Hydration, Health, and Gel Water

Copper Canyon, a rugged mountainous area in northern Mexico, is home to the indigenous Tarahumara. Living in small, widely scattered communities connected by a network of steep trails, many of them accessible only by foot, these people are exceptional long-distance runners. They used to engage in persistence hunting (chasing game and running them to exhaustion). To this day, it’s not unusual for them to run 100–200 miles over a couple of days to visit, relay messages, trade between villages, or as part of a traditional game.

Although the Tarahumara are best known for their endurance running and their shoes (they run in homemade sandals), Gina Bria’s interest is different. A Columbia University-trained anthropologist with a focus on native tribes in arid areas, she wanted to know how they stayed hydrated. What she found—and discusses in Quench, a book co-written with Dana Cohen, MD—is something everybody needs to know about.

Back in the early 90s, I read a book that changed the way I think about water. Your Body’s Many Cries for Water by Fereydoon Batmanghelidj, MD, presented a compelling case for chronic dehydration as an underlying cause of stomach pain, arthritis, hypertension, asthma, and more. Quench bolsters this premise, provides updated research on the ill effects of dehydration, and suggests better ways to ensure optimal hydration besides chugging water all day.

Benefits of Gel Water

One of the foods Tarahumara runners depend on is chia seeds (Salvia hispanica). They drink them in water with a little sugar and lime juice or mix them with cornmeal and spices in prepared dishes. Chia is a nutritional powerhouse. Two tablespoons contain 10 g fiber, nearly 5 g protein, 2 g net carbs, and 9 g fat—most of it healthy omega-3s and omega-6s—plus hefty amounts of magnesium, calcium, and protective phytonutrients.

Chia also has another property. When added to water, these tiny seeds absorb several times their weight in water and are transformed into gelatinous blobs more than twice their original size. Once consumed, this dense “gel water” is retained in the body longer and absorbed into tissues more slowly, providing extended and sustained hydration that tides them over longer so they don’t need to drink water as often.

When Gina Bria was doing her research, it dawned on her that her elderly mother, who was living in a nursing home, was chronically dehydrated. She spent most of her time sitting indoors in heated or air-conditioned rooms and, like most older people, had a diminished sense of thirst. It was a recipe for dehydration. So Gina, who lived hundreds of miles away, sent ground chia seeds to the nursing home and asked them to add some to her mom’s orange juice every morning. She bounced back and lived to age 98.
Gina’s research led her to Gerald Pollack, PhD, professor of bioengineering at the University of Washington in Seattle, who has been studying water’s unique properties for decades. He believes there is actually a fourth phase of water besides solid, liquid, and gas—a transition phase that is denser, more complex and structured, with overlapping crystals but still fluid or gel-like. He calls it “exclusion zone” (EZ) water because as it is formed, it excludes or pushes out solutes and becomes purer and electrically charged.

Dr. Pollack maintains that this is the form of water in chia seeds—and in virtually all plant and human cells. Water absorbs light and uses that energy to create EZ water. And when we eat produce, we’re getting more than a bundle of nutrients. We’re also getting energy-enhancing, hydration-boosting EZ/gel water. It’s a complex, provocative theory, and although it hasn’t been universally embraced, the authors of Quench believe it is key to understanding the special hydrating powers of plant foods.

Drink Your Water…

The gist of Quench is that we need to look beyond volume and include strategies that increase water retention and absorption. Of course you need to drink water. Eight glasses a day is a reasonable guideline, but it has no real scientific basis. In fact, the original recommendation, dating back to 1945, suggested that about half of total water intake should come from food.

Filtered tap water is your best bet. It’s less expensive than bottled water, much easier on the environment, and may be better for your health. A 2018 analysis of 11 popular brands of bottled water found that 93 percent contained plastic microparticles. Coffee and tea are also good sources of water. The idea that caffeine is dehydrating is a myth, plus both beverages have numerous health benefits. But avoid sugary or artificially sweetened drinks.

A good plan—and a lesson learned from desert dwellers—is to frontload your water intake by drinking 16 ounces first thing in the morning. A cup before meals is also a good idea. In a study published in Obesity, dieters who did this for 12 weeks lost five more pounds than those who didn’t add this simple step to their regimen. Furthermore, frontloading will enable you to ease up later in the day and may reduce nighttime visits to the bathroom.

...And Eat It Too

You also need to eat water. Super-hydrating gel water is abundant in all fruits and vegetables. Most are at least 80 percent water by weight and leafy greens are over 90 percent. Cucumbers, for example, are 96.7 percent water, and lettuce, celery, radishes, zucchini, tomatoes, peppers, cauliflower, spinach, watermelon, strawberries, broccoli, cantaloupe, and carrots are also essentially “green water.”

In addition to eating more produce, make smoothies. Blending your favorite vegetables and fruits—as opposed to juicing, which discards fiber and other important phytonutrients in pulp—creates a glassful of nutrient-rich, hydrating gel water. You don’t need a high-end Vitamix or Blendtec; most any inexpensive blender will do. For a complete meal, add protein powder and, for good measure, throw in some gel water-producing chia or flax seeds, preferably ground for increased bioavailability.

Other steps in the “Quench Plan” include light exposure, which reportedly creates EZ/gel water in our bodies, and movement. The lymph system, fascia (connective tissue beneath the skin
that surrounds the organs, muscles, and other tissues), and to some degree the blood vessels, rely on physical movement to help ferry fluids in and out of cells and around the body. In addition to exercise, simply standing, walking around, and micromovements like tilting your head, twisting your spine, and fidgeting enhance cellular hydration. It’s yet another reason to get moving.

Don’t Take Water for Granted

Pay attention to signs of mild dehydration, which include low energy, dry mouth and throat, headache, brain fog, and infrequent dark yellow urine. You should be urinating every three hours, and it should be straw colored. Don’t worry if it’s bright neon yellow. That’s likely caused by the vitamin B2/riboflavin in your multi.

Be aware that diabetes, which increases urination, and irritable bowel syndrome and other conditions associated with diarrhea raise risk of dehydration. Medications that cause fluid loss include diuretics (water pills) prescribed for hypertension, heart and liver failure, kidney disease, glaucoma, and edema. Young children, older people, alcoholics, and those who work out, spend time outdoors in hot weather, or otherwise sweat a lot are also more vulnerable.

Water is so familiar that we tend to take it for granted, but without it, there is no life—and without enough of it, our health suffers. Bottoms (and forks) up!

References

After reading Your Body’s Many Cries for Water years ago, I began encouraging my patients and subscribers to drink more water. I figured that even if the book was only half-right, increasing water intake was a good recommendation, since 75 percent of Americans say they don’t drink enough. The response was extraordinary. A Canadian subscriber reported an end to years of migraines. A medical doctor wrote that her eight-year-old son’s asthma improved so much after just four days that she stopped his medications, and within a month he was symptom free. And Bob B. from Pennsylvania claimed water was a cure-all.

Even mild to moderate dehydration has adverse effects. The blood becomes slightly more viscous, and the heart has to work harder to move it around. Mucus in the lungs thickens and COPD and asthma symptoms worsen. Inadequate water in the synovial fluid that cushions and lubricates the joints aggravates pain and stiffness. New Zealand researchers found that dehydration even intensifies pain perception.

It also affects the brain. Modest dehydration can sap your energy, make you grumpy and moody, and impair focus and concentration. A meta-analysis of 33 studies concluded that water deficit exceeding two percent of body mass impairs cognitive performance, especially on tasks involving executive function, attention, and motor coordination. Early research suggests links with dementia as well.

Multiple studies promote water as a medical therapy. For example, a 2018 controlled clinical trial in JAMA Internal Medicine involving women with recurrent urinary tract infections (UTIs) found that the women who drank an extra six cups daily had half as many UTIs and antibiotic prescriptions as the control group. Water (alkaline, in this case) plus a Mediterranean diet performed as well as PPI drugs for laryngopharyngeal reflux, which causes persistent cough and throat clearing. And Argentine researchers demonstrated that increasing water intake to more than 10.5 cups a day had “a robust impact on reducing the symptoms of disabling claudication and rest pain caused by peripheral vascular disease.”

To learn more, read Quench: Beat Fatigue, Drop Weight, and Heal Your Body Through the New Science of Optimum Hydration.
Dear Dr. Whitaker

Q I read somewhere that vitamin E is toxic and want to know what you have to say about this. I am very concerned because I am taking your multivitamin, which has megadoses of this vitamin. — Paul M., via email

A I say it’s nonsense. Even at much higher doses, vitamin E is safe and well-tolerated. The upper limit set by the National Academy of Medicine (NAM) is 1,000 mg (1,500 IU), established to avoid any potential risk of bleeding. A handful of studies have suggested adverse effects with doses above 268 mg (400 IU), but other studies have contested those findings. I am completely confident in the safety of vitamin E, including doses much higher than the 134 mg (200 IU) in your daily multivitamin.

Q For several weeks my husband has complained about seeing lightning-like flashes of light out of the corner of one eye. He says it does not affect his vision and refuses to see an eye doctor. I am worried it could be a sign of a brain tumor. — Lou B., Virginia

A Highly unlikely. flashes in the peripheral vision are usually a symptom of vitreous detachment. As we get older, the vitreous—a gel-like substance that fills the eyeball—shrinks and may gradually pull away from the retina. This movement may be perceived as flashes of light or, even more commonly, floaters (specks, squiggles, etc., which are shadows of vitreous debris cast on the retina). Vitreous detachment is harmless, and symptoms usually become less noticeable or disappear after a few months. However, flashes could also be a sign of retinal detachment, a rare but serious condition that requires immediate treatment. So it’s a good idea to get it checked out.

Q I am confused about salt. I distinctly remember an article you wrote saying that cutting way back is not necessary and could be harmful. However, I recently saw a news report on the importance of reducing sodium. My doctor agrees, even though I do not have high blood pressure. Can you comment on this? — Bonnie J., Oklahoma

A The NAM recently confirmed long-standing recommendations to keep sodium intake below 2.3 g per day (about a teaspoon) and 1.5 g for anyone with cardiovascular disease. Although most doctors support this, a 2019 article in Lancet summarizing extensive research data reported, “...an intake of 3–4.5 g/day seems to predict healthier longer lifespan than intakes outside of this range.” In other words, getting too little as well as too much sodium is linked with worse health outcomes. Despite decades of warnings about the evils of sodium, the average intake in the US has remained pretty constant at 3.6–3.7 g. Sodium restriction is necessary for some people (kidney disease, salt-sensitive hypertension, etc.). However, as the Lancet paper concluded, “Achieving the recommended sodium intake [2.3 g/day] in the general population appears neither feasible nor likely to be beneficial.”

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

New Online: Dangers of Diabetes Drugs

Treating diabetes with diet, exercise, berberine, antioxidants, and other supplements has been a central focus of mine for 40 years. It’s not that I have an inherent bias against diabetes drugs. It’s just that I learned early on that the goal is not to drive blood sugar ever lower but to stave off complications and engender overall health. Patients with diabetes suffer mightily from heart disease, kidney failure, amputations, neuropathy, and vision loss, and most of them die of cardiovascular causes. Of course controlling blood sugar is important, but what many patients (and physicians) don’t seem to appreciate is that some diabetes drugs actually increase the likelihood of serious complications.

A 2018 study involving 132,737 people with type 2 diabetes found that sulfonylureas and insulin, which are typically prescribed if metformin fails to adequately lower blood sugar, raise the risk of heart attack, stroke, and heart failure. Scandinavian researchers recently reported that patients taking SGLT2 inhibitors have twice the risk of lower limb amputation and life-threatening diabetic ketoacidosis. If a drug achieves a blood sugar target—but also causes complications—what good is it? To learn about other diabetes drugs, visit drwhitaker.com.
Works for Me…

**Hemorrhoids** I have successfully used rutin (500 mg twice a day) to treat hemorrhoids and know of at least four people, including my husband, who have avoided surgery for their hemorrhoids by adding a daily dose of rutin. — J.N., via email

Rutin is a flavonoid, a group of plant compounds that strengthen blood vessels, decrease capillary permeability, and reduce inflammation. Supplemental flavonoids, which also include diosmin, hesperidin, horse chestnut, and pycnogenol, have been demonstrated to reduce swelling, bleeding, itching, and discomfort associated with hemorrhoids. Use as directed.

**Rebinder/Mini-Trampoline** For an exercise regimen that’s fun and easy on the joints, I use a rebounder. It’s great for circulation and it invigorates me from the roots of my hair to the tips of my toes! — Jo T., Michigan

Bouncing on a trampoline isn’t just for kids. It’s also serious exercise. A friend of mine took a trampoline class at her gym (each person had their own mini-trampoline) and said the 55-minute workout was one of the most intense she’s ever done. Exercising on a rebounder improves strength and endurance. It helps tone the pelvic floor muscles, although if you have urinary incontinence, all that jumping may not be for you. It also improves balance, but beginners might do well to get one with a stability handrail. You’ll find several brands of mini-trampolines online and in stores, as well as instructional videos to help you get started.

**Shingles** I had an excruciating attack of shingles and could find nothing to alleviate it. A friend suggested I try olive leaf extract. I purchased capsules from Olivus and began taking them immediately and also drank their olive leaf tea. The pain diminished within two days. These products have affected my life in a very significant manner, and I want to make sure everyone will keep them in mind in case shingles rears its ugly head. — V.B., Calgary, Canada

**GERD** If I have heartburn and acid reflux in the middle of the night, I drink a glass of cold water, and in seconds there is no problem. I also elevated the head of my bed approximately six inches and I believe that also helps. — O.D.P., Texas

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

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**Health Hack: Big Belly Buster: Exercise**

There’s subcutaneous fat, the soft, jiggly stuff you can grab by the fistful. Then there’s visceral fat, packed among the organs in the abdominal cavity. As it accumulates, the belly grows bigger and harder, and risk of disease increases. Visceral fat’s only advantage is that it’s the first to go when you lose weight—even modest loss can make a significant dent. And the most efficient way to target it, according to a 2019 study, is exercise. A good indication you need to get real about this serious health threat is a waist circumference greater than 35” (women) or 40” (men).

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**Monthly Health Quiz**

**The Bitter Truth (or False)**

A) Our inborn dislike of bitter tastes is likely a survival mechanism, warning against toxic plants.

B) Angostura bitters, used in cocktails, were originally a tonic for stomach problems.

C) Bitter melon is an effective therapy for diabetes.

D) About 25% of people are supertasters and tend to dislike bitter vegetables like broccoli and kale.

**Answer:**

All are true; bitters (natural toxins) are still taken before eating to enhance digestion, and we are more likely to be deterrned to eat vegetables and fruits rich in fiber when they are part of a flavorful dish. Small studies suggest these extracts lower blood sugar and systolic blood pressure. More studies are needed: one area where we need more research is the impact of bitter plant extracts on cancer risk. However, we do have some research suggesting that adding a bitter taste to a dish can increase its antioxidant properties.

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**Notable Quote**

“Service to others is the rent you pay for your room here on Earth.”


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No computer? Mail your question or health tip to Health & Healing, 6710-A Rockledge Dr., Ste. 500, Bethesda, MD 20817.
In 1973, 55-year-old former world tennis champion—and attention-seeking loudmouth—Bobby Riggs boasted that he could beat any woman tennis player in the world. Billie Jean King, age 29 at the time and *Sports Illustrated*’s 1972 Sportsman of the Year, took up the gauntlet and, in a media circus dubbed the Battle of the Sexes, clobbered him in three sets.

Although this feat paved inroads for equality in women’s sports, it was something of a fluke. Twenty-five years later, Serena Williams, the greatest female tennis player of the open era, was handily beat in an exhibition match by the 203rd-ranked male tennis player.

This is no reflection on Serena Williams, nor does it have anything to do with women being less able than men. But all things being equal (age, training, conditioning, relative size) men are simply stronger and faster than women. They have bigger muscles and greater height and body mass, larger lungs and hearts and more oxygen-carrying hemoglobin. That’s why women’s fastest marathon times are 15 minutes slower than men’s and male Olympians lift one-third heavier weights than female Olympians.

Differences between the sexes also carry through to other areas—and they’re not all favorable to males.

## The Weaker Sex?

Males are more vulnerable from the get-go. For every 100 baby girls, there are 105 boy births. However, boys have a greater likelihood of dying in childhood. More are born prematurely, and compared to females, male preemies have a lower chance of survival. Boys also have a slightly greater risk of SIDS.

Teenage boys are more than twice as likely to die as girls. Their propensity to drive fast, get in fights, binge drink, and engage in other risky behaviors results in more accidents and injuries. Although this gap narrows, death rates are higher for males across all age groups. In the United States today, males’ life expectancy at birth is 76.3 years, compared to 81.1 years for females.

Men have higher death rates for eight of our 10 major killers, including heart disease, cancer, diabetes, and COPD. They are at more than double the risk of dying from liver disease, AIDS, and accidents as women and are three and a half times more likely to commit suicide. Four-fifths of centenarians and almost all supercentenarians who make it to age 110 are female.

Males also have more chronic diseases—and get them at an earlier age. Boys have more ear infections and asthma, are far more likely to be diagnosed with autism and ADHD, and from adolescence on have twice the risk of alcohol and drug addiction. From gout and kidney stones to ulcers and aortic aneurysms, men are more vulnerable than women.

### Genetics, Hormones...

Let’s explore why, starting with basic genetics. Most of your cells contain 23 pairs of chromosomes, 22 that are the same in men and women plus a 23rd pair (the sex chromosomes) that are different. Males have an XY pairing (the Y chromosome determines their sex) while females have XX. The presence of XX chromosomes gives women something of an edge. A genetic mutation on one of their X chromosomes has a chance of being counterbalanced by a healthy copy on the other X chromosome, whereas males have no backup. Furthermore, the Y chromosome is about one-third the size of the X chromosome and contains far less genetic information, which may have some bearing as well.

Hormones obviously play a leading role. Surges in testosterone and estrogen in the womb and during puberty shape the brain as well as the body and have enduring effects on anatomy and behavior throughout life. The most apparent differences involve the reproductive organs, but male/female hormones influence multiple aspects of health and well-being. Testosterone, for example, increases propensity for risk-taking, violence, and all the health threats that accompany them, but it also builds bone and muscle mass and promotes a higher muscle-to-fat ratio.

Obesity is a rising problem for both sexes, but while estrogen encourages the deposition of fat subcutaneously in the hips and thighs, men generally pack it on as visceral abdominal fat, which increases a multitude of health risks including metabolic syndrome, diabetes, and heart disease. However, as estrogen production declines with age, women...
Men, Women, and Heart Attacks

Although heart disease is the leading cause of death in both sexes—greater than all types of cancer combined—surveys show that about half of women are unaware of their risk. That’s why it’s important to be familiar with the signs and symptoms of a heart attack—and they’re not always the same for men and women. Men generally have “classic” symptoms: crushing pain, pressure, or tightness in the chest, often radiating down the left arm and side of the body or up into the throat or jaw. Women, however, may simply experience extreme fatigue, dizziness, “heartburn,” nausea, vomiting, hot flashes, and/or pain in other areas of the upper body. Because of these atypical symptoms, women are less likely to seek immediate medical attention and generally fare worse than men. If you suspect a heart attack, chew a full-strength aspirin and call 911 at once.

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Take a cue from women, who pay closer attention to their health and are more likely to talk to their doctors and seek medical help when they need it. It’s no coincidence that married men live longer and have fewer heart attacks and better cancer survival rates. They have women bugging them to eat better, take fewer risks, see doctors more often, and comply with recommended treatments. I can’t tell you how many men I’ve treated over the years who were more or less dragged in by their wives. Men need to step up and take control of their health.

Lifestyle Outweighs Sex Differences

Males and females do face different health battles—and face them differently. It’s important to be aware of your strengths and weaknesses and to be your own best health advocate. Genetic, hormonal, and cultural influences matter, but as Henry Kissinger once said, “Nobody will ever win the battle of the sexes. There is too much fraternizing with the enemy.” Men and women have far more similarities than differences. We’re all human. We’re all on the same team.

What you eat, how fit and active you are, how you manage stress, what supplements you take, how much alcohol you drink, whether or not you smoke or engage in other self-destructive behaviors, how much attention you pay to your health: These are day-to-day decisions that, male or female, have the most significant impact on your health and longevity.

References


Innovations in Wellness Medicine

ALC and ALA for Diabetic Neuropathy

Peripheral neuropathy is a painful, sometimes debilitating condition that affects 50 percent of patients with diabetes. Most doctors prescribe drugs to relieve pain and manage blood sugar, but they’re missing the boat by not recommending two inexpensive nutritional supplements.

Acetyl-L-carnitine (ALC) is a form of the amino acid carnitine that supports peripheral nerve regeneration. Researchers recently reviewed all the controlled clinical trials involving ALC for the treatment of neuropathy related to diabetes or HIV (neuropathy is also a side effect of some drugs used to treat HIV and cancer). They concluded, “ALC provides an effective and safe treatment in patients with painful peripheral neuropathy.”

Alpha lipoic acid (ALA) is a potent antioxidant with a proven ability to reduce burning, numbness, and other symptoms of diabetic neuropathy. In a study conducted last year, patients who took 600 mg of ALA per day for 40 days reported a prompt and significant reduction in pain severity and an overall improvement in quality of life—and more than half rated their condition as “much better” or “very much better.” These studies echo my clinical experience with these effective supplements. Suggested daily doses are ALC 2,000–3,000 mg and alpha lipoic acid 600–1,200 mg.

Hyperbaric Oxygen Therapy for Alzheimer’s Disease

As the pipeline for new Alzheimer’s drugs slows to a trickle, interest in non-drug treatments is picking up. Hyperbaric oxygen therapy (HBOT), which involves breathing 100 percent oxygen in a pressurized chamber, is an obvious candidate. A proven therapy for improving outcomes in patients with stroke and traumatic brain injury, HBOT addresses multiple aspects of neurodegeneration including inflammation, oxidative stress, and reduced metabolic activity in the brain.

Paul Harch, MD, published a case study of a woman with Alzheimer’s who was treated with HBOT. After 21 treatments, she had positive changes in mood and energy and, after 40 sessions, marked improvements in memory, concentration, sleep, anxiety, gait, and activities of daily living. A repeat PET scan showed a significant increase in brain metabolism. This may be “only” a case study, but the degree of improvement is unprecedented. HBOT is not a cure. The patient had mild regression over time, but with intermittent treatments, she held steady during the next 22 months of follow-up. This suggests that HBOT is a promising therapy for slowing the relentless progression and improving symptoms of this dreaded disease.

Health & Healing Resources

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Did You Know?

- Studies link a larger waist circumference in older people with worse cognitive function.
- The average waist circumference of American men and women is 40.3 and 38.7 inches, respectively.
- Warm water freezes faster than cool water.
- Concentrations of antibiotics exceeding safe levels have been detected in 65 percent of rivers tested worldwide.
- Participation in group sports or classes is linked with reduced risk of depression.
- Children whose mothers were obese prior to pregnancy have a 264 percent increased risk of childhood obesity.
- In any given week, 77 percent of households buy sodas or other sweetened drinks.
- Early research suggests coenzyme Q10 may reduce ocular nerve damage associated with glaucoma.
- The Apple Watch had an 84 percent success rate in detecting episodes of atrial fibrillation in a recent study.
- Exposure to artificial light during sleep (lamps, TV, nightlights, etc.) increases risk of weight gain.
- Yaupon, the only caffeinated plant native to North America, has been “rediscovered” and is now sold as an herbal tea.
- If you’re going to snack at night, make it protein, as it helps stabilize nighttime blood sugar levels.
- Men who could do 40+ pushups at age 40 had a lower risk of heart disease over the next decade than those who could do fewer than 10.
- Avastin ($50–74/dose) works as well as $2,000 Lucentis, the only approved drug for macular degeneration.

Coming In Future Issues:

- Give Your Energy Engines a Tune-Up
- Testosterone for Weight Control
- Breast Cancer: Beyond Mammograms