

# THE EPOCH TIMES

# MIND &

# BODY

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## How My Family Beat COVID-19

We knew catching COVID was inevitable, so we strengthened ourselves and prepared a protocol

One family prepared for COVID with a plan, which they used when the illness struck and nearly everyone got sick.



SINA MCCULLOUGH

**M**y family contracted COVID-19 in mid-summer of 2021. We fully recovered within 2 1/2 weeks and haven't experienced any long-term symptoms, or what's commonly referred to as long COVID. Others haven't been as fortunate.

As of November, according to a report from the American Academy of Physical Medicine and Rehabilitation, between 3 million and 10 million Americans are

experiencing symptoms of long COVID, which can include fatigue, pain, brain fog, neurological issues, mobility issues, and shortness of breath. I'd like to share how we kicked COVID-19's butt in the hope that our story brings encouragement to others.

I've divided our COVID-19 journey into three sections (pre-COVID, sick from COVID, and post-COVID) based on the different strategies we implemented during those specific time periods. This information is for educational purposes only. I'm not diagnosing or treating COVID-19; I'm simply sharing remedies that worked for my family.

**We added more laughter and play on a daily basis.**

Pre-COVID

In early 2020, when the world was in a panic and the United States went into lockdown, my husband and I analyzed the situation and came to the conclusion that COVID-19 would follow a similar fate to the Spanish flu outbreak of 1918, in which descendants of the original virus are still around today. Consequently, while we took precautions, we believed that no matter how long we quarantined, socially distanced, or wore a mask, we would eventually contract COVID-19.

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## Living on Spanish Time

A year in Spain taught me 3 ways to stop rushing through life

JULIA UBBENGA

The way I viewed time changed in 2007 when I quit my desk job, threw some essentials in a large suitcase, and moved 5,000 miles east to a town I'd never heard of in southern Spain.

I arrived in Jaén with only one real responsibility: teach English. But I brought my own to-do list, of course. Toward the top was learning Spanish and soaking in Andalusian culture.

Immersed in all things Spanish, I soon

noticed that something was missing. Rushing. The people of southern Spain never seemed to be in a hurry.

People went along their way steadily. Their steps were laced neither with idleness—everything still got done—nor with a sole determination to get somewhere. They sauntered at a pace that anchored them in the present moment. And as they passed, I spied no fear of late arrivals or wasted time.

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**The Spanish put an emphasis on enjoying life. They intentionally partake in what fills the soul—a lengthy conversation, good food or wine, a daily siesta.**

Americans are geared to get things done, always looking to what's next. Spaniards are geared toward appreciating what's now, like the people they are with.



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shall set us free. This should be  
on this country's academia's  
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People who are born during this solar term have plenty of water element in their constitutions. As a result, they tend to be creative and full of ideas, and are believed to be very intelligent and outgoing.

**CHINESE WISDOM FOR SEASONAL LIVING**

## When Cold Yin Energy Reaches Its Peak, Protect Your Heart

Solar Term: ‘Heavy Snow’ (Dec. 7–20, 2021)

**MOREEN LIAO**

A solar term is a period of about two weeks and is based on the sun's position in the zodiac. Solar terms form the traditional Chinese calendar system. The calendar follows the ancient Chinese belief that living in accordance with nature will enable one to live a harmonious life. This article series explores each of the year's 24 solar terms, offering guidance on how to best navigate the season.

**Solar Term: ‘Heavy Snow’**
**2021 Date:** Dec. 7–20

“Heavy Snow” (Dec. 7–20) is the third solar term of winter. Around this time, the cold yin energy reaches its peak, and the yang energy starts to evolve. The snow is getting much heavier, and the temperature is much colder in most of the Northern Hemisphere.

As the yang energy slowly starts to move and grow during this solar term, wild animals, such as tigers, who strongly reflect the yang energy of nature, start to come out of their caves and mate.

Daffodils and orchids will soon begin to sprout, reflecting the movement and revival of the yang energy on the Earth and in the natural realm.

In the northern part of the world, heavy snow around this time indicates enough moisture for winter plants to grow well, such as the radish, white radish, broccoli, and Chinese cabbage. In southern and warmer regions, ancient Chinese people would look forward to heavy rain and clouds. This would indicate sufficient moisture in the air and would nourish plants and the soil thoroughly, for a good harvest of crops such as rice.

The fishing industry has its big catches of the year at this time, and the meat is soft and juicy due to body fat. Root plants such as radishes are ripe and crunchy.

It's also the time of year when holiday decor fills up the stores and food vendors offer festive fare. Holiday vibes warm us and remind us to cherish the precious moments of our lives.

**Effects on People**

People who are born during this solar term have plenty of water element in their constitutions. As a result, they tend to be creative and full of ideas, and are believed to be very intelligent and outgoing. They're often good in communication with strong leadership qualities.

According to traditional Chinese medicine, these people need to pay special attention to their hearts and circulatory systems. They may experience irregular heartbeat, stroke, or even heart attacks due to the constriction of the blood vessels from the colder weather.



For those who have cold hands and feet, drinking plenty of hot goji berry tea with added ginger root can help.

Lung and lung-related problems are more likely to develop or even become worse around this time. To protect against that, avoid polluted areas, stop smoking, and drink a good amount of warm water to cleanse toxins from the body and maintain active blood circulation.

Generally speaking, this is a time when people can easily get a cold or flu, so keeping warm is particularly important for maximizing well-being.

**Tips to Maximize  
Wellness During ‘Heavy Snow’**

- Drink plenty of hot goji berry tea; add ginger root for those who have cold hands and feet.
- Drink chai tea or chai lattes instead of coffee to strengthen kidney function, since too much coffee flushes the yang energy out from the body.
- Eat less sugar, as it disrupts the body's natural energy balance.
- Wear a hat, scarf, and gloves. For the elderly who live in extremely cold areas, a soft wool hat can preserve body heat during sleep.
- Use the heel of one foot to massage the inner side of the other lower calf in circular motions to promote energy flow for the whole body.
- Diffuse warm and sweet notes of essential oils (see suggestions below) to lift the energy, motivate the mind, and keep the body warm.
- Avoid anger or sudden shocks to prevent strain on the heart and brain.

**Seasonal Foods**

Cooking with quality oils, such as sesame, walnut, or avocado, helps your body gain good energy and prolong the heat.

Broccoli, dill, chestnut, cashews, almonds, macadamia, green onions, yams, and walnuts are all very good sources of protein during this time of year.

Those who have a poor appetite can eat dried Chinese plum or take them as a herbal remedy to make warm tea. This helps to regulate digestion and boost energy as well.

For those who have cardiovascular concerns, or who want to strengthen their heart and circulatory systems, try ingesting foods that are red in color to enhance these functions.

Beetroot, carrots, tomatoes, cranberries, strawberries, cherries, rosehip jam, and rose tea are all good choices.

**Seasonal Herbs and Essential Oils**

Spicy and warm essential oils, such as geranium, rose, sandalwood, rosewood, lemongrass, wintergreen, ginger, or cinnamon, warm your heart and energize your body.

Epoch Times contributor Moreen Liao is a descendant of four generations of traditional Chinese medicine doctors. She is also a certified aromatherapist, former dean of the New Directions Institute of Natural Therapies in Sydney, and the founder of Ausganica, a certified organic cosmetic brand. Visit [LiaoMoreen.com](http://LiaoMoreen.com)

# Predictions of Smallpox Return Are Nothing New

Recent comments by Bill Gates have stirred old fears, but how real is the risk?

**CONAN MILNER**

COVID-19 is still the virus of the moment, but the emergence of a much older and more deadly virus is said to lurk just over the horizon.

This premonition comes from Microsoft founder turned vaccine-focused philanthropist Bill Gates. In a recent interview with Policy Exchange, Gates warned governments to prepare for bioterrorist attacks using smallpox. He urged the United States, the UK, and other nations to immediately begin investing billions in research and development to counter the impending threat.

“You say, OK, what if a bioterrorist brought smallpox to 10 airports? You know, how would the world respond to that? There are naturally caused epidemics and bioterrorism-caused epidemics that could even be way worse than what we experienced today,” Gates said.

Gates's preparedness plan envisions governments pouring money into a new World Health Organization (WHO) Pandemic Task Force to address this deadly scenario predicted to besiege humanity in the near future. Just days after Gates's announcement, vials labeled “smallpox” were found in a Merck laboratory in suburban Philadelphia.

The world is still struggling to recover from the economic devastation and death toll brought by COVID-19. So why smallpox and why now?

Smallpox is a contagious disease caused by the variola virus, with a reputation of being one of the most devastating diseases known to mankind. Symptoms include fever, severe fatigue, pain, and sometimes blindness. But the most characteristic sign is the red spots that sprout all over the body. The spots turn into fluid-filled blisters, which later develop into deep, pitted scars or pox marks. The disease has an infection record stretching back at least 3,000 years. And while most survived smallpox, it also claimed numerous lives.

In terms of modern health threats, however, smallpox is practically a forgotten relic. Although the disease is said to have killed 300 million in the 20th century alone, by the end of the century, it virtually disappeared.

Older generations may still sport a small scar on their shoulder—the unique signature of the smallpox vaccine—but immunization programs for this disease faded in the 1970s. By 1979, member states of the World Health Assembly declared the disease eradicated, and health experts concluded that the serious complications that the vaccine is known to cause outweighed the benefits in the absence of an actual outbreak.

According to the WHO, smallpox is the only disease ever to be declared eradicated, citing the accomplishment “among the most notable and profound public health successes in history.”

But ever since the disease made its exit, experts have feared that it would one day return, not as a force of nature, but as a weapon. Although the variola virus has appeared to have vanished in the wild, samples are kept in two labs, one at the State Research Center of Virology and Biotechnology in Koltsovo, Russia, and another at the Centers for Disease Control and Prevention (CDC) in Atlanta. The samples are kept for study, but the concern is they might fall into the wrong hands.

**Dark Winter**

Twenty years before Gates made his prediction, the Center for Strategic and International Studies and the Johns Hopkins Center for Civilian Biodefense Studies hosted an exercise known as Operation Dark Winter. The exercise was aimed at examining how officials might address the challenges posed by a weaponized smallpox attack on America.

The worrisome conclusions drawn from the Dark Winter exercise prompted a renewed interest in a smallpox vaccination program, at least briefly. Given that it had been decades since this vaccine had been administered to the public, it presumably left millions of Americans vulnerable to an attack. And experts argued that reviving the vaccine could effectively protect the population.

A report from the Johns Hopkins Center for Health Security outlines the findings from the Dark Winter exercise. It explores



the issues related to any biological attack—the threat of national security interests, the massive civilian casualties, the breakdown of essential institutions, civil disorder, loss of confidence in government, and reduced U.S. strategic flexibility abroad—but it also covered the concerns specific to a smallpox outbreak.

“Smallpox, because of its high case-fatality rates and transmissibility, represents one of the most serious biological warfare threats to the civilian population,” the report states. “Aerosol release of smallpox virus disseminated among a relatively small population could result in a significant epidemic. Evidence suggests the infectious dose is very small.”

We typically think of biological warfare as a relatively recent development, but smallpox was imagined as a weapon in the past. For example, during the French and Indian War (1754–1763), British general Lord Jeffrey Amherst wrote letters in which he proposed wiping out Native American enemies by offering them smallpox-infected blankets.

Historians dispute whether the plan was ever implemented, and if it was, question if it even worked. What is clear is that many Native Americans were killed by smallpox when Europeans arrived in the New World. With no immunity to Old World diseases, several tribes were decimated with exposure.

**The Search for Risk-Free Immunity**

For centuries, people observed that those who survived smallpox were rewarded with a special ability: immunity. This meant that if you got sick from it once and recovered, the disease couldn't touch you again. In the past, various methods were employed to take advantage of this ability, while minimizing the threat. Throughout Asia and Africa, people discovered a procedure that involved smearing some smallpox pus or powdered scabs into a fresh scrape on the skin. Ideally, the process would produce mild symptoms and smallpox immunity, but it could also be fatal and cause outbreaks.

In England, a notable variation on this procedure led to the invention of the first vaccine. According to legend, an orphan boy heard a milkmaid proclaim that her complexion would never be blemished by smallpox marks because of her exposure to the bovine variety of the disease, known as cowpox. That orphan grew up to become a country surgeon named Edward Jenner who was eager to test the milkmaid's



**Smallpox is a contagious disease caused by the variola virus, with a reputation of being one of the most devastating diseases known to mankind.**



The Centers for Disease Control and Prevention says there are two licensed smallpox vaccines and two antiviral drugs approved in the case of an outbreak, though neither drug has been tested on humans.

claim. In 1796, Jenner exposed a young boy to a cowpox lesion in hopes of stimulating smallpox immunity and his experiment proved a success. Jenner named his new invention a vaccine after the Latin word for cow: vacca.

This invention is often credited with the eradication of smallpox, but some suggest that improvements in hygiene and nutrition may have played an even greater role in ending the scourge. Whatever the case, even the most ardent fans of the smallpox vaccine admit the treatment comes with significant risk. One big reason the world didn't embrace a renewed vaccination program following the Dark Winter exercise was all the complications associated with the treatment, including serious infections of the brain and heart.

These problems are detailed in a 2003 article in the journal, Clinical Medicine and Research, titled “Smallpox Vaccine: The Good, The Bad, and The Ugly.”

“Current evidence suggests net harm would result if smallpox vaccine were made available to the general public on a voluntary basis. Such a policy would pose a risk to both the vaccinees and their close contacts (who presumably have not consented to vaccinia exposure) with little or no benefit under many attack scenarios. If this complex public health decision is delegated to individual citizens, some individuals will be unable to weigh the risks and benefits for true informed consent,” the article states.

**Treatments Old and New**

So what if a smallpox attack really does break out in the next few years? Another weak spot in our protection from an attack is that there hasn't been a recognized treatment for it.

Drugmakers, however, are already gearing up to fill the gap just in case.

In 2018, the U.S. Food and Drug Administration (FDA) approved the first drug to treat smallpox, named tecovirimat. In June 2021, the FDA approved another drug to treat the disease named brincidofovir. Both drugs were approved under the FDA's animal rule. Because of the ethical issues associated with infecting human subjects with smallpox to test the drugs, only animal trials were used to assess safety and effectiveness.

Another smallpox remedy not approved by the FDA comes from Native American medicine of the 1800s. The Micmac tribe of Nova Scotia in particular treated smallpox infections with a carnivorous pitcher plant known as *Sarracenia purpurea*. Herbert Miles, the assistant surgeon to the Royal Artillery, reported that during an outbreak, an old Indian woman treated the tribe with *Sarracenia* and “was so successful as to cure every case.”

In 1892, American botanist Charles Millsap described *Sarracenia* as “the greatest remedy known for the dreadful scourge.”

The remedy went largely forgotten for the next century. But in 2012, researchers at Arizona State University took a fresh look at the old remedy and conducted in vitro experiments with a *Sarracenia* extract. They found that it inhibited the replication of the variola virus.

The study, published in the journal PLOS ONE, concluded that *Sarracenia* was “the first effective inhibitor of poxvirus replication at the level of early viral transcription.”

Bill Gates recently urged governments to invest billions in preparation for bioterrorist attacks using smallpox. It was an alarming proclamation, but not a new one.



# How My Family Beat COVID-19

We knew catching COVID was inevitable, so we strengthened ourselves and prepared a protocol



Tending to both mind and body helped the McCullough family fully recover from COVID.

Continued from Page 1

Therefore, while our family was already healthy and free of comorbidities, we decided to take precautions by preparing mentally, physically, and emotionally. We focused on several key factors:

**Consuming Nutrient-Dense Foods:** We already consumed nutrient-dense, organic meals on a daily basis, so we simply continued that practice. We also continued to abstain from eating foods that tend to be inflammatory, such as refined sugar and dairy.

**Supplementing When Needed:** Roughly twice a week, we supplemented our diets with vitamin C, B vitamins, and a multi-vitamin and mineral.

**Reducing Stress:** We added more rest into our daily lives by removing any unnecessary tasks or appointments from our schedule. Additionally, we added more laughter and play on a daily basis by doing things such as telling jokes at breakfast, playing board games in the afternoon, and chasing our children in the yard while playing a youthful game of tag.

**Increasing Microbial Diversity:** We consumed extra helpings of probiotics in the form of fermented foods and raw vegetables grown organically—or regeneratively, when possible. We also increased our intake of raw prebiotics, which are food for probiotics. Our favorite prebiotics include celery, onion, and jicama.

**Moving Our Bodies:** From yoga to walking to Pilates, every day, we moved our bodies with intention in order to nourish our joints and stimulate our lymphatic systems to assist in the removal of toxins.

**Practicing Gratitude:** We already practiced gratitude daily, so we continued that practice. For example, before every meal, we each express gratitude for three things. I believe our pre-COVID preparation plan was critical for our full recovery. Yet, this essential time period is often ignored by mainstream and social media, as well as health care practitioners. In our experience, following our pre-COVID preparation plan not only helped our bodies build resilience, but it boosted our mental health as well. Instead of taking a passive role and allowing fear to take over, we took charge and focused on something positive. We didn't realize it at the time, but our "can do" perception would ultimately be the most critical factor in our healing journey once we contracted COVID-19.

## Sick From COVID

My two boys were the first in our family to present with symptoms, followed by myself and then my husband. In each case, the first symptom was extreme fatigue, which appeared suddenly and knocked us off of our feet. Aside from fatigue, each member of our family experienced a different combination of symptoms and required different remedies. Therefore, I've divided this section accordingly.

### My Boys, Ages 11 and 7

Both of my boys presented with mini-

mal symptoms, namely fatigue and fever. We diligently tracked the fevers, but we didn't suppress them. Instead, we assisted their bodies in the detoxification process, which is the intended purpose of a fever. We made sure that they remained hydrated and eased their discomfort by applying cold rags to the forehead and neck while also providing emotional support through soothing words and physical touch, such as holding them and rocking them in our arms.

The fevers persisted for a few hours, leaving fatigue as the only remaining symptom. After resting for roughly a week, while consuming nutrient-dense meals and supplementing daily with vitamin C, both of my

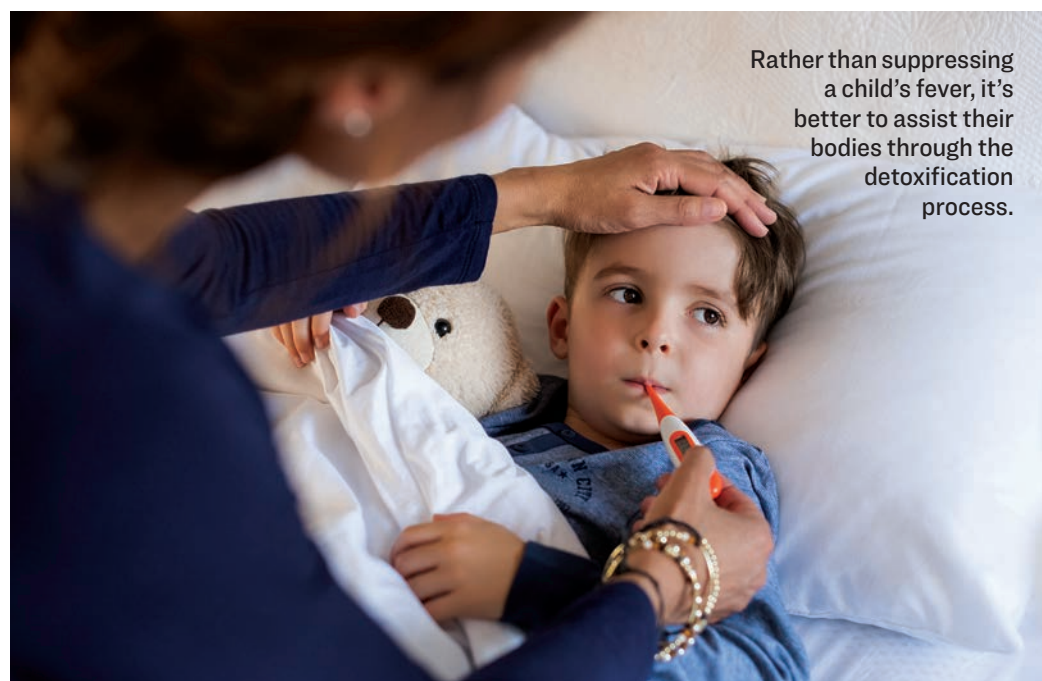
boys fully recovered.

### My 10-Month-Old Daughter

Fortunately, my daughter didn't present with any symptoms of a viral infection. I did supplement her diet with organic acerola powder to increase her vitamin C intake, but otherwise, I made no changes to her daily routine or lifestyle.

### My Husband and Myself

Our first symptom, fatigue, was more extreme than what our children experienced. One moment, we felt great, and the next moment, it felt as though all of our energy had instantly drained from our bodies. Even keeping our eyes open was exhaust-



Rather than suppressing a child's fever, it's better to assist their bodies through the detoxification process.

## MEDICALLY CORRECT

# A Stitch in Time

The history of suturing wounds

PETER WEISS

About 20 years ago, I was offered the opportunity to play Dr. Hunter Holmes McGuire in a History Channel miniseries. I didn't have a speaking part—just a reenactment. McGuire was the surgeon who happened to amputate the left arm of Gen. Stonewall Jackson.

Jackson died of infection from his wounds. The interesting thing about those Civil War years was that the primary surgery of that time was amputation, and the main cause of death was infection.

The primary suture of the time was either cotton or catgut (twisted sheep or horse intestine). McGuire had a severe shortage of both. Someone came up with the idea to use the skirt of a horse (the long coarse hair of the horse's tail) as suture material. The problem was that horse skirt hair is very coarse and hard to manipulate and tie. The simple solution was to boil it so

that it became softer and more malleable. People noticed a decrease in the infection rate afterward.

It was obvious to all present that there must be a secret property of the horse tail that lowers the infection rate, but no one bothered to think that it may have been the boiling of the hair that killed any bacteria on it. As a side note, after the war, McGuire went on to become the president of the American Medical Association.

It wasn't until the 1870s that a British surgeon named Sir Joseph Lister realized the benefits of antiseptic surgery. He was mocked for many years and the *Lancet* (a well-respected medical journal, even today) warned against his ideas. He applied Louis Pasteur's advances in microbiology. Lister instituted the practices of wearing clean gowns, washing his hands before and after surgery, and washing instruments in a mild carbolic acid solution. Listerine was



We've been stitching ourselves back together for a long time. Fortunately, we are getting better at it.

named in honor of Lister's discovery.

Suturing has been found in ancient cave paintings as far back as 30,000 B.C. with the use of "eyed needles." In 1600 B.C., Galen of Pergamon, a Greek surgeon, used catgut for the first time to suture gladiators' torn or sev-

ered tendons. In A.D.150, ancient Egypt mentions suturing a gash in someone's shoulder. About 10 years ago, I took an amazing wilderness medicine course in Sante Fe, New Mexico. Besides learning that one can do a great deal with duct tape and a safety

ing. All we could do initially was lay on the floor.

Consequently, we immediately began following the "COVID-19 Healing Protocol" that I had prepared in the event that we contracted the virus. There were also a couple of things not on the protocol that our bodies seemed to particularly crave:

**Supplements:** We consumed a supplemental form of vitamin C, vitamin D, B vitamins, zinc, and turmeric each day, along with herbal supplements, including black elderberry extract, Echinacea purpurea extract, Astragalus membranaceus root extract, Andrographis paniculata leaf extract, and Myrciaria dubia.

**Essential Oils:** Certain essential oils have also been shown to assist with COVID-19 infections. Consequently, each day, I rubbed diluted melaleuca essential oil on our lymph nodes. I also rubbed diluted peppermint essential oil under our noses to help clear the sinuses. We also utilized nasal rinses with salt water for congestion when needed.

**Nutrient-dense Foods:** At every meal, we consumed nutrient-dense, organic food. We were too fatigued to cook, but fortunately, we keep a supply of homemade, organic meals in the freezer. Therefore, I simply reheated those meals.

**Salt:** Interestingly, we both craved salt—a lot of salt. This wasn't part of the plan. We already liberally salt our food. However, our bodies wanted more. In fact, if I added those large quantities of salt to our food today, I don't think we could eat it.

**Onions:** Also of interest was my body's craving for onions. I love onions. However, my body wanted at least one large onion every day—usually raw. Interestingly, after I was healed, I discovered that onions have been proposed by some scientists as a possible early treatment for COVID-19 due to their anti-inflammatory, antithrombotic, and antiviral effects.

**Herbal Tea:** I drank various organic, herbal teas, depending on what my body needed at a given moment. The most helpful teas were dandelion root, burdock root, stinging nettle leaf, and lemon.

**Fluid:** We drank at least 70 ounces of clean, structured water each day.

**Rest:** We quickly learned that the fatigue came in cycles. I experienced extreme fatigue for the first three days, which was followed by one day of feeling better. Then the fatigue settled in again.

There were a total of three fatigue cycles for each of us. Fortunately, my husband was two days behind me in terms of the cycles, so we were able to trade off with "baby duties." On the days where all I could do was lay down, he tended to the baby and vice versa.

We also made sure not to overextend ourselves, even when we began to feel better, because you didn't know if another cycle of fatigue would begin the next day. So, we conserved our energy by only doing the bare essentials, such as taking care of the kids and reheating food. Tasks such as

cleaning the house and mowing the yard were put on the back-burner.

**Movement:** We realized by day two that moving our bodies was important. We needed to find a balance between rest and movement, because our bodies were aching from the infection as well as from immobility. It was difficult to find that balance, because each time we started to feel like we had energy and we began to move around, the energy quickly drained. Consequently, instead of "work-out partners," my husband and I became "movement partners."

We began by encouraging each other to walk around the house, which quickly progressed to walking up and down the driveway. We both discovered that once we overcame the initial hump of fatigue and pain associated with the initiation of walking, movement was a key component of our recovery. Every time we began our walk, within roughly three to five minutes, the pain subsided and our energy improved. Therefore, even though we didn't want to move our bodies on most days, we gently added movement to our daily healing protocol.

## Additional Measures

Using the above protocol, I recovered by 90 percent in roughly two weeks. I was back to my daily routine and only suffered from periodic episodes of decreased energy and mild brain fog—both symptoms of long COVID. So, what was the final missing piece of the puzzle? What helped me achieve the remaining 10 percent of recovery so that I could be fully healed and not be a "long-hauler?" Fasting.

I fasted on water for 24 hours, and everything changed. I felt amazing! My mind was razor-sharp, and my energy level was through the roof! Since that fast, I've had no symptoms or residual effects from COVID-19—and it's been five months. Interestingly, some scientists have recently begun supporting fasting for the possible prevention and treatment of COVID-19.

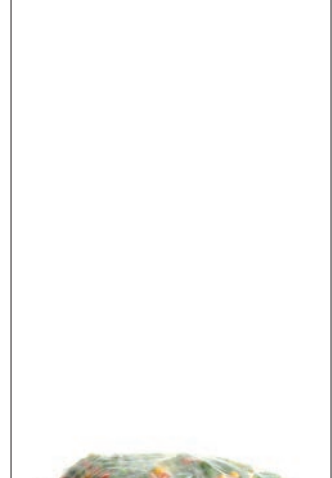
My husband, on the other hand, required additional interventions beyond my original protocol. As expected, he was affected the most by COVID-19, presumably because he has a genetic susceptibility to respiratory infections. He developed a deep cough, as well as fluid in his lungs. For roughly two days, the cough was so deep that he nearly vomited. Since COVID-19 infections can turn into serious conditions quickly, I tracked his cough diligently and, at one point, decided that if the cough hadn't improved within 24 hours, I would insist that my husband go to the hospital. To address the cough, we added two key steps to his healing protocol:

**Natural Medicines:** Three times per day, he breathed in natural medicines. I sliced red onions, placed them in a pot with filtered water, and brought them to a low boil. Then, I added two drops of melaleuca essential oil. Next, with a towel over his head, my husband leaned over the pot and breathed in the steam as deeply as possible for three to five minutes.

**Garlic:** Every night and two to three times throughout each day, we applied garlic to the bottom of his feet. Specific compounds



Dr. Sina McCullough, her husband, and two sons.



**We were too fatigued to cook, but fortunately, we keep a supply of homemade, organic meals in the freezer.**

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in garlic have been shown scientifically to help fight COVID-19 by preventing the virus from entering your cells and activating antioxidant pathways to help your body fight the infection.

According to the American Chemical Society, one of the primary healing compounds in garlic can penetrate your skin, enter your bloodstream, and travel to various parts of your body, including your mouth, lungs, and nose. Consequently, I sliced garlic cloves in half, rubbed the cloves with olive oil, and taped them to the bottom of my husbands' feet. That might sound unusual, but it was ultimately the most effective treatment for his persistent, deep cough.

He never laid flat during the day. When he needed to rest, we made sure that he was propped up using pillows. Additionally, he continued to move his body even when the cough was serious.

Fortunately, by adding these additional steps, the cough became productive, his lungs cleared, and his condition improved quickly. Like me, my husband recovered in roughly 2 1/2 weeks, and he has experienced no long-hauler symptoms.

## Post-COVID

As I reflect on my family's healing journey from COVID-19, I'm convinced that while our protocol was effective, it was missing a critical piece of the healing puzzle: perception.

On day three of our healing journey, my husband and I realized that we were unknowingly holding onto the fear of COVID-19. After seeing footage from China and hearing numerous devastating stories on the news, we were afraid. What if we were among the people who seemed "healthy" but died anyway? What if months passed and we were still sick? At times during the sickness, we began to mentally spiral down the abyss of worry.

However, we knew that holding onto fear could keep us sick. Consequently, we made a pact. We decided to change our perception from fear to gratitude. We told our minds and our bodies that the infection was no more serious than the common cold and that we were completely equipped to beat it. We told ourselves that we would fully heal. And, with that shift in perception, the fear was released, which made room for gratitude.

We became grateful that we had contracted COVID-19. In fact, every day, our family spoke words of gratitude for being sick and gratitude for the ability of our bodies to fully heal. That might sound odd, but until we became sick, we didn't realize how tightly we held onto the fear of "what if." However, now we could finally release that fear and experience the mental freedom we had known before the pandemic. We no longer had to worry about if or when we would contract COVID-19 or if we would become a statistic. We had the virus, and we would beat it.

In that moment of release, a weight was lifted from our bodies. I felt as though, for the first time in nearly a year and a half, I could finally take a deep breath. We were all going to be OK; we were safe. Roughly two weeks later, that belief became our reality.

It's now been five months, and we never worry about COVID-19. It's in the past. We kicked COVID's butt and never looked back!

pin, I also learned about the giant African ant. This giant ant, *Eciton burchelli*, has been used for wound closures for as long as time can be remembered. These giant ants are held parallel against the open wound. They bite down with giant claws and bring the wound edges together. The holder then decapitates the ant, leaving the head and claw holding the wound together.

"How does one capture such an ant in the first place?" I asked the lecturer at the time. I wasn't given a satisfactory answer.

There also are many reported cases of the use of wires to close wounds starting as far back as the Middle Ages. The first use of staples to do so was in 1908 by a Hungarian surgeon, Dr. Humer Hultl.

That was then and this is now.

Krazy Glue was actually discovered in 1942, when scientists were trying to make clear plastic gun sights during World War II. The problem was that it stuck to everything. It did find its use during the Vietnam War, where emergency medics used it to seal open wounds on the battlefield. It has been credited with saving many lives. The problem with Krazy Glue is that it's such a strong adhesive that it can be damaging to the skin and even kill cells, especially if it seeps into the deeper tissue. Today, we have much more effective biologic glues for skin closures. I use different types of sutures on differ-



Knowing the pros and cons of each suture type is the difference between a good surgeon and a great one. A statue of Galen of Pergamon in Bergama, Turkey, in this file photo.

ent parts of the body, depending on my goals. I typically use a type of suture that's quickly absorbed into the skin when operating on muscle and a nonabsorbable suture when tying off larger blood vessels. The skin edges can usually tolerate an absorbable suture just as well as one of the newer biologic glues, which gives a nice cosmetic closure. Patients usually comment on the scar, rarely about what happened underneath.

There's yet another type of "suturing" that involves the use of lasers. This laser welding uses photothermal energy to connect structural proteins. This also coagulates the flesh (stops the bleeding) and is quick and easy—when it works.

Let me take you into the operating room for a sense of all the suturing tools at a surgeon's disposal. Modern medicine really has come a long way. Antiseptic is a commonality of every technique. I use "electrocautery," which is radiofrequency energy to "suture" or coagulate small blood vessels. In the old days, we would have to tie off each bleeding vessel. We still need to tie off larger ones, since the cautery won't usually work on them.

We have a wide range of suture materials to use, depending on what's bleeding or what needs to be brought back together. Every suture type has a pro and a con, and knowing what those are makes the differ-

ence between a good surgeon and a great one. Knowing how to tie the knots also helps.

The next time a friend shows you their scar, you can now ask them what sutures were used and tell them what you would have done if you were the surgeon.

I've always taught medical residents to "stitch expeditiously, never waste time: Time is blood loss, and we don't want any of that."

**Suturing has been found in ancient cave paintings as far back as 30,000 B.C. with the use of 'eyed needles.'**

*Dr. Peter Weiss has been a frequent guest on local and national TV, newspapers, and radio. He was an assistant clinical professor of OB/GYN at the David Geffen School of Medicine at UCLA for 30 years, stepping down so he could provide his clinical services to those in need when the COVID pandemic hit. He was also a national health care adviser for Sen. John McCain's 2008 presidential campaign.*





Sweetened drink labels often highlight nutrition related claims—like “Vitamin C” or “Less sugar.”



Sweetened drinks often use pictures of fruit or words with no regulatory definitions—like “water” and “natural.”

Between the marketing, pricing, and labels, it's no wonder kids are drinking more sugary drinks.



## Companies Are Pushing Sweetened Drinks to Children

Advertising and misleading labels make it difficult for families to know what they are buying

FRAN FLEMING-MILICI

Walking down the drink aisle at any grocery store will take you past hundreds of drinks, from sodas to sports drinks. Children's drink sections are filled with a vast array of products as well. Most parents want to buy what is healthy for their children, but with so many options in the drink aisle, it can be difficult to make the right choice—especially when drink companies make it hard to do so.

I am a researcher at the UConn Rudd Center for Food Policy and Health, and I've studied how food is marketed to kids and parents of young children for more than a decade. Companies spend huge sums advertising children's drinks with added sweeteners. Despite the sweeteners, companies market these drinks as healthy choices for kids.

In a recent study I co-authored with colleagues at the Rudd Center, we examined advertising and purchasing trends of children's drinks from 2006 to 2017. We found, not surprisingly, that ad spending drove people to buy the drinks being advertised. The problem is that companies spend tens of millions of dollars per year promoting sweetened children's drinks. This study was one of the first to directly tie that ad spending to household purchases of unhealthy beverages. In addition, we also found that households with lower incomes were more responsive to this advertising and purchased more sweetened children's fruit drinks than households with higher incomes.

Decades of research have shown that drinking too many sugary drinks can raise the risk of heart disease, high blood pressure, Type 2 diabetes, and tooth decay. Advertising appears to increase companies' profits, but not children's health.

### Advertising and Demographics

The food and beverage industry spends nearly US\$14 billion per year advertising their products, and around 80 percent of the spending promotes highly processed foods. This includes “fruit drinks”—fruit-flavored beverages with not much juice, like SunnyD—and flavored waters like Capri Sun Roarin' Waters. Both are marketed as being for children, but they contain ingredients health experts say kids shouldn't consume, including added sugar, diet sweeteners, or both.

In total, children's drink brands spent \$32 million to advertise on TV in 2018, followed

**I challenge any reader to head down a children's drink aisle in the supermarket and successfully separate the healthier drinks from the less healthy ones**



### Food Industry Pushing Cheap, Low-Quality Products

The food and beverage industry spends nearly US\$14 billion per year advertising their products, and around 80 percent of the spending promotes highly processed foods.

*Fran Fleming-Milici is the director of marketing initiatives at the Rudd Center for Food Policy and Health at the University of Connecticut. This article was first published on The Conversation.*

by \$21 million in magazine ads. This was far more than the \$13.6 million companies spent on TV ads for unsweetened children's drinks like 100 percent juices and juice and water blends.

Marketing sugary drinks directly to young kids is another tactic that companies use.

In 2018, children 2 to 5 years old saw twice as many TV ads for sugary children's drinks than they did for unsweetened juice products. Some fruit drink brands also disproportionately targeted advertising to Spanish-speaking households as well as black children. Even packaging is aimed at kids, with sweetened drinks featuring more cartoons, brand characters, and wacky names compared to drinks without added sweeteners.

This advertising can undermine parents' efforts to serve healthy drinks.

To measure the effect of this advertising, my colleagues and I looked at 12 years of monthly purchase data. We found that people living in households with lower incomes purchased significantly more sweetened fruit drinks and fewer unsweetened juices than people in households with higher incomes. People in non-Hispanic black and Hispanic households also purchased more sweetened fruit drinks than non-Hispanic white households. This matches research that shows that communities of color and lower-income communities drink relatively more sugary drinks than other groups, which contributes to disparities in diet-related disease.

### Lower Prices

Advertising is one thing that drives consumption, but pricing strategies also add to demographic differences in purchases.

I've conducted focus groups with parents of young children, and they say they'd like to purchase 100 percent juice. But when these parents compare prices in the supermarket, they end up buying cheaper sweetened drinks instead of the healthier beverages they intended to buy.

The recent study shows that such price disparities are getting worse. Over the 12 years we covered, prices increased for all children's drink types, but sweetened children's fruit drinks increased by an average of just 1 cent per ounce, compared to the 4 cents-per-ounce increase of unsweetened juice products.

### Misleading Labels

Another way companies try to push sweetened drinks is to use labels that make them

appear healthier than they really are.

This happens in two main ways. First, sweetened drink labels often highlight nutrition-related claims—like “Vitamin C” or “Less sugar,” for example. Second, with sweetened drinks featuring more cartoons, brand characters, and wacky names compared to drinks without added sweeteners.

Brands also often offer both sweetened and unsweetened drinks with nearly identical packaging and claims, so it is easy to see why parents misperceive what is in these drinks. I challenge any reader to head down a children's drink aisle in the supermarket and successfully separate the healthier drinks from the less healthy ones.

### What to Do?

Between the marketing, pricing, and labels, it's no wonder kids are drinking more sugary drinks. Overall, our research found that purchases of sweetened flavored waters increased by 68 percent from 2006 to 2017. Today, households with young children purchase three times as many ounces of sweetened fruit drinks as unsweetened juice.

Reducing the amount of sweetened drinks kids consume when they are young could go a long way in keeping them healthy for a lifetime. Better industry self-regulation of advertising is one way to reduce this overconsumption, but the U.S. Food and Drug Administration could also get involved by mandating clear and consistent disclosures of added sugars and diet sweeteners, as well as juice percentages, on packaging. Reducing the disproportionately targeted marketing of sugary drinks to communities of color would be a step in the right direction, too.

If you care about the health of children, the goal should be to make the healthy choice the easy choice. Unfortunately, our research seems to show a trend in the opposite direction.

## Permission to Feel

NANCY COLIER

This past weekend, I witnessed an event that was both utterly simple and utterly profound, an interaction that beautifully demonstrates what we really need to feel OK.

I was sitting at an outdoor café, when what appeared to be a family of three: a mom, dad, and their 9-ish-year-old daughter (who was carrying a wrapped present) approached and stopped at the brownstone just next to the table where I was sitting. It looked like they were going to the same party as several other young families who'd entered the brownstone carrying presents in the past half hour. But at the bottom of the stoop, the little girl started crying. From the look of her face, which was red and blotchy, it looked like it wasn't the first cry of the morning.

The girl then laid down on the sidewalk, now sobbing, and screeched that she didn't want to go to the party; she hated parties, she wasn't going to know anyone there besides “Molly,” and no one was going to talk to her because no one ever did.

**We're afraid because we think that we shouldn't have such feelings and that we're bad for feeling what we shouldn't feel.**

Her parents, who seemed kind, did what most good parents do. They told her that she was going to have a great time once she got there, that she always made friends wherever she went, that she wouldn't even remember not wanting to go, and that it was good for her to try new things. They told her not to forget, too, that Molly would be very sad if she didn't come after having promised her she would. But the little girl just kept crying and screaming, oblivious to her parents' persuasion.

And then the father became angry. “I'm sick and tired of you tantruming every time you have to do something that requires effort. This is what happens when you do too much technology.” He told her that if they went home now, she wasn't going to get to play on her iPad and, in fact, wasn't going to get to play on it all weekend. Furthermore, he told her that he wasn't going to put up with these meltdowns every time something was asked of her, and barked (several times), “What is the problem?”

No surprise, his irritation didn't help his daughter or the situation; in fact, it seemed to make things worse as his daughter's screech was now a full-blown howl, and she'd now turned onto her side and was hugging her knees in a fetal position.

## Living on Spanish Time

A year in Spain taught me 3 ways to stop rushing through life

Continued from Page 1

My mainstream American mindset found nothing familiar about this. Wasn't time money? Wasn't the purpose of one moment often to propel us to the next? Not here. My mind thought back to a quote I once read by Ann Voskamp: “The hurry makes us hurt.”

The Spanish people get this, I thought. So why was acclimating to this cultural norm so challenging for me? I reflected on this as I walked Jaén's hilly streets.

So often when I hurried, I thought I was making up time. In reality, I was throwing it away. I was discarding the present moment as I worked to quickly enter the next one.

Rushing, I realized, prevented me from fully entering into what's in front of me. Hurry made my soul feel empty instead of filled with the beauty and wonder of now.

Could I unlearn rushing during this year in Spain? It turned out, I could.

Here are three lessons I learned in Spain about slowing down. I return to them often when I catch myself moving too quickly through life.

### 1. Our mindset can set our pace.

The words we say—to ourselves and others—have neurochemical implications.

Give it a try. “You're out of time—hurry up!” activates different brain areas than “You have all the time you need.” You can

Then, something magical happened: The mom stepped off the stoop and sat down on the sidewalk next to her daughter. She put her hand on her daughter's back and confessed that she really didn't like going to parties either. And, that if she didn't push herself, she probably would never see anyone besides the little girl, the little girl's dad (her partner), and maybe her best friend. Meeting people she didn't know took a lot of work and energy, for her, too; every time she went to a party, she had to steel herself up a bit, “eat her Wheaties” as she put it, and remind herself that she was doing something really hard.

Her mom said that even though it was really hard to meet new people, and, for sure, easier to just stay home, she knew that she could do it if she tried, and that part felt good—to feel strong and know that she could do tough stuff. Her mom also reassured her that, if after 20 minutes at the party she still felt terrible, she should use their code word, “reindeer,” and they would get the heck out of there.

In that moment, the little girl's whole body relaxed. Within seconds, she unraveled from the fetal position, sat up, and leaned into her mom's embrace. Still a bit weepy, but without saying anything else, she got up and started moving toward the front door, her little hand intertwined in her mom's bigger one. The three of them then climbed the stairs without another word. Another little girl in a party dress opened the door, and then they were gone.

This small encounter perfectly and exquisitely demonstrates the fundamental nature of feelings. When we fight with, criticize, shame, dismiss, or in any other way reject feelings—our own or someone else's—those feelings we want to get rid of actually grow stronger. When the little girl's parents were scolding her and telling her all the reasons she shouldn't feel the way she felt, she screamed louder and felt worse; she was scared to go to the party, and, now, on top of being scared, she was all alone in her fear. But the instant her parents stopped blaming her and her mom met her where she was, physically and emotionally, and gave her permission to feel how she felt, she was remarkably OK.

It's not that the girl's feelings disappeared or that she suddenly felt thrilled to go to the party. What changed, however, was that she could go to the party once she knew that her feelings were allowed and welcome to come to the party, too. What we open the door to inside ourselves relaxes and permits us to move forward.

We are afraid to allow and validate our difficult feelings because we think that we will get stuck in them or that doing so will make us feel worse. We're afraid, too, because we think that we shouldn't have such feelings and that we're bad for feeling

To acknowledge our feelings is to acknowledge a truth, even if it may not be good



We are afraid to allow and validate our difficult feelings because we think that we will get stuck in them or that doing so will make us feel worse.

what we shouldn't feel. But, in reality, the more we say “yes” to our challenging feelings, and allow and acknowledge them, the more we can move through them and, thus, the less stuck we are in life. Paradoxically, the more we make room for what hurts, the better we feel. To acknowledge our feelings is to acknowledge what's true, which always feels good, even when what's true may not be good.

It's an act of love to sit down with our own or someone else's feelings and let those feelings know that, in your company, they're safe and welcome, and they're not going to be judged, criticized, or asked to go away. There

are few things so kind as to let someone (including yourself) know that you get why they feel the way they do. This one small but infinitely generous offering is what we all really crave; it's what ultimately moves mountains (and little girls).

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choose to tell yourself either. The second allows you to keep moving forward without hijacking your nervous system with a neurochemical stress response.

In Spain, two of the first phrases I learned were “tómate tu tiempo” (take your time) and “no hay prisa” (there's no hurry). I heard them frequently, along with phrases like “tranquilo” (relax) and “que descansas” (take it easy). The language used in southern Spain soothed a hurried mind.

I run these phrases over in my mind when I notice an inclination to rush.

### 2. Intentional connection is grounding.

The Spanish put an emphasis on enjoying life. They intentionally partake in what fills the soul—a lengthy conversation, good food or wine, a daily siesta. Lunchtime is around 2 p.m. and it's an event. The meal begins with a mutual “buen provecho” (before eating, everyone at the table pauses to tell each other to enjoy the meal). Several courses are served and the conversation is plentiful. The meal lasts at least an hour.

If I'm feeling rushed or spread too thin, if I can pause to connect with loved ones, whether over a meal or simply morning coffee, it helps me recenter. I focus on nothing more than connecting with that person and experiencing the moment. I listen and share as I savor the tastes and breathe in the aromas. I find this slows the mind and fills the soul every time.

### 3. Time is a cultural concept.

The United States is a future-oriented culture. We tend to run our lives by the clock (hence common phrases such as “I don't have enough time”). In pursuit of the American Dream, we strive to get ahead, often viewing a busy, hectic lifestyle as a sign of success. Spain is a present-oriented culture. Spaniards view time as a fluid concept, placing more importance on personal relationships than deadlines.

When I catch myself shifting into hurry mode, I stop and ask myself: “Do I have a good reason for acting this way? Or am I acting on autopilot, in a way I've been culturally programmed?” Usually, it's the latter. I take a deep breath (or five) and remind myself to feel this moment fully before passing on to the next one. I remind myself that the next moment isn't promised and that what matters is the here and now.

Often ask myself, “What culture do I want to build within the walls of my own home?” I've realized that a life defined by constant rushing, busyness, and attempting to “do it all” isn't my goal. Sometimes that means letting go of commitments or saying “no” to seemingly good things to make space for rest and connection.

Author Marc Chernoff said: “Never be too busy to make room in your day for the ones who matter most. Truly being with someone, and listening without a clock and without anticipation of the next event, is the ultimate compliment.”

It took me a year immersed in the Spanish culture to understand the value of slow living. To realize that a life marked by hurry was a life that was lacking.

I'm thankful I learned this lesson when I did because when I look back on life someday, I want to be able to say that I didn't rush through it, just skimming the surface. I want to know—without question—that I lived it deeply, focused on who and what mattered most.

*Julia Ubbenga is a freelance journalist whose teachings on minimalism, simplicity, and intentional living have reached thousands of people worldwide through her blog RichInWhatMatters.com. She practices what she preaches in her Kansas City apartment home with her husband, two lively young daughters, and 1-year-old son. This article was first published on ThisEvergreenhome.com*





Too often, we feel our social environments are filled with judgment and danger. But this sense can also come from within. How do we resolve it?

MINDSET

# Relaxing Our Threat Detector

Many of us feel exhausted by a constant sense of social risk

LEO BABAUTA

I've been working with a large number of people who are very often exhausted, not just from sleep problems but from their daily activities.

A lot of us are drained by being around other people, doing video meetings, going out in public, etc., so we start to avoid those activities to preserve our energy.

Setting boundaries and giving ourselves space to rest is an important thing to do. But over time, too many of these self-restrictions can leave us unable to interact with people and increase our isolation and loneliness, which only drains us more.

Here's an email from a reader recently:

"As a person struggling with burnout symptoms, I find it hard to resonate with the idea of antifragility and pushing your boundaries.

"That because the first step towards moving away from burnout symptoms is acknowledging your boundaries and NOT crossing over them to depletion.

"However, I am in this state of depletion for over 2 years now and it seems that trying to hold on to my boundaries has [led] to my boundaries getting closer and closer to nothingness. I can put up with less stress and excitement. I am getting weak and fragile instead of stronger.

"I would like to break this circle and slowly build some stamina.

"Where can I start?"

We start with boundaries and creating time for self-care, rest, and replenishment.

But we can also practice being more relaxed and less drained by our lives through a practice of relaxing our "threat detector."

Let's talk about the threat detector and how it works before we talk about the practice of relaxing it.

### How the Threat Detector Works

Part of our beautiful human brain is always looking around for threats—predators, other humans that might want to attack us, and social cues that our tribe disapproves of us.

If we find any of these threats, the body tenses up against them in fight, flight, freeze, or fawn (submission) responses. It tenses up, ready to take defensive action to protect us.

That's how it's supposed to work, but because we're in a modern environment, our threat detector is almost always going off. We worry about being judged by others, about not meeting the expectations of the group, about not meeting our own expectations, and so on. Email, messaging, and social media also trigger these same kinds of worries about being judged or not meeting expectations.

These scenarios leave us tense, anxious,



We worry about being judged by others, about not meeting the expectations of the group, about not meeting our own expectations, and so on.

ANDRII ZASTROZHNOV/SHUTTERSTOCK

and exhausted.

Unfortunately, shrinking our social activity may not replenish us. In fact, a sympathetic human face is one of the few things that can immediately make us feel safe in the world. In contrast, if we confine ourselves to loneliness, we reduce our ability to interact with the world and do meaningful work with others.

So rather than avoid what triggers our threat detector, we're better off re-tuning our threat detector.

**Because we're in a modern environment, our threat detector is almost always going off.**

### The Practice of Relaxing the Threat Detector

It's possible your threat detector is activated at this very moment. If not, take notice of the telltale tension that alerts you that something in your environment has triggered it.

Here's how to practice:

- Pause. Turn your attention to your bodily sensations, and see if you can notice a place where you're feeling tense. There might be a tightness in your chest, stomach, head, or jaw.
- Stay. Keep your attention on the sensation of tightness for a few moments, just resting the attention gently and with openness, no judgment. You might even bring an attitude of warm compassion or friendliness toward the sensation. After all, this feeling is just trying to protect you from perceived threats.
- Breathe. Take some deep breaths into the belly, letting yourself be filled with a sense of spaciousness with every in-breath. Then, let go of tension with every out-breath. Do this for 5 to 10 deep slow breaths, seeing if you can relax the tension a bit.
- Change your view. This is the key: Can you change your view of the threat to something that gives you a sense of possibility, curiosity, or gratitude? If you're with another person, instead of thinking of them as someone who might judge you, can you be curious about this beautiful being? Could you feel a sense of possibility about collaborating with them? Could you be grateful to have them in your life? Try out these kinds of views and practice seeing them as non-threatening, someone who can fill you with a sense of wonder.
- Breathe in again. With this new view, can you breathe and relax your tension, and feel a sense of openness, connectedness, warmth, and gratitude?

This obviously doesn't happen with a flick of a switch. It takes practice. You won't necessarily "get it right." That's OK, just keep practicing. Be encouraging with yourself.

With practice, you might be able to relax in a group of people, in any meeting, and in online social interactions and messages. What would it be like to be less drained, and instead feel a sense of connection, wonder, and love for the world around you?

Leo Babauta is the author of six books and the writer of Zen Habits, a blog with over 2 million subscribers. Visit ZenHabits.net

MINDSET

# The Profound Health Benefits of Being Grateful

Learn the basics of how the simple practice of gratitude can have profound positive effects on your health and well-being; it might even help you recover faster from trauma and injury.

JOSEPH MERCOLA

Gratitude is a simple practice that can have profound effects on your health and well-being. Positive effects linked to gratitude include social, psychological, and physical benefits, which increase the more you make gratitude a regular part of your daily routine.

"The limits to gratitude's health benefits are really in how much you pay attention to feeling and practicing gratitude," said neuroscientist Glenn Fox, a gratitude expert at the University of Southern California. "It's very similar to working out, in that the more you practice, the better you get. The more you practice, the easier it is to feel grateful when you need it."

### How Gratitude Changes Your Brain

Gratitude has distinct neurobiological effects, including in brain regions associated with interpersonal bonding and stress relief. When Fox and colleagues told stories of survivors of the Holocaust to elicit gratitude in 23 female subjects, they found that "ratings of gratitude correlated with brain activity in the anterior cingulate cortex and medial prefrontal cortex," which are associated with moral cognition, value judgment, and theory of mind. Theory of mind is a psychological term that refers to our capacity to understand other people by attributing mental states to them.

Continued on Page 14

The assumption that all older people are frail and helpless is a common, incorrect stereotype.



## Why You Can't Find Cheap At-Home COVID-19 Tests

While cheap tests are easily available overseas, Americans are left with few options

**The main use of rapid tests is to screen people so they can safely attend work, school, meetings, or gatherings.**

RACHANA PRADHAN & HANNAH NORMAN

While developing a rapid test that detects the coronavirus responsible for COVID-19 in someone's saliva, Blink Science, a Florida-based startup, heard something startling: The Food and Drug Administration (FDA) had received more than 3,000 emergency use authorization applications, and it didn't have the resources to get through them.

"We want to try to avoid the EUA quagmire," said Peb Hendrix, vice president of operations for Blink Science.

The company's test is still in early devel-

opment. On the advice of consultants, it's weighing an alternative route through the FDA to the U.S. market.

"It's just the way our government works," Hendrix said, which is a challenge for businesses that are "anxious to get started and think they've got something that can help."

The United States produced COVID-19 vaccines in record time, but nearly two years into the pandemic, consumers have few options for cheap tests that quickly screen for infection, though such tests are widely available in Europe. Experts say the paucity of tests and their high prices undermine U.S. efforts to return to normal life.

Some experts say that the FDA's approach to clearing rapid tests has been onerous and overly focused on exceptional accuracy to detect positive results, rather than on what would really benefit people en masse: speedy results. The main use of rapid tests is to screen people so that they can safely attend work, school, meetings, or

gatherings. This screening can then be followed up with a more sensitive, lab-based polymerase chain reaction (PCR) test for diagnosis.

The FDA has authorized just 12 over-the-counter options for rapid tests. But the problems go beyond that agency.

Continued on Page 11



After nearly two years, consumers still have few options for cheap tests that quickly screen for infection—despite thousands awaiting FDA approval.

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Probiotics are part of the body's microbiome, which also consists of viruses, protozoa, and fungi (including yeasts).

## Probiotics and Mental Health

Your second brain plays a major role in mood and mental function

LISA ROTH COLLINS

You may wonder how beneficial bacteria could possibly have a positive impact on mental health. If you have heard of the brain-gut axis—the pathway that exists between the brain and the gut—then you might guess there is a definite link between these two areas of the body.

This relationship is important to understand so you can take advantage of using probiotics to assist with mental health issues. Let's begin with a few basics.

### How Can Probiotics Affect the Brain?

Probiotics, also known as beneficial or good bacteria, consist primarily of species in both the Lactobacillus (L.) and Bifidobacterium (B.) genera. These bacteria live in the intestinal tract and are charged with supporting nutrient absorption and keeping the body in balance. Probiotics are part of the body's microbiome, which also consists of viruses, protozoa, and fungi (including yeasts).

So how do probiotics get from the intestinal tract to your brain? The gut-brain axis is a phenomenon that links the two regions of the body: the nervous system in the digestive tract (known as the enteric nervous system) and the brain (the central nervous system). The main pathway between the gut and brain is the vagus nerve, which is also the longest nerve in the human body.

Researchers have called the gut the "second brain" because it makes serotonin, dopamine, and gamma-aminobutyric acid, neurotransmitters also found in the "other" brain. All of these neurotransmitters have a major role in regulating mood, which translates into an impact on mental function.

### Probiotics and Mental Health

Researchers have uncovered many instances in which good bacteria have had a beneficial effect on mental health. For example, in a 2016 systematic review that included 38 studies, investigators found that B. longum, B. breve, and B. infantis as well as L. helveticus and L. rhanosus helped improve memory (non-spatial and spatial) as well as some psychiatric disorders-related behaviors.

How are probiotics for managing stress? According to the findings of a 2019 double-blind study, stress was significantly reduced among those with moderate stress who took a probiotic supplement containing L. plantarum DR7. The authors concluded that this bacterial strain could be used "as a nat-

ural strategy to improve psychological functions, cognitive health, and memory in stressed adults."

### How to Choose Probiotic Supplements

If you've decided beneficial bacteria can be helpful for enhancing mental health for yourself and your family, you need to select the most effective and convenient supplements.

One of the most asked questions about probiotic supplements is whether they should be refrigerated. The answer is easy: Since heat is the enemy of beneficial bacteria, choose probiotics that are refrigerated and keep them stored in your fridge.

**Researchers have called the gut the 'second brain' because it makes serotonin, dopamine, and gamma-aminobutyric acid, neurotransmitters also found in the 'other' brain.**

Now that you have a viable supplement, what's the best form for it to be in? Since your supplement is transporting valuable cargo, you want a vehicle that is foolproof against dangers that will prevent the probiotics from working efficiently, such as gastric stomach acid. This substance is enemy No. 1 of probiotics since it can destroy the good bacteria before they even have a chance to reach their destination.

For that job, you need an enteric-coated probiotic supplement. The coating ensures the beneficial bacteria reach the intestinal tract, where they are set free.

### Bottom Line

The use of probiotics is often overlooked when it comes to managing mental health issues. Considerable research shows that a number of species from both Lactobacillus and Bifidobacterium genera can be helpful in this area of health. Be sure to choose probiotic supplements that are enteric-coated and kept refrigerated.

Lisa Roth Collins is a registered holistic nutritionist and also the marketing manager at NaturallySavvy.com, which first published this article.

## Why You Can't Find Cheap At-Home COVID-19 Tests

While cheap tests are easily available overseas, Americans are left with few options

Continued from Page 9

The Biden administration recently put \$3 billion toward boosting the country's supply of rapid tests, but public health and industry experts say that the government didn't move quickly enough early in the pandemic to support development and manufacturing.

"Should we have had an equivalent of Operation Warp Speed for testing?" asked Mara Aspinall, co-founder of life sciences fund BlueStone Venture Partners and a board member for OraSure Technologies, which has received FDA authorization for an over-the-counter rapid test. "Absolutely. ... For too long, people thought of testing as an extra and not the core, and it needs to be thought of as the core."

During the pandemic, the FDA has received more than 4,500 emergency use authorization and related requests for COVID-19 tests, according to FDA spokesperson Jim McKinney. The agency stated that it's prioritizing reviews of at-home and point-of-care tests that can be produced in high volumes. Two recently authorized tests alone could boost availability by as much as 13 million tests per day, McKinney said, noting that it would "efficiently review the submissions that will have the biggest impact on the nation's testing needs."

In addition to the slow pace of approvals, manufacturing bottlenecks created by materials and labor shortages are keeping prices high. Prices of rapid tests range from \$14 for a two-pack to significantly more than \$50 per test, far from affordable for regular use.

The FDA says that it can't move more quickly as it balances ensuring that safe and useful devices reach the marketplace with the urgent need to deliver options for widespread daily testing.

"The FDA carefully weighs the known and potential risks and ... benefits of emergency use authorization for COVID-19 diagnostic tests based on sound science," McKinney said.

However, he noted that many submissions "are incomplete or contain insufficient information."

Startups say that navigating the ins and outs of this regulatory apparatus is daunting. E25Bio, of Cambridge, Massachusetts, is developing a low-cost antigen test, which detects COVID-19 by identifying proteins known as antigens. Since July 2020, the company has repeatedly adjusted its FDA

application as the agency updates its recommendations. The requirement that test results be reported directly to federal health authorities has added to delays.

"As a smaller company, we didn't have the capabilities to develop that technology at first," said Bobby Brooke Herrera, co-founder and chief science officer of E25Bio. The company now has a mobile app that verifies results and sends the anonymized data to public health authorities.

Another obstacle is that the FDA requires U.S. clinical trials, making the company's data from Latin America unusable.

Herrera hopes to sell the over-the-counter rapid test in the United States for less than \$5, cheaper than anything currently on the market.

Hendrix said Blink Science is considering a different path to FDA approval. Known as de novo, it can be used to bring novel, low-risk medical devices to market. For now, the company is likely to prioritize approval in developing countries where vaccination rates are much lower than in the United States, he said.

Steradian Technologies, which hopes to launch a 30-second breath test, says it was told by regulatory consultants and others who ran into snags in the EUA process that it "might not be worth it" because the agency is so backed up, according to Tra Tran, the company's director of development and clinical affairs. The FDA's regular approval process might be the best option.

"We don't have the budget to spend on doing an EUA and then being told, 'Well, actually you wasted six months and hundreds of thousands of dollars,'" Tran said. "Only certain people have the capital to be able to afford staying in this FDA regulatory process for forever."

### The Companies' View

Several public health experts and people in the testing industry have said the Biden administration's recent moves will help supply, but meeting demand will take time.

Australian test-maker Ellume received \$232 million in federal funds in February to boost U.S. manufacturing of its rapid at-home test. But the company says that its new plant in Frederick, Maryland, won't start production until December. It could eventually manufacture 15 million tests per month.

The FDA authorized Ellume's over-the-counter COVID-19 test in December 2020,



CAMERON SPENCER/STAFF/GETTY IMAGES

**The U.S. produced COVID-19 vaccines in record time, but, nearly two years into the pandemic, consumers have few options for cheap tests that quickly screen for infection.**

**For too long, people thought of testing as an extra and not the core, and it needs to be thought of as the core.**

Mara Aspinall, co-founder, BlueStone Venture Partners

Manufacturing bottlenecks, including material and labor shortages, are driving up the price of the few COVID home test kits that have been approved.

but the road has been rocky. The company has recalled 2.2 million tests in the United States because of "higher-than-acceptable false positive" results, according to the FDA. The agency says that their use "may cause serious adverse health consequences or death." All of those tests came from Ellume's Australian facility.

Health Labs, which received FDA authorization on Nov. 5 for a test priced at \$14 for a two-pack, says that by January, it will be able to make 200 million tests per month.

OraSure aims to make 4 million tests per month by January and 8 million per month by June. It plans to scale up to 200 million tests annually—but not until 2024. Scott Gleason, OraSure's interim chief financial officer, said the company faces headwinds at its plant in Pennsylvania's Lehigh Valley.

"We're having some challenges with hiring enough people to work in our factories to meet the demand," he said.

A two-pack has recently retailed between \$14 and \$24, and that price won't drop anytime soon, according to Gleason.

Ellume has faced shortages of swabs, steel for its facility, and electronics components for the tests.

### The View From the FDA

The FDA has authorized more than 400 COVID-19 tests, including at-home options and those processed by a medical provider or a lab. The agency is still getting more than 100 EUA submissions for COVID-19 tests per month, many from overseas. But, McKinney said, the vast majority aren't for the type most needed now: tests for over-the-counter use.

The FDA may be reluctant to ease its scrutiny. The pandemic's first-iteration rapid tests, such as Abbott Laboratories' ID Now, raised safety and accuracy concerns, and the FDA has sent warning letters to at least six companies selling bogus rapid tests and has issued numerous recalls. Separately, the agency has put more than 260 tests that detect COVID-19 antibodies on a "do not use" list.

"If we did to antigen tests what happened with antibody tests, we would completely destroy the credibility of the test," Aspinall said. "As frustrating as this is, I have to respect the FDA for ensuring that we continue to have quality tests."

The agency's review times for test EUA applications have improved, according to an assessment by consulting firm Booz Allen Hamilton. Approvals were generally cleared faster than denials. As of March, the median time for the FDA to grant authorization was seven days, while denials have taken a median time of 38 days to process. When the country isn't in a national emergency, getting through the FDA's reviews might take months or years.

Nonetheless, the bottlenecks are felt by Americans trying to keep their employees and families safe.

LabCentral—a biotech co-working facility in Cambridge, Massachusetts, that was part of E25Bio's testing study—requires participating startups to test workers twice per week. That's a costly safety measure for a nonprofit, according to Celina Chang, LabCentral's vice president. So, it recently bought rapid tests from Germany for \$1.50 each.

"In order to test people twice a week on a regular basis for months on end, we need it to be, just the same as anyone, affordable," Chang said.

Rachana Pradhan is a Kaiser Health News correspondent who reports on a broad array of national health policy decisions and their effect on everyday Americans. Hannah Norman is a Kaiser Health News digital producer, this article was originally published on Kaiser Health News.

## Liver Transplants Increasing Among Older Adults

Rates of fatty liver disease have skyrocketed over the course of 2 decades

MAT LECOMPTTE

New data is showing that more older people are ending up on liver transplant waiting lists than at any point in history. And although the pandemic may play a small role in the uptick, it's certainly not the main driver—alcohol use and obesity are.

In fact, these two causes have overtaken hepatitis C as the main drivers of liver failure. In most cases, the 65-plus population is experiencing liver disease resulting from fatty liver disease, in which excess fat on the organ leads to scarring that impairs function.

The increase in the need for liver transplants in this demographic is interesting

because traditionally, it's a relatively new phenomenon. Most liver transplants occur in midlife, generally between 40 and 50.

Researchers with Inova Health System in Falls Church, Virginia, conducted the study. They found that in the early 2000s, 13 percent of 65-plus liver transplants were related to fatty liver disease. In 2020, that number jumped to 39 percent. Further, numbers have shown that the difference in the need for transplants now, between those over and under 65, only differs by a few percentage points.

The reason why there is an uptick in liver failure patients requiring transplants in this older-age cohort is lifestyle-related. It's connected to metabolic health troubles resulting from years of poor eating, carrying excess weight, and drinking, which can cause the body to stop working properly and shut down.

What's comforting is that you may have time to improve your liver health to reduce

**13 PERCENT**

In the early 2000s, 13 percent of 65-plus liver transplants were related to fatty liver disease. In 2020, that number jumped to 39 percent.



An illustration of a healthy liver (top) and fatty liver.

MARINA ALVA/SHUTTERSTOCK

the risk of trouble as you get older. The liver is a resilient organ that can heal itself if given the opportunity.

But it might take a lot of work depending on your current lifestyle.

Cutting processed food, losing weight, and eating more vegetables can help repair the liver. Excess sugar is quite hard on the liver, so replacing sugar with other healthier calories can play a major role in liver health.

Black coffee and broccoli may offer unique restorative benefits to your liver and are part of a liver-friendly diet. Cap alcohol consumption at one or two standard-sized drinks per day, and attempt to incorporate more daily activity into your lifestyle.

Hopefully, these changes will set liver repair in motion and lower the risk of disease.

Mat Lecomptte is a health and wellness journalist. This article was first published on Bel Marra Health.

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# Treating Erectile Dysfunction Naturally

Men suffering this often embarrassing problem have many natural options

Erectile dysfunction (ED) is the inability to get or sustain an erection. Also referred to as impotence, ED can hinder satisfying sexual activity and may prevent you from engaging in sexual intercourse. Men who suffer from ED can experience depression, loss of self-esteem, and relationship difficulties, among other negative impacts. ED may be a sign of one or more serious health problems and should be discussed, even if you find it embarrassing, with your medical and therapeutic providers.

While ED is common, affecting approximately 30 million men in the United States, it isn't considered a normal part of aging. ED is mostly diagnosed in men with one or more of the following characteristics:

- Over 40 years of age
- Risk factors for cardiovascular disease, diabetes, and obesity
- Uses medications or recreational drugs, including alcohol and tobacco
- Emotional or psychological issues such as depression and anxiety
- Pelvic trauma from injury or disease

## Common Interventions for Erectile Dysfunction

Treating erectile dysfunction is not a one-size-fits-all approach. Depending on the underlying cause, which may be emotional, physical, relational, or a combination of factors, treatment must be personalized to be successful long term. Some of the conventional approaches to treating ED include oral prescription medications such as sildenafil (commonly known as Viagra), tadalafil, avanafil, and vardenafil, marketed under different trade names, which function by stimulating blood flow to the penis. Testosterone replacement therapy may be prescribed if levels of this hormone are low, and addressing underlying conditions such as high blood pressure and blood sugar imbalance may be effective at addressing the root causes of ED.

ED can be a common side effect of some antidepressants, blood pressure medications, sedatives, and a long list of other drugs. If you suspect your ED may be linked to a prescribed medication, this should be discussed with your doctor as part of the full spectrum of maintaining your health.

## Stimulate a Healthy Sexual Response, Naturally

If you'd like to try natural methods for restoring a healthy sexual response, there is abundant science to support your inclination. ED is known to be associated with overall health, so lifestyle modifications are often effective at improving ED as well as slowing the decline of penile function as you age. If you smoke, consider stopping. One year of smoking cessation is associated with a 25 percent improvement in erection quality.

Overweight? It's probably not helping your ED. Studies show that men of normal weight experience 50 percent less ED than obese men. As part of a health-centric lifestyle, strategic supplementation may help restore your natural vitality. We've compiled a list of top natural substances that are known to support your body and are scientifically validated for enhancing erections and improving sexual health in men with ED.

### 1. Arginine

Arginine, or L-arginine, is an essential amino acid found in food and a building block of protein. Abundant in red meat, poultry, fish, and dairy products, arginine helps heal wounds, regulate hormones, condition the arteries, and other critical functions. When used supplementally, arginine may help you achieve firmer erections that last longer and may improve your overall sexual function.

A study of men with organic erectile dysfunction (not drug related) receiving 5 grams orally per day of L-arginine found that 31 percent of patients reported a significant improvement in sexual function after six weeks of dosing, compared to control subjects.

A deeper meta-analysis of the therapeutic potential of arginine for ED analyzed studies published up to April 2018 from multiple databases. The analysis showed that arginine supplementation with doses ranging from 1,500 to 5,000 milligrams (mg) daily significantly improved ED compared with placebo or no treatment. Arginine supplementation also caused significant improvements in overall sexual satisfaction,



ALL PHOTOS BY SHUTTERSTOCK

intercourse satisfaction, orgasmic function, and erectile function compared to controls.

### 2. Pycnogenol

Commonly referred to as pine bark extract, pycnogenol is a dietary supplement that has been studied primarily for its antioxidant and anti-inflammatory properties. Derived from the bark of the French maritime pine tree, this potent healing aid has shown promise for an array of conditions, including erectile dysfunction.

A 2019 study on pycnogenol extract for ED found that study patients with diabetes experienced a 45 percent improvement in ED, whereas the non-diabetes group showed a 22 percent improvement in ED symptoms after three months of intervention. The pine bark extract also lowered total and LDL cholesterol by 20 percent and glycemia by 22 percent in the diabetes group.

When pycnogenol was used in combination with L-arginine in a randomized, double-blind, placebo-controlled study, patients with moderate ED experienced statistically significant improvements in ED and a significant increase in testosterone levels after three to six months of continuous therapy. There was even evidence suggesting that benefits increase the longer the therapy is used.

**Men who suffer from ED can experience depression, loss of self-esteem, and relationship difficulties, among other negative impacts.**

### 3. Saffron

Saffron has long been the most prized and costly spice, in part due to the near-mythical properties it is rumored to possess. Anecdotally, saffron is thought to aid beauty and enhance sensual feelings as a potent aphrodisiac. Science has weighed in heavily on this spice, with studies attributing analgesic (pain numbing), anti-inflammatory, and antidepressant properties, as well as chemopreventive effects against cancer. There is even documented science on saffron's posi-



It's important to prioritize a healthy lifestyle if you want to maintain a vigorous sexual response, including as you age.

tive effect on sexual function in patients with ED.

A small 2009 study published in the journal Phytomedicine followed 20 male patients with ED for 10 days during which they dosed with 200 mg of saffron daily. Compared to measurements at baseline, both the base and tip of the penis showed statistically significant improvements in rigidity and tumescence. Self-reported erectile function scores were significantly higher in patients after saffron treatment, with patients experiencing increases in number and duration of erectile events, despite taking the supplement for only 10 days.

### 4. Folate (Folic Acid)

Folate is the natural form of vitamin B9, while folic acid is its synthetic form. Vitamin B9 is important for the formation of healthy red blood cells, and you can't have a strong erection without healthy blood flow, right? Found in dark green leafy vegetables, beans, nuts, and some fruits, a diet lacking in sufficient folate can lead to deficiency, which is associated with a host of health problems, including ED.

A study comparing serum folic acid levels in patients with ED against healthy control subjects also measured serum testosterone, blood lipids, random blood sugar, and liver and kidney function, and found that only folic acid levels were different across the two groups. Deepening the significance was the fact that folic acid levels significantly declined as severity of erectile dysfunction increased.

The association between serum folic acid level and erectile function is reinforced by other studies, including a 2015 study on 120 patients with severe, moderate, or mild ED. Patients had cholesterol, testosterone, and folic acid levels measured and were separated into groups based on severity of dysfunction, with a control group without ED.

The mean folic acid concentration was significantly higher in the control group than either the moderate or severe ED group, but not the mild ED group, suggesting that folic acid levels in the blood may correlate to severity of erectile dysfunction.

### 5. Panax Ginseng

Herbal remedies labeled "ginseng" may be derived from any of several plants, but when it comes to male sexual health, Panax ginseng is the holy grail of stimulating roots. Also called Asian or Korean ginseng, Panax ginseng has been part of the herbal pharmacopeia for millennia. Modern science has isolated ginsenosides as an active plant compound responsible for ginseng's potent pharmacological effects, one of which is enhancing the male erection.

A 2009 study from Korea followed 143 men with ED, assigning one group to receive 1,000 mg of ginseng extract twice per day, and one group to receive the same amount of a placebo. After eight weeks, 86 patients had completed the full study, including assessing erectile function scores across five parameters, both at the beginning and at

the end of treatment.

Results showed erectile function scores were significantly higher for the ginseng group after treatment than at baseline, whereas no improvement was observed in the placebo group. Overall sexual satisfaction scores were also significantly higher after ginseng supplementation than in the placebo group.

## Stay Health-Focused for Strong Erections

It's important to prioritize a healthy lifestyle if you want to maintain a vigorous sexual response, including as you age. Avoid toxins and chemicals by controlling your environment whenever possible. Workplace exposure to one of the worst toxic offenders in the world, bisphenol-A (BPA), used in plastics and many other products, was linked to decreased overall male sexual function and satisfaction in a 2010 study.

For those toxins that you can't avoid, exercise can help you sweat them out. A good workout not only stimulates those "feel good" endorphins, it helps increase blood flow throughout your body, including to the penis. If you're just starting out, aim for at least 30 minutes of moderate activity most days of the week. If you're already physically active, consider adding more intense activity to your regimen one or two days each week.

For some men, ED is less about the need to do more, and more about the need for less—namely, less pressure and stress. If you're overburdened, consider integrating soothing activities such as yoga or tai chi into your routine, or getting regular massages. Switch up one or two days a week of pounding weights at the gym for long walks in nature, preferably by the shore or deep into the woods, any place you can unplug from the hectic pace of life and its nonstop demands.

Finally, consider whether the drugs you are taking are truly enhancing your health, especially if you can work with your doctor to eliminate them through healthy lifestyle modifications and smart supplementation. To learn more about erectile dysfunction, consult GreenMedInfo.com, the world's most widely referenced, evidence-based natural medical resource.

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## MADE TO MOVE

# Exercise Linked to More Resilient Brains

A new study reveals that exercise may reduce brain inflammation, better protecting us from Alzheimer's

## AINE KELLY

Physical activity is very important for a number of reasons—including that it helps to protect the structure and function of our brain as we age. This may be key in reducing the risk of developing certain neurodegenerative conditions, such as Alzheimer's disease.

Though researchers have known about the protective effect of exercise for many years, exactly why it has this effect on the brain has remained a mystery. But a recent study published in the *Journal of Neuroscience* might shed some light on this puzzle. According to its findings, physical activity alters the activity of the brain's immune cells, which lowers inflammation in the brain.

The brain contains a class of special immune cells known as microglia, which constantly survey the brain tissue for damage or infection and clear away debris or dying cells. Microglia also help direct the production of new neurons (nerve cells in the brain that communicate and send messages to other cells) via a process called neurogenesis, which is linked with learning and memory.

But in order for microglia to step up and do their job, they need to switch from a resting state to an activated state. Signals from pathogens (such as a virus) or from damaged cells will activate the microglia. This changes their shape and causes them to produce pro-inflammatory molecules—allowing them to resolve and repair damage or infection.

However, microglia can also be inappropriately activated as we age, causing chronic brain inflammation and impairing neurogenesis. This inflammation has been suggested as a reason why brain function often declines with age, and these changes can be even worse in the case of neurodegenerative conditions such as Alzheimer's.

Studies in laboratory mice and rats have shown that exercise can counteract some of the damaging effects of microglial activation. But this latest study has revealed for the first time a link between physical activity, reduced microglial activation, and better cognitive function in the human brain.

The study's researchers looked at 167 men and women who participated in the Rush Memory and Aging Project. This was a long-term project at Rush University in Chicago that sought to identify factors that contribute

**The presence of typical signs of Alzheimer's disease doesn't necessarily mean a person will show major symptoms of cognitive impairment while they're alive.**



Exercise appears to counter inflammation in the brain, preserving cognitive ability even in the face of disease.

to brain health in older people. Participants completed annual assessments of their physical activity, which was monitored by a wearable activity tracker, alongside assessments of their cognitive function and motor performance (such as muscle strength and walking speed).

Participants also donated their brains for post-mortem analysis as part of the study. This allowed the researchers to analyze the brain tissue for evidence of activated microglia, and for signs of disease in the brain—such as unhealthy blood vessels, or the presence of plaques containing the protein beta-amyloid (a hallmark of Alzheimer's disease). The researchers also looked at the levels of synaptic proteins in participants' brains. Synapses are the tiny junctions between nerve cells where information is transmitted, so the levels of these give a broad indication of healthy brain function.

### Keep Moving

On average, the participants were 86 years old when their physical activity began to be monitored and around 90 years old when they died. About a third of the participants had no cognitive impairment, a third had mild cognitive impairment, and a third had been diagnosed with dementia.

But post-mortem analysis revealed that around 60 percent of participants actually had signs of Alzheimer's disease in the brain (such as amyloid plaques). This shows that the presence of typical signs of Alzheimer's disease doesn't necessarily mean a person will show major symptoms of cognitive impairment while they're alive.

Unsurprisingly, the younger the participants, the more physically active they were and the better their motor function. Overall, being more physically active was associated with lower microglial activation in certain brain regions (such as the inferior temporal gyrus, which is involved in memory and recall) which are typically affected early on when Alzheimer's begins developing.

This was true even when signs of Al-

zheimer's were present in the brain. This suggests that physical activity can reduce the damaging effects of inflammation in the brain—even when a disease has already started to develop. The study also showed that more microglial activation was linked with greater cognitive decline and lower synaptic protein levels.

Not only do these findings indicate that inflammation in the brain can significantly affect cognitive function and may be a risk factor in developing Alzheimer's disease, but they also show that physical activity may help us to develop resilience in the brain to effects that would otherwise be damaging.

While these findings are promising, there are some limitations to the study. Post-mortem analysis can only reveal a single snapshot in time of the status of the brain. This means that we can't tell exactly when signs of disease developed in participants' brains—and at what point physical activity could have made a difference.

The study was also only observational, meaning it observed changes in participants going about their lives, as opposed to an interventional study in which different people would be randomly assigned to two different groups where some exercised and some didn't. We therefore can't conclude with certainty that physical activity directly caused the observed changes in brain tissue and cognitive function. These findings also don't explain the mechanism by which exercise induces these effects.

But this study still adds weight to the growing body of evidence that physical activity can protect brain health and function—even into old age. Being active throughout our lives is likely to give us the best chance of preventing Alzheimer's and other neurodegenerative conditions from developing, helping us to live long, healthy, and independent lives.

*Aine Kelly is a professor in physiology at Trinity College Dublin in Ireland. This article was first published on [The Conversation](http://TheConversation.com).*

# Try This to Help Stay Awake

Staying up till 10 p.m. can be hard this time of year, but is important for your health

## MAT LECOMPTE

It can be hard to stay awake this time of year. Every day the sun sets a little earlier, and when it's dark around 5 p.m., it can make 6:30 feel like midnight.

Your body is naturally equipped to shut down when it gets dark. It starts producing melatonin, so you get sleepy and crave bed. But a couple of weeks ago, we learned that going to bed too early can have health implications.

That study found that there might be a

sweet spot for falling asleep. Falling asleep outside it, either before or after, may substantially boost the risk for heart disease.

The research, published in the *European Heart Journal—Digital Health*, indicates that going to bed between 10 and 10:59 p.m. coincides with the lowest risk for heart health. The risk went up by 12 percent for those with bedtimes between 11 and 11:59 p.m., and more than doubled to 25 percent for those going down at midnight or later.

It isn't just the night owls who experi-

Taking a walk after dinner has an extra health benefit on the long nights of winter: it can keep you awake long enough for a healthy sleep.



BEE BONNET/SHUTTERSTOCK

**A leisurely walk won't turn your body on the same way as high intensity exercise.**

ence higher risk, either. Researchers also found that people who fell asleep earlier than 10 p.m. had a 24 percent higher risk than those going to bed in the sweet spot.

But staying up till 10 p.m. can be tough this time of year. One way to help yourself get a little bit of evening energy that may help you stay awake—and spend more time actively awake instead of just waiting to fall asleep—is to take a walk after dinner.

If you don't have time to do a full workout before dinner, going for a walk after dinner is a relaxing way to give your body a boost and signal that it's required for a few more hours every day.

A leisurely walk won't turn your body on the same way as high-intensity exercise. Still, it is likely to provide enough energy to keep you awake until bedtime and encourage quality sleep. Fifteen to 30 minutes at a leisurely to moderate pace is all you need.

The benefits will go beyond beating fatigue and encouraging better sleep. Going for a walk after dinner is also associated with improved nutrient absorption, while it also offers a set plan for daily activity.

If you need help making it to 10 p.m. or so before bed or are sick of feeling so burned out in the final few hours of the day, try a walk after dinner. You'll likely be impressed by the effect.

*Mat Lecompte is a health and wellness journalist. This article was first published on [BelMarra Health](http://BelMarraHealth.com).*



## MINDSET

# The Profound Health Benefits of Being Grateful

Learn the basics of how the simple practice of gratitude can have profound positive effects on your health and well-being; it might even help you recover faster from trauma and injury.



Showing gratitude is a great way to boost relationships

*Continued from Page 9*

Fox grew deeply interested in gratitude after his mother's death from ovarian cancer. During her illness, he would send her studies on the benefits of gratitude in cancer patients, and she kept a gratitude journal in her final years.

In one example, 92 adults with advanced cancer engaged in mindful gratitude journaling or routine journaling. After seven days, those who kept a gratitude journal had significant improvements in measures of anxiety, depression, and spiritual well-being, so much so that the researchers concluded that “mindful gratitude journaling could positively affect the state of suffering, psychological distress, and quality of life of patients with advanced cancer.”

“Grateful people tend to recover faster from trauma and injury,” Fox told *The Pulse*. “They tend to have better and closer personal relationships and may even just have improved health overall.”

As it turns out, putting your gratitude in words can be an effective way to improve your mental health. Among 293 adults who sought psychotherapy services, those who engaged in gratitude writing reported significantly better mental health after four and 12 weeks than those who didn't write or who wrote about their thoughts and feelings.

## Gratitude Boosts Health, Well-Being

Gratitude can be difficult to define, as it has elements of an emotion, a virtue, and a behavior all rolled into one. Gratitude involves a two-step process, as explained in “The Science of Gratitude,” a white paper by the Greater Good Science Center at the University of California–Berkeley. Those two steps include “1) recognizing that one has obtained a positive outcome” and 2) “recognizing that there is an external source for this positive outcome.”

In this regard, the benefits of gratitude may be gleaned from the actions of other people or experienced in an internalized manner, such as when feeling gratitude about good fate or nature. In this way, gratitude is both a state and a trait.

As a state, gratitude is based on a person's ability to be empathic and experience grateful

emotions that promote prosocial behavior. As a trait, it describes the practice of being grateful, noticing the little things in life, and appreciating the positive in the world and in other people. Gratitude can be felt from both being helped by others and habitually focusing on the good in your life.

A study published in *Clinical Psychology Review* found that gratitude has a positive effect on psychopathology, especially depression, adaptive personality characteristics, positive social relationships, and physical health, including stress and sleep. What's more, they noted that “the benefits of gratitude to well-being may be causal.”

Fox also explained that “benefits associated with gratitude include better sleep, more exercise, reduced symptoms of physical pain, lower levels of inflammation, lower blood pressure, and a host of other things we associate with better health,” including improved resilience.

## People who are more grateful tend to be happier, less materialistic, and less likely to suffer from burnout.

It's likely that gratitude leads to benefits via multiple mechanisms, not only by improving life satisfaction, but also by contributing to an increase in healthy activities and a willingness to seek help for health problems. Those who are grateful have even been found to have a better sense of the meaning of life by being able to perceive good family function and peer relationships.

### Gratitude Could Help You Sleep Better, Be Less Materialistic

Gratitude is known to facilitate improvements in healthy eating, and it benefits depression by enhancing self-esteem and well-being. A 2021 study comparing gratitude and optimism similarly found that both traits were associated with lower heart rate and blood pressure, better sleep quality, more exercise,

less stress, more positive expectations and reflections, and greater feelings of appreciation toward others.

Feeling grateful can help you sleep better and longer, perhaps by improving your thoughts prior to sleep.

“The relationship between gratitude and each of the sleep variables was mediated by more positive pre-sleep cognitions and less negative pre-sleep cognitions,” a study in the *Journal of Psychosomatic Research* reads.

Those who scored higher on measures of gratitude had better sleep quality and sleep duration, as well as less sleep latency (the amount of time it takes you to fall asleep) and daytime dysfunction.

Further, people who are more grateful tend to be happier, less materialistic, and less likely to suffer from burnout. Among adolescents, the simple practice of keeping a gratitude journal significantly reduced materialism and the negative effect of materialism on generosity.

Those who wrote down what they were grateful for donated 60 percent more of their earnings to charity, for instance. There's good reason to teach children the importance of gratitude, as doing so can improve school performance and orient individuals toward a positive life approach.

### Positive Gratitude Interventions

If you're not a particularly grateful person, you might have to work on your gratitude skills. Fortunately, gratitude is something that you can practice, according to Fox.

“I think that gratitude can be much more like a muscle, like a trained response or a skill that we can develop over time as we've learned to recognize abundance and gifts and things that we didn't previously notice as being important,” he said. “And that itself is its own skill that can be practiced and manifested over time.”

Rather than a magic bullet, it's the regular practice of being grateful that makes a difference, according to Fox.

“You know, it's like water cutting rock through a canyon,” he said. “It's not done all at once, and it's just steady practice is where you start to get things.”

Two gratitude practices that you can try in your daily life include keeping a gratitude

journal and expressing gratitude.

With a gratitude journal, you write down lists of what you're grateful for on a regular basis. Expressing gratitude is exactly what it sounds like, expressing grateful feelings to others, such as by saying thank you or writing gratitude letters, which you then read to the recipients.

Showing gratitude to your partner is also a good way to boost your relationship. In a study of romantic partners, gratitude from interactions was linked to increased connection and satisfaction in the relationship, with researchers suggesting that “gratitude had uniquely predictive power in relationship promotion, perhaps acting as a booster shot for the relationship.”

Robert Emmons, a professor of psychology at the University of California–Davis and an expert on gratitude, has several tips for living a more grateful life. In an article he wrote for *Greater Good Magazine*, he advises that you remember hard times in your life, which remind you how much you have to be grateful for now; appreciate what it means to be human by tuning into and appreciating your sense of touch, sight, smell, taste, and hearing; use visual reminders, including people, to trigger gratitude, as this helps to combat forgetfulness and a lack of mindful awareness, two primary obstacles to gratefulness; and make an oath of gratitude, as simply vowing to be grateful can increase the likelihood that you'll stick to the behavior. Post your pledge to “count your blessings” somewhere where you'll see it often.

If you want to get started today, keep a notebook by your bedside and make a point to jot down one or two things that you're grateful for each night before bed and express gratitude to others often, such as writing quick thank you notes to friends.

*Dr. Joseph Mercola is the founder of Mercola.com. An osteopathic physician, best-selling author, and recipient of multiple awards in the field of natural health, his primary vision is to change the modern health paradigm by providing people with a valuable resource to help them take control of their health. This article was originally published on Mercola.com*

step in understanding how physical health can greatly affect cognitive health.

### Clear Symptom Improvements

Previous studies had shown clear symptom improvements with physical exercise. However, a true picture of how people with anxiety were affected by exercise was lacking.

Treatment for anxiety includes cognitive-behavioral therapy (CBT) and psychotropic drugs. However, these drugs commonly have side effects, and those with anxiety disorders don't typically respond well to medical treatment. There are also long wait times for CBT.

Lead author Malin Henriksson said: “Doctors in primary care need treatments that are individualized, have few side effects, and are easy to prescribe. The model involving 12 weeks of physical training, regardless of intensity, represents an effective treatment that should be made available in primary care more often for people with anxiety issues.”

*Sarah Cownley earned a diploma in nutritional therapy from Health Sciences Academy in London. She enjoys helping others by*

*teaching healthy lifestyle changes through her personal consultations and with her regular contributions to the Doctors Health Press. This article was originally published on Bel Marra Health.*



Those with chronic anxiety showed significant improvement in their symptoms with exercise.

# In Defense of Leisure

We've mistaken entertainment for real leisure

MIKE DONGHIA

One way to categorize time is into two buckets: work and leisure.

When we're doing an activity that requires effort and achieves a clear purpose, then we're doing work. Pretty much everything else is leisure.

I think the idea of leisure has fallen on hard times, and I'd like to make a brief defense in the words that follow.

## In Defense of My Defense

Now at this point, you might be thinking, “Does leisure really need a defense?” And by one definition of the word, you're probably right. Activities such as watching TV, social media, and browsing the internet have nearly taken over our waking lives.

I've seen a few studies that say we collectively spend something like 5 hours of discretionary time each day on our screens. In other words, leisure seems to be doing quite OK without my defense.

It's certainly the case that “screen time” is the main form of leisure for many people. But I think this kind of leisure, which I'll call “media consumption” or “entertainment” is just a narrow slice of what leisure was meant to be in a flourishing life.

I know personally that I long for something much richer. And I feel that I was made for more than filling my days with just work and entertainment. There's a part of me that was made to play and create and explore.

## A Richer Definition of Leisure

I think there are richer forms of leisure. These types of leisure leave me feeling energized and alive. They have three components.

They are activities that ...

1. are done without a clear productive goal,
2. are intrinsically enjoyable,
3. and require my active participation.

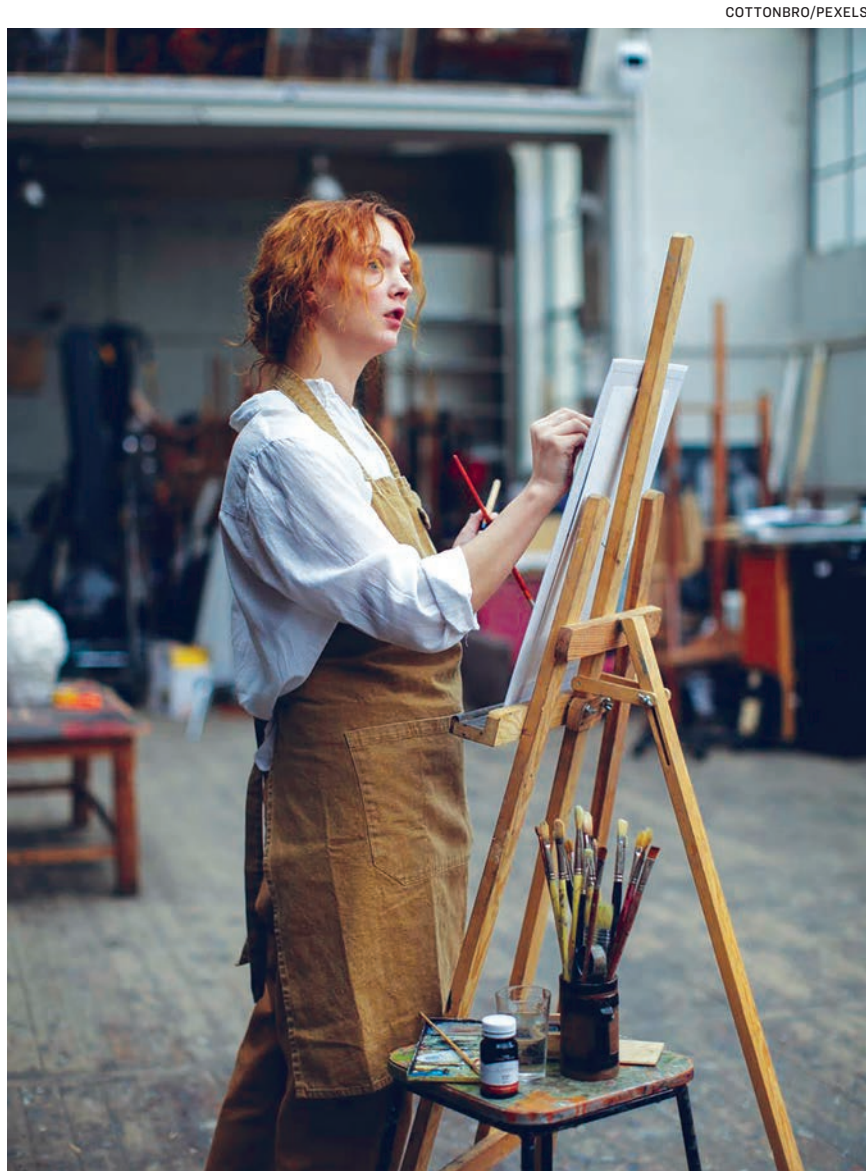
It's the last item, “require my active participation,” that separates the richer forms of leisure from mere entertainment. It's not that there's anything wrong with entertainment—I enjoy my fair share of it. I simply believe that passive entertainment and media consumption have engulfed too much of our leisure, at the expense of the truly good stuff.

## Leisure Is Life

Because most people only think of leisure's passive forms, they subconsciously adopt the mindset that leisure's only real value is as a break from work. Real life is work, and leisure is the rest we give ourselves to keep going. The result is that we begin to see non-productive leisure as a distraction from “real life.”

I'm guilty of this mindset myself, and it shows up in subtle ways:

- When I'm doing yard work and one of my kids wants to play, I too often tell them “not now,” and never get back around to it. Playing feels like an interruption—something I should only squeeze in at the margins of my day.
- When I'm choosing a book to read before bed and go with something in the personal development category, rather than a novel I've been wanting to read. This mindset reinforces life as an ongoing project to make yourself into a better



The parts of life that get downplayed are the richer forms of leisure that add meaning, depth, and memories to our life.

person, and every non-productive act is a missed opportunity.

- Or finally, when I'm tempted to make my blog about “growing an audience” rather than the simple joy of writing publicly. It seems I'm always looking to find something to measure myself against, to prove that my time is being put to some “productive” use.

You'll notice that neither choice in the examples above is right or wrong by itself. It all depends on the context of your life and responsibilities. But when a pattern emerges that diminishes the value of life-giving forms of leisure, I think it reveals something that's going on deep inside.

## Passive entertainment and media consumption have engulfed too much of our leisure, at the expense of the truly good stuff.

### The Art of Leisure

My main point is this: modern life seems intent on turning us into some kind of machine that is either “producing” work or “consuming” entertainment. Both of these things, work especially, are part of the good life we seek. But because they are so easily quantified and monetized, they have a tendency toward taking over.

The part of life that gets downplayed (and hence my coming to its defense) are the richer forms of leisure that add meaning, depth, and memories to our life. From “hanging out” with friends, playing games, and reading books, to writing blog posts, exploring a new town, or putting around on a Saturday afternoon—these are all parts of real life too.

If you think about it, the kind of leisure I'm describing is actually a form of work anyway. This kind of leisure involves building things like friendships, families, memories, art, and more. We may not go into them with a clear end goal in mind and they might not feel like work, but they are nonetheless a real contribution to the world and to those around us.

Expand your definition of leisure. Let go of the constant need to justify every hour. And be grateful that we were made to play, to explore, and to create simply for the joy of doing so.

# Breathing Techniques to Help Calm Your Nerves

MAT LECOMPTE

Some people simply can't get into meditation and have no desire to learn. If you can't fully shut your brain down to meditate or you get bored trying to practice mindfulness, you're not alone.

But that doesn't mean that you can't calm anxieties or combat your stress by slowing down.

There's a reason why people are told to take a deep breath when they're feeling excited or anxious. Breathing can have a calming effect, and learning how to control it and performing breathing exercises may help calm their nerves and reduce anxiety.

Yoga is often used as a meditative tool. You might think it's just about body movements, but breathing plays a key role in yoga's benefits, and its breathing exercises may be an effective calming tool for people who have trouble with mindfulness or sitting still.

Deep-belly breathing is one breathing exercise you can try. It utilizes the diaphragm to expand the lungs so that air moves more deeply into you. Either sit in a chair or lie on the floor. Place one hand on your chest and the other just below the rib cage. Slowly breathe in through your nose for five seconds. Feel your stomach rise as you breathe into your belly before slowly exhaling for a five-count.

Breath retention is another exercise that may help calm the nerves. It involves holding your breath without inhaling or exhaling immediately. It can be a little uncomfortable, but practice will help.

Sit down, keeping your back straight. Breathe in through your nose for five seconds, and hold it in your lungs for 10 seconds. Slowly exhale through your mouth once the 10 seconds are up. Take a few regular breaths, then do it again. Repeat a few times to see if it helps to calm you down.

Mindfulness might be popular, but it may not be for everybody. Try these breathing techniques to help deal with stress and calm anxieties.

*Mat Lecompte is a health and wellness journalist. This article was first published on Bel Marra Health.*

If meditating isn't your thing, try some deep belly breathing as a quick and easy way to calm your nerves.



FIZES/SHUTTERSTOCK

## MADE TO MOVE

# Anxiety Effectively Treated With Exercise

SARAH COWNLEY

A new study from the University of Gothenburg in Sweden has found that both moderate and strenuous exercise may alleviate anxiety symptoms. Researchers believe that even when the disorder is chronic, exercise can play an essential role in helping to reduce the symptoms of anxiety.

Published in the *Journal of Affective Disorders*, the study was based on 286 patients with anxiety. All patients were recruited from primary care services in Gothenburg in the northern part of Halland county. Half of the participants had lived with anxiety for at least 10 years, 70 percent were women, and their average age was 39.

All participants were assigned to group exercise sessions that were either moderate

or strenuous for 12 weeks. Both treatment groups had 60-minute training sessions three times a week.

The sessions included cardio and strength training. A warmup was followed by circle training around 12 stations for 45 minutes and followed by a cool down and stretching.

Most participants in the treatment groups went from a baseline level of moderate to high anxiety to low-level anxiety after the 12-week program. Those who were in the low-intensity group had an improvement in anxiety symptoms by a factor of 3.62. The corresponding factor for those who exercised with higher intensity was 4.88.

Overall, the results showed that participants' anxiety symptoms were significantly alleviated even when it was chronic anxiety. Researchers believe this study is an important

# Enjoy the Power of Music



Listening to music, singing, and dancing can all help boost mood.

MAT LECOMPTE

Regardless of what kind of music you enjoy, there are likely some big benefits to listening to it. So turn on your stereo and take advantage.

Several wide-ranging health benefits are associated with listening to music, including better memory and mood, social connection, energy, and even heart health.

Music seems to be an instinct for humans. People sing and dance in the privacy of their own homes, in the shower, or at concerts and nightclubs. Singers and musicians are revered in society, and according to some experts, music is as old as humans.

Let's take a look at some of the ways that enjoying music may help your health.

**Learning:** Some researchers recommend listening to music to stimulate the brain. Studies have shown it engages the brain and may enhance learning. One caveat here: Lyrics may make it harder to learn. So if you're studying, stick to instrumentals.

Studies have shown music engages the brain and may enhance learning.

**Memory:** There is data to suggest that classical music can help people recall recently learned information (if listened to while learning). Studies also show that music can be a helpful tool in engaging people with Alzheimer's. Playing popular music from their era, or music that they enjoyed, helps them recall memories.

**Mood:** Listening to music, singing, and dancing can all help boost mood. The benefits are connected to increased “feel good” hormone production, like dopamine and serotonin.

**Heart Health:** Music stimulates movement, and that's always good for heart health. Even if you're not dancing, listening to music can alter your breath rate, heart rate, and blood pressure.

**Boosts Energy:** You don't need a doctor to know that turning up your favorite song can turn your energy up too. But studies have even shown that listening to relaxing music can help reduce fatigue and improve endurance.

Music has a lot of power over people, and it seems to be instinctual to humans. It may even help your health.

*Mat Lecompte is a health and wellness journalist. This article was first published on Bel Marra Health.*



# Stress Is a Health Hazard but Friends Can Help

KAROLINA GRABOWSKA/PEXELS.COM

A supportive social circle can counter how stress affects DNA expression

**DIVYA MEHTA**

Stress affects up to 90 percent of people, and we know it harms our mental and physical well-being.

For example, stress can impact the activity and function of our genes. It does this via “epigenetic” changes, which turn on and off certain genes, though it doesn’t change the DNA code.

But why do some people respond worse to stress, while others seem to cope under pressure?

Previous research has identified having strong social support and a sense of belonging are robust indicators of physical and mental health.

Social support means having a network you can turn to in times of need. This can come from natural sources such as family, friends, partners, pets, co-workers, and community groups. Or from formal sources such as mental health specialists.

My new study, published Nov. 19 in the Journal of Psychiatric Research, shows for the first time that these positive effects are also observed on human genes.

Having supportive social structures buffers and even reverses some of the harmful effects of stress on our genes and health, via the process of epigenetics.

The findings suggest the DNA we are born with isn’t necessarily our destiny.

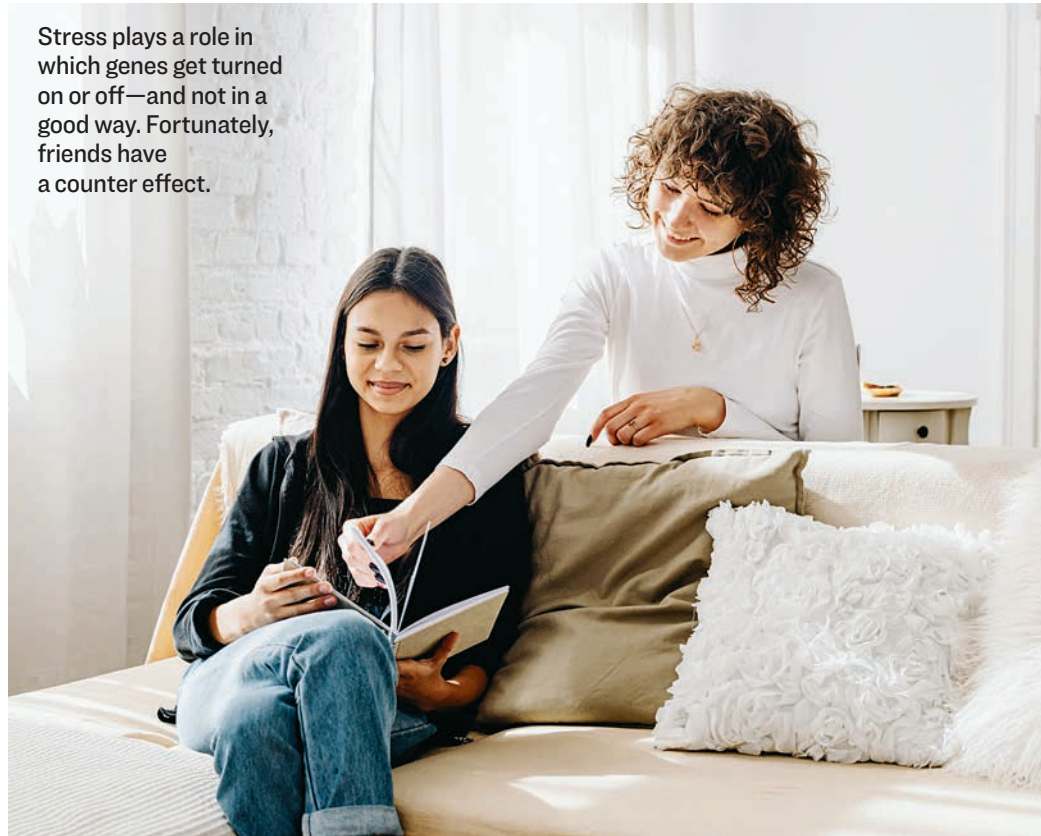
**What Is Epigenetics?**

Our genes and our environment contribute to our health.

We inherit our DNA code from our parents, and this doesn’t change during our life. Genetics is the study of how the DNA code acts as a risk or protective factor for a particular trait or disease.

Epigenetics is an additional layer of instructions on top of DNA that determines how they affect the body. This layer can chemically modify the DNA, without changing DNA code.

Stress plays a role in which genes get turned on or off—and not in a good way. Fortunately, friends have a counter effect.



The term epigenetics is derived from the Greek word “epi” which means “over, on top of.”

This extra layer of information lies on top of the genes and surrounding DNA. It acts like a switch, turning genes on or off, which can also impact our health.

**Previous research has identified having strong social support and a sense of belonging are robust indicators of physical and mental health.**

Epigenetic changes occur throughout our lives due to different environmental factors such as stress, exercise, diet, alcohol, and drugs.

For instance, chronic stress can impact our genes via epigenetic changes that in turn can increase the rate of mental health disorders such as post-traumatic stress

disorder (PTSD), depression, and anxiety.

New technologies now allow researchers to collect a biological sample from a person (such as blood or saliva) and measure epigenetics to better understand how our genes respond to different environments.

Measuring epigenetics at different times allows us to gain insight into which genes are altered because of a particular environment.

**What Did We Study?**

My study investigated both positive and negative factors that drive a person’s response to stress and how this changes the epigenetic profiles of genes.

Certain groups of people are more likely to face stress as a part of their routine work, such as emergency responders, medical workers, and police officers.

So, my research team and I recruited 40 Australian first-year paramedical students at two points in time: before and after exposure to a potentially stressful event. The students provided saliva samples for DNA and filled out questionnaires detailing their lifestyle and health at both points in time.

We investigated epigenetic changes before and after exposure to stress to better understand how epigenetics of genes was altered after exposure to stress and which different social and psychological factors caused the epigenetic changes.

We found stress influenced epigenetics and this, in turn, led to increased rates of distress, anxiety, and depressive symptoms among participants.

However, students who reported high levels of perceived social support showed lower levels of stress-related health outcomes.

Students with a strong sense of belonging to a group, organization, or community dealt much better with stress and had reduced negative health outcomes following exposure to stress.

Both these groups of students showed fewer epigenetic changes in genes that were altered as a result of stress.

**COVID Has Made Us More Isolated**

The COVID pandemic has created heavy psychological and emotional burdens for people due to uncertainty, altered routines, and financial pressures.

In Australia, the rates of anxiety, depression, and suicide have soared since the start of the pandemic. One in five Australians have reported high levels of psychological distress. In the United States, 40 percent of adults reported struggling with mental health and substance use issues even at the beginning of the pandemic.

The pandemic has also made us more isolated, and our relationships more remote, having a profound impact on social connections and belonging.

My study highlights how family and community support, and a sense of belonging, influence our genes and act as a protective factor against the effects of stress.

In such unprecedented and stressful times, it’s vital we build and maintain strong social structures that contribute to good physical and mental well-being.

*Divya Mehta is the principal research fellow and team leader at Queensland University of Technology in Australia. This article was first published on The Conversation.*

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