

# MIND & BODY

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SERIES | MICROBIOME



The human body hosts **TRILLIONS** of microbes.



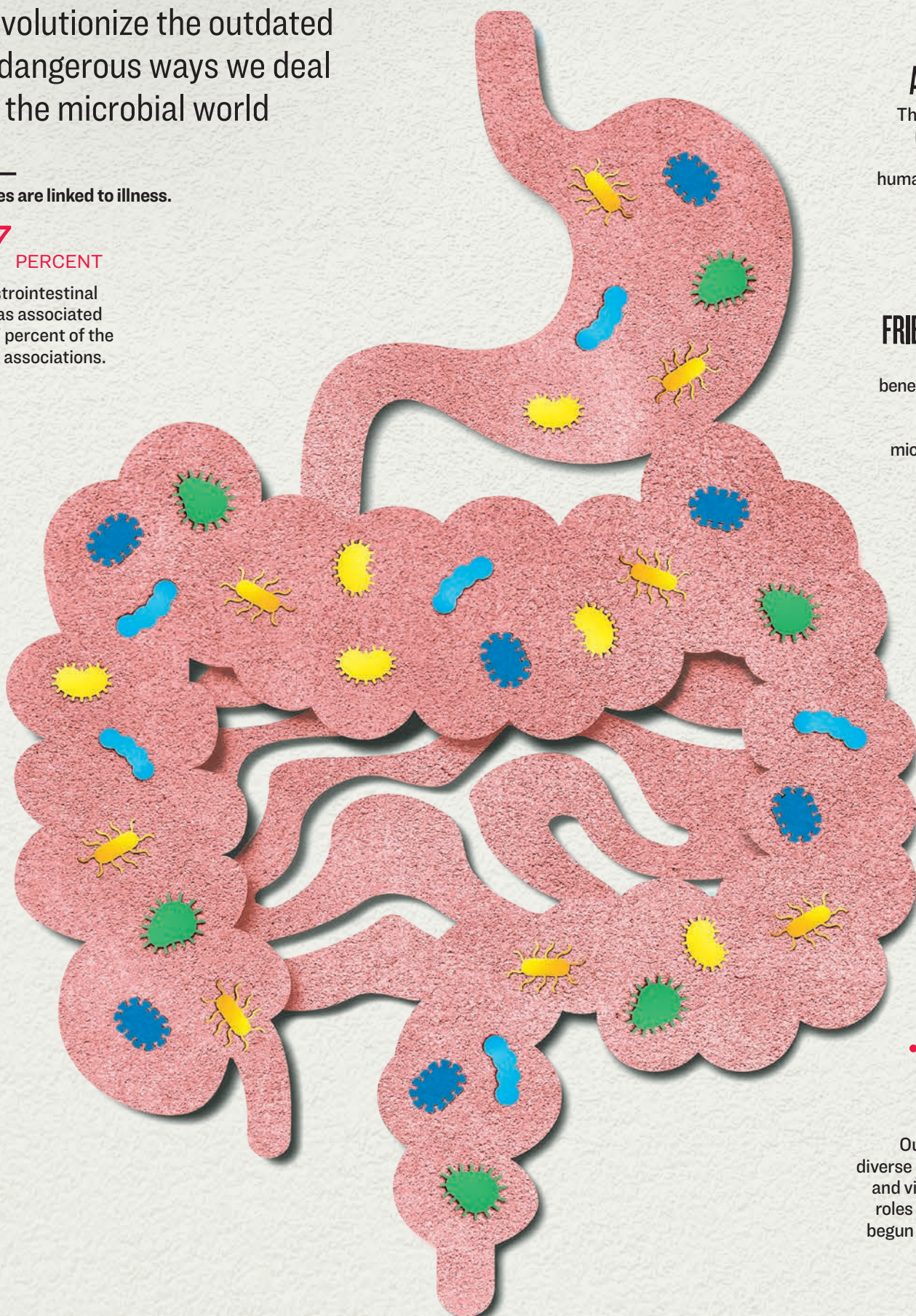
## Cultivating Our Gut Microbes to Stifle Disease **PART I**

Research tells us it's time to revolutionize the outdated and dangerous ways we deal with the microbial world

Microbes are linked to illness.

**37** PERCENT

The gastrointestinal tract was associated with 37 percent of the disease associations.



### ANTIBIOTICS

These indiscriminate killers can devastate the human microbiome.



### FRIEND AND FOE

We depend on beneficial microbes, in part to keep pathogenic microbes in check.

Our gut is host to diverse bacteria, fungi, and viruses that play roles we have barely begun to understand.

### SERIES INTRODUCTION

We might be on the verge of a new medical paradigm if what scientists are discovering about the microbiome ever makes it into the doctor's office.

In this series, "**Cultivating Our Gut Microbiome to Stifle Disease**," we'll share how the latest developments on this medical frontier are transforming our approaches to illness and offering new strategies to heal and prevent disease.

AMY DENNEY

**M**odern medicine has progressed in large part by waging war against germs—snuffing out microscopic disease-causing creatures before they kill us.

The 19th-century discovery that microorganisms are the cause of infectious disease—the leading cause of death at the time—led scientists to the consensus that "germs" posed a great danger to humanity, a stance that's been woven into

policy and ideology to this day. Public health advancements in the 20th century proved that controlling infectious outbreaks extended life expectancy and reduced infant and maternal deaths.

It was an era heralded for great medical achievements.

Death rates rapidly declined—even before the introduction of penicillin and vaccines—as public sanitation and better hygiene in hospitals transformed public health.

Continued on **Page 2**

Strengthening the microbiome will help our bodies to perform at their very best.

SERIES | MIRACULOUS BODY

## The Miraculous Immune System **PART I**

Tonsils: Silent gatekeepers of immunity and synergistic ways to heal them

### SERIES INTRODUCTION

The COVID-19 pandemic has given us a unique opportunity to discover the true power of our innate immunity—a gift of immense power. With this incredible force, some individuals have been able to fight off the virus without experiencing a single symptom.

In this series, "**The Miraculous Immune System**," we'll explore the immune system's layer upon layer of specialized molecules, cells, tissues, and organs that work tirelessly to protect us. We'll also provide practical ways to protect these vital gifts.

YUHONG DONG

Our tonsils are soft, oval-shaped nodes, neither flesh nor fat, that stand like bodyguards at the place where the outside enters our insides. They work tirelessly to protect us against viruses and germs that enter through the air we breathe and the food we eat.

Most people only know that sometimes doctors remove tonsils to resolve a problem, such as chronic tonsillitis. Rarely are the potential consequences of this procedure described and neither is the essential role the tonsils play.

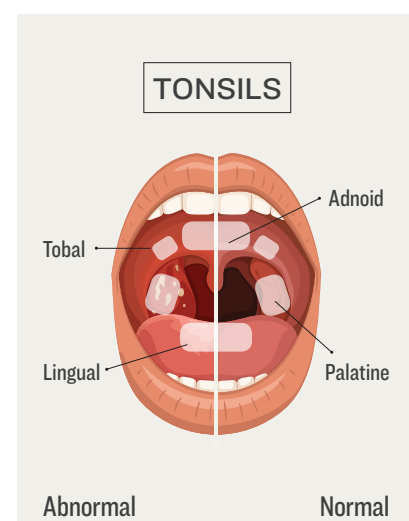
### Summary of Key Facts

- Tonsils are a part of the lymphatic system that form a ring-like gatekeeper structure in the throat.
- Because of their strategic importance in our immune system, tonsils have both "gatekeeper" and "messenger" roles.
- Tonsillitis is a process of training and maturation of the tonsils.
- Medical treatment of tonsillitis with antibiotics can have limitations and side effects.
- Natural herbs are beneficial in reducing the symptoms of tonsillitis.
- Combining antibiotics with natural herbal therapies may have a synergistic effect.
- There are a few ways to protect the tonsils.

### Tonsils as Gatekeepers

The tonsil area is rich in immune cells that send signaling molecules to the brain when immune cells in the tonsils encounter pathogens.

Continued on **Page 4**



SERIES | MICROBIOME

# Cultivating Our Gut Microbes to Stifle Disease PART I

Continued from Page 1

Mass antibiotic production came in the 1940s, initially for wounded soldiers, then exploded into the public sphere. These new anti-microbial weapons cured millions of infections and saved many lives. However, antibiotics also came with unexpected consequences that are squeezing today's health care on two sides: superbug infections and a rise in all diseases.

**Good, Bad, and Usually Ugly**  
The microbial world is diverse. While it's true that some microbes cause disease, saying that all of them are killers would be like calling all dogs killers because of a few.

Researchers have learned that thinking of microbes as pathogenic, or disease-causing, is profoundly incorrect. In fact, the microbial world encompasses bacteria, viruses, and fungi that largely promote health. Human beings host a vast microbial community, or microbiome, and gain a kind of detached organ with interactions that keep us alive. These tiny creatures may not be cute, but they are essential.

"We are a consortium of organisms in us and on us and around us. There are trillions of them," Dr. Neil Stollman told fellow physicians at a recent Malibu Microbiome Meeting. "When we lose bugs, we are at risk of other bugs hurting us. They are intimately involved in our immune system development. And we help them. We provide a home for them and nutrients."

Stollman is chairman of gastroenterology at Alta Bates Summit Medical Center in Oakland, California and past chairman of the American College of Gastroenterology.

## Bugs Everywhere

Everyone has an individually unique microbiome, as well as distinct microbiomes in different areas of their bodies. We have microbes, for instance, on our skin and in our mouths, lungs, nasal passages, urinary tract, and especially in our gastrointestinal tract, and some of those microbes indeed are associated with illness. One database offers 5,677 associations between 1,781 microbes and 542 human diseases across more than 20 sites on the body.

Not surprisingly, the gastrointestinal tract was associated with 37 percent of those disease associations, with the oral cavity next at less than 10 percent. However, that doesn't mean researchers understand this realm all that thoroughly. Dr. Sabine Hazan said more than 95 percent of microbes are still a mystery. A gastroenterologist and researcher, she presented microbiome discoveries from the past four years at the Malibu Microbiome Meeting.

"We have no idea what their names are and what they do, and possibly, they could be the culprit of a disease," Hazan said. That also means researchers don't know the precise synergistic roles those microbes play in the body that keep us alive and healthy. This collection of microbes, or flora, remains largely a mystery though it is an area of intense interest to researchers.

## Tiny Organisms With Big Jobs

Microbiome studies tend to focus heavily on the gut, where our microbes configure the majority of our immune system. High levels of certain beneficial bacteria help us mount a robust response to invading viruses, for example. We know now that a diversity of flora is protective against disease.

Other processes that happen in the gut are critical to life, including metabolism, hormonal regulation, and neurological



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Drugs can play different roles for different people, in part because of the diversity of each person's microbiome.

**“Our most exciting and respected science is offering us an incredible opportunity to regain our health through the force wielded by the microbiome.”**

Dr. David Perlmutter, neurologist



Dr. Sabine Hazan, gastroenterologist and founder of Progenabiome.

YORK DUJ/THE EPOCH TIMES

**Allergies, asthma, autoimmune disorders, and inflammatory bowel diseases have all been linked to the oversterilization of our microbial environment.**



Current health care practices have led to the oversterilization of our bodies, leading to the destruction of many good bacteria.

function. Various microbes throughout the gut set off a chain of signals to cells that are involved in hormone release and metabolic processes such as insulin sensitivity, appetite, and fat storage. Metabolic disorders such as insulin resistance and diseases of the heart and circulatory system, as well as endocrine disorders that affect organs that rely on hormones, all lean on the microbiome.

Acceptance of the notion that the gut and mental health are connected has ebbed and flowed for decades, but metabolic processes instigated by bacteria can affect both the permeability of the gut lining and flip on inflammatory pathways. Both of these can affect mental health, as well as a plethora of other conditions and physiological systems, and now have wide acknowledgment.

## Microbial Fingerprints

No two people have the same microbiome, not even identical twins, although they're quite similar, according to studies. Some researchers have even measured the human "biologic cloud," the space around us that is picking up and emitting microbes through our skin and breathing. This cloud is how pathogens—and beneficial microbes—spread.

"Your microbial space is distinct like a fingerprint basically, which interestingly brings up some forensic implications. You might even be able to solve a crime (with the microbiome) someday," Stollman said. He's chairman of gastroenterology at Alta Bates Summit Medical Center in Oakland, California, and associate clinical gastroenterology professor at the University of California-San Francisco, plus a past chairman of the American College of Gastroenterology.

That unique microbial fingerprint has vast cascading effects in the body because of the many roles these microbes play, from helping create hormones that function as neurotransmitters to affecting which nutrients are absorbed into our cells. The immense differences in the microbiome may explain why two people can react differently to the same food or drug and require very different treatments for similar conditions.

## Undoing a History of Hygiene

Historically, even as recently as the COVID-19 outbreak, medicine has been obsessed with pathogenic microbes, while commensal (helpful) bacteria haven't gotten credit for the grunt work they do to keep us alive and healthy.

The problem is historical, in some sense. It goes back to our earliest concepts of the microbial world, when doctors including Ignac Semmelweis hypothesized in the 1840s that physicians and medical students were transmitting "death particles" from autopsy rooms where they started their workday to clinics where they delivered babies for the remainder of the day.

That gave rise to the practice of routine hand-washing, with immediate and observable effects. But by the time we learned that many microbes played beneficial roles, there were already massive industries built around the war against microbes. Food processing, chemically treated crops, and overreliance on pharmaceuticals unintentionally destroyed massive volumes of health-sustaining microbes.

One result of this assault is the seemingly unending dilemma of deadly superbugs that have become resistant to antibiotics. Allergies, asthma, autoimmune disorders,

and inflammatory bowel diseases have all been linked to the oversterilization of our microbial environment. Killing microbes is a multibillion-dollar industry.

"Clearly, there are those who will want to defend the past and even the status quo. That is to be expected," Dr. David Perlmutter, neurologist and fellow of the American College of Nutrition, wrote in his book "Brain Maker." "I believe it is far more important to break the bonds of these constraints and recognize that our most exciting and respected science is offering us an incredible opportunity to regain our health through the force wielded by the microbiome..."

## Medicine's Philosophical Shift

Medicine is confronted with a crossroads: keep on the current anti-microbial path or reset our medical paradigm around the reality that our various microbiomes help sustain us while also fighting off infection and disease.

Many of the rapidly growing diseases we're contending with today—such as autism and autoimmune disorders—have now been linked to microbiome health. A combination of lifestyle factors—from foods that feed the wrong microbes, to routine chemical exposures, and unnecessary antibiotics—have undoubtedly taken a toll on our symbiotic microbes and health, Hazan said. "Have we in essence killed our microbiome? Could it be maybe we're overdoing it?" she asked.

Concepts that include precision health and personalized nutrition hinge on a broad understanding of the gut microbiome, a race that has spurred investment in new companies with promises that have far outpaced the available research.

Scientists at the Malibu Microbiome Meeting shared absurd claims of products that insinuate one single probiotic can reverse specific diseases.

"To simply believe you're going to take one pill of one particular bacteria and it's going to solve your problem and provide some beautiful homeostasis to your microbial ecosystem is absurdly simplistic and is absolutely not true," Stollman said.

And yet, there are also miraculous case studies indicating incredible promise. Trials are underway, at rapid rates. In fact, more than 80 percent of microbiome research has occurred since 2017, according to Stollman.

"There's a real mania about the biome. I think the mania is also based not as much on, 'Can we improve our health?' but 'Can we diagnose an illness, and treat an illness?'" he said.

The challenge ahead is significant. Beyond fixing outdated medical protocols, like indiscriminate antibiotic use, there is the staggering volume of microbes and microbial interactions that need to be understood. Considering that our cells perform impossible complex chemistry at a scale and intricacy beyond anything modern science can match, imagine the additional complexity of trillions of microorganisms doing something similar.

Next week:

Microbiome science may be new, but researchers have made undeniable connections between various bacteria and specific diseases. The truth of Hippocrates's statement that "all disease begins in the gut" is starting to be recognized by today's scientists.

CHRISTY PRAIS

We've all grown up being told that fluoride is good for our teeth. Some experts thought it was so good for the health of our teeth that in the 1940s, the U.S. government decided to start adding synthetic fluoride to the U.S. water supply.

From very early on, there have been conflicting views and significant debate within the scientific, medical, and dental communities over the merits of fluoride. In her paper published in *The American Journal of Public Health* in 2015, historian Catherine Carstairs recounts that in the late 1940s and early 1950s, this debate largely ended with experts opposed to the fluoridation program being dismissed "as cranks and quacks," and relegated to the so-called fringes by their peers.

After more than 70 years, the battle between the pro-fluoride and no-fluoride camps wages on. At the heart of that battle are questions about how effective water fluoridation is at preventing dental decay and whether the possible adverse health risks are worth the benefits.

## Water Wars

The big guns on the pro-fluoridation side, such as the American Dental Association and the Centers for Disease Control and Prevention (CDC), support community water fluoridation as an effective way to prevent tooth decay.

Both groups say the safety and benefits of fluoride for preventing tooth decay in both children and adults are "well documented and have been reviewed" by several "scientific and public health organizations."

The CDC claims there has been "no convincing scientific evidence" found "linking community water fluoridation with any potential adverse health effect or systemic disorder such as an increased risk for cancer, Down syndrome, heart disease, osteoporosis and bone fracture, immune disorders, low intelligence, renal disorders, Alzheimer's disease, or allergic reactions."

But the actual science is less one-sided than the CDC suggests. A 2018 research review published in *Preventative Nutrition and Food Sciences* looked at both the pros and cons of fluoridation.

"Major concerns about excessive fluoride intake and related toxicity were raised worldwide, leading several countries to ban fluoridation," it noted.

Opponents of water fluoridation include the Fluoride Action Network (FAN) and Food and Water Watch. Their criticism focuses on the possible health risks revealed in more than 100 published studies showing the harmful effects of fluoride including neurotoxic harm, reduced IQ, damaged kidneys and liver, suppressed thyroid hormones, and brittle bones.

**From very early on there have been conflicting views and significant debate within the scientific, medical, and dental communities over the merits of fluoride.**

## Dental Data

While it's fairly well established that putting fluoride on the teeth can help combat cavities, there is less clarity around the benefits of drinking it. Advocates of water fluoridation point to population-level data to support these programs.

An October 1999 *Morbidity and Mortality Weekly Report* from the CDC noted that early studies reported that water fluoridation can reduce tooth decay by 50 percent to 70 percent.

The report stated that between 1960 and 1970, unpublished data showed that the new fluorination program reduced de-



The water fluoridation controversy centers on whether the benefits for teeth outweigh the health risks it poses.

TOXINS

# America, the Fluoridated

PART I

The renewed scientific opposition to water fluoridation

## SERIES INTRODUCTION

Fluoridation of the U.S. public water supply has been a polarizing topic both academically and politically since its start in the 1940s. Debate over its benefits and health risks has raged as the science has continued to unfold.

This series will explore the contentious findings surrounding this ubiquitous public health measure and answer the question of whether water fluoridation poses a risk and what we should do about it.



ASTRAKIM IMAGES/GETTY IMAGES

Despite more than **73%** of the U.S. population currently being on a fluoridated community water system, dental caries (tooth decay) remains the most prevalent chronic disease in both children and adults



SKYNSHER/GETTY IMAGES

cayed, missing teeth due to caries, and filled teeth in the permanent teeth of 12-year-olds by 68 percent.

But, the report said, a later review of studies on the effectiveness of water fluoridation conducted in the United States from 1979 to 1989 found that caries reduction was 8 to 37 percent among adolescents.

Part of the problem with the data is that better dental hygiene practices, including the introduction of fluoride toothpaste came about at the same time as water fluoridation programs.

Studies conducted after this change cited by the Fluoride Action Network further discount the dental benefits of water fluoridation.

One of their cited studies done between 1986 and 1987 and submitted for publication in the Danish journal *Community Dentistry & Oral Epidemiology* looked for dental caries in 39,207 school children 5 to 17 years old across 84 different geographical areas.

This study found no statistically significant difference between the number of dental caries in the fluoridated versus the non-fluoridated groups across all age groups.

Today, the CDC says that water fluoridation reduces tooth decay by about "25 percent in children and adults," and the agency has named community water fluoridation as "1 of 10 great public health achievements of the 20th century," because it has "contributed to the dramatic decline in tooth decay over the past 70 years."

A Harvard review of data gathered by the Organization for Economic Cooperation and Development is less glowing. Looking at the average number of decayed, missing, or filled teeth between 1975 and 2014 in different countries, it compared nine countries that fluoridated their public water to 22 countries that didn't.

Per a Harvard Public Health Magazine article, the data showed that countries that didn't fluoridate their water had also seen similar drops in cavity rates over that time period.

Despite more than 73 percent of the U.S. population currently being on a fluoridated community water system, tooth decay remains the most prevalent chronic disease in both children and adults, even though it's largely preventable.

**Incidentally, it is children that may be most at risk from the IQ lowering effects now associated with water fluoridation programs.**

## The Battle Wages On

This 70-year battle reached a new level in 2017, when a landmark lawsuit by a coalition of groups including the FAN and the Food & Water Watch was filed against the Environmental Protection Agency to "protect the public and susceptible sub-populations from the neurotoxic risks of fluoride by banning the addition of fluoridation chemicals to water."

Because of many delays brought on by the EPA, this David-and-Goliath battle is still ongoing, with its next scheduled court hearing on April 11.

The suit has brought into question annual fluoride participation awards given to communities across the United States by the CDC, Association of State and Territorial Dental Directors, and the American Dental Association.

The case also recently revealed government attempts to limit available evidence and avoid having the facts of water fluoridation reviewed in court.

Per court order, the suppressed National Toxicology Program's (NTP's) draft review has recently been made public.

The NTP's "2019 Systematic Review of Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects" concluded that "fluoride is presumed to be a cognitive neurodevelopmental hazard to humans."

They state that "this conclusion is based on a consistent pattern of findings in human studies across several different populations showing that higher fluoride exposure is associated with decreased IQ or other cognitive impairments in children."

Per the NTP, the National Academies of Sciences, Engineering, and Medicine committee criticized the NTP's classification of fluoride as a cognitive neurodevelopmental hazard for humans, saying they hadn't adequately supported its conclusions. The May 2022 draft, although public, is still under review and not yet finalized.

Over the next several articles, we'll take a closer look at the toxicity profiles of fluoride additives, the controversy around how they're made, and the questionable scientific research that the fluoridation of the U.S. public water supply was based on.

Next week: *The fluoride additives in our public water system aren't naturally occurring, which opponents and chemical data research suggest make them even more toxic to human health.*



Protesters march against the use of fluoride in drinking water in San Francisco on Feb. 22, 2013.

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SERIES | MIRACULOUS BODY

# The Miraculous Immune System

## PART I



Continued from Page 1

Although the tonsils are gatekeepers, there is one barrier that comes before them.

When an airborne virus attempts to enter the respiratory system, it must first pass through the mouth or nose. These entry points are guarded by the epithelial cells that line their surfaces.

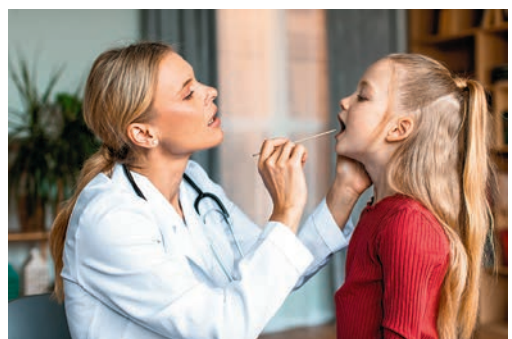
These cells are connected by tight junctions, forming a solid barrier against incoming viruses and bacteria.

Once a viral component is detected, epithelial cells can react immediately by entering an antiviral state. If a virus or germ slips through this net, the tonsils stand ready, 24 hours a day, guarding the throat.

Tonsils are lymphatic tissue. They are made up of four parts: the adenoid, the two tubal tonsils, the two palatine tonsils, and the lingual tonsil. Together, these form a robust ring of defense known as Waldeyer's ring.

The palatine tonsils have about 15 small spaces called crypts, which increase their surface area to increase the capacity to filter external pathogens.

The adenoid, also called the pharyngeal tonsil, is a mass of lymphatic tissue similar



Tonsillitis is common in younger children as their tonsils are still developing and not yet able to fight off viruses and bacteria.

**The tonsil area is rich in immune cells that send signaling molecules to the brain when they encounter pathogens.**

to the palatine tonsils that hang from the upper part of the back of the nasal cavity, and along with other parts of the tonsils, can't be seen. The adenoid tends to shrink after early childhood, and by the teenage years, often disappears almost entirely.

The tonsils' main job is to trap viruses or germs from the food we eat and the air we inhale. The tonsil area normally gets more blood flow to help fight off common infections.

In short, the tonsils' role is to protect their territory—you. If these gatekeepers doze off, the enemy, such as a virus, will sneak in. The tonsils use perceptible senses to guard against invaders. They can identify and eliminate the COVID-19 virus and its variants and thousands of other viruses.

Furthermore, according to a study published on March 8 2023 in the journal Nature, tonsil neurons can transmit messenger molecules to the brain to initiate the sickness behaviors during a flu infection that order the body to rest or eat less. This strengthens the tonsils' role as the body's gatekeeper and messenger.

We've all experienced the power of our tonsils. A common sign of sickness is a sore throat or discomfort in the throat. While we may view it as a minor ailment, we may not be aware that it is the tonsils warning us of an immune breach and that we should prepare ourselves for battle.

**Essential Role in the Immune System**  
Our tonsils have their own layer of epithelial cells that serve as the front-line signal cells

detecting and clearing foreign bodies. If they sense that invaders may have exceeded their clearance capacity, the epithelial cells will pass the signal to other immunity troops.

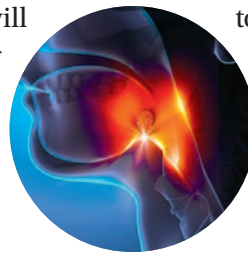
There are many specifically designed immune cells specialized in different functions. For example, some cells capture and absorb the antigens produced by viruses and bacteria, some send signals to others, some are good at killing a virus directly, and others can produce antibodies.

Antibodies, a kind of protein, can bind to specific featured fragments of proteins on the surface of a virus. They can neutralize and clear the virus from the body.

Our tonsils house many such cells that can generate various types of antibodies (e.g., IgA, IgD, IgE, IgG, and IgM). Different types of antibodies are like brothers and sisters in one big family, generated at various times during an infection or under abnormal conditions, each targeting different cells or tissues.

During fetal growth, the tonsils are among the first regions where many immune cells develop because of their strategic location. They develop early, at about the 14th week of gestation.

Recent research demonstrates that, like the thymus, the tonsils have been shown to express T-cell developmental intermediates that resemble those found in the thymus and bone marrow. That finding could have significant clinical and scientific implications because T-cells are a critical type of white blood cells, immune cells that are the backbone of the adaptive immune response.



The tonsils are gatekeepers to our immune health, guarding the body from infectious pathogens by trapping germs from the air we breathe and the food we eat.

### Tonsillitis: Process of Learning to Become Stronger

During an exhausting battle against viruses or bacteria, our tonsils may become enlarged, swollen, and red. We will often feel this in the form of discomfort in the throat area. Those are typical signs of tonsillitis. The swelling is caused by a buildup of lymph fluid, viruses, bacteria, and immune cells, and the redness results from increased blood flow to the area.

In 50 to 80 percent of acute tonsillitis cases, viruses such as Epstein-Barr, rhinovirus, respiratory syncytial virus, adenovirus, and coronavirus are the cause. In 5 to 36 percent of cases, the infection is caused by bacteria, with Group A beta-hemolytic streptococci being the most common type in tonsillitis.

Tonsillitis frequently occurs during our younger years, when our tonsils are not yet strong enough to combat viruses and bacteria effectively, despite their best efforts. Developing tonsillitis doesn't necessarily mean our immune system is weak. In fact, it often suggests our immune system is developing and becoming stronger as it learns to fight these invaders.

Recurring tonsillitis during youth indicates dynamics between the tonsils, immune system, and external viruses or germs. Getting tonsillitis doesn't mean the tonsils aren't doing their job—it means they are struggling amid the fight. Young tonsils need time to grow stronger. Tonsillitis indicates that the tonsils are overburdened, and it's a signal for help.

### Tonsillitis Treatments and Their Limitations

When the tonsils are exhausted, any method that can help clear viruses or germs, reduce inflammation, or boost immunity will help them recover.

Modern medicine primarily focuses on treating the symptoms of acute tonsillitis by using fluids to rehydrate the body, or drugs, such as pain and fever inhibitors, and corticosteroids to reduce inflammation.

Antibiotics are prescribed if there's a possibility that bacteria is causing the infection, but it's often hard to tell just by looking at the symptoms. Moreover, relying on antibiotics can lead to antibiotic-resistant bacteria, which can be harmful. These drugs also damage the microbiome, which plays an essential role in immune function.

Some medications used to treat acute tonsillitis have side effects, such as gastrointestinal bleeding caused by non-steroidal anti-inflammatory drugs and airway problems caused by opioids.

Removing the tonsils through surgery is sometimes used to treat recurring acute tonsillitis, but it's not usually done during the acute phase of the infection and can have limited long-term benefits.

In addition to antibiotics and other medical interventions, natural herbs can help the tonsils fight back and heal. Combining different forms of therapy may result in a synergistic effect because they work through different mechanisms of action.

*Next week:*

*Tonsillectomy, or surgical removal of the tonsils, is one of the most common surgical procedures in the United States but research suggests the benefits are limited.*

*Acknowledgment: We thank Dr. Jonathan Liu for his review of the herbal recipe in this article.*

## Synergistic Ways to Support the Tonsils

### Echinacea With Azithromycin

A prospective randomized, controlled study of at 300 children with recurrent tonsillitis aimed to measure the effectiveness of prophylactic treatments to prevent recurrence. The study found that the combined use of commercially available echinacea with the antibiotic azithromycin produced better results than azithromycin alone. Azithromycin has been reported to cause adverse events, including lethal heart events, so caution is necessary.

Echinacea comes in various forms, such as supplements, liquids, creams, mouthwashes, and throat sprays. The dosage of echinacea varies depending on the type of product used. It's important to consult a health care provider to determine the appropriate product type and dosage for a particular condition.



### Dandelion, Mint, and Skullcap

One systematic review, published in the esteemed Cochrane Database of Systematic Reviews, analyzed 12 randomized controlled trials assessing Chinese herbal medicines for the treatment of sore throat and tonsillitis involving 1,954 participants. The following remedies were found to be more effective than antibiotics in their studies.

Dandelion was more effective than sodium penicillin for acute purulent tonsillitis.

Another treatment mixture was more effective than gentamicin atomized inhalation (nebulization) for acute pharyngitis. It primarily contained the following herbs:

- Mint
- Skullcap
- Wild chrysanthemum
- Honeysuckle
- Houttuynia cordata



### Licorice Root, Barberry Root, Thyme, and Oregono

An in vitro (test tube) study investigated hot water infusions of 13 different herbs that can help defend against streptococcal-caused pharyngitis, the most common type of bacterial infection in the throat. Pharyngitis and tonsillitis are closely linked conditions that often share the same cause and treatment. The most effective herbs for pharyngitis according to the study include:

- Licorice root, the fastest and most potent
- Barberry root
- Thyme
- Oregono flowering shoots



### Green Tea

Green tea is a rich source of antioxidants with anti-inflammatory properties. Green tea can also help relieve sore throat symptoms, common of pharyngitis (inflammation of the back of the throat), which often accompanies tonsillitis. Researchers reported in Anesthesiology and Pain Medicine that gargling green tea helps ward off sore throat symptoms in postoperative patients.



### Sho-Saiko-To

A recipe called "Sho-saiko-to" has long been recorded in traditional Chinese medicine textbooks to treat pharyngitis or tonsillitis. The recipe is composed of six herbs:

- Bupleurum root
- Scutellaria root
- Ginseng root
- Pinellia tuber
- Glycyrrhiza root
- Ginger rhizome

Japanese researchers tested an adapted recipe, Sho-saiko-to-ka-kikyo-sekko, and reported that it reduced the episodes of chronic tonsillitis for more than two years in a small clinical trial. In some cases, patients even canceled planned tonsillectomies. This recipe added gypsum, Platycodon root, and jujube fruit.

### Chinese Herbs

A meta-analysis of 110 randomized controlled trials looked at 12,152 patients with acute tonsillitis. It found that combining Chinese herbal injections with Western medicine resulted in an 89.5 percent improvement in clinical effectiveness, reductions in time to relieve sore throat, red and swollen tonsils, and tonsillar exudate ranging from 76.8 percent to 94.8 percent, and had an incidence of adverse reactions of less than 4.62 percent.

The following key active ingredients were listed:

- Forsythia suspensa
- Yahl
- Lonicera japonica Thunb
- Scutellaria baicalensis Georgi (key ingredient; Baicalin)
- Isatis tinctoria L
- Gardenia jasminoides J.Ellis

## Tips to Protect Tonsils

Because tonsils play such a significant role in defense against viruses and germs, maintaining and optimizing their function is advisable.

Most viruses and bacteria are transmitted through the air. Our tonsils are easily overwhelmed when we live in an environment with many pathogens.

- One simple suggestion is to keep our living spaces clean and well-

ventilated to reduce the risk of exposure. Additionally, avoiding smoke is crucial, as toxins in smoke are harmful.

- Maintaining proper hydration is also a critical factor in promoting throat health. Adequate air humidity and sufficient water intake can help keep our tonsils healthy.
- Food and drink are other sources

of pathogens that can affect throat health, as everything we consume passes through this area. To minimize the risk of exposure, eat organic, nutritious, whole foods. Eating plenty of vegetables and fruits supports the basic functioning of our immune system.

By incorporating more naturally derived remedies into our daily routines, we can also boost our immune system and better support our tonsils to help prevent respiratory illnesses.

### THERAPIES

## Hyperbaric Oxygen Therapy Beats Drugs in Fibromyalgia Study

A new study finds that hyperbaric oxygen therapy is able to improve symptoms and even resolve fibromyalgia in some patients

LIA ONELY

According to a recent Israeli study, a dedicated hyperbaric oxygen therapy (HBOT) protocol was more effective in reducing pain than available drugs in patients suffering from fibromyalgia following head injury.

Fibromyalgia syndrome (FMS) affects about 4 million U.S. adults, about 2 percent of the adult population. It's clinically characterized by widespread chronic pain, dysfunction (fibro fog), and associated symptoms.

"Existing treatments are not good enough," one of the leading researchers, Dr. Jacob Ablin from the Tel Aviv Sourasky Medical Center, said in a statement. "It is a chronic disease that significantly affects the

quality of life, including young people, and hyperbaric medicine meets an acute need of these patients."

Fifty-eight individuals, divided into either the pharmacological intervention group or the HBOT group, completed their protocols. All participants were 18 years and older and had suffered from FMS for more than a year because of a traumatic brain injury (TBI).

Each group included 29 patients with no statistically significant differences in baseline characteristics or symptoms.

The HBOT protocol included breathing 100 percent pure oxygen by mask in a chamber, at a pressure of two atmospheres, for 90 minutes with five-minute breaks of breathing regular air every 20 minutes. The participants had sessions five days a week for three months, for a total of 60 treatments.

The pharmacological intervention the treating physician chose included one of the two medications approved in Israel for FMS: pregabalin (brand name Lyrica) and duloxetine (brand name Cymbalta).

"Evaluation was performed at baseline for both groups and 1-3 weeks after the last HBOT session or three months of medications protocol." The evaluators didn't know to which group the participants were allocated.

The study, conducted by Tel Aviv University's Sackler Faculty of Medicine researchers, was recently published in the journal PLOS One.



Hyperbaric oxygen therapy may be a transformative treatment for people suffering from fibromyalgia, a new study suggests.

### 'Results That Are Very Exciting'

Outcomes of the study were measured by a subjective pain intensity evaluation with questionnaires for evaluating fibromyalgia-related symptoms (such as fatigue, trouble thinking or remembering, pain or cramps in the lower abdomen, depression, and headache), quality of life, and psychological distress.

The researchers also assessed pressure pain threshold and brain activity imaging. HBOT significantly improved all FMS pain measures, quality of life, emotional health, and social functions.

In addition, after HBOT, 11 (37.9 percent) participants no longer met FMS diagnostic criteria, which didn't happen to any patient

in the medication group.

Furthermore, pain threshold tests improved on average 12 times in the HBOT group compared to the medication group, according to a press statement.

In addition to the pain measures, HBOT patients reported significant improvement in quality of life, emotional health, and social function. The researchers noted that clinical changes were correlated with increased brain activity in the frontal and parietal regions. They said in the study that this "provides additional information regarding the etiology and treatment of FMS."

"The drugs work on pain... If they do something, they can ease some pain," Dr. Shai Efrati, one of the lead authors and the director of the Sagol Center for Hyperbaric Medicine and Research at Shamir Medical Center, told The Epoch Times.

But the dedicated treatment protocol in the pressure chamber with the fluctuation in oxygen levels "triggers the stem cells in the brain to start dividing," he said, adding that it "triggers the healing process in the brain—like healing a wound."

Once you heal the wound, the pain goes away. It's a different approach, which treats "the wound instead of giving you treatment for the pain," he said.

Efrati called it a very significant change. "One, we see the biology behind the complaints. Two, we treat the biology that

causes the problem and not the pain. And three, it brings us to results that are very exciting."

### Fibromyalgia Syndrome

About 20 years ago, FMS was considered a psychosomatic syndrome. People, especially women, would complain of pain all over the body, and when they were examined, the doctor wouldn't be able to identify any problem. So they called it psychosomatic, said Efrati.

Today, it's understood that this is a real biological problem in the areas of the brain responsible for interpreting the signals coming from the body, he said.

"It's like when you are in a room and an alarm goes off. ... The alarm is real, but there is no fire," he said.

Today, researchers understand that the damage is in specific areas of the brain and they can see the structure and assess the function of those areas.

The study—in which the trigger for FMS was a head injury—is part of a larger series of studies focused on HBOT treatment for FMS. The head injury could result from "a concussion, a shake, a car accident, [or] some sort of a blast wave," Efrati said.

Severe mental stress can also be the trigger. He said it could cause a brain injury that is no less severe than a physical injury and could even be harsher.

A previous study found that HBOT

### Hyperbaric Oxygen Therapy

HBOT is considered a safe treatment and is already used in many places to treat various medical conditions, according to the press statement.

In recent years, specific HBOT protocols have led to the growth of new blood vessels and neurons in the brain.

Certain fluctuations in pressure and oxygen can trigger stem cells in the brain to start dividing. "We can trigger the creation of new blood vessels in the brain," Efrati said.

"We started with classic injuries like stroke, like a head injury, and then expanded the canvas to other diseases like [FMS]," he said.

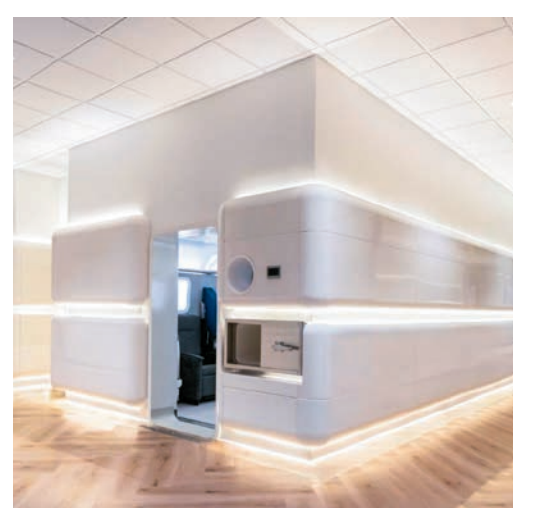
Efrati emphasized that HBOT is not yet an approved treatment for FMS. HBOT protocols can be obtained only in medically approved centers, and a qualified doctor needs to examine the patient and determine if he or she is suitable for the treatment.

One of the limitations of the study identified by the authors was the need for data on the long-term effects of HBOT treatment.

The authors also indicated that further research is needed to optimize the specific HBOT protocol for patients.

Among the HBOT group in the FMS study, 18 participants (48.6 percent) experienced side effects. Most were mild and resolved after a few days off of the treatment. Among those in the pharmacological treatment group, the most common side effects were dizziness, drowsiness/weakness, nausea, and increased pain.

FDA-approved indications for HBOT are currently limited. They include decompression sickness, non-healing wounds, and radiation injury. Yet the study said certain HBOT protocols are being used in several types of brain injuries, including TBI, post-stroke, post-traumatic stress disorder, and age-related cognitive decline.



Hyperbaric oxygen therapy has become a high-end treatment for many conditions.

## COVID-19

# Unexplored Adverse Events of COVID-19 Vaccines **PART I**

Government data from major countries details 100 deaths from COVID-19 vaccines

## SERIES INTRODUCTION

While potentially fatal blood clots and heart inflammation have been acknowledged as rare side effects of the COVID-19 vaccines, there might be a more expansive field of potential adverse events across multiple body systems, suggest safety signals from the Vaccine Adverse Event Reporting System (VAERS), research reports, doctors' observations, and the experiences of the vaccinated.

In "Unexplored Adverse Events: A COVID-19 Vaccine Series," we'll evaluate some of the lesser-known yet common adverse events that are appearing in the research literature as well as in doctors' clinics, and, more importantly, how to deal with them and reduce the risks.

## MARINA ZHANG

On March 10, the Japanese government reported its first death deemed to be directly caused by the COVID-19 vaccine.

A 42-year-old woman took her fourth dose of the Pfizer vaccine. In less than 10 minutes, she started feeling sick and experienced respiratory distress. Five minutes after, she fell unconscious. She didn't respond to resuscitation and was pronounced dead from pulmonary edema, which is caused by a sudden build-up of fluid in the lungs.

Japan isn't the first country to officially disclose deaths caused by the COVID-19 vaccines.

Since the COVID-19 vaccine rollout, 102 deaths have been officially documented by major countries, including the United States, Canada, and the United Kingdom, of which, 97 deaths were causally related to COVID-19 vaccines. Vaccine side effects have also become increasingly recognized by governments across the world.

## Suspension of COVID-19 Vaccinations

Concerns about side effects and under-researched adverse events have prompted health professionals from nations around the world to call for the COVID-19 vaccines to be suspended. Since the rollout in 2021, some countries have gradually suspended and limited the use of certain vaccines.

## ASTRAZENECA

AstraZeneca's vaccine received conditional approval in the UK in December 2020 and was soon thereafter rolled out across Europe.

Beginning in March 2021, reports of blood clots, pulmonary embolism, and subsequent deaths started to surface among Austrians vaccinated with AstraZeneca, leading Austria to pause one batch of AstraZeneca vaccines on March 7 as the country investigated these events.

On March 11, 2021, Norway, Denmark, and Iceland stated that they would suspend the vaccine entirely until they had more evidence of potential side effects. Other countries, including Romania, Ireland, Sweden, France, Germany, Italy, Spain, and many more also applied temporary suspensions to the batch.

By April 7, 2021, the European Medicines Agency safety committee had listed unusual blood clots with low blood platelets as a very rare side effect of the AstraZeneca vaccine.

After the update on side effects, Norway and Denmark stopped the vaccines permanently.

## JOHNSON & JOHNSON

J&J received emergency and conditional authorizations in the United States and Europe in February 2021 and March 2021, respectively.

Like AstraZeneca, J&J is an adenovirus vaccine, and it also

“The same people that approve these drugs are the same people who are looking at the data, so you need to have people who are completely detached from results and be willing to also find something.

Kim Witzcak, president, drug safety advocacy group Woody Matters

COVID-19 vaccines have been linked with a dizzying variety of side effects, not unlike the many symptoms of the virus itself.

causes similar side effects of thrombosis, thrombocytopenia, and Guillain-Barré syndrome.

Concerns about blood clots initially surfaced in April 2021. As a response to these reports, Denmark removed J&J from its vaccination program, although people could still choose to take the vaccine if they wished.

In the United States, J&J is restricted to individuals aged 18 and older.

## MODERNA

Several Nordic countries, including Sweden, Norway, and Finland, suspended the use of Moderna COVID-19 vaccines in young people because of concerns about myocarditis and pericarditis.

On Oct. 6, 2021, Sweden announced a suspension of the Moderna vaccine in people born in 1991 or later, although the country described the risk of being affected as "very low."

## Deaths by Non-mRNA Vaccines More Prevalent, Expert Raises Questions

Although most countries have linked deaths and taken action against the AstraZeneca or the J&J vaccines, indicating they may be less safe than the more popular mRNA vaccines, Kim Witzcak, president of drug safety advocacy group Woody Matters and consumer representative on the U.S. Food and Drug Administration (FDA) advisory committee for new therapeutics, speculated about whether political motivations were the main factor in steering vaccine popularity.

The lack of official acknowledgment from government and health agencies only adds to the narrative that mRNA vaccines may be safer than adenovirus vaccines, despite their safety being called into question.

"The U.S. had the highest uptake of mRNA injections manufactured by Pfizer and Moderna," professor Linda Wastila from the University of Maryland, whose expertise is in pharmacotherapy and drug policy, told The Epoch Times, referring to the more than 650 million doses of Pfizer and Moderna vaccines that have been administered.

Although the population-uptake trends don't show it, Wastila noted that other countries, including India, the UK, Canada, and many other European countries favored non-mRNA vaccines in their policies.

India didn't purchase any mRNA vaccines. The country was in negotiation with Pfizer, but the two parties reached a dispute over vaccine indemnity with Pfizer. Citing adverse reactions, India's Subject Expert Committee also ruled that the vaccine shouldn't be recommended for emergency use authorization with Pfizer, ultimately withdrawing its application as a result. Canada was the first country to give J&J vaccines full authorization. The AstraZeneca COVID-19 vaccines were the products of a partnership between AstraZeneca and Oxford in the UK, which hints at why they were also favored over mRNA vaccines.

In the United States, however, non-mRNA vaccines appeared to have been subject to greater scrutiny by the health regulatory agencies, as was the case with Novavax, a protein adjuvant vaccine, according to Wastila.

## Lack of Investigation

While Norway, Brazil, and many other countries have made public admissions that the deaths of mRNA-vaccinated individuals need to be investigated, there have been no such public admissions from U.S. federal health agencies.

The Epoch Times' exclusive reporting on the CDC shows that the agency didn't perform a data mining analysis on the VAERS database despite making a promise to do so back in January 2021. A CDC spokesperson told The Epoch Times that this analysis had only begun on May 25, 2022: almost a year and a half after it was promised.

Research by applied mathematician and computational biologist Jessica Rose shows that 2021 saw the greatest spike in VAERS reporting, particularly in relation to COVID-19 vaccines. This same trend can also be seen in the number of VAERS reports from 2020 through 2022.

"The same people that approve these drugs are the same people who are looking at the data, so you need to have people who are completely detached from results and be willing to also find something," Witzcak said. "But if there's no curiosity, you're never going to find it... But again, it tells you to go in and actually do a deep dive, deep study, and make sure that we're not manipulating the data."

## Signals for Other Potential Side Effects

Signals for other potential side effects may be impending.

The European Medicines Agency in August 2021 revealed that it has been investigating the link between mRNA vaccines and a rare skin disorder, as well as two kidney diseases.

In January 2023, the CDC's Vaccine Safety Datalink (VSD) detected sufficient incidents of stroke in people aged 65 and older to trigger a safety signal, finding that those who had taken bivalent boosters (which protect against two or more viral strains) were more likely to experience an ischemic stroke within 21 days than within 22 to 42 days after vaccination, although the signal may have also been related to an influenza vaccine taken in combination.

Several of the unofficial but well-documented adverse events will be successively explored over the next several articles in this series. Stories will include accounts from individuals suffering from such events, doctors clinically observing such cases, and documentation in the literature.

Next week:

*New Hampshire state Rep. Mike Belcher, a Republican, has been suffering from ocular migraines for almost two years. He took his first Pfizer COVID-19 mRNA immunization in April 2021, and things haven't been the same since.*

*Strangely, some doctors find the ocular adverse events reported on vaccines have less "textbook presentation."*



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# Deaths Causally Related to COVID-19 Vaccines

## UNITED STATES 9 Deaths

As of March 1, 2023, the U.S. Centers for Disease Control and Prevention (CDC) has received 19,475 preliminary reports of deaths through its Vaccine Adverse Event Reporting System (VAERS).

So far, nine deaths from rare blood clots have been causally associated with Johnson & Johnson (J&J) COVID-19 vaccinations.

Other vaccines haven't been officially linked with any deaths, although Pfizer and Moderna vaccinations make up the majority of adverse event and death reports on the CDC's VAERS.

But local news reports based on coroner statements have shown that at least two young men have died from myocarditis complications related to mRNA vaccines (1, 2).

Board-certified cardiologist and internist Dr. Peter McCullough argued that the deaths being officially reported only "represent the tip of the iceberg," writing to The Epoch Times that it's unclear how the regulatory agencies are making the assessment on causally-linked deaths.

## AUSTRALIA 14 Deaths

As of January 2023, the Australian drug regulatory agency, the Therapeutic Goods Administration, has linked COVID-19 vaccines to the deaths of 14 people.

Thirteen of these deaths occurred after the first dose of the AstraZeneca vaccine, while the last death was due to myocarditis from a Moderna booster.

## JAPAN 1 Death

Japan confirmed its first COVID-19 vaccine-induced death on March 10, 2023, following 2,000 reports of deaths after vaccination.

A report published by the Japanese Ministry of Health, Labor, and Welfare states that "a causal relationship" between the vaccine and the death of the 42-year-old woman "cannot be denied."

The woman died from pulmonary edema.

## INDIA 15 Deaths

As of February 2023, the Indian Ministry of Health & Family Welfare has documented 15 deaths causally linked to COVID-19 vaccinations in its Adverse Events Following Immunization (AEFI) database.

All 15 deaths were linked to the AstraZeneca vaccine, with blood clots documented as the most common adverse reaction. Deaths from brain bleeds and anaphylaxis were also documented.

More than 400 deaths in COVID-19-vaccinated individuals have been reported to the AEFI system.

**The Epoch Times' exclusive reporting on the CDC shows that the agency didn't perform a data mining analysis on the VAERS database despite making a promise to do so back in January 2021.**

## CANADA 4 Deaths

As of March 3, 2023, 427 post-vaccine deaths have been reported to the Canadian government, of which four deaths were "consistent with causal association to immunization," a statement on the Canadian government's Health Infobase website reads.

Three of the deaths were reported by CBC News in 2021 with blood clotting from AstraZeneca vaccines being the cause of death (1, 2, 3). The cause of death for the fourth deceased individual is unknown, as is the vaccine's manufacturer.

## UK 52 Deaths

The UK hasn't officially released any statements on COVID-19 vaccines. However, the UK's Office for National Statistics shows that between March 2020 and January 2023, 59 death certificates had the ICD code for "COVID-19 vaccines causing adverse effects in therapeutic use," meaning that adverse events were "involved" in the deaths of the individuals.

Among these, 51 deaths listed the same ICD code as an underlying cause, meaning that the deaths were fully or partly due to adverse events from the vaccine.

In Wales, one death was reported with vaccine-caused adverse events as an underlying causal factor. None of the vaccines involved nor the causes of death were specified.

## NEW ZEALAND 4 Deaths

The New Zealand Ministry of Health has linked four deaths to the Pfizer mRNA vaccines.

The ministry couldn't confirm if the four deaths were directly caused by vaccination, but determined that at least three out of the four deceased individuals developed myocarditis, which could be directly linked to the Pfizer vaccine.

Details on the other confirmed death haven't been fully disclosed.

## SINGAPORE 1 Death

In a Feb. 17 statement, the Singapore state coroner confirmed the city's first potentially vaccine-related death.

The deceased individual was a 28-year-old Bangladeshi man who passed away on July 9, 2021, three weeks after getting the Moderna vaccine. He collapsed at his work, and it was ruled that he died from myocarditis.

"On the balance of probabilities, it was likely to be related to COVID-19 vaccination," the statement reads.

## SOUTH AFRICA 2 Deaths

The South African Health Products Regulatory Authority (SAHPR) confirmed that J&J vaccines were causally linked to two deaths.

On Sep. 13, 2022, SAHPR confirmed the second case of death following vaccination. Both individuals died of Guillain-Barré syndrome (GBS) following vaccination.

"Causality assessment of the reported case was conducted by the National Immunization Safety Expert Committee (NISEC) using the World Health Organization's methodology," the SAHPR wrote in a statement.

"The case was classified as a vaccine product-related event following investigations conducted and causality assessment. The events reported in the vaccine recipient were consistent with the case definition of GBS and no other likely cause of GBS was identified at the time of illness."

FRANKREPORTER/GETTY IMAGES



Eating more green leafy vegetables is associated with fewer signs of Alzheimer's disease.

## AGE WELL

# Diets Linked to Younger Brains: Study

Elderly people who eat Mediterranean, MIND diets have significantly fewer indicators of Alzheimer's

## BILL PAN

People who followed either the Mediterranean or Mediterranean-inspired MIND diets were found to have fewer signs of Alzheimer's disease in their brains at autopsy, according to a new study of nearly 600 elderly adults.

The Mediterranean diet is made up of unprocessed cereals, legumes, fruits, vegetables, olive oil, and smaller portions of fish, dairy products and meat. The MIND diet is based off of the Mediterranean diet and combines it with the DASH diet to specifically nurture brain health.

MIND stands for "Mediterranean-DASH intervention for neurodegenerative delay." The DASH diet (dietary approaches to stop hypertension) is very similar to the Mediterranean diet but has more specific recommendations and is less plant-based.

In the observational study, a team of scientists at Rush University in Chicago monitored the diets of 581 older adults until their deaths. The participants had an average age of 84 at the time of enrollment, with a great majority (73 percent) of them being women.

The participants agreed to have their brains studied at Rush's neurological research center after death. When examining those brains, the scientists specifically looked for two hallmarks of Alzheimer's disease: amyloid plaques, which are buildups of protein fragments that can disrupt the communication between nerve cells; and tau tangles, which occur when a protein called tau becomes abnormally shaped and can no longer do its job to transport nutrients and other essential substances in nerve cells.

The study found an association between following the Mediterranean or MIND diet and having fewer of these indicators of Alzheimer's disease.

This association stands even after adjusting for factors such as physical activity, smoking, and vascular disease and excluding those who had mild cognitive impairment or dementia at the time they enrolled, the scientists noted.

For the study, participants received higher scores if they adhered to the Mediterranean diet by eating whole grain cereals, fruits, vegetables, legumes, olive oil, fish, and potatoes. They were given lower scores if they ate red meat, poultry,

and full-fat dairy products.

Participants were given higher scores if they ate brain-focused MIND foods such as leafy green vegetables, other vegetables, nuts, berries, beans, whole grains, fish, poultry, olive oil, and wine. They lost points for eating foods deemed unhealthy, such as red meats, butter and margarine, cheese, pastries and sweets, and fried and fast food.

"People who scored highest for adhering to the Mediterranean diet had average plaque and tangle amounts in their brains similar to being 18 years younger than people who scored lowest," the American Academy of Neurology stated. "People who scored highest for adhering to the MIND diet had average plaque and tangle amounts similar to being 12 years younger than those who scored lowest."

On top of that, the brain tissue of people who ate seven or more servings of leafy green vegetables per week looked nearly 19 years younger in terms of plaque buildup than that of people who ate a serving or less per week.

## The MIND diet is based off of the Mediterranean diet and combines it with the DASH diet to specifically nurture brain health.

The study was published on March 8 in Neurology, the flagship journal of the American Academy of Neurology.

"These results are exciting—improvement in people's diets in just one area—such as eating more than six servings of green leafy vegetables per week, or not eating fried foods—was associated with fewer amyloid plaques in the brain similar to being about four years younger," said Dr. Puja Agarwal, a nutritional epidemiologist at Rush and the study's lead author.

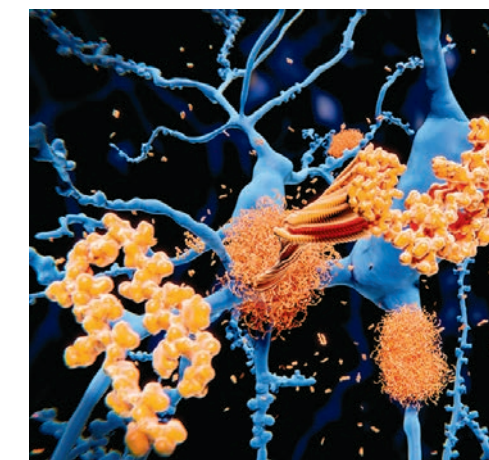
"Our finding that eating more green leafy vegetables is in itself associated with fewer signs of Alzheimer's disease in the brain is intriguing enough for people to consider adding more of these vegetables to their diet."

The researchers noted that the findings don't prove that following a healthy diet such as Mediterranean or MIND results in fewer Alzheimer's disease plaques and tangles in the brain. They acknowledged that further investigation is needed to better understand the potential mechanisms through which diet may protect the brain.

Alzheimer's disease is a progressive brain disorder that slowly destroys memory and thinking skills. According to the National Institutes of Health, there are about 5.8 million people in the United States living with Alzheimer's and related dementia.

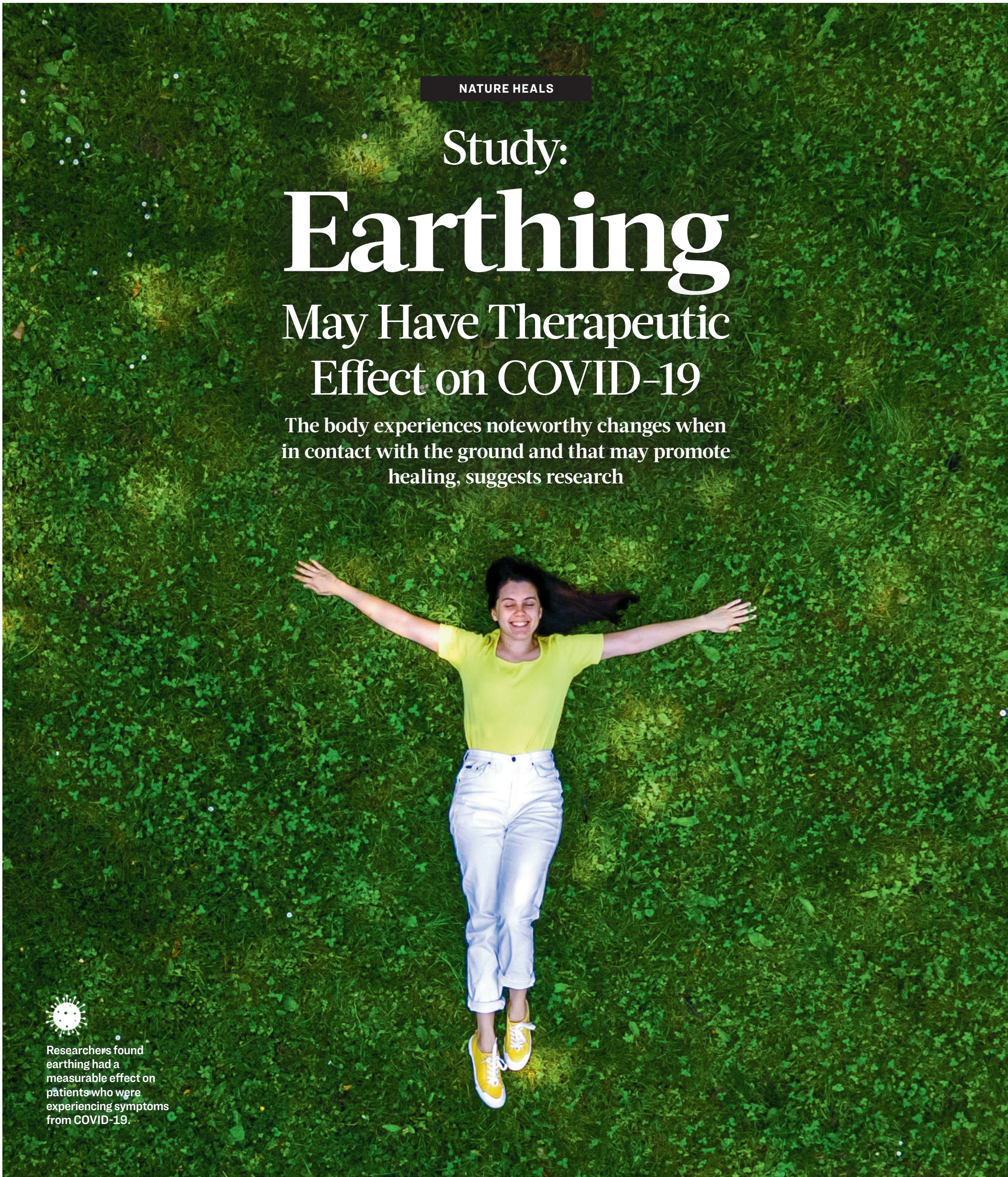


The Mediterranean diet is primarily made up of unprocessed cereals, legumes, fruits, vegetables, olive oil and smaller portions of fish.



People who ate the MIND diet had younger brains with significantly less average plaque and tangle amounts.

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NATURE HEALS

# Study: Earthing May Have Therapeutic Effect on COVID-19

The body experiences noteworthy changes when in contact with the ground and that may promote healing, suggests research



Researchers found earthing had a measurable effect on patients who were experiencing symptoms from COVID-19.

## FOOD AS MEDICINE

# 10 Evidence-Based Health Benefits of Beets

The deep color of these delicious roots indicates their potent medicinal effects

## LESLEE DRU BROWNING

Beetroots, or beets, are considered a superfood by many because of their high levels of health-promoting antioxidants and phytochemicals. This ruby-colored delight gets its pigment from betacyanins, powerful antioxidants known to reduce inflammation and protect against oxidative stress.

Beets also contain anthocyanins, antioxidants found only in red, purple, and blue fruits and vegetables. These flavonoids are known to protect against many health issues such as hypertension, heart disease, cancer, and neurodegenerative diseases. Traditional Chinese medicine has long prescribed beets for cardiovascular issues and to nourish the blood.

Beets are naturally high in nitrates, which are converted into nitric oxide in the body. Nitric oxide is a molecule

that helps our cells communicate with each other. The leading site of the molecule's communication is the inner layer of blood vessels, the endothelium. Nitric oxide causes the walls of blood vessels to dilate, or widen, increasing blood flow through the vessels and decreasing blood pressure.

Both the powder and the juice of beetroot are packed with nutritional and medicinal benefits. Beetroot is also available in capsule form because of its health benefits at high nitrate concentrations.

Research shows that beets have the potential to significantly improve our health in many ways. Here are 10 evidence-based benefits of beetroot worth considering.

### 1. Lowers High Blood Pressure

Drinking a cup of beetroot juice every day could significantly lower high blood pressure, according to research from Queen Mary University of London. Study participants

with hypertension who drank 250 milliliters (1 cup) of beetroot juice daily saw their blood pressure levels drop into the "normal" range by the end of the study.

According to the book "Healing Foods" by DK Publishing, fresh beetroot juice can lower blood pressure within an hour. A beetroot supplement can take up to six hours to have the same effect. Simply tossing beetroot powder into a healthy salad will enhance health benefits, especially when combined with carrots.

### 2. Increases Physical Stamina

Supplementation with beetroot powder or juice has been shown to benefit athletic performance and increase physical stamina. A study published in the journal *Nutrients* indicated that supplementation with beetroot juice may improve athletic performance by improving cardiovascular and cardiorespiratory endurance. An increase in nitric oxide levels was shown

to improve blood flow, mitochondrial biogenesis and efficiency, gas exchange, and muscle contraction.

A 2019 study published in the *International Journal of Sport Nutrition and Exercise Metabolism* found that the consumption of beet juice can enhance endurance and sprint exercise performance.

Another great benefit of beetroot is that it can increase muscle production, making muscles appear more

defined and more prominent because of increased blood flow.

### 3. May Help Control Blood Sugar and Weight

Beetroot powder may help people maintain a healthy weight by supporting healthy blood sugar levels. When blood sugar is stable, it's easier to control weight.

Oxidative stress and inflammation can also lead to obesity. A study demonstrating the antioxidant and anti-inflammatory effects of beetroot noted that it could be "an important adjunct in the treatment of obesity."

### 4. Improves Brain Function

Beetroot powder and beet juice may help fight the progression of dementia by increasing blood flow and promoting proper circulation, according to research by Wake Forest University. A steady flow of oxygen-rich blood to the brain is critical for its health.

In addition to increasing blood flow to the brain, beetroot powder was shown to improve cognition and brain function.

### 5. Prevents Cancer

Beets are highly nutritious and rich in potent antioxidants, and researchers have linked the anthocyanins found in beets to the prevention of cancer.

Beetroot shows promise for treating clinical pathologies associated with oxidative stress and inflammation. It's been shown in research to be a potent antioxidant with anti-inflammatory, anti-tumor,



Drinking beetroot juice can have a quick and measurable effect in lowering blood pressure.

## CHINYI LI

Just as electricity can dissipate when it reaches the ground, something in the human body also changes when it comes in direct physical contact with the earth. Given that the human body relies on electrical signals for communication between cells, the brain, nerves, muscles, and more, it makes sense that contact with the grounding effect of the planet could have a biochemical effect.

The term "earthing" refers to making direct contact between the human body and the ground, allowing the body to interact with the Earth's energy. According to the book "Earthing: The Most Important Health Discovery Ever!" by authors Clinton Ober, Dr. Stephen T. Sinatra, and Martin Zucker, scientists have discovered numerous health benefits associated with earthing, including anti-inflammatory effects, pain relief, improved sleep, blood purification, and enhanced skin appearance. It can also help reduce stress, regulate circadian rhythms, and even improve various chronic illnesses.

Recently, an observational study suggested for the first time that earthing has a preventive and therapeutic effect on COVID-19. In this study, most of the COVID-19 patients who participated and were earthed for one to three days experienced significant improvements in their symptoms, with many patients recovering from fever and breathing difficulties.

## Modern humans have become increasingly disconnected from the Earth since the invention of rubber-soled shoes.

### Earthing Improved Symptoms in Most Patients Without Complications

Haider Abdul-Lateef Mousa, a researcher at the University of Basrah College of Medicine in Iraq, recruited 71 COVID-19 patients who had tested positive by PCR. The patients were instructed to perform earthing at home for 15 minutes to six hours a day, either by walking barefoot on non-insulated ground or by using earthing accessories to connect their bodies with the Earth.

Of the 71 participants, 24 were severely ill, 33 were moderately ill, and 14 were mildly ill. Their symptoms included fever, cough, breathing difficulties, loss of taste and smell, loss of appetite, sore throat, chest pain, headache, body aches, and fatigue.

All patients with mild and moderate symptoms showed significant improvement after one to three days of earthing. For example, a 67-year-old patient with diabetes and moderate symptoms had been experiencing fever, body aches, loss of appetite, and loss of taste and smell during the third week of infection. After performing earthing for two hours per day, he no longer had a fever the next day, and his appetite, taste, and smell returned.

Of the 24 patients with severe symptoms, 22 showed improvement in their symptoms without any complications after performing earthing. Three patients were excluded or lost to follow-up, and one 58-year-old with a prior coronary artery bypass grafting died of multi-organ failure after only starting earthing on his 12th day of illness. One 68-year-old patient with hypertension and diabetes died of an ischemic stroke. Mousa stated that the patient performed earthing only twice, for 15 minutes each time and with a day in between.

### Severely Hypoxic Patient Recovers After 3 Days of Earthing

The most surprising case was a 56-year-old critically ill patient who was hospitalized because of respiratory distress, fever, cough, and hypoxemia (oxygen saturation of 74 percent). Despite receiving various treatments in the hospital, such as antiviral medications, steroids, antibiotics, and plasma antibodies, and using an oxygen machine for a week, he showed no improvement. He chose to discharge himself and return home.

After being discharged from the hospital, he continued taking prescription medications and using an oxygen machine. About a week later, his condition worsened to the point that he could no longer speak. When connected to the oxygen machine, his blood oxygen level was found to be only 38 percent. A computed tomography scan showed that his lung lesions had exceeded 70 percent.

As the patient was unable to get out of bed or sit up, his son followed Mousa's instructions and used earthing accessories on the patient for three hours a day. After two earthing sessions, the patient's blood oxygen level increased to 95 percent the next day, and even without the use of an oxygen machine, his blood oxygen level remained at 77 percent.

After three days of earthing, the patient made a complete recovery and experienced only fatigue and weakness the following week.

### Why Does Earthing Offer Such Powerful Healing Benefits?

The truth is, earthing is a natural state of human existence, according to the authors of "Earthing: The Most Important Health Discovery Ever!" For thousands of years, humans have been constantly connected to the Earth, whether they are active,

resting, or sleeping. In the past, humans used clothing, shoes, blankets, beds, and chairs made from natural materials such as animal fur or plants, which are all semi-conductive substances. This allows the human body to be constantly connected to the Earth.

However, modern humans have become increasingly disconnected from the Earth since the invention of rubber-soled shoes. With the widespread use of synthetic materials, clothing and furniture have become insulators, further exacerbating the disconnection between the human body and the Earth. Experts speculate that this disconnection contributes to various ailments afflicting modern humans.

In his book "The Complete Handbook of Nature Cure," H. K. Bakhru, a renowned natural therapy expert from India, mentioned an ancient earthing practice that was once common among Native Americans. According to Bakhru, these indigenous peoples firmly believed in the healing power of the Earth. They would bury sick individuals in the soil, leaving only the head exposed, and soak them in this "mud bath" for several hours. They

believed that this method could cure a wide range of ailments.

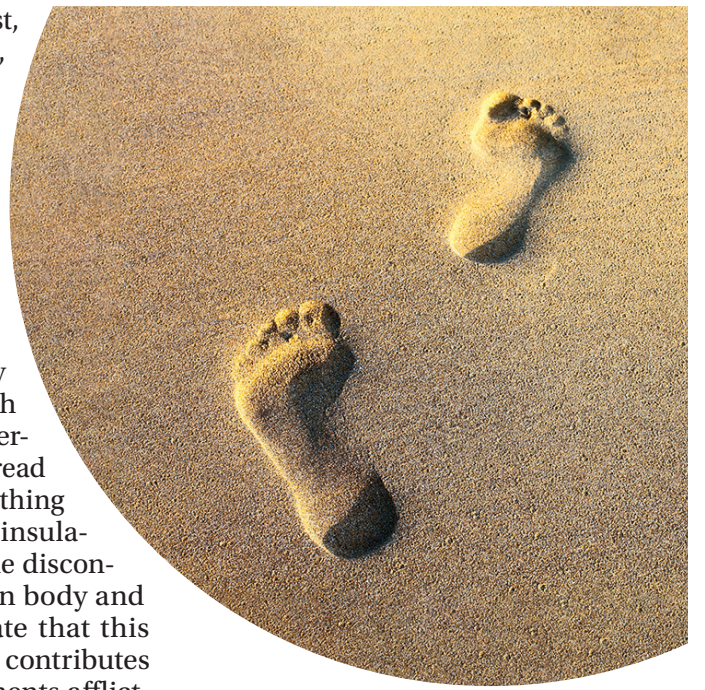
In recent decades, there has been increasing scientific evidence confirming the health benefits of earthing. Studies have found that earthing can significantly enhance the body's anti-inflammatory and antioxidant abilities, improve circulation, and promote physiological functions.

Experts believe that the mechanism behind earthing may be related to the "free electrons" on the surface of the Earth. When the human body is in contact with the Earth, it can absorb these electrons from the ground and store them within the body as "electrical nutrients" that can be used when needed.

When the body is inflamed, these electron troops will be mobilized to neutralize excess free radicals in the body, reducing inflammation and oxidation.

According to Mousa's study, other studies have shown that earthing can prevent blood clotting, stabilize blood oxygen levels, and boost immunity (by increasing gamma globulin). Mousa pointed out that these effects could be significant for both the prevention and treatment of COVID-19.

Mousa stated that earthing can alleviate COVID-19 complications, such as hypox-



Earthing has been used since ancient times as a method of healing by reestablishing the connection between the human body and Mother Nature.

emia, coagulopathy, inflammation, and immunodeficiency, without any adverse effects. Additionally, earthing may also have a preventive and therapeutic effect on types of influenza and even other viral mutations. He recommended to perform earthing for at least 40 minutes per day to prevent or treat COVID-19.

### Earthing Is Simple

Earthing might be the simplest health and wellness practice. It doesn't require any money, effort, or time, as you can perform it while doing other things.

There are two ways to perform earthing:

**1. Direct earthing:** You can perform earthing by walking barefoot on sand, grass, soil, cement, and red bricks, or by touching these surfaces with any part of **your body, including** your head, hands, and legs. Moist surfaces work best. Touching the leaves and stems of plants with your hands can also provide the benefits of earthing.

**2. Indirect earthing:** You can use earthing accessories such as earthing sheets, mats, mattresses, and pillowcases that are specially designed for earthing. **These accessories can be** connected to the ground through an earthing cord. They are very convenient, as you can easily perform earthing while standing, sitting, or lying down. You can also purchase shoes that are designed for earthing. Your home electrical system includes a grounding wire that eventually connects to a rod planted deep in the ground.

The authors of "Earthing: The Most Important Health Discovery Ever!" claim that the benefits of earthing are associated with the duration of earthing. People with chronic inflammatory diseases require even longer periods of earthing. The authors recommend performing earthing every day to maintain good health, both during the day and at night.

anti-mutagenic, and chemo-preventive benefits, all factors in cancer treatment and prevention.

### 6. Improves Digestion

Beetroot is high in fiber and promotes the growth of healthy bacteria in the gut. Having enough beneficial bacteria in the digestive system can help fight disease and boost the immune system.

Fiber also improves digestion and reduces the risk of constipation. A single cup of beetroot provides 3.8 grams of fiber to help move stools along the digestive tract.

## Traditional Chinese medicine has long prescribed beets for cardiovascular issues and to nourish the blood.

### 7. Reduces Inflammation

Chronic inflammation increases the risk of developing many diseases. Beetroots contain powerful anti-inflammatory compounds called betalains, which have been shown to inhibit specific pathways that play a significant role in inflammatory diseases. Incorporating them into your diet is a great way to reduce inflammation and reduce the risk of disease.

The journal *Nutrients* reported that vari-

ous studies show that beetroot can even have effects similar to those of some non-steroidal anti-inflammatory medications.

### 8. Boosts Immunity

Eating more beets may boost immune function and prevent chronic disease.

Beetroot powder is packed with vitamins and minerals, including manganese, magnesium, iron, and folate. It also contains a high concentration of vitamin C, an antioxidant that can boost the immune system and help prevent cold and flu.

### 9. Detoxifies and Boosts Liver Function

When the liver is overburdened or sluggish, the entire body can suffer. A healthy functioning liver can increase energy levels and boost overall health.

Beetroot powder is a natural detoxifier that can boost liver function. It has been shown to increase circulation, remove waste from the cells, and deliver oxygenated blood to the cells. Beetroot affects the liver by reducing inflammation and oxidative stress. Chinese medicine has used beetroot to cleanse the liver for centuries.

### 10. May Increase Longevity

Beets hold tremendous potential to increase longevity because of the many proven benefits of their high nitric oxide and antioxidant content.

In a 2019 study published in the journal *Nutrition*, increased nitric oxide pro-

duction from nitrate-rich beetroot juice supplementation was shown to improve cardiovascular and cognitive function, both important factors for healthy aging and longevity.

Centenarians have been known to include beetroot tops (beet greens) in their diet.

Beetroot has many positive health benefits that can help people live longer and healthier lives.

### Precautions

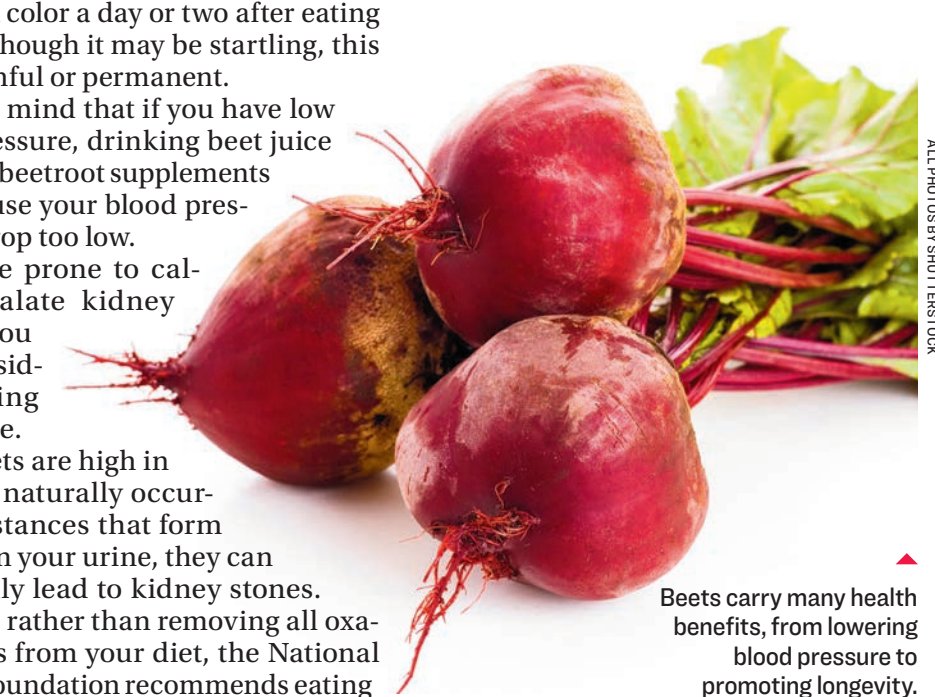
The dark red pigments in beets can turn urine red or pink in about 10 to 14 percent of people. They can also turn stool a dark red-black color a day or two after eating them. Although it may be startling, this isn't harmful or permanent.

Keep in mind that if you have low blood pressure, drinking beet juice or taking beetroot supplements could cause your blood pressure to drop too low.

If you're prone to calcium oxalate kidney stones, you may consider avoiding beet juice. Since beets are high in oxalates, naturally occurring substances that form crystals in your urine, they can potentially lead to kidney stones. However, rather than removing all oxalate foods from your diet, the National Kidney Foundation recommends eating

calcium and oxalate-rich foods together, which will "help oxalate and calcium 'bind' to one another in the stomach and intestines before reaching the kidneys, making it less likely for kidney stones to form in the urine."

*Leslee Dru Browning is a columnist for The Epoch Times. She is a 6th generation medical herbalist and nutritionist from the ancestral line of pioneer midwife and herbalist Patty Bartlett Sessions. She practiced medical herbalism and nutritional healing for over 25 years and specialized in cancer wellness along with chronic illness.*

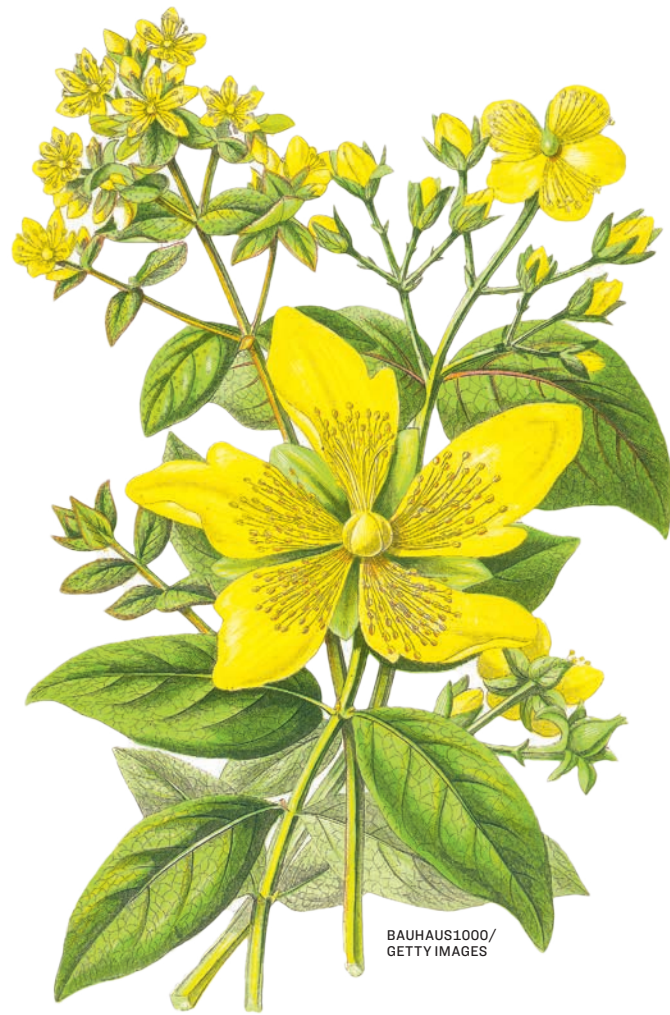


Beets carry many health benefits, from lowering blood pressure to promoting longevity.

## HERBAL MEDICINE

# St. John's Wort: A Nonaddictive Wonder Drug'

Among other uses, this mythologized herb can work as an antidepressant—but with fewer side effects



## LESLEE DRU BROWNING

St. John's wort begins to bloom around St. John the Baptist's birthday, June 24—hence its name—and continues until August. There is a myth that St. John's wort sprouted at the site of the beheading of John the Baptist. It was believed that the plant's healing and protective properties were so profound that the devil perforated its leaves to hinder its power.

## A Brief History of St. John's Wort

St. John's wort's scientific name is *Hypericum perforatum*, which refers to the plant's use by the ancient Greeks, who hung the herb over depictions of gods to ward off evil spirits.

There are more than 400 species in the *Hypericum* family. It's the *Hypericum perforatum* subspecies that qualifies as a medicinal plant.

Found in Western Asia, Europe, and North America, St. John's wort has been used as an herb for hundreds of years.

## A Natural Antidepressant to Heal Both Mind and Body

According to the 8th-century "Lorscher Arzneibuch," the oldest preserved book on monastic medicine, St. John's wort can alleviate melancholy.

Later, herbalists and physicians found that it could also help with depression.

St. John's wort functions like a wonder herb, healing many symptoms of depression but intervening gently, as opposed to antidepressants. Antidepressants remain some of the most controversial pharmaceuticals.

German neurologist and psychiatrist Karl Kleist, who conducted research between the 1930s and 1950s, found that depression symptoms go beyond disorders of brain metabolism. The disease affects the entire person, both physically and psychologically. It's thought that St. John's wort can help with depression by healing its psychological side.

A 2008 review of 29 international studies suggested that St. John's wort may be as effective as different standard-prescription antidepressants for mild to moderate depression. Unlike antidepressants, which often require trial and error to find the right one and dosage, St. John's wort has a more accessible and generalized healing effect.

Many studies have suggested that St. John's wort increases activity among neurotransmitters. Furthermore, serotonin, dopamine, norepinephrine, and melatonin messenger substances appear to be regulated by the herb, and monoamine oxidase is inhibited.

Consequently, taking the plant may increase feelings of happiness, energy, and

resilience in day-to-day life. It may also aid sleep.

Moreover, St. John's wort seems to help alleviate physical exhaustion from burnout and stress.

It's used for various types of depression, including depression associated with menopause, aging, and puberty, as well as postpartum depression.

## Safe, Not Addictive, but a Bit Slow

Like many old-world treatments, St. John's wort has a track record of efficacy throughout its hundreds of years of use, showing that it poses few risks.

The aforementioned 2008 review found that St. John's wort has fewer side effects than antidepressants. This can likely be attributed to its being free of manmade chemicals that can often trigger reactions.

It also isn't addictive and can be used long-term without causing chemical dependency.

## St. John's wort can alleviate melancholy, which is a feeling of sadness, despair, or gloom.

However, natural healing requires patience, just like other forms of "slow medicine."

Individual symptoms begin to improve with some patience, depending on the dosage and the severity of the symptoms. A positive effect may appear as soon as a few days but often takes about two to four weeks.

## A 'Universal Medicine'

Hildegard von Bingen, a 12th-century abbess, expressed concern about St. John's wort's cultivation standards and viewed it as unfit for human consumption, but the famous 16th-century Swiss physician Paracelsus considered St. John's wort to be a universal medicine.

It helped not only with depression and other mental health issues but also with other bodily functions.

## Improves Immunity

St. John's wort enhances the skin's photosensitivity. Sunlight enables the body to produce vitamin D, which supports the immune system and many other biochemical processes. Sunlight also induces metastatic melanoma cell death.

## Helps Heal Wounds

St. John's wort helps wounds to heal more quickly and cleanly. Midwives used to use

St. John's wort oil if a woman's perineum ruptured during childbirth. St. John's wort has also been used to heal burns.

Traditionally used in German medicine, St. John's wort oil has antimicrobial and anti-inflammatory effects, which also help with wound healing.

The yellow flowers yield a deep red oil; the color comes from hypericin, a red pigment believed to be one of the active components, along with hyperforin.

Hyperforin can inhibit cancer invasion and metastasis. When combined with sunlight, it can inhibit certain viruses and other pathogens.

## Soothes Chronic Pain

This plant is also claimed to ease the pain of various conditions, including sciatica, rheumatism, arthritis, gout, and menstruation, as well as lumbago, strains, and contortions in the lower back. It may also ease the itching and burning of hemorrhoids and vaginitis.

St. John's wort oil is also used to treat myalgia (muscle pain, inflammation, and soreness after treatment), soothes and moisturizes skin, and relieves skin irritation.

It can also help with:

- Balancing blood sugar
- Nervous tension and nerve pain (neuralgia)
- Bladder infections
- Contracting (astringent) slowing bleeding (hemostatic)
- Stomach discomfort, including diarrhea and flatulence

## How to Find or Grow St. John's Wort

*Hypericum* has deep roots, a two-edged stem, and five-petaled yellow flowers, which have yellow stamens, black spots, and violet longitudinal stripes.

A variety of habitats support the plant, including roadsides, embankments, forest margins, and dry grasslands.

It's easy to cultivate; gardeners and pot gardeners have been able to grow the plant in barren conditions.

## Cautions

St. John's wort can interact with medications and weaken their effects, so be sure to check with an herbalist or physician before taking it.

*Leslee Dru Browning is a columnist for The Epoch Times. She is a 6th generation medical herbalist and nutritionist from the ancestral line of pioneer midwife and herbalist Patty Bartlett Sessions. She practiced medical herbalism and nutritional healing for over 25 years and specialized in cancer wellness along with chronic illness.*

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## How to Use St. John's Wort

There are many ways to use St. John's wort oils, extracts, tinctures, and teas to address minor symptoms of psychological and psychosomatic problems.



**Oil**  
Red oil is produced when the flowers and leaves are pressed.



**Topical Ointment**  
To create a topical ointment, combine the herb with Vaseline, cocoa butter, or beeswax. For topical application, compresses (with water) can also be used.



**Tinctures**  
To make tinctures with St. John's wort, mix 1/4 jar of the dried herb with 80 to 90 proof alcohol poured up to the top of the jar. Place a lid on the jar. Store the tincture in a tightly sealed glass container in a dark place for about six weeks. Consider diluting the solution for use in compresses. Apple vinegar works as an alternative to alcohol. To take the tincture, add

about 10 drops to a glass of water.

The dosages vary in different clinical trials, mostly ranging from 300 milligrams a day to 1,800 milligrams a day. According to Web MD, the most common dose used in "studies has been 300 milligrams three times a day as a standardized extract."

The skin's sensitivity to UV light increases with higher daily doses, so avoid excessive sun exposure while taking it.



Eating healthy foods you enjoy is one of the easiest ways to stay well and energize your life.

## INTENTIONAL LIVING

# My 10 Favorite Life Hacks

These are some of my easiest and most effective tips for living a happier and healthier life

## MIKE DONGHIA

While some people have grown jaded by the use of the word "life hack" in internet culture, I've always seen life hacks as a modern adaptation of a time-honored practice. They serve a similar role to that of the tips and tricks that used to be shared in almanacs such as Poor Richard's Almanac, published nearly 300 years ago by Benjamin Franklin.

Life hacks are nothing more than tips, strategies, and heuristics that we've picked up along the way to help us navigate the world a little more easily. A life hack can make a task feel more manageable or amplify our efforts to produce better results.

The word "hack" implies a creative solution to a problem, or a quick-and-dirty way of accomplishing a job. A life hack doesn't pretend to be a universal solution to a universal problem, just a successful improvement to a particular challenge.

But that's what makes them so approachable. Because life hacks don't pretend to be absolute advice, you're free to pick and choose which ones you want to try, without guilt. You can modify them to better fit your needs and see what happens.

In that spirit of experimentation and lifelong learning, I'd like to share a few of my own personal life hacks. They might work for you, and they might not, but I hope they inspire you to keep seeking to improve yourself in small ways.

## My Favorite Life Hacks

**Have a weekly marriage meeting.** This practice forces my wife and me to slow down at least once a week for very intentional conversation. We praise each other very specifically, plan for fun times together, and talk through any challenges or opportunities we're facing. A weekly meeting ensures we're staying on top of the small things that can really make a difference.

**Do your most important task first.** This is common advice, but it seems I was always making exceptions, especially for tasks that felt urgent. When I made it an ironclad rule to do the most important thing first, I found I had more motivation for the rest of my work, and I was surprised at how quickly my progress began accelerating.

**Replace all exercise with a long daily walk.** Almost every day I go for a long, brisk walk through our town. Because I love walking, I always look forward to it and rarely miss a day. Plus, this gives me an hour a day to think, pray, and occasionally talk on the phone with family.



KATHRIN ZIEGLER/GETTY IMAGES

If you're reading to learn, feel free to skim, skip boring parts, or only read the chapters that have the most value for you.

**This isn't rocket science, but I think people underestimate how powerful the benefits of healthy eating can be over the long term.**



The occasional melatonin tablet before bed can help some people sleep better.

VECTOR TRADITION/SHUTTERSTOCK

higher-leverage tip I can offer than to find a like-minded friend to join you.

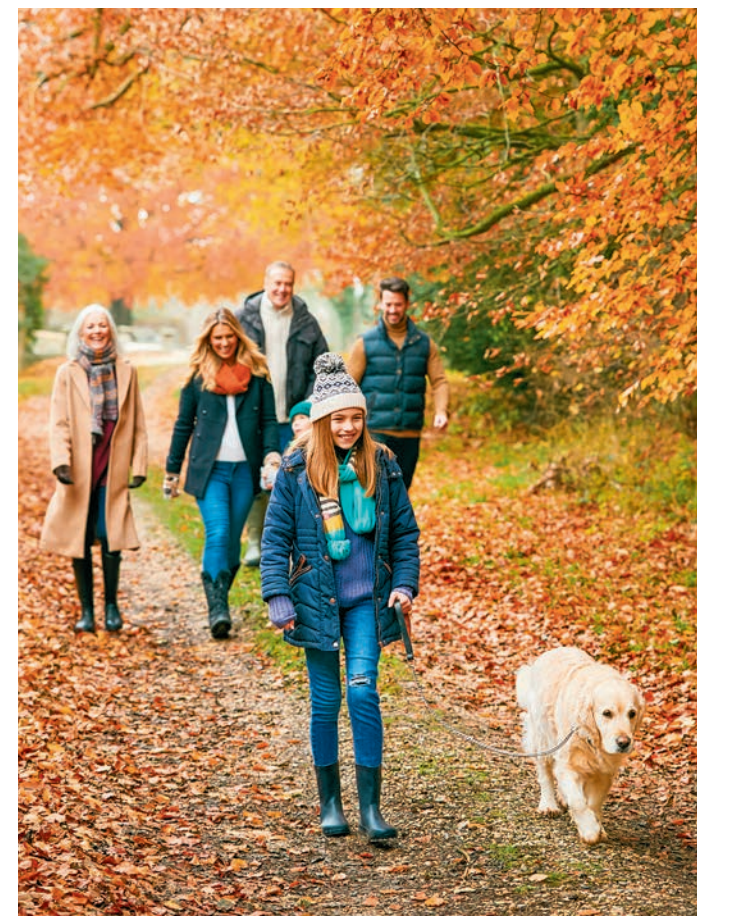
**Learn to ask good questions.** If I could have any superpower, it would be the ability to always ask the perfect question. As it is, I have gained so much in life by asking lots of questions and following my curiosity in this way. Thinking of good questions to ask has brought me closer to friends and opened me to a world of knowledge that I would have otherwise missed out on. It's a skill that anyone can improve with practice.

**Take a small dose of melatonin before bed.** This advice is very specific to me, but it's been such a powerful change that I have to share it. For the longest time, I had trouble falling asleep at night as I waited for my mind to slow down. Taking a small dose of melatonin about an hour before bed has been a game-changer and is considered generally safe for short-term use. It easily results in an extra 30 to 60 minutes of sleep a night for me. Talk to your doctor to see if melatonin makes sense for you.

**Keep things simple.** For whatever reason, we humans have a tendency to overcomplicate things. Of course, this is easier for me to spot in other people than in myself, but I'm constantly seeing examples of unnecessary complexity. My practice is to ask two questions: "What is the simplest way to get started?" and "What can I remove without making things worse?"

*Mike (and his wife, Mollie) blog at This Evergreen Home where they share their experience with living simply, intentionally, and relationally in this modern world. You can follow along by subscribing to their twice-weekly newsletter.*

MONKEY BUSINESS IMAGES/SHUTTERSTOCK



All forms of exercise can be helpful, but there is nothing easier and more essential than a long walk outside.

TRUTH and TRADITION

In Our Own Words

# Communism Versus Freedom

Dear Epoch VIP,

When writing to you in 2019, I warned that the incredible force of the government that was used against then-President Donald Trump as part of the Russia investigation could next be used against ordinary citizens like you and me.

Less than a year after my letter, the Department of Justice and the FBI began the first in a series of hundreds of arrests and prosecutions of everyday Americans for their role in the January 6 protests. The FBI has since carried out an unprecedented raid of the president's personal residence at Mar-a-Lago and, on March 30, the Manhattan district attorney obtained the first indictment against a former president in the history of our nation.

These were the kind of events I feared would transpire if the government failed to rectify the malfeasance that The Epoch Times uncovered as part of our investigation into the roots of the Russia probe.

While the outlook may appear dim on some fronts, diligent efforts by government officials, journalists, and citizens elsewhere are helping the light of truth shine through the veil of secrecy and bureaucracy. Over the past two years, our reporters' diligent work uncovered alarming problems with the approval of COVID vaccines, exposed collusion between Big Tech giants and the government to censor dissenting views, and revealed the real story behind January 6.

You choose to read The Epoch Times out of a myriad of news sources during a crucial period for our nation and the world. Your choice inspires me to work harder every day to honor the trust you have vested in our reporting.

While partisanship and division have dominated the media's headlines, our newspaper's independence has allowed our reporters to tell stories other media won't.

Beneath the tumult and confusion, the forces of good and evil are vying to decide America's future. In my opinion, three words are enough to sum up what's going on—communism versus freedom.

I am a legal immigrant who became a proud naturalized citizen of the United States, the greatest nation in the world. My ancestors in Russia were Cossacks and hardworking farmers, making them targets for communist persecution twice over.

The Communists in Russia had feared the Cossacks' fiercely independent nature and directed a campaign to eliminate this ethnic group. As a result, my great-grandparents were forced out of their home, packed onto a horse cart and told to start their lives over in a barren field hundreds of miles from their homeland.

They built a mud hut and worked hard to survive and then thrive. Decades later, my grandfather, who spent his life on crutches due to a childhood injury, built on what his parents had achieved. His greenhouses and exotic livestock—pheasants and coypu—were the pride of the village.

That was unacceptable for the communists, who wrecked and ransacked what he had spent years cultivating—"for the greater good."

In the United States, communists and their witting and unwitting conspirators have engaged in a long march to control the nation's vital institutions: schools, universities, the media, and the government departments at the local, state, and federal levels.

For decades, this long march on the institutions went unnoticed, giving the specter of communism an upper hand. Now, people are waking up to its agenda. The Epoch Times is helping arm those who need the truth at this pivotal moment, while waking up Americans and people the world over.

I am grateful that you're joining us on this journey.

In Truth and Tradition,

Ivan Pentchoukov  
The Epoch Times



Ivan Pentchoukov  
National Editor



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## A Life-Changing Bestseller



Zhuan Falun expounds on the profound principles of Truthfulness, Compassion, and Tolerance. It focuses on a long-forgotten term called "cultivation" and the importance of moral character on one's path to spiritual perfection.

The book is the main text of the spiritual practice Falun Dafa. It was a national bestseller in China in the 1990s, and has since been translated into more than 40 languages. Find out why it has captured the hearts and minds of tens of millions of people in more than 100 countries worldwide.

What made Falun Gong stand out from other qigong exercises and meditation practices was a moral system—compassion, truthfulness, and forbearance—unmistakably Buddhist in origin.

Arthur Waldron  
LAUDER PROFESSOR, UNIVERSITY OF PENNSYLVANIA

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THE EPOCH TIMES

NEW TREATMENTS

# Silver Nanoparticles Can Supercharge Antibiotics: Study

Scientists confirm that silver nanoparticles can help antibiotics combat multi-drug resistant bacteria and dramatically reduce dosing requirements

SHARLEEN LUCAS

Antimicrobial-resistant infections are a leading cause of global death, killing nearly 1.3 million people yearly and outpacing malaria and HIV, according to a 2022 study published in The Lancet. In January, a study published in Frontiers in Microbiology confirmed mounting evidence that adding silver nanoparticles to certain antibiotics boosts their ability to kill resistant bacteria.

Knowledge of silver's antimicrobial value has been around since ancient times. However, silver nanoparticles (AgNP), with their tiny spheres interacting at the cellular level, signify a new frontier in fighting bacteria, gaining more attention over the past two decades.

This new study adds to mounting evidence that adding AgNPs to antibiotics could make them better at disabling drug-resistant bacteria and reduce the worldwide burden of antimicrobial resistance.

### What Are Silver Nanoparticles?

Silver nanoparticles are small spheres between 1 and 100 nanometers in diameter. Because these particles are so small, they have a much larger total surface area than a similar amount of silver made up of larger particles. The large surface area increases their ability to interact with cells and molecules.

Science is still uncovering how silver fights bacteria, but current research shows that it likely targets several structures to weaken and overcome microbes, including their membranes, DNA, and ribosomes. Antibiotics, on the other hand, usually offer only one way of destroying bacteria. The multi-faceted approach of AgNPs seems to support antibiotics' targeted line of attack while also bringing new weapons to the fight.

Continued on Page 14

Silver nanoparticles, with their tiny spheres interacting at the cellular level, signify a new frontier in fighting bacteria.

Research suggests silver can undermine a pathogenic microbe's membrane, DNA, and ribosomes.



According to the report, basil, oregano, and thyme tested the highest for heavy metals across all brands.

TOXINS

## Beware of Toxic Spices

Heavy metals have been found in several major brands of spices

CHRISTY PRAIS

Four lawsuits have been filed over the past two years over significant levels of toxic heavy metals in big brand names of herbs and spices. An analysis by Consumer Reports (CR) in 2021 detailed the problem, but big box stores continue to carry the listed brands, and the U.S. Food and Drug Administration (FDA) hasn't

yet set limits for heavy metal levels in dry herbs and spices.

The CR report, titled "Your Herbs and Spices Might Contain Arsenic, Cadmium, and Lead," details an analysis of 126 individual products from national and private-label brands, such as Great Value (Walmart), La Flor Spices, McCormick & Co., Penzeys Spices, Spice Islands, and 365 by Whole Foods Market. The analysis found that roughly one-third of the tested products (40) had "high enough levels of arsenic, lead, and cadmium combined, on average, to pose a health concern for children when regularly consumed in typical serving sizes," with most raising concern for adults as well.

Continued on Page 17

THE EPOCH TIMES



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Future products that use silver may reduce the need for multiple doses of antibiotics and the risk of antibiotic resistant infections.

### NEW TREATMENTS

## Silver Nanoparticles Can Supercharge Antibiotics: Study

Continued from Page 13

### The Study's Findings

This particular study in *Frontiers in Microbiology* examined the antimicrobial activity of AgNPs and their safety in mammalian cells.

Using different commercially available silver nanoparticles, scientists tested the power of AgNPs alone against the gram-negative bacteria *Escherichia coli*, *Pseudomonas aeruginosa*, and *Acinetobacter baumannii* and gram-positive, methicillin-resistant *Staphylococcus aureus*, commonly known as MRSA.

The researchers also tested AgNPs mixed with different antibiotics against the same bacteria, including four that are leading pathogenic killers worldwide.

While AgNPs didn't improve the effectiveness of some antibiotics, they strongly empowered others.

When scientists added AgNPs to the generic antimicrobial drug colistin, the required dose to kill bacteria shrank nearly sevenfold. This finding is significant because colistin is a harsh antibiotic used as a last resort against certain resistant bacterial infections.

The study found the greatest synergy when mixing AgNPs with aminoglycoside antibiotics—ribosome-targeting antibiotics often used to treat *Pseudomonas aeruginosa*, which causes various infections. In particular, the effective dose of the generic aminoglycoside amikacin was reduced 22-fold, an important finding because bacteria are growing increasingly resistant to aminoglycosides.

### Silver's extensive use in several global industries is stirring environmental and biological concerns among experts and watchdogs.

#### Silver Toxicity May Be a Concern

Before researchers test new drugs on humans, they must uncover possible toxicity. One goal of the study highlighted here was to test the safety of AgNPs on mammalian cells and a worm, *Caenorhabditis elegans*, commonly used for early drug studies.

At doses effective for killing bacteria, the study shows no toxicity to mammalian cell lines, including stem cells, skin cells, and immune cells called macrophages. When the researchers treated the worms with antibiotics mixed with AgNPs, their lifespan remained normal. However, they moved less, suggesting a possible side effect on muscles or nerves.

Scientists are unsure whether this same effect would occur in humans, making it a concern requiring further research.

#### Is Silver the Answer to Antibiotic-Resistant Bacteria?

As the research expands, confidence is mounting that scientists may eventually mix silver and antibiotics into novel drugs effective against resistant bacteria.

Rather than a silver bullet, however, AgNPs may be a "silver spoon" to feed multi-drug resistant bacteria their medicine, as stated by a research article published in 2013 in *Science Translational Medicine*. This study found that adding AgNPs to the antibiotic vancomycin disabled gram-negative bacteria. They also

reported that silver boosted antimicrobial power against biofilms, which are colonies of tenacious bacteria living together to promote their growth and survival.

Another study, published in 2020, found that mixing AgNPs with 11 different antibiotics significantly inhibited the bacterial growth of multiple resistant species. At the same time, the study discussed concerns about silver's possible toxicity to cells, or cytotoxicity.

Although scientists are optimistic that more studies will lead to novel treatments for antimicrobial resistance, concerns and unknowns remain about precisely how AgNPs mixed with antibiotics will interact with human bodies.

#### Concerns About Silver's Increasingly Widespread Use

Cytotoxicity of silver nanoparticles is only one of the concerns experts have about AgNPs. Silver's extensive use in several global industries is also stirring environmental and biological concerns among experts and watchdogs.

From 2007 to 2017 alone, governments worldwide awarded nearly 5,000 patents to companies registering silver-containing products. A 2018 review published in the journal *Antibiotics* lists many of those 5,000 patents.

According to the review, the medical industry offers numerous devices coated or infused with silver, such as surgical needles, implants, wound treatments, and dentures. One company even patented a silver coating for walls.

For personal care, consumers can buy silver-bathed shaving devices, toothbrushes, deodorants, sanitary pads, and cosmetic lotions. A multitude of home products containing silver are also on the market, such as air purifiers, computer keyboards, food storage containers, latex gloves, surface cleaners, laundry detergent, and a pipe cleaning system.

Experts are concerned with the vast amount of silver creeping into various aspects of daily living. In medieval times, silverware was used throughout the day among the wealthier classes, causing argyria, a largely harmless condition turning one's skin blue from too much silver.

The therapeutic use of silver goes back about 2,000 years but not to the widespread level that we see today. Concerns are also growing that silver may leech from commercial products into streams and waterways, possibly changing the microbial structure of diverse ecosystems.

Many experts recommend using silver only when necessary to reduce the risk of toxicity and to reduce the possibility of creating the same problem we did with the overuse of antibiotics, namely creating bacteria resistant to silver's antimicrobial powers. These experts say we need to learn more about how AgNPs interact with bacteria and the human body and why they're so potent.

The questions are compelling. Do we need silver in everything? Do we know what the risks are?

If further research confirms silver's ability to fight the global crisis of antimicrobial resistance safely, it will do a world of good.

*Sharleen Lucas, R.N., is a freelance writer with medical, spiritual, and emergency care expertise. After two decades of serving patients and families at the bedside or as a spiritual care director, she's committed to empowering readers' physical and spiritual well-being by boiling down health information with the warmth and skill of an RN next door. You can find her at RNextdoor.com*

### MICROBIOME

## Standard American Diet Feeds Bacterium Behind Fatty Liver Disease

Research in mice uncovers the mechanism explaining how diets high in fat and sugar cause chronic liver disease

AMY DENNEY

A new study in mice from the University of Missouri-Columbia is shedding light on how diet seems to change the specific bacterial makeup of the gut and instigate a metabolic process that leads to fat buildup in the liver.

Nonalcoholic fatty liver disease has few symptoms. The risk factors include obesity, insulin resistance or Type 2 diabetes, high cholesterol or triglyceride levels, age, and traits of metabolic syndrome. Fatty liver disease affects about 24 percent of U.S. adults—many who don't know they have the disorder—and a growing number of children.

Fatty liver disease has been linked to genetics and digestive disorders, but the obvious risk factor—the standard U.S. diet—has been largely confounding. Is a high-fat diet good or bad? Which fats are bad? Is all sugar bad? Is fructose found in fruits and honey OK?

In this study, mice were fed a diet to mimic the Western diet, which is high in both sugar and fat. Researchers were able to identify a specific microbe, called *Blautia producta* (*B. producta*), as responsible for creating the metabolite 2-oleoylglycerol, which is implicated in liver inflammation and fibrosis. The results were published in *Nature* in January. A buildup of 2-oleoylglycerol has also been found in the livers of people with fatty liver disease.

"We're just beginning to understand how food and gut microbiota interact to produce metabolites that contribute to the development of liver disease," the study's co-principal investigator Guangfu Li wrote in an article published on Science Daily.

Li, an associate professor in the departments of surgery and of molecular microbiology and immunology, with a doctorate from Nanjing Medical University in Nanjing, China, added: "However, the specific bacteria and metabolites, as well as the underlying mechanisms, were not well understood until now. This research is unlocking the how and why."

Gut microbiota are all the microorganisms—particularly the thousands of species of bacteria—that exist inside the digestive tract and help the human body function. This community of microbes is often referred to collectively as the gut microbiome, a largely unexplored area of human health. Metabolites are the outcome of many of those functions and include amino acids, lipids, and sugars that are linked to processes such as digestion and circulation.

#### The Liver's Role in Digestion

A vital part of the digestive process, the liver receives blood—along with microscopic nutrients and toxins from the diet—through the portal vein. Toxins are removed from the blood and ultimately excreted through urine or feces. Blood is returned into the system, eventually making its way to the heart. Together, the portal vein, the small intestine, and the liver are called the gut-liver axis.

The liver is the largest solid internal organ, weighing up to five pounds. It performs many complex and vital processes that affect the whole body. The authors of the study conclude that their cellular and molecular mechanistic findings significantly advance understanding of the roles diet, the microbiome, and liver function play in fatty liver disease.

A liver that is storing excess fat can become inflamed and damaged, causing nonalcoholic steatohepatitis—a more progressive form of fatty liver disease. One estimate concludes that 9 million to 15 million Americans suffer from this more advanced state, which causes scarring and cirrhosis and increases the risk of liver cancer, according to the American Liver Foundation. Nonalcoholic steatohepatitis, or fatty hepa-

titis, is projected to increase by 63 percent between 2015 and 2030.

Considered an emerging health threat, fatty liver disease also affects American youth. The disorder is the most common form of childhood liver diseases, and it has more than doubled in the past two decades as childhood obesity has risen, according to the American Liver Foundation. Between 5 percent and 10 percent of children are estimated to have fatty liver disease.

"Fatty liver disease is a global health epidemic," Dr. Kevin Staveley-O'Carroll, one of the study's lead researchers who specializes in liver cancer and surgery, said in a news release. "Not only is it becoming the leading cause of liver cancer and cirrhosis, but many patients I see with other cancers have fatty liver disease and don't even know it. Often, this makes it impossible for them to undergo potentially curative surgery for their other cancers."

#### Part of a Systemic Problem

Though fatty liver disease itself may be silent, the gut microbiome spills its secrets. Besides *B. producta*'s seeming to cause liver inflammation and fibrosis in mice, certain other bacterial strains are connected to the liver and to obesity.

Obesity is linked to two dominant phyla, Firmicutes and Bacteroidetes, which can act as biomarkers for related health conditions in stool tests. Other microbiome-based biomarkers, such as Lactobacillales and Verrucomicrobiales can indicate early-stage liver fibrosis.

The researchers said their new findings could eventually lead to specific dietary and microbial treatment solutions. As part of the study, mice were treated with an antibiotic cocktail, which was found to reduce liver inflammation and lipid accumulation while reducing fatty liver disease.

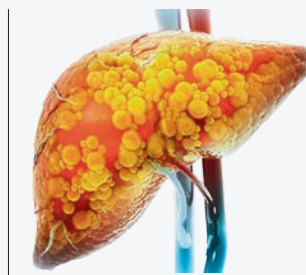
#### More Antibiotics?

There could be complications with this approach in humans, however, as physician guidelines already call for less antibiotic use. The overuse of antibiotics is a medical problem that has been linked to dysbiosis, where more pathogenic bacteria overtake the gut microbiome and cause disease. It's possible that antibiotics are also an important cause of the dysbiosis involved in fatty liver disease dysbiosis.

There are warnings about antibiotic overuse in the book "Missing Microbes," written by Dr. Martin Blaser, chair of the Human Microbiome at Rutgers University, where he also serves as a professor of medicine, pathology, and laboratory medicine.

"Of course, our powerful antibiotics could affect our friendly bacteria," he wrote in the epilogue of the 2014 book. "Everything that changes them has a potential cost to us. We have changed them plenty. The costs are already here, but we are only just beginning to recognize them. They will escalate."

Although it may be too soon to implicate antibiotic use as a cause of fatty liver disease, it's



**Fatty liver disease is a global health epidemic.**

*Dr. Kevin Staveley-O'Carroll, specialist in liver cancer and surgery*



**24 PERCENT** of U.S. adults suffer from fatty liver disease, but many go undiagnosed.

Eating a diet high in vegetables, fruits, and healthy fats can help prevent fatty liver disease.



important to note the limitations in studies of mice and the microbiome in general.

Dr. Michael Greger, founder of Nutrition Facts, told *The Epoch Times* that "there are inherent difficulties extrapolating from rodents to people."

Nonetheless, it's the predominant path that research takes, as mice and humans both have gut microbiomes made up of about 90 percent Firmicutes and Bacteroidetes. A 2021 article in *Microorganisms* examined the complications and benefits of this research approach, pointing out that fine-tuned techniques and processes in the lab are translating to more reliable comparisons.

The article concludes: "Despite their limitations, mouse models are still a valuable, practical, and irreplaceable tool for studying human disease. No animal models are 100 percent ideal for modeling human disease."

#### The Right Diet for the Liver

If the standard U.S. diet were on trial, this new study would be incriminating new evidence. Knowing the mechanism of action behind the disease confirms that diets high in saturated fats and sugar should be avoided.

Fatty liver disease warrants attention for its problematic nature but also because it can be avoided and reversed. Untreated cirrhosis of the liver eventually leads to liver failure or liver cancer. The good news is that fatty liver disease is an early warning sign of a completely reversible condition, as the liver is able to regenerate itself to a point.

In addition to keeping to a healthy weight, the Cleveland Clinic recommends the Mediterranean diet, which is high in vegetables, fruits, and healthy fats with moderate fish and poultry consumption.

Diet changes can have rapid effects on fatty liver disease, as Greger pointed out in a 2021 podcast on fatty liver disease and how to avoid it.

"One can of soda a day may raise the odds of fatty liver 45 percent, and those eating the equivalent of 14 chicken nuggets' worth of meat a day have nearly triple the rates of fatty liver, compared to seven nuggets or less," he said.

Greger suggested the benefits of a plant-based diet as most compatible with lowering the risks of fatty liver disease, but he also pointed out that statistically, there's another reason sufferers should address their diet.

"Cardiovascular disease is the most common cause of death among patients with fatty liver disease," he said.

"And we do have randomized controlled trials proving a healthy plant-based diet and lifestyle programs can reverse heart disease—opening up arteries without drugs, without surgery, without stents."

Greger said it's possible that those with fatty liver disease could develop cirrhosis of the liver, "but only if they don't die of cardiovascular diseases first."



# Top 3 Worst Sitting Postures for Your Spine

These unhealthy and common postures can lead to pain and other symptoms, but sitting properly is a simple habit

YUN-LUNG CHENG

To maintain a healthy spine, it's crucial to have proper sitting posture. Incorrect postures, such as hunching or sitting in a half-reclined position, can damage the spine, leading to pain in the shoulders, neck, and lower back. When it comes to pain-inducing ways to sit, hunching is one of the worst offenders.



1. HUNCHING



2. HALF-RECLINED



3. LEANING TO THE LEFT OR RIGHT

Hunching is widely regarded as the worst sitting posture. Many people, especially office workers who spend long hours at the computer, tend to hunch while sitting. One possible explanation is that their keyboard is placed too far away, making it difficult to sit up straight. As a result, they often end up sitting with a hunched back and a raised head.

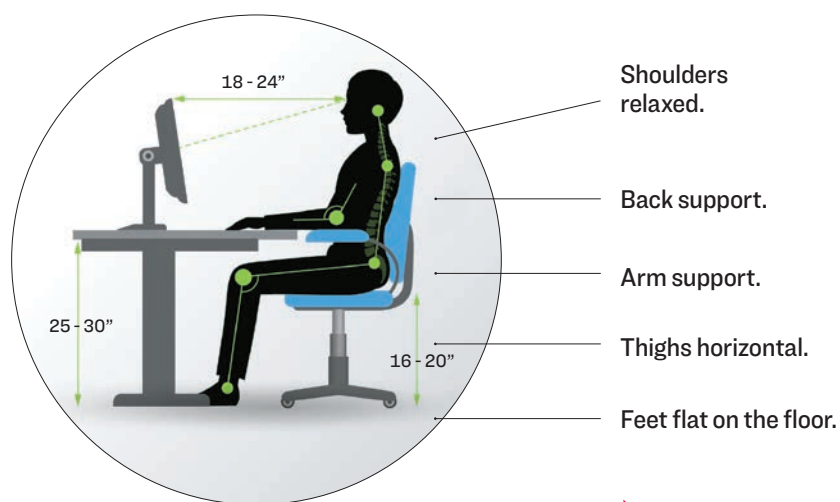
Prolonged hunching while sitting can lead to the following symptoms:

- Headaches
- Dizziness
- Dry eyes
- Stiff and sore neck and shoulders
- Pain in the middle of the scapula
- Cervical degeneration and bone spurs
- Chest tightness
- Stomach pain
- Indigestion
- Fasciitis
- Memory decline

Hunching can compress the stomach and respiratory tract, leading to breathing difficulties, chest tightness, and indigestion.

Prolonged spinal curvature and tension in the fascia of the upper body can also cause tension-type headaches and chest discomfort. Hunching the back and leaning the head forward can also cause severe compression on the cervical spine and lead to cervical degeneration.

### PROPER DESK ARRANGEMENT



Just as poor posture has harmful effects, good posture can support your body's optimal functioning.



THREE STEPS TO A HEALTHY SITTING POSTURE:

**Step 1:** Sit up straight. Your spine should maintain its natural curve. Take a deep breath, and you will notice how much easier it is to breathe. If you hunch over, your breathing will be restricted. On the other hand, sitting up too straight and tensing up can also restrict your breathing, which is also incorrect. Next, lengthen your spine as if you're being measured for height.

Good breathing is a crucial aspect of sitting up straight, and it's also an important indicator of proper posture.

**Step 2:** Sit all the way back in your chair. Lift your hips and tuck them in all the way to the back of the chair.

**Step 3:** Once again, imagine yourself being measured for height, lengthen your spine, and lean back against the backrest of the chair. Then, relax your body. The same applies when sitting in an office chair or on a couch at home; don't first lean against the backrest, as this can easily lead to incorrect sitting posture.



Many spiritual traditions use certain sitting postures to increase focus and calm.



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TOXINS

# Beware of Toxic Spices

Continued from Page 13

### Multiple Lawsuits

McCormick & Co. was the first major brand to face a class action lawsuit after the report was made public. The suit was filed in January 2022. Per the suit, the defendant failed to warn consumers that some of its herbs and spices may be tainted with significant levels of toxic heavy metals.

The McCormick spices that contained problematic levels of toxic heavy metals included "culinary ground basil," ground ginger, ground oregano, paprika, ground thyme, and ground turmeric.

The lawsuit outlines that the CR analysis shows that "it is possible for herb and spice companies to limit heavy metals in their products" as about "two-thirds of the spices [CR] tested did not have concerning levels of heavy metals." They noted that other companies, such as Bolner's Fiesta and Al Wadi Al Akhdar, do perform such tests.

The defendant would have had the knowledge that it could test for heavy metals but didn't do so, and it could safely remove these metals from its herbs and spices, but, again, didn't do so. The suit claims that instead, "the defendants chose to ignore the health of the consuming public in pursuit of profit."

## Lead, arsenic, and cadmium can increase the risk of cancer, cognitive and reproductive problems, and other adverse conditions even in small amounts.

McCormick told CR that they did, in fact, test products for heavy metals in their manufacturing plants.

The company sent a statement to The Epoch Times that reads: "The quality and safety of our products is our top concern. "Our 'Taste you Trust' guarantee means we go above and beyond regulatory requirements to reduce exposure to a broad range of contaminants."

The next class action suit was filed in March 2022 against Amazon.com for products under its "Happy Belly brand," followed by a June 2022 filing against Walmart for herbs and spices sold under its "Great Value" brand.

Both suits argue that the products listed contain toxic heavy metals, including arsenic, cadmium, and lead and that the defendants neither listed the toxic heavy metals in the spices' ingredients list nor warned consumers that they may be present.

The final class action suit to date was filed in August 2022 against Amazon.com and Whole Foods Market, alleging that the companies failed to disclose to consumers that certain Whole Foods herbs and spices, including "365 By Whole Foods Market" basil, cumin, and ground ginger, contain lead, arsenic, and cadmium.



Quality spices grown in areas with less pollution should be a safer bet for those looking to avoid heavy metals.

## Health Threats and Lack of Regulation

Although the FDA is responsible for herbs and spices, the lack of a limit on heavy metals leaves consumers with no guarantee of product safety. In the CR article, Brian Ronholm, director of food policy at CR, noted that spice companies must conduct periodic safety tests, but those are largely focused on harmful bacteria, such as salmonella.

Lead, arsenic, and cadmium, even in small amounts, can increase the risk of cancer, cognitive and reproductive problems, and other adverse conditions. Exposure puts children at risk for lowered IQ, behavioral problems (such as attention deficit hyperactivity disorder), Type 2 diabetes, and other health issues.

According to CR experts, in 31 products, levels of lead were so high that they exceeded the maximum

amount anyone should have in a day. They caution that "just one serving—3/4 teaspoons or more—per day leaves little room for heavy metal exposure from other sources." The nonprofit had previously found high levels of heavy metals in rice, baby food, and fruit juice. Also, in many recipes, spices and dry herbs are combined. CR findings show, for example, that "a dish that has just 1/4 teaspoon each of Great Value (Walmart) Chili Powder, Trader Joe's Organic Cumin, and La Flor Oregano per serving would contain enough arsenic, cadmium, and lead to pose a concern."

The CR analysis cited a 2018 study in *Morbidity and Mortality Weekly Report* that found that 22 percent of food samples—mostly spices and herbal remedies—had high lead levels. The samples came from homes in North Carolina, where children suffered from lead poisoning.



Heavy metals can get into herbs and spices from contaminated soil, pollution, and equipment used in processing.

## Avoiding Toxic Spices

CR experts said it's possible to limit exposure by choosing spices carefully.

CR noted that seven of the 15 types of herbs and spices, regardless of brand, tested below thresholds for concern, meaning that they were considered safe. For every other herb or spice, at least one brand landed in the "no concern" category.

CR offered several tips to limit exposure, including using herbs and spices that were less likely to contain concerning levels of heavy metals—such as pepper (black or white), garlic powder, coriander, curry powder, saffron, and sesame seeds—and seeking out the brands least likely to have high levels of heavy metals for specific spices. The brand "Simply Organic" also came through all tests without any products reaching the threshold for concerning levels of heavy metals.

Unfortunately, when it comes to herbs and spices, organic products may not be universally superior because U.S. organic standards don't include testing for heavy metals, CR noted.

One of the safest courses of action is to grow your own herbs and spices, especially basil, oregano, and thyme, which tested the highest for heavy metals across all brands.

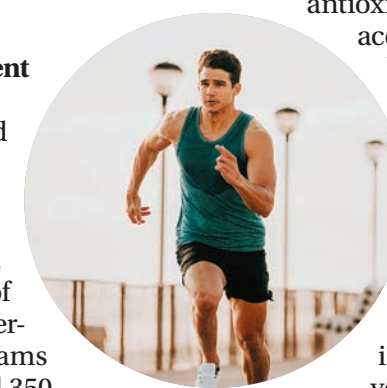
Another way to solve the problem goes to the source. CR has created a petition calling on the FDA to set stricter limits on food to "protect Americans from heavy metals."

The Epoch Times reached out to Amazon, Whole Foods, and Walmart for comment. By press time, only Walmart had responded. It issued the following statement:

"We are committed to providing high-quality products and have always required that our private brand suppliers' products meet or exceed FDA's guidelines for naturally occurring elements that are not added during the manufacturing process. We will continue to defend the company against this litigation."



Many herbs are easy to grow. Since basil, oregano, and thyme tested the highest for heavy metals, start with these.



Eating blueberries can help boost heart health and lower inflammation.

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### FOOD AS MEDICINE

# Blueberry—A Natural Vascular Scavenger That Helps Prevent Heart Disease

For those facing heart disease or suffering other common maladies such as obesity and high blood pressure, blueberries offer a delicious addition to a healthier lifestyle

JINGDUAN YANG

A longtime friend of mine suddenly died of a heart attack while using the bathroom at home. I wondered: What caused his heart attack, and why did it come on so suddenly and viciously? How should we deal with this disease? Can diet help us to reduce the risk of heart disease? My friend was a wonderful person who took his work very seriously. He became

busier as he got better at his job and was promoted to higher positions, often working until very late at night. When I visited him at his home, I often noticed the presence of bread, instant noodles, and all kinds of snacks piled up on the table.

He was obese, beset with stress, and had an unhealthy diet, which may have led to his various health problems. People with his lifestyle generally have higher blood lipids, blood sugar, and blood pressure. For many people who lived like my friend, heart disease arises from atherosclerosis, an underlying cause of death for millions of people each year.

### Causes and Consequences of Atherosclerosis

Atherosclerosis is a chronic inflammatory disease in which there's a buildup of plaques inside arteries. It's principally a lipid-driven process initiated by the accumulation of low-density lipoprotein and remnant lipoprotein particles and an active inflammatory process in certain areas of arteries, particularly at branch points in the arteries, where blood flow is disturbed.

Atherosclerosis is considered a primary cause of atherosclerotic cardiovascular disease resulting in heart attacks, stroke, and peripheral arterial disease. According to the National Institutes of Health (NIH), Atherosclerosis is the underlying cause of about 50 percent of all deaths in Western society.

### Ways to Prevent Atherosclerosis

Steps to fighting this disease include exercise, an improved diet, and stress reduction. Those with a family history of heart disease should be especially proactive. Taking these steps can help to prevent

heart disease by properly regulating blood sugar, blood lipids, blood pressure, and weight.

## Atherosclerosis is the underlying cause of about 50 percent of all deaths in Western society.

Once the blood vessel wall has been damaged, platelets, clotting factors (such as fibrinogen and prothrombin), and cholesterol accumulate at the site, resulting in blockage of the blood vessels. Myocardial infarction (heart attack) occurs when the heart's blood vessels are constricted. A blocked blood vessel in the brain is a cerebral infarction, which causes brain tissue death.

Fortunately, eating berries can help clear blood clots. A variety of berries—including strawberries, blueberries, blackberries, and raspberries—lower cholesterol and improve

arterial function. Blueberries, in particular, are rich in vitamins, fiber, trace elements, and antioxidants such as polyphenols that can have healing effects.

### Blueberries Lower Inflammation and Prevent Heart Disease

A study on blueberries and cardiovascular risk factors in obese men and women was published in 2010 in the *Journal of Nutrition*. In the study, one group of subjects was given blueberry juice made from 50 grams of frozen blueberries and 350 grams of fresh blueberries every day for eight weeks. The control group was given water instead. At weeks four and eight of the experiment, the researchers measured the participants' blood glucose, blood lipids, and various inflammatory markers. The data showed that the blueberry drinkers had lower lipid peroxidation

and lower inflammation responses.

Why do blueberries have such a beneficial effect? Scientists have found that blueberries can reduce inflammation through their antioxidant effects and reduce the accumulation of cholesterol in blood vessels by affecting the metabolism and transport of cholesterol. Blueberries also can protect endothelial cells by affecting the function of vascular endothelial cells.

Damage to endothelial cells is the main cause of infarction—once the blood vessel wall is broken, anything can be deposited in it, not just cholesterol.

High blood pressure, diabetes, and chronic inflammation can damage the blood vessel walls. The good news is that blueberries can improve all of these conditions.

Blueberries can also improve the role of intestinal flora, the beneficial microbes some-

times called the gut microbiome. Blueberries act as a probiotic to help adjust the flora of our intestines. The health of our intestinal tract is very important. An imbalance of the intestinal flora can cause intestinal leakage, allowing toxins to enter the bloodstream. Add blueberries and other berries to your diet to improve the health of your heart.

*Jingduan Yang, M.D. F.A.P.A. is a board-certified psychiatrist specializing in integrative and traditional Chinese medicine for chronic mental, behavioral, and physical illnesses. He contributed to the books "Integrative Psychiatry," "Medicine Matters," and "Integrative Therapies for Cancer." Co-authored "Facing East: Ancient Secrets for Beauty+Health for Modern Age" by HarperCollins and "Clinical Acupuncture and Ancient Chinese Medicine" by Oxford Press. Dr. Yang is also the founder of the Yang Institute of Integrative Medicine and the American Institute of Clinical Acupuncture and the CEO of Northern Medical Center, Middletown, N.Y., since July 2022.*

Adaptogens give the body a powerful aid in rebalancing from the strains of stress.



HEALING HERBS

# 5 Adaptogenic Herbs

## Alleviate Stress and Anxiety Holistically

### Uncovering the world of adaptogens

MAKAI ALLBERT

Often, when the going gets tough, we stress. It's natural and essential for survival, but not all stress is good. Finding the balance between harmful and beneficial stress is essential for our long-term well-being. So how can we modulate our stress response and have it work for us?

#### Summary of Key Points

- Stress and anxiety are natural responses to demanding situations, but when they become overwhelming, they can negatively affect a person's physical and mental health.
- Adaptogens are compounds used for centuries in traditional medicine to help the body adapt to stress and restore balance. They're known for reducing the harmful effects of stress on the body and mind.
- Adaptogenic herbs, including ashwagandha, Rhodiola rosea, ginseng, holy basil, and licorice root, contain compounds that modulate the body's stress response and regulate cortisol levels.
- Stress is a holistic mind-body condition. Adaptogenic herbs work via multiple layers and mechanisms spanning from mind to body.

Everyone is familiar with stress and anxiety in one way or another, and we all know what stress feels like, even though it can be hard to articulate. Students feel stressed when a homework deadline is approaching, parents feel it when taking care of their children and paying for rent, workers feel it when bearing too much responsibility, and so on.

The good news is that the body is designed to cope with stress, which is commonly defined as the body's reaction to a perceived internal or external threat or pressure.

Often coupled with stress is the feeling of anxiety, a feeling of uneasiness or fear about something in the future. Although stress and anxiety are natural responses, they can become overwhelming and negatively affect both physical and mental health.

Managing stress and anxiety is essen-

**Although the stress response is important in dealing with stressors, prolonged activation of these systems can negatively affect the body.**

**72.3%**

Study participants who took ashwagandha reported a 72.3 percent reduction in their score on the general health questionnaire-28 (GHQ-28). The questionnaire measures four categories of stress: somatic, anxiety and insomnia, social dysfunction, and severe depression.

tial for maintaining overall health and longevity, especially in our fast-paced world, where productivity and industry are prioritized. Although many people have heard of ways to naturally manage stress and anxiety, such as lifestyle changes and mind-body techniques, there's a stress antidote many don't know about: adaptogens.

Adaptogens constitute anything that helps buffer or remove stress, hence the name "gen" meaning "that which produces," and "adapt" being the ability to adjust to new conditions. Therefore, broadly speaking, adaptogens are anything that can prompt the body to adapt to new or difficult conditions. Exercise, meditation, and sleep are adaptogens, as is anything else that can reduce stress and improve mood.

Yet nowadays, the term adaptogen usually refers to a class of compounds, herbs, and mushrooms that help the body adapt to stress and restore balance.

#### How Do Our Bodies React to Stress?

When we encounter a perceived threat or challenge, our bodies respond with a stress response, a complex set of physiological and psychological changes that help us cope with the situation. In short, this set of changes is designed to prepare the body for action. This response is modulated by two central systems in the body: the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system.

When faced with a threat, the hypothalamus in the brain releases a hormone called the corticotropin-releasing hormone; this hormone later stimulates the pituitary gland to release adrenocorticotrophic hormone. This then stimulates the adrenal glands, which release cortisol and other stress hormones into the bloodstream. This interplay between the different glands is what constitutes the HPA axis.

Amid this cascade and interaction of glands and hormones, one hormone steals much of the spotlight: cortisol, also known as the stress hormone. And of course, there's a reason behind it, as cortisol has several powerful effects on the body.

Cortisol increases glucose availability in the bloodstream, providing readily available energy for the body to respond to a perceived threat. It also suppresses nonessential bodily functions, such as digestion

and reproduction, to conserve energy for dealing with a perceived threat.

While cortisol is released, the sympathetic nervous system is activated. The sympathetic nervous system is responsible for the fight-or-flight response. The activation of the sympathetic nervous system leads to a release of adrenaline and noradrenaline. These hormones increase the heart rate and blood pressure, dilate the airways to improve oxygen uptake, and stimulate the release of glucose from the liver. All of this is for one purpose: to increase alertness and prepare the body for action.

The interaction of the HPA axis and the sympathetic nervous system is part of what makes up the stress response; this is what we can observe objectively and what scientists use to measure stress in the lab.

Although the stress response is important in dealing with stressors, prolonged activation of these systems can negatively affect the body.

#### Chronic Stress Harms the Body

In a meta-analytic review from Carnegie Mellon University, researchers conducted a comprehensive review of the relationship between stress and immunity in humans. Their meta-analysis included more than 293 studies analyzing the effects of acute and chronic stress on immune parameters such as natural killer cell activity, lymphocyte proliferation, and antibody responses.

The authors found that acute stressors, such as public speaking or exams, were associated with a temporary enhancement of immune function, including increased natural killer cell activity and lymphocyte proliferation. In contrast, chronic stressors, such as caring for a spouse with dementia or job strain, were associated with more prolonged suppression of immune function.

Apart from suppressing the immune system, chronic stress naturally has serious implications regarding mental health and cardiovascular disease.

Adaptogens alleviate these negative side effects. Adaptogenic herbs contain a variety of compounds that are thought to contribute to their beneficial effects on the body, including polysaccharides, alkaloids, and triterpenoids. These compounds are believed to modulate the body's stress response by influencing the HPA axis and other systems involved in stress regulation.

Adaptogens have been shown to affect stress hormones such as cortisol, adrenaline, and noradrenaline, helping to support a healthy stress response.

Chronic stress can contribute to inflammation in the body, which can lead to a range of health problems. Adaptogens have been shown to have anti-inflammatory effects, promoting overall health.

#### Common Herbs Used as Adaptogens and Their Effectiveness

**Ashwagandha**, also known as Indian ginseng, is a popular adaptogenic herb used traditionally in ayurvedic medicine.

In a randomized, double-blind, placebo-controlled study published in the Indian Journal of Psychological Medicine, ashwagandha was administered to a cohort of 64 subjects who self-reported mental stress. The participants were generally healthy, free of any psychiatric conditions other than stress, and aged between 18 and 54 years.

The researchers sought to measure the effect of ashwagandha across numerous metrics. The study assessed levels of perceived stress, depression, anxiety, and general well-being by using stress scales and biochemical markers such as serum cortisol levels.

The findings demonstrated the power of ashwagandha: Taking 300 milligrams of ashwagandha root extract twice daily for 60 days significantly reduced perceived stress, serum cortisol levels, and anxiety levels in adults relative to placebo.

The results are expressed in p-values, which indicate the probability of the observed differences being due to chance. A p-value of less than 0.05 is generally considered statistically significant, meaning the results are unlikely to have occurred by chance alone. In this case, the values for perceived stress and anxiety levels are both less than 0.0001, while the value for serum cortisol is 0.0006.

The group that took ashwagandha experienced significant reductions across four measures: perceived stress scale (-44 percent), the general health questionnaire-28 used to measure depression, social dysfunction, anxiety, depression and more (-72.3 percent), depression anxiety stress scale (-71.6 percent), and serum cortisol levels (-27.9 percent). The placebo group saw reductions of only 5.5 percent, 2.3 percent, 5 percent, and 7.9 percent for the same measures. These differences are statistically significant, indicating that ashwagandha considerably improves these focal aspects of stress.

A systematic review of 62 research papers published in the Journal of Alternative and Complementary Medicine found that ashwagandha supplementation reduced anxiety and stress levels without significant adverse effects.

#### Rhodiola rosea

Rhodiola rosea is another adaptogenic herb that helps people cope with stress and has been shown to improve cognitive function and physical performance.

A study has shed light on the efficacy of Rhodiola rosea extract in treating patients with burnout symptoms. The open-label, multicenter, single-arm trial involved administering 400 milligrams of the extract to patients over 12 weeks. The study's outcome measures, which included alertness, calmness, and positive mood, showed marked improvements over time. Interestingly, the effects of the treatment were noticeable after just one week of administration.

#### Ginseng

Ginseng is a well-known adaptogenic herb used traditionally in Chinese medicine to promote overall health and vitality.

In a small, randomized, double-blind experiment, patients were given 200 milligrams of Panax ginseng for up to eight weeks. After four weeks of therapy, higher scores in social functioning (p equals 0.014), mental health (p equals 0.075), and the mental component summary (p equals 0.019) scales were observed in patients randomized to Panax ginseng. However, it's worth noting that the study was done on a small population, and the effects didn't continue past the eight-week mark, suggesting that ginseng should be used only temporarily and not long-term.

#### Holy Basil and Licorice Root

Holy basil and licorice root are other adaptogenic herbs that have been shown to have a range of beneficial effects on the body, including reducing stress and anxiety, improving cognitive function, and enhancing immune function.

The studies on adaptogens for stress and anxiety suggest that adaptogens can effectively manage stress and anxiety symptoms. Although more research is needed, the existing studies provide promising results. Adaptogens positively affect the nervous system and cortisol levels.

However, it's important to note that the effectiveness of adaptogens may vary depending on the individual and the specific adaptogen being used. It's also important to use adaptogens as part of a holistic approach to managing stress and anxiety rather than as the sole treatment.

Overall, the research on adaptogens for stress and anxiety provides a strong foundation for further investigation and use in integrative health care.

#### How Do Adaptogens Work?

Even though stress is a psychological term often defined by the type of strain we experience, stress is actually a mind-body holistic condition.

We often feel stress when our internal organs and mind equilibrium are disrupted and our body lacks homeostasis. Our body constantly communicates with our brain, influencing our consciousness and emotions. A telling case in a recent Nature study reported that when our heart beats faster, anxiety and stress will be generated. The mind-body connection is very powerful and can affect us in many ways.

In the context of adaptogenic herbs, particularly ashwagandha, stress and anxiety relief may be modulated by multiple mechanisms, as suggested by the findings below:

- Most of these adaptogenic herbs have an attenuating effect on HPA axis activity, according to a 2019 study in the journal Medicine, thus reducing cortisol levels and lowering the emotional level of stress in subjects.
- Inflammation and oxidative stress are increased when experiencing high stress levels; according to the same study, adaptogens, therefore, may help reduce stress through their antioxidant and anti-inflammatory effects.
- As discovered in preclinical trials, ashwagandha can also influence GABAergic and serotonin activity, which modulate antidepressant and anti-anxiety effects. GABAergic signaling dysfunction is associated with general anxiety disorders, muscle spasms, sleep disturbances, and seizures.

### Common Herbs Used as Adaptogens



Ashwagandha.



Rhodiola rosea.



Ginseng.



Holy basil.



Licorice root.

4. Ashwagandha improves energy levels and promotes mitochondrial health.

Our minds and bodies are holistic systems composed of countless and diverse molecules, cells, proteins, tissues, and organs. They don't exist independently or operate on a whim; these systems are in continuous contact and coordinate meticulously to keep you healthy and alive.

It's conceivable that the interaction of all the mechanisms listed above, and other unrevealed ones, is responsible for the positive, mood-enhancing effects of these adaptogenic herbs to relieve stress.

#### How to Use Adaptogens

Adaptogens are obtainable in various forms, such as capsules, powders, teas, and tinctures. Each form has its benefits and drawbacks. Capsules and powders provide a concentrated form of adaptogens. Teas and tinctures may offer a gentler and more soothing effect.

It's important to follow dosage recommendations and use adaptogens under the guidance of a health care provider. Here are some tips on how to use adaptogens for stress and anxiety:

#### Ashwagandha

- The recommended dosages of ashwagandha root extract based on studies range from 250 to 600 milligrams per day (mg/day). The standard dosing protocol involves taking 600 mg/day divided into two dosages; one taken with breakfast in the morning and the other in the evening.
- Research indicates that 600 mg/day is more effective than lower dosages in improving sleep, and dosages ranging from 600 to 1,000 mg/day may be more beneficial for athletes undergoing intense exercise. However, further studies are required to verify whether dosages exceeding 600 mg/day result in greater benefits.
- The effect of the long-term daily usage of ashwagandha on its potency remains unknown. However, it's recommended to use ashwagandha for only one to two months, when experiencing moderate to severe stress.

#### Rhodiola Rosea

- Daily consumption of Rhodiola rosea as a preventive measure against fatigue has been proven effective at low dosages of 50 mg.
- For immediate relief from fatigue and stress, Rhodiola rosea is commonly taken in dosages ranging from 288 to 680 mg.
- Rhodiola's response has been observed to follow a bell-curve pattern. Therefore, it's advisable to refrain from exceeding the 680 mg dosage, as higher dosages may not be beneficial.

#### Holy Basil

- The recommended dose of holy basil for neurological and adaptogenic effects is 500 mg of leaf extract taken twice per day.
- Studies show that dosages of 100 to 200 mg and 500 mg may provide health benefits and boost testosterone, respectively.

While adaptogens are generally considered safe, they may cause side effects in some individuals. Common side effects include digestive upset, headaches, and insomnia. Talking to a health care provider before using adaptogens is important, especially if you have a medical condition or take prescription medications.

### Other Adaptogens

As we've discovered, stress is part of a holistic mind-body condition; anything that makes the body's natural healing process stronger could, in theory, help us release stress.

Implementing and maintaining the following life changes can also help reduce stress and anxiety levels:

- Getting regular exercise
- Practicing good sleep hygiene
- Eating a healthy diet
- Gardening
- Practicing meditation
- Being mindful in your work and routines
- Keeping your room tidy and clean
- Helping others
- Being optimistic and thinking positively



## MADE TO MOVE

# How Michelle Yeoh Stays Fit, Beautiful

The acclaimed actress has stayed in the game by keeping her body well tuned

ELLEN WAN

Michelle Yeoh, a Chinese Malaysian actress, won Best Actress at the 95th Academy Awards on March 12 for her lead role in “Everything Everywhere All at Once,” becoming the first Asian actress to win that award.

“For all the boys and girls who are watching tonight, this is a beacon of hope and possibility. This is proof that dreams dream big and dreams do come true,” Yeoh said when she took the stage to receive the award. The actress, who has been in the film industry for more than 40 years, also offered some encouragement for women.

“Ladies, don’t let anyone tell you you are ever past your prime. Never give up.”

Although in her 60s, Yeoh still has a fit body and glowing skin.

“For me, exercising is the most important, and when I’m here in New York, I love walking around Central Park—I mean literally the whole circle around the park, which is what I did yesterday and what I did this morning,” she told Vogue, when asked to share her beauty secrets.

Yeoh loves outdoor sports and often shares photos of hiking, walking, and swimming on social media.

Yeoh does squats every morning to stay fit. In an interview with the Los Angeles Times, she shared her morning routine, which consists of brushing her teeth while squatting and then doing exercises such as kicking.

Walking and squatting are some of Michelle Yeoh’s favorite ways to stay fit.



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Numerous studies have shown that exercise provides many health benefits. The University of Oxford and other UK research institutions published a paper in the Journal of Neurology, Neurosurgery & Psychiatry, in which researchers conducted five surveys involving 1,417 participants between the ages of 36 and 69.

The results showed that exercising to improve brain function is beneficial at any age and it’s important to maintain exercise throughout life.

Squatting has several health benefits, including revitalizing brain cells, improving muscle endurance, promoting blood circulation, accelerating metabolism, and improving autonomic dysfunction.

Dr. Hiroyuki Kobayashi, professor of medicine at Juntendo University in Japan, advocates for the benefits of squatting in his book “Walk ‘Til the End With a Smile: Deep Breath Squat.”

Kobayashi says squatting is a straightforward and efficient method for maintaining good health. It not only exercises the legs but also helps to prevent physical and mental aging, leading to an extended lifespan. He claims that if done regularly, squatting can make a person feel up to 10 years younger.

Kobayashi listed the benefits of squats:

1. Revitalizes brain cells and prevents dementia
2. Enhances muscle endurance and promotes flexibility
3. Accelerates metabolism and promotes blood circulation
4. Improves autonomic dysfunction, relieves stress, improves sleep quality, and combats depression
5. Helps burn body fat and promote weight loss
6. Reduces constipation and prevents incontinence
7. Strengthens bones, relieves pain, and prevents osteoporosis

Kobayashi emphasized the importance of maintaining lower body muscle strength as we age. This is because muscle strength tends to decline with age, and a lack of strength can lead to physical frailty and even being bedridden.

Squats are an excellent way

to train lower body muscles.

Not only does squatting provide physical benefits, but it can also be mentally beneficial. It’s a simple exercise that can be easily learned and performed anywhere, making it accessible to people of all ages and fitness levels.

Squatting can also promote intestinal motility, aid in digestion, and prevent constipation.

Kobayashi advocates for two movements in the “deep breathing squat” method.

## The Method

### 1. Soften Stiff Joints

1. Stand with your hands on the back of the chair, feet shoulder-width apart or slightly wider, and back straight.
2. Exhale and squat at the hips until the knees are bent at 90 degrees.
3. Inhale while slowly resuming the standing position.



Repeat the above movements five times in the morning and five times in the evening.

Reminder: If you can’t bend your knees to 90 degrees at the beginning of the exercise, as long as you keep your back straight and your eyes forward, you can exercise to your level.

### 2. Stimulate the Intestinal Tract With a Deep Lunge

4. Stand with your feet slightly wider than shoulder-width apart.
5. Face forward and take a deep step with your right foot, lift your left heel, and drop your hips until your left knee gets close to the floor.
6. Lift your hips upward and return your body to position 1.
7. Take a deep step with your left foot. Lift your right heel as you drop your hips until your right knee approaches the floor. Repeat movements 1 through 4 six times.



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