)

That said, we still eat fewer beans than experts recommend. Here's how to boost your bean eating.

The information for this article was compiled by Jennifer Urban.

Simply Beans

Canned beans are the ultimate fast food. You can open a can and toss them into a salad, soup, or stew in 60 seconds flat. The two downsides:

■ **Salt.** It's easy to skip. Just look for "no salt added" on the label. You'll save 250 to 500 milligrams of sodium for every half cup. If you're tossing your beans into a soup, salad, or other dish, you'll get plenty of salt from the broth, dressing, etc. That's why our Best Bite unseasoned beans have no added salt.

Want just a little salt? Buy low sodium.

Want less—but not *no*—salt? Look for "low sodium" (140 mg or less per half cup) or "reduced sodium" (usually 140 to 240 mg). You can also cut the salt by about a third if you drain and rinse your beans in water for 10 seconds or so. Our unseasoned Honorable Mentions have no more than 140 mg of sodium per half cup.

■ **BPA.** BPA (bisphenol A) is an estrogen "mimic" that's in the linings of some cans, in polycarbonate plastic bottles and containers, and in the tops of some bottles, jars, and microwaveable containers. In 2010, the National Institute of Environmental Health Sciences expressed "some concern" about BPA's "effects on the brain, behavior, and prostate gland in fetuses, infants, and children at current exposure levels."

But "BPA-free" cans with replacements like BPS may be no better. And some companies won't name—or haven't thoroughly tested—their replacements.

Instead, why not cook your own dry beans? No time? You might lower your exposure by picking up:

■ **Tetra Pak cartons.** Try **Whole Foods 365 Organic No Salt Added** or **Target Simply Balanced Organic Low Sodium** lines.

■ **Pouches.** Target's no-salt-added **Simply Balanced Black Beluga Lentils** beat **Steamed Lentils** from **Melissa's** (230 mg) or **Trader Joe's** (240 mg).

■ **Frozen bags.** Try no-salt-added cooked beans from **Stahlbush Island Farms** and **13 Foods**, **Whole Foods 365** (black-eyed peas), and **Sea-point Farms** and others (edamame).

■ **Time savers.** Red lentils are ready in 10 to 15 minutes. Ditto for **TruRoots** organic sprouted lentils or mung beans.



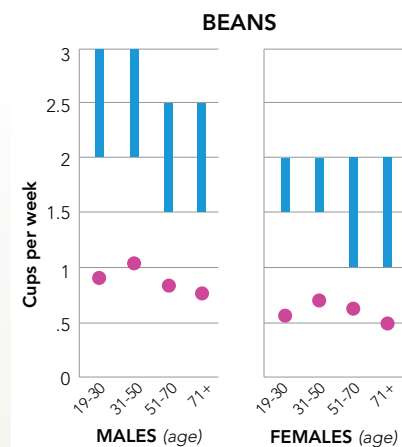
Red lentils: ready in as little as 10 minutes.

Beanefits

Why the fuss over beans? (We're using "beans" as shorthand for peas, lentils, and other legumes.)

They're packed with fiber, protein, potassium, magnesium, folate, and iron, which may help explain why they're good for you. More reasons to eat beans:

■ **Cholesterol.** Beans lower LDL ("bad") cholesterol, probably



Our average bean intake (dots) falls far short of recommended ranges (bars).

because they're rich in the gummy, soluble type of fiber.

■ **Blood pressure.** Beans help lower blood pressure, possibly because they're a decent source of potassium. Bonus: their magnesium may help prevent type 2 diabetes.

■ **Regularity.** Beans contain less water than fruits and vegetables, which makes them a more concentrated source of fiber. Expect 6 or 7 grams of fiber in half a cup of most beans. The same amount of most veggies or fruits has 1 to 3 grams. (Don't worry that some brands of, say, black beans seem to have less fiber than others. The different numbers on the labels are largely due to different laboratory tests, not differences in the beans.)

■ **Plant protein.** Eating beans instead of red meat (beef or pork) can help lower your risk of colorectal cancer, heart disease, and type 2 diabetes. (It also helps fight climate change.)

■ **On the downside.** Beans contain oligosaccharides, carbs that our digestive enzymes can't break down. Instead, they're fermented in the gut, which can produce gas.

Solution: cook beans thoroughly (or use canned), rinse away liquids, and increase your servings gradually. If all else fails, try **Beano**, an enzyme that breaks down the oligosaccharides for you.



Beans, onions, peppers, and spices. Better indeed!

It's well worth looking. From **Tuscan White Beans to Skillet Refried Red Beans**, Better Bean's seven flavors—six of them Best Bites—let you heat and eat beans that taste like homemade.

And if you're looking for ordinary refried beans, you're in luck. In addition to Better Bean, **Eden Organic** and **Amy's Organic Light in Sodium** (in cans) and **Pacific Organic** refried black beans (in cartons) are Best Bites (300 mg of sodium or less per half cup). Plenty of others are Honorable Mentions (450 mg or less).

Tip: Despite their name, most refried beans are low in fat and have no more than 150 calories per half cup.

Refried & Beyond

"Beans are better fresh," says the **Better Bean** website. "You won't find our beans in the usual place. Look for our uncanny beans in the refrigerator section."

Bean Blends

Who needs a side of rice when you can have **Trader Joe's Melodious Blend**? The Honorable Mention is a "masterful mélange of green lentils, red lentils, and green garbanzo beans, harmoniously balanced with a smattering of diced tomatoes, a splash of extra virgin olive oil, and a dash of sea salt," says the (frozen) bag. Mmm.

Not yet ready to replace your side of grains with beans? At least add some beans to your brown rice, bulgur, quinoa, or other whole grains. (See page 12 for two go-to recipes.)

Or let (frozen) **Birds Eye Protein Blends** do it for you. Birds Eye doesn't skimp on the beans, judging by the impressive protein (10 to 14 grams) and fiber (9 to 17 grams) in each cup. Just open a bag—the **Italian Style** (an Honorable Mention), say—and heat your "whole grains, lentils, spinach, broccoli and white beans with a garlic parmesan sauce."

Or try nutty-tasting **Whole Foods 365 Speltz, Green Lentils & Long Grain Brown Rice**, another Honorable Mention.



Keep Joe's blend in the freezer for a quick side of beans.

Spice It Up!

From lentil dal to channa masala, Indian cuisine treats beans right.

Many Tasty Bite, Kitchens of India, Jyoti, and Trader Joe's heat-and-eat pouches or cans are rich in beans.

Unfortunately, they're also rich in sodium (around 500 to 800 milligrams per half cup). We found only one Best Bite (**Jyoti Dal Makhani**) and a handful of Honorable Mentions (**Jyoti Masala Chhole** and **Madras Sambar** and **Tasty Bite Bombay Lentils** and **Channa Masala**).

Solution: add a cup of drained no-salt-added canned beans or cooked red lentils to the contents of each package. Mix a two-serving pouch of Tasty Bite Channa Masala (450 mg of sodium per half cup) with a cup of unsalted chickpeas, and voilà—you've got a Best Bite that serves four (roughly 230 mg of sodium per half cup). Trust us. There's plenty of sauce to go around.

If you're looking for beans with some kick, vegetarian chili should also be on your radar. **Amy's Organic Light in Sodium Medium Chili** was our fave Honorable Mention. It hits 16 grams of protein per cup because Amy adds tofu. Another taste winner: (frozen) **Tabatchnick Vegetarian Chili**, which missed an Honorable Mention by just 20 mg of sodium.



Add a cup of unsalted beans to cut the sodium.

Bean Pasta

Green lentil lasagna, anyone? Soybean spaghetti?

Companies are making pasta out of red lentils, green lentils, black beans, chickpeas, edamame, mung beans, and adzuki beans. (Ancient Harvest and Explore Cuisine add brown rice and/or quinoa flour to some of their pastas.)

All are gluten-free and have plenty of protein.

But watch out. "25g PROTEIN," says the box of **Ancient Harvest POW! Green Lentil Penne**. That's what you'd get in a 3½ oz. (dry) serving, not the 2 oz. that Nutrition Facts labels have to use. Banza and Tolerant play the same trick. In fact, each 200-calorie serving of most cooked bean pasta has 11 to 15 grams of protein. Soybean or edamame pasta can hit 25 grams. In contrast, a serving of whole wheat or white pasta has just 7 or 8 grams.

Likewise, a serving of most bean pastas packs 7 to 11 grams of fiber, versus 6 grams in whole wheat (and 2 grams in white).

Just be sure to follow the directions carefully. Overcooked bean pasta can get gummy. Our favorites: **Tolerant Simply Legumes Organic Green Lentil** or **Red Lentil Pasta**.

Ancient Harvest POW! Pasta Meals and **Modern Table Meals** add sauce to their bean pastas. *Meals?* Only if you add your own veggies. 🍅



Now you can trade pasta's grains for beans.

Bean Good?

Best Bite (✓✓) unseasoned beans have no added salt and **Honorable Mentions** (✓) have no more than 140 mg of sodium per ½ cup. For all other beans, Best Bites have no more than 300 mg of sodium per serving and Honorable Mentions have no more than 450 mg. Bean blends or pastas that contain grains must have mostly whole grains. Within each section, beans are ranked from least to most sodium, then most to least protein and fiber, then least to most calories.

| Unseasoned Beans (½ cup, canned, unless noted, undrained) | Calories | Sodium (mg) | Protein (g) | Fiber (g) |
|--|----------|-------------|-------------|-----------|
| ✓✓ Simply Balanced (Target) Black Beluga Lentils (pouch)* | 120 | 0 | 9 | 4 |
| ✓✓ 365 (Whole Foods) or Stahlbush Island Farms Organic—Black-Eyed Peas (frozen) ¹ | 100 | 0 | 7 | 6 |
| ✓✓ Red lentils, any brand (¼ cup dry) | 170 | 5 | 11 | 5 |
| ✓✓ TrüRoots Organic Sprouted (¼ cup dry) ¹ | 140 | 10 | 10 | 8 |
| ✓✓ Stahlbush Island Farms—Garbanzo or Green Garbanzo (frozen) ¹ | 150 | 10 | 9 | 7 |
| ✓✓ 13 Foods (frozen) ¹ | 120 | 10 | 7 | 9 |
| ✓✓ 365 Organic (Whole Foods) No Salt Added (carton) ¹ | 100 | 10 | 6 | 6 |
| ✓✓ 365 (Whole Foods) No Salt Added ¹ | 110 | 10 | 6 | 6 |
| ✓✓ Seapoint Farms Shelled Edamame (frozen) | 100 | 15 | 10 | 6 |
| ✓✓ Eden Organic No Salt Added ¹ | 110 | 25 | 7 | 6 |
| ✓ 365 Organic (Whole Foods) ¹ | 110 | 90 | 7 | 8 |
| ✓ Simply Balanced (Target) Organic Low Sodium (carton) ¹ | 140 | 110 | 9 | 8 |
| ✓ Goya Low Sodium ¹ | 110 | 110 | 7 | 8 |
| ✓ Jyoti Organics (pouch) ¹ | 110 | 125 | 7 | 6 |
| ✓ Bush's Reduced Sodium—Cannellini or Dark Red Kidney ¹ | 110 | 130 | 7 | 7 |
| ✓ Bush's Organic or Trader Joe's Organic ¹ | 110 | 140 | 6 | 6 |
| ✓ Melissa's Steamed Lentils (pouch) | 120 | 230 | 10 | 6 |
| ✓ Bush's Reduced Sodium—except Cannellini or Dark Red Kidney ¹ | 110 | 230 | 7 | 6 |
| ✓ Trader Joe's Steamed Lentils (pouch) | 120 | 240 | 9 | 8 |
| ✓ Bush's—Cannellini, Dark Red Kidney, or Light Red Kidney ¹ | 110 | 260 | 7 | 7 |
| ✓ Progresso ¹ | 110 | 330 | 7 | 5 |
| ✓ Goya ¹ | 90 | 370 | 6 | 6 |
| ✓ Bush's—except Cannellini, Dark Red Kidney, or Light Red Kidney ¹ | 100 | 470 | 6 | 6 |
| Seasoned Beans (½ cup, canned, unless noted) | | | | |
| ✓✓ Better Bean (tub) ¹ | 160 | 260 | 8 | 6 |
| ✓✓ 365 Organic (Whole Foods) Spicy Black | 110 | 280 | 7 | 6 |
| ✓ Trader Joe's Cuban Style Black | 100 | 370 | 6 | 6 |
| ✓ Bush's Chili Beans—Black, Kidney, or White ¹ | 110 | 430 | 7 | 6 |
| ✓ Bush's Seasoned Recipe Black | 130 | 450 | 8 | 7 |
| ✓ 365 Organic (Whole Foods) Ranchero | 120 | 520 | 7 | 5 |
| Refried Beans (½ cup, canned, unless noted) | | | | |
| ✓✓ Eden Organic ¹ | 100 | 180 | 7 | 7 |
| ✓✓ Amy's Organic Light in Sodium ¹ | 140 | 210 | 8 | 6 |
| ✓✓ Better Bean (tub) ¹ | 160 | 260 | 8 | 6 |
| ✓✓ Pacific Organic Black (carton) ¹ | 130 | 300 | 7 | 8 |
| ✓ Pacific Organic Pinto (carton) ¹ | 130 | 360 | 7 | 5 |
| ✓ Trader José's (Trader Joe's) Organic Pinto | 150 | 380 | 9 | 7 |
| ✓ Amy's Organic ¹ | 140 | 420 | 7 | 6 |
| ✓ Trader Joe's Black with Jalapeño Peppers | 120 | 440 | 8 | 7 |

Indian Bean Entrées (½ cup, pouch, unless noted)

| | Calories | Sodium (mg) | Protein (g) | Fiber (g) |
|--|----------|-------------|-------------|-----------|
| ✓✓ Jyoti Dal Makhani (can) | 90 | 300 | 5 | 2 |
| ✓ Jyoti Masala Chhole | 200 | 310 | 6 | 5 |
| ✓ Jyoti Madras Sambar (can) | 80 | 390 | 4 | 1 |
| ✓ Tasty Bite—Bombay Lentils or Channa Masala ¹ | 160 | 420 | 6 | 5 |
| ✓ Trader Joe's Indian Fare Madras Lentil | 130 | 460 | 6 | 5 |
| ✓ Tasty Bite—Bengal, Jodhpur, or Madras Lentils ¹ | 140 | 480 | 7 | 5 |
| ✓ Kitchens of India Chick Peas Curry | 210 | 830 | 8 | 4 |

Bean Chili (1 cup, canned, unless noted)

| | | | | |
|---|-----|-----|----|----|
| ✓✓ Engine 2 Plant-Strong (Whole Foods) Organic Firehouse (carton) | 190 | 230 | 9 | 10 |
| ✓ Amy's Organic Light in Sodium ¹ | 280 | 340 | 16 | 8 |
| ✓ Campbell's Homestyle Healthy Request Spicy Vegetable | 170 | 410 | 8 | 7 |
| ✓ Tabatchnick Vegetarian (frozen) | 200 | 470 | 13 | 8 |
| ✓ Panera Organic Vegetarian (tub) | 130 | 470 | 6 | 7 |

Bean Blends (1 cup cooked, frozen, unless noted)

| | | | | |
|---|-----|-----|----|----|
| ✓✓ Stahlbush Island Farms Organic Brown Rice & Black Beans | 200 | 10 | 8 | 7 |
| ✓✓ Eden Organic—Cajun or Caribbean (can) ¹ | 230 | 220 | 7 | 7 |
| ✓✓ Eden Organic—Brown Rice & Green Lentils, Kidney, or Pinto Beans (can) ¹ | 230 | 260 | 7 | 5 |
| ✓ Trader Joe's Melodious Blend | 200 | 370 | 12 | 11 |
| ✓ Eden Organic Curried Rice & Beans (can) | 260 | 400 | 8 | 2 |
| ✓ 365 (Whole Foods) Spelt, Green Lentils & Long Grain Brown Rice (pouch) | 230 | 410 | 8 | 5 |
| ✓ Birds Eye Protein—Asian, California, or Italian ¹ | 250 | 440 | 12 | 11 |
| ✓ Goya Black Beans Quinoa Blend (¼ cup dry) | 160 | 440 | 5 | 3 |
| ✓ Birds Eye Protein—except Asian, California, or Italian ¹ | 270 | 520 | 11 | 13 |
| ✓ Zatarain's Red Beans and Rice (½ cup dry) | 230 | 900 | 9 | 6 |

Bean Pasta (2 oz. dry)

| | | | | |
|--|-----|----|----|----|
| ✓✓ Trader Joe's Organic Black Bean Rotini | 200 | 0 | 14 | 15 |
| ✓✓ Ancient Harvest POW! Lentil ¹ | 200 | 0 | 14 | 7 |
| ✓✓ Tolerant Organic Energy Legume Blend ¹ | 190 | 0 | 12 | 10 |
| ✓✓ Ancient Harvest POW! Black Bean Elbows | 190 | 0 | 12 | 7 |
| ✓✓ Explore Cuisine Organic Lentil ¹ | 190 | 0 | 12 | 3 |
| ✓✓ Explore Cuisine Organic—Adzuki, Edamame, Edamame & Mung, Black, or Soybean ¹ | 210 | 5 | 24 | 11 |
| ✓✓ Tolerant Organic Simply Legumes ¹ | 200 | 10 | 14 | 8 |
| ✓✓ Modern Table ¹ | 190 | 20 | 14 | 4 |
| ✓✓ Explore Cuisine Organic Chickpea ¹ | 200 | 30 | 11 | 5 |
| ✓✓ Banza ¹ | 190 | 60 | 14 | 8 |

Bean Pasta with Sauce (about 1 cup cooked)

| | | | | |
|---|-----|-----|----|---|
| ✓ Modern Table Meals Creamy Mushroom | 380 | 350 | 21 | 5 |
| ✓ Ancient Harvest POW! Meals Cubanitos | 290 | 400 | 14 | 5 |
| ✓ Ancient Harvest POW! Meals Italiano | 290 | 430 | 15 | 6 |
| ✓ Modern Table Meals Pesto | 500 | 550 | 20 | 8 |
| ✓ Modern Table Meals—except Creamy Mushroom or Pesto ¹ | 370 | 590 | 20 | 6 |

✓✓ Best Bite. ✓ Honorable Mention. ¹ Average.

* Numbers are estimates (numbers on package appear incorrect).

Note: Best Bites and Honorable Mentions refer to numbers only, not taste.

Daily Sodium Limit: 1,500 milligrams.

Daily Targets—Protein: 75 grams. **Fiber:** 28 grams.

Source: company information. The use of information from this article for commercial purposes is strictly prohibited without written permission from CSPI.



RIGHT STUFF

M-m-mmus



FOOD SAFETY ALERT

After this issue went to press, Sabra announced a recall of [most of its hummus products](#), including Sabra Spreads. Do not eat Sabra Spreads with a “Best Before” date of January 23, 2017 or earlier.

Sabra (which is part owned by PepsiCo) makes some of the best-tasting store-bought hummus this side of the Middle East. So refrigerated **Sabra**

Spreads—intensely flavored hummus in a squeezable bottle—were sort of inevitable.

Try the **Garlic Herb** on a grilled chicken, sliced cucumber, shredded carrot, and lettuce sandwich, the **Sea Salt & Cracked Pepper** on a turkey, tomato, and arugula, or the **Honey Mustard** on a cheese, tart apple, red onion, and lettuce. Mmm.

Mayo fan? A tablespoon of Sabra Spread delivers just 35 calories. Mayonnaise has 100. And the Garlic and Mustard spreads shave 30 milligrams of sodium off mayo’s 95 mg. (The Sea Salt also has 95 mg.)

And since you’re mostly eating puréed chickpeas (with some oil and tahini), each tablespoon has 1 gram of protein and 1 gram of fiber. Mayo (or mustard)? Zip.

The “next best thing for sliced bread,” says Sabra.

Certainly the next best thing in breadspreads.

sabra.com—(888) 957-2272



FOOD PORN

Late Night Craven

Ever wake up or come home at 3 in the morning dying for a cheeseburger? Or a doughnut? Or both?

The brilliant foodies over at Walmart must have. How else to explain its frozen **Great Value Late Night Cravings Donut Cheeseburger**?

There’s nothing like “chopped beef steak, American cheese & hot pepper berry bacon jam on a cake

donut,” all oozy after 2 minutes

in the microwave. It’s like having a state fair right in your own kitchen!

Thanks to Walmart, you can get your 610 calories, 18 grams of saturated fat, 1,040 milligrams of sodium, and 5 teaspoons of (mostly) added sugar all in one snack. It’s like eating two McDonald’s Cheeseburgers schmeared with a tablespoon of Cool Whip. Yum.

Or try the **Triple Decker Grilled Ham & Cheese** or the **Double Decker Chicken & Bacon**, which sandwiches bacon and American cheese between two breaded chicken patties. (Bring your napkins.)

And for dessert? **Deep Fried Twinkies** or **Deep Fried Chocolate Twinkies**, of course. (The retail giant developed both with

Hostess “specifically for our customers.”)

Leave it to Walmart. Please.

walmart.com—(800) 925-6278



DISH of the month



Happy Holidays Carrot Salad

Toss 3 cups shredded carrots with a dressing of 2 Tbs. red wine vinegar whisked with 2 Tbs. olive oil, ¼ tsp. salt, and a pinch of hot paprika. Chop a handful of herbs like mint, parsley, and/or cilantro. Mix the herbs and ½ cup of pomegranate seeds with the dressed carrots. Serves 6.

quick tip

Want twice as much juice from your lemon with half the effort? Before you cut it, roll it back and forth on the kitchen counter, pressing down firmly with the palm of your hand.