



A Potential Breakthrough in Alzheimer's Disease

Guam is a US territory in the Mariana Islands in the Western Pacific. Between 1940 and 1965, the island's original inhabitants, the Chamorro, were decimated by what they call *lytico-bodig*, a devastating disease with features of ALS (amyotrophic lateral sclerosis or Lou Gehrig's disease), Parkinson's, and Alzheimer's. At its peak in the 1950s, the Chamorro's incidence of ALS was 50–100 times greater than anywhere else, but after the mid-60s it dropped off, and disease rates today are on par with the rest of the world.

Researchers have studied this mysterious illness for decades, looking at genetics, nutritional deficiencies, infectious agents, and the like, but nobody could figure it out until Paul Alan Cox, PhD, got involved. And what he discovered is key to a potential breakthrough in Alzheimer's, Parkinson's, ALS, and other neurodegenerative diseases.



When Dr. Cox heard about *lytico-bodig*, he flashed on these bats, which he had studied for his doctoral dissertation at Harvard. Flying foxes also live on Guam and other Pacific islands and are a favorite food of some native populations. The bats feed on the seeds of cycad trees, which contain a powerful neurotoxin: the amino acid beta-methylamino-L-alanine (BMAA).

It took some scientific sleuthing, but Dr. Cox and his team figured out that BMAA is produced by cyanobacteria (blue-green algae) that live in shallow pools of water and are taken up by the trees' roots and into their seeds. When flying foxes eat cycad seeds, BMAA builds up to toxic levels in their fat and ends up in the bat stew that the Chamorro consider a prized delicacy. Why the 25-year uptick and subsequent drop-off? The guns and money brought to Guam after World War II resulted in easier hunting, increased consumption—and eventually to the extinction of flying foxes in Guam.

A Medical Whodunit

At age 19, Dr. Cox spent two years as a Mormon missionary on the Pacific island of Samoa. After earning a PhD and working in a number of prestigious positions, he returned to Samoa with his family to study traditional medicine with local healers. While he was there, he helped protect 30,000 acres of rainforest that are home to hundreds of species—including the flying fox, a huge fruit-eating bat with a wingspan of up to four feet.

A Culprit Is IDed...

Since Dr. Cox published his initial findings in 2002, studies have confirmed that lab animals fed BMAA develop neurodegenerative symptoms similar to those of *lytico-bodig*. Exposed animals also develop amyloid plaques and neurofibrillary tangles in the brain and behavior changes characteristic of Alzheimer's later in life. High concentrations of BMAA have been detected in the brains of Chamorro people who died of this disease—as well as

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Health & Healing

YOUR DEFINITIVE GUIDE TO WELLNESS MEDICINE

Julian Whitaker, MD, practiced medicine for over 40 years, after receiving degrees from Dartmouth College and Emory University. Dr. Whitaker has long been an advocate of living a healthy life. Dr. Whitaker is compensated on the sales of the supplements he formulates with Healthy Directions, LLC. He is not compensated for other companies' products that he recommends in this newsletter. He is the author of 14 health books including: *The Mini-Fast Diet*, *The Whitaker Wellness Weight Loss Program*, *Reversing Hypertension*, *Shed 10 Years in 10 Weeks*, *The Pain Relief Breakthrough*, *Reversing Heart Disease*, *Reversing Diabetes*, and *Dr. Whitaker's Guide to Natural Healing*.

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Dear Reader,

We've all experienced loneliness, the sense of sadness or distress when we feel disconnected from others. It's not the same as being alone, although social isolation can certainly lead to loneliness. But you can also feel lonely in a marriage or when you're with friends or family. And research shows it takes a terrible toll.

Loneliness is linked not only with depression and anxiety, but also with increased risk of heart disease, stroke, diabetes, cognitive decline, insomnia, immune dysfunction, and premature death. Some experts have described its impact on health as more significant than obesity and similar to the adverse effects of smoking 15 cigarettes a day!

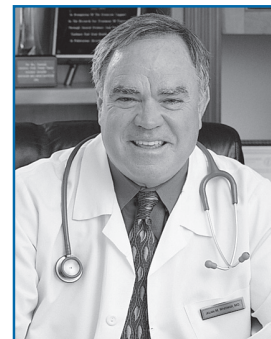
The problem is widespread. One-third of respondents to a 2018 AARP survey of people over age 45 said they were lonely, and other surveys suggest even more younger people are affected. Primary reasons given were physical isolation and shrinking social networks. More Americans are living alone than ever before, and fewer belong to churches, clubs, and other institutions that bring people together. Other contributing factors cited in these surveys include health problems, negative life events, depression, anxiety, low income, and social media use.

There are no simple answers for these complex issues. Social isolation seems to be the easiest to overcome, but it requires getting out and initiating encounters with others, which is uncomfortable for many people—and outright scary for some. Individuals with serious social anxiety may benefit from therapy, and scientists are exploring other treatments. Researchers from the University of Chicago, for example, have found that pregnenolone (a safe, inexpensive hormone available over the counter) helps dampen the anxiety and fear that accompany social withdrawal.

Although there is no magic pill for easing loneliness, there are ways to expand your social circle and sense of belonging. Begin by looking into organizations, classes, and activities in your area. You'll find groups, associations, and outlets compatible with most every interest and talent. Volunteering is another great way to meet like-minded people and help others at the same time. (Community centers, colleges, hospitals, and websites like meetup.com, volunteermatch.org, and unitedway.org are good places to start.)

We all crave connectedness, community, and purpose and passion in our lives. So, whether you are lonely, or you want to reach out to and help others, you'll reap tremendous dividends—including better health—by getting out there, meeting people, and confronting loneliness head on.

To your health,

Julian Whitaker, MD
 America's Wellness Doctor

in some North Americans who died of Alzheimer's. Clusters of ALS have been observed near bodies of water with frequent cyanobacteria/blue-green algae blooms, and the likely culprit is BMAA.

With prolonged or excessive exposure, BMAA insinuates itself into proteins in the brain, causing them to "misfold" and develop structural abnormalities that lead to neuronal dysfunction and death. Protein misfolding and tangling, such as tau and amyloid in Alzheimer's and SOD1 in ALS, is an underlying culprit in most neurodegenerative diseases.

To pursue this line of research, Dr. Cox put together the Brain Chemistry Labs, a consortium of 50 international scientists, to find a solution for these diseases. Their most exciting discovery to date is that a specific amino acid reduces BMAA toxicity, prevents protein misfolding, and protects against neurodegeneration.

...And a New Therapy Is Proposed

L-serine is a safe, inexpensive amino acid that is sometimes recommended by alternative doctors for chronic fatigue. As it turns out, it is also key to how BMAA does its damage. This toxin homes in on proteins and displaces L-serine in amino acid chains, resulting in the misfolded, tangled proteins implicated in Alzheimer's, ALS, and other brain diseases. Adding L-serine to human cell cultures blocks the insertion of BMAA, stops protein misfolding, and thus prevents neuronal damage.

Animal studies show that adding L-serine to the diet reduces the risk of neurodegenerative disease. In a 2016 study, researchers fed bananas laced with BMAA, L-serine, or a combo of the two to monkeys that are genetically at risk of developing dementia. The brains of the animals who had eaten BMAA alone were riddled with Alzheimer's-like amyloid deposits and neurofibrillary tangles. Those who had been given BMAA plus L-serine, however, had 80–90 percent fewer disease markers.

Population studies also point to L-serine's neuroprotective effects. Ogimi is a small village on one of Japan's southern islands that boasts the world's highest number of centenarians per capita

plus remarkably low rates of dementia. Researchers attribute this to the residents' close community ties, active lifestyle, and healthy diet, which includes a lot of L-serine-rich tofu, seaweed, pork, and soybeans. Older Ogimi women, for example, eat more than 8 g of L-serine per day, compared to American women's 2.5 g.

Human clinical trials are underway. Phase I studies involving patients with ALS proved that supplemental L-serine in doses up to 15 g twice a day is safe—and the highest dosage slowed disease progression by an astounding 85 percent! Phase II studies are now testing the effectiveness of 30 g of L-serine per day on patients with Alzheimer's or ALS.

My Recommendations

- ▶ ALS and Alzheimer's clinical trials are using 30 g of L-serine, taken in two 15 g doses a day. A preventive dosage hasn't been established, but building up to 5–10 g a day is reasonable. L-serine is available in 500 mg capsules and powder. Look for it online or call 800-810-6655 to order.
- ▶ To learn more, visit brainchemistrylabs.org, and read Rick Tetzeli's great article "[Could This Radical New Approach to Alzheimer's Lead to a Breakthrough?](#)" in the January 18, 2019, issue of *Fortune*.

L-Serine: Safe, Inexpensive, and Available

More than 5.8 million Americans have Alzheimer's, and that number is expected to soar to 14 million by 2050. The need to come up with therapies for Alzheimer's is more urgent than ever. Will that therapy be L-serine? Maybe, maybe not. Nevertheless, this research is among the most innovative and exciting in years.

From a strictly research perspective, it's premature to take supplemental L-serine as a preventive. However, it's clear that chronic exposure to BMAA causes degenerative changes in the brain. It's also clear that this neurotoxin isn't found only in cycad fruit-eating bats in Guam. The EPA reports that toxic blue-green algae (cyanobacteria) blooms are a major environmental problem in all 50 states. And early research suggests L-serine may have broader neuroprotective effects, acting as a warning system that alerts brain proteins against misfolding.

L-serine is safe, cheap—and I'm taking it.

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Dear Dr. Whitaker

Q Since a recent flight to San Francisco, my right ear has been stopped up. It is very uncomfortable, like having water in my ear, and it has affected my hearing. I suspect it is because I have a cold. It is getting better but is still not 100 percent. Any suggestions? — Louis, Texas

A A popping or plugged-up sensation in the ears is quite common during altitude descents, as the ears adjust to increasing air pressure. Most people can equalize the pressure by chewing, swallowing, opening the mouth wide, or, as a last resort, pinching and gently blowing through the nose. However, if your eustachian tubes, which run from the middle ear to the back of the mouth, are partially blocked due to a cold or allergies, this equalization process is stymied. Barotrauma, as it is called, can last for some time (especially if there is fluid buildup behind the eardrum), but it usually goes away on its own and will likely clear up as your cold resolves. If symptoms persist or worsen, consult your doctor. The next time you travel with a congested or runny nose, consider taking a decongestant or antihistamine ahead of time. I also recommend EarPlanes, earplugs that help equalize pressure during altitude changes. Look for them online and in drugstores.

Q My friends from China often drink plain hot water—not tea or coffee, just hot water. They say that drinking it after meals is especially important because it helps with digestion. I also notice that a number of people order water without ice in restaurants.

Is it true that hot or room temperature water is better for us? — Kelly, Kentucky

A I can't find any research to substantiate the claim that hot water is more beneficial than cold for digestion, circulation, or any other aspect of health. This belief may stem from traditional Chinese medicine, which emphasizes balance and views digestion as a "warm" process. Or it could be a habit picked up in China, where tap water is unsafe to drink without first being boiled—and hot water is an indication that it has been boiled and is therefore safe.

As for room temp versus ice water, drinking very cold water does not, as some say, interfere with digestion. It may burn a few calories as it is warmed to body temperature, but the effect on weight is minimal at best. Whether you prefer it hot or cold, room temperature or with ice, the important thing is to drink enough water for adequate hydration.

Q Do you still recommend prolotherapy for joint, back, and neck pain? I do not recall you mentioning it in the past few years. — Logan, California

A Absolutely! Prolotherapy, which involves injections that strengthen and stabilize supportive structures in painful joints, was shown in a 2016 meta-analysis to be an effective treatment for tendinitis, knee and finger joint osteoarthritis, and spinal/pelvic pain. Visit drwhitaker.com to learn more.

 Read more at drwhitaker.com, and send your own questions to drwhitakerquestions@drwhitaker.com.

New Online: Sleep Apnea—More Serious Than You May Think

"Laugh and the world laughs with you, snore and you sleep alone." This quip by author Anthony Burgess is funny, but sleep apnea, which is usually marked by snoring, is no laughing matter. We've long known that interrupted sleep and low blood oxygen levels associated with this condition increase risk of diabetes, heart disease, hypertension, metabolic syndrome, attention and concentration difficulties, and fatigue. More recent research suggests it also ups the odds of developing dementia, as it is linked with changes in the brain typical of Alzheimer's disease.

On the positive side, treatment with continuous or automatic positive airway pressure (CPAP/APAP) can literally be a lifesaver. In a study published in April, researchers followed obese patients with severe sleep apnea for 11 years and found that those who had been prescribed CPAP/APAP had a 62 percent lower risk of death. Treatment also improves memory, mood, energy, and quality of life as well as some markers of chronic disease. If you have sleep apnea symptoms (snoring, breathing cessation during sleep, daytime drowsiness) or risk factors (excess weight, thick neck), do yourself—and your bed partner—a tremendous favor and get serious about testing and treatment.



Works for Me...

- **Diabetes** *My dad has diabetes, and we always know that his blood sugar is too low when he begins to get very irritable and short of patience. It is a cue to remind him to check his blood sugar or eat something to bring it back up. — Karen S., Maryland*

Great tip. It's important to pay attention to low blood sugar, especially for people who are on insulin or oral meds that increase insulin production, because of adverse effects on brain function. For more information on how low—and high—blood sugar affects the brain, refer to the February 2019 issue of *Health & Healing* or visit drwhitaker.com.

- **Turmeric** *Recognizing the benefits of curcumin, I was happy to find fresh turmeric root at my supermarket. It looks like ginger root but is bright orange-yellow inside. I grate it on the smallest side of a cheese grater and use it as a cooking spice or steep it along with black tea. Most often I just break off a piece and blend it along with other ingredients when making a smoothie. It stains a little (causing yellow*

fingers and cutting board), but I like the idea of fresh turmeric. — Samantha, California

- **CBD/Hemp Oil** *I had a challenge regulating my blood pressure with meds. After two and a half years of frustration, I was put in contact with a friend of a friend who was getting success with hemp oil. I have been on it for a few weeks now and am totally satisfied. My blood pressure is normal and, best of all, stabilized. Plus, my sleep patterns have definitely improved. I'm taking 5 drops of the Hempworx Full Spectrum Hemp Oil (500 mg cannabidiol/CBD concentration) under my tongue twice a day. I could never make a claim that hemp oil is controlling my blood pressure or curing insomnia, BUT my blood pressure has been stable now for several weeks and my sleep patterns have definitely improved. — D.D., Texas*

- **Hiccups** *To cure hiccups, I drink ten quick sips followed by one big gulp of water. Works every time. — Kim, Washington, DC*

Good one. I'd love to hear about other home remedies for hiccups.



Do you have a Health Tip to share? We'd love to hear it! Send it to worksforme@drwhitaker.com.

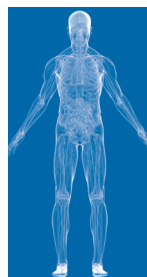
Health Hack: Say Cheese!

Americans love cheese and eat an average of 37 pounds a year. Yet the perception that it is an unhealthy, fat-laden indulgence persists. Wrong! Cheese is a good source of protein (7 g per ounce), calcium (200 mg), and, depending on the variety, probiotics and cardioprotective vitamin K2. In fact, an analysis of 15 long-term studies linked cheese consumption with a 14 percent lower risk of developing heart disease and a 10 percent lower risk of stroke. The greatest risk reduction was seen with an intake of 40 g per day (about one and a half pieces of string cheese or a third cup of grated cheese).

Monthly Health Quiz

Warts and All...True or False?

- A) Warts, which are caused by human papillomavirus (HPV), are contagious.
B) Most warts disappear in one to five months.
C) Duct tape, garlic, banana peel, apple cider vinegar, and raw potatoes are home remedies for warts.
D) Surgery and laser removal are the only sure cures for warts.



Answer:

A and C are true. There are more than 100 types of HPV, and the virus responsible for genital warts does not cause warts on the hands, feet, etc. B and D are false. Most disappear in one to five YEARS. There is no sure cure, and warts may grow back after any treatment.

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Notable Quote

“Patriotism is supporting your country all the time, but your government when it deserves it.”

— Mark Twain, author and humorist, 1835–1910

No computer? Mail your question or health tip to *Health & Healing*, 6710-A Rockledge Dr., Ste. 500, Bethesda, MD 20817.

Nutrition for Your Skin

Oliver Sacks, MD, was a neurologist and a terrific writer whose books include *The Man Who Mistook His Wife for a Hat* and *Awakenings*, which inspired the 1990 movie with Robin Williams and Robert De Niro. Most of his books are collections of case studies of people with unusual neurological disorders, including a problem he personally dealt with all his life: prosopagnosia (face blindness).

“My problem with recognizing faces extends not only to my nearest and dearest but also to myself. Thus, on several occasions I have apologized for almost bumping into a large bearded man, only to realize that the large bearded man was myself in a mirror.”

I don’t have face blindness, but when I look in the mirror, I sometimes wonder how that guy looking back got so old. They say you’re only as old as you feel, but our skin bears witness to the passage of time, and there’s no denying that aging leads to saggy, wrinkled, damaged skin.

Discussions of skin care usually center around sunscreens, moisturizers, anti-aging serums, and other products applied to the skin, as well as Botox, peels, and cosmetic surgery aimed at improving its appearance. These therapies are great, but they’re only skin deep. You also need to take care of your skin from the inside out.

Sunscreen in a Pill?

Your skin is your largest organ, weighing eight to nine pounds and covering a surface area of 22 square feet. It is your waterproof, insulated, air-conditioned armor against the outside world and, as such, takes more than its fair share of abuse. The environmental factor that takes the greatest toll is UV radiation, which causes both visible changes as well as DNA damage that increases risk of skin cancer.

Although some unprotected sun exposure is necessary for vitamin D synthesis, everybody knows they should use sunscreen, hats, etc., during prolonged time in the sun. So when the FDA released a statement warning, “There’s no pill or capsule that can replace your sunscreen,” my first thought was “Duh!” My second thought was “Yes, but...” because there are pills and capsules that, although they are no replacement for sun protection, do fortify the skin’s defenses against UV radiation and enhance its health and appearance.

First and foremost are carotenoids, antioxidants that accumulate in the skin, where they scavenge harmful UV-generated free radicals. If you eat or take a lot of carotenoids, your skin may actually take on a slight yellow-orange hue. This harmless condition, called carotenemia, sounds bizarre, but it’s more like a healthy glow that is not only protective, but studies show that most people find it attractive.

Astaxanthin, the carotenoid that makes salmon and shrimp pink, is one of nature’s most powerful antioxidants. In one clinical trial, 4 mg of astaxanthin per day reduced dryness and deterioration in sun-exposed skin. Lutein and lycopene, abundant in leafy greens and tomatoes, respectively, also have been shown to protect against sunburn. Additional nutraceuticals that guard against UV-induced damage and promote skin health include pycnogenol, a potent antioxidant from the French maritime pine tree, and extracts from *Polypodium leucotomos*, a tropical fern used for multiple skin conditions by traditional healers.

Collagen Boosters

Collagen is one of the fast-growing supplements on the market, especially in the “beauty-from-within” sector. The most plentiful protein in the body, collagen serves as a sort of scaffolding for the skin and helps keep it plump, firm, and elastic. As we get older, collagen breakdown outpaces production, and the skin becomes less taut and resilient.

Most supplemental collagen is type I, made from beef, pork, poultry, or fish bones and skin that is hydrolyzed, or broken down into smaller fragments called collagen hydrolysate or collagen peptides. Type II collagen is made from chicken cartilage and used for joint inflammation and pain. Sold in powders, pills, or added to beverages, bars, and other foods, these products claim to boost collagen production and provide noticeable benefits not only for the skin but also for hair, nails, joints, and other collagen-rich tissues.

Do they work? Although supplemental collagen is a good source of protein and amino acids like glycine, proline, and hydroxyproline that are building blocks of collagen, study results are mixed. Furthermore, some products include other ingredients such as vitamin C (required for collagen formation) and hyaluronic acid (binds to water and improves skin hydration). Nevertheless, a 2019 review of 11 clinical trials involving 805 patients who took supplemental collagen,

2.5–10 g a day for various skin conditions, concluded that it did increase elasticity, hydration, and collagen density. Several small studies using either type I or II collagen also reveal benefits for painful joints.

Old Faithfuls

Your skin is also subject to the usual degenerative processes that affect tissues throughout the body. As with all aspects of health, a good diet is protective, and studies link a plant-based Mediterranean diet with reduced skin damage and risk of skin cancer.

To optimize nutrient status, take a daily multivitamin with robust levels of vitamin C, vitamin A/beta-carotene, zinc, silicon, and other supportive vitamins and minerals. I also recommend supplemental fish oil, which helps with skin hydration, and nicotinamide (also called niacinamide)

My Recommendations

- ▶ In addition to appropriate sun protection, eat a phytonutrient-rich diet, maintain adequate hydration, and take a potent daily multivitamin.
- ▶ Supplements for extra support include nicotinamide/niacinamide 1,000 mg, astaxanthin 4 mg, lycopene 20 mg, lutein 20 mg, pycnogenol 50–100 mg, *Polypodium leucotomos* 240 mg, and EPA/DHA 1,000 mg. Take daily in divided doses.
- ▶ The usual dosage of hydrolyzed collagen is 5–10 g a day. Other good sources of collagen include bone broth powders, homemade bone broth, and canned bone-in salmon and sardines. Note: Type II cartilage (UC-II) 40 mg per day, is preferable for joint pain.

for protection against skin cancer. In a placebo-controlled study of older people with a history of squamous and basal cell carcinoma, taking 500 mg twice a day for a year resulted in a 23 percent reduction in risk.

Finally, drink up! Dryness and altered skin tone and texture are cardinal signs of dehydration.

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How Safe Is Your Sunscreen?

The FDA recently proposed updating regulations on sunscreens, and factors to be reviewed include the safety of active ingredients.

Of the 16 UV-filtering ingredients in sunscreens, only two, zinc oxide and titanium dioxide, are GRASE (generally recognized as safe and effective). Two others, PABA and trolamine salicylate, are not GRASE. As for the remaining 12—used in most popular sunscreens—the FDA reports there isn't enough safety information to make a call.

These inorganic ingredients (oxybenzone, octinoxate, and others), which absorb and chemically convert radiation, are somewhat more effective at blocking UVA/UVB than organic ingredients (zinc oxide and titanium dioxide), which reflect radiation. But they have a downside: They are absorbed through the skin. The CDC reports that 97 percent of people tested have oxybenzone in their urine! Several studies suggest these chemicals act as endocrine disruptors and interfere with hormonal activity in the body. For example, researchers found that adolescent boys with higher levels of oxybenzone had significantly lower levels of testosterone.

These chemicals also have adverse environmental effects, most notably on marine ecosystems. Hawaii has passed legislation banning the sale of sunscreens containing oxybenzone or octinoxate beginning in 2021, citing death of developing coral and hormonal disruptions in fish and other species.

Until further safety review, it is prudent to stick with organic, mineral-based zinc oxide and titanium dioxide, which are not absorbed through the skin. Look for an SPF of 30 or above, use the recommended amount (few people do), and reapply every two hours or as directed. Be careful with sprays, especially for kids, because of the potential dangers of inhalation.

Consumer Reports' Best Sunscreens of 2019 rank California Kids #supersensitive Lotion SPF 30+ sunscreen and Badger Active Natural Mineral Cream SPF 30 Unscented as the best organic/mineral products; and Walgreens Hydrating Lotion SPF 50 and Hawaiian Tropic Sheer Touch Ultra Radiance Lotion SPF 50 as the top oxybenzone-free sunscreens.

Innovations in Wellness Medicine

More Drugs That Increase Risk of Diabetes

It's common knowledge that inactivity, excess weight, and a large waist circumference are risk factors for type 2 diabetes. But did you know that a number of popular drugs also increase risk? The latest additions to this lengthy list are Proscar, Propecia, and other 5-alpha-reductase inhibitors used to reduce urinary symptoms of benign prostatic enlargement. In a 2019 study involving 55,000 participants, men who were taking these medications were significantly more likely to develop diabetes. The researchers emphasized that other risk factors for diabetes should be taken into consideration before prescribing these drugs, and blood sugar should be monitored while taking them.

These are by no means the only drugs that increase insulin resistance and risk of diabetes. Other common meds include cholesterol-lowering statins, antidepressants and antipsychotics, prednisone and other steroids, and some blood pressure drugs (beta-blockers and thiazide diuretics), as well as drugs prescribed for HIV, hepatitis C, and organ transplants. If you are taking any of these—especially if you have other risk factors or have already been diagnosed with diabetes or metabolic syndrome—talk to your doctor about safer alternatives.

No Health Benefits of Non-Sugar Sweeteners

Millions of people drink sugar-free sodas; add Splenda, NutraSweet, Equal, and Sweet'N Low to their coffee and tea; and buy sugar-free foods that contain these and other non-sugar sweeteners (NSSs). The assumption is that by replacing sugar with these sweeteners, they are cutting calories, preventing weight gain, promoting weight loss, and reducing risk of type 2 diabetes and other health concerns. However, there are growing concerns that these sweeteners aren't what they're cracked up to be—and may even contribute to these and other problems.

European researchers addressed these concerns in a 2019 study published in the *BMJ*, which reviewed 56 scientific papers examining the effects of high, low, and no intake of non-sugar sweeteners by children and adults. They focused on weight, oral health (cavities), incidence of diabetes, and eating behavior, and also looked at outcomes such as preference for sweet taste, mood, behavior, neurocognition, and incidence of cancer, cardiovascular and kidney disease, asthma, and allergies. They found no statistically or clinically relevant differences in any of these outcomes. Zero! They concluded, "No evidence was seen for health benefits from NSSs and potential harms could not be excluded."

Did You Know?

- An international study in *The Lancet* reports that poor diet is responsible for one in five deaths.
- Social Security spending will exceed income in 2020 and the \$2.9 trillion reserve fund is expected to be depleted by 2035.
- A slight pinching or stinging sensation in the back of the throat is a sign of fresh, polyphenol-rich extra-virgin olive oil.
- A 2019 study found that starting an exercise program gradually led to healthier food choices for many participants.
- Project Gutenberg (gutenberg.org) offers 58,000 free eBooks that can be downloaded or read on computers, smartphones, and other devices.
- New research reveals that supplemental folic acid and vitamin B12 may be protective against BRCA-related breast cancer.
- Nearly one in three people in the US cannot read above fourth-grade level.
- The Gut Bugs Trial is testing the hypothesis that fecal transplants from thin donors will help obese teenagers lose weight.
- In a recent study, drinking more than four cans of diet soda per week was linked with a greater than two-fold increased risk of advanced diabetic retinopathy.
- The US stockpiles 1.39 billion pounds of surplus cheese, enough to fill the entire US Capitol Building and provide each American with 4.6 pounds.
- Another benefit of exercise is an increase in the diversity of gut bacteria.
- Acupuncture once a week for five weeks significantly improved hot flashes, mood swings, and other symptoms of menopause.

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