

# THE EPOCH TIMES

# MIND &

# BODY

(BACKGROUND) ANNIE SPRATT/UNSPASH; (BOTTLE) F16-IS0100/SHUTTERSTOCK; (MONEY) MVELISHCHUK/SHUTTERSTOCK; (SEROTONIN) PUBLIC DOMAIN

## ‘Chemical Imbalance’ Theory of Depression Hugely Profitable —and It’s Not Even True

Ignoring other causes of depression has left millions of Americans without truly effective treatment

Millions of Americans are taking brain-altering drugs based on a false theory—and quitting them can be dangerous.

Serotonin is a neurotransmitter, a molecule that acts like a chemical messenger between brain cells.

**MARTHA ROSENBERG**

“Lexapro appears to relieve the symptoms of depression and anxiety by increasing serotonin,” says an ad on the Bonkers Institute, a website that archives drug ads and also satirizes pharma claims and shaky science.

“Zoloft works to correct a chemical imbalance in the brain which may be related to symptoms of depression,” another ad says.

“Paxil CR blocks serotonin from being reabsorbed back into the sending nerve cell. This process increases the availability of serotonin to the receiving nerve cell and may help message [depression] transmission return to normal,” a third ad says.

As many Epoch Times readers may have heard, the serotonin “chemical imbalance” theory of depression was recently put to rest by a group of University College London (UCL) scientists in the journal *Molecular Psychiatry*. After reviewing decades of research, there’s no evidence that serotonin levels or serotonin activity are responsible for depression, they wrote. In other words, the theory that was the basis for selective

serotonin reuptake inhibitor (SSRI) antidepressants and their tremendously profitable franchise was false.

While the theory has been questioned by scientists for decades, the *Molecular Psychiatry* research seems to be the final nail in the coffin for the theory—a technical knockout.

“The popularity of the ‘chemical imbalance’ theory of depression has coincided with a huge increase in the use of antidepressants,” said the article’s lead author, Joanna Moncrieff, a professor of psychiatry at UCL. “Prescriptions for antidepressants have risen dramatically since the 1990s.”

“Thousands of people suffer from side effects of antidepressants, including the severe withdrawal effects that can occur when people try to stop them, yet prescription rates continue to rise.

“We believe this situation has been driven partly by the false belief that depression is due to a chemical imbalance. It is high time to inform the public that this belief is not grounded in science.”

*Continued on Page 6*



## Healthy Ways to Replenish Electrolytes

Electrolytes fuel the electrical charges that are the very spark of human life

**MELISSA DIANE SMITH**

On hot summer days, you’re more at risk for becoming dehydrated and depleted of important minerals. Try these suggestions for getting more of these essential nutrients, without the sugar typically found in many electrolyte replacement beverages.



Several years ago, my mother, who was in her 90s, became dehydrated and depleted in electrolytes after a bad case of intestinal flu. She was treated with intravenous electrolyte replacement in the emergency room, and the physician recommended electrolyte replacement drinks for her.

She followed a sugar-free diet, so I researched alternatives to commercial electrolyte drinks that contain sugar, artificial sweeteners, artificial colors, and additives. Within about a week, my mother told me that drinking the sugar-free electrolyte re-

plenishment beverages—cactus water, in particular—made her feel more alert and energized than water alone.

Seeing the improvements that electrolyte replenishment beverages made for my mother, I tried drinking them in place of some of the water I would normally drink during the summertime. I found these beverages helped me more easily maneuver through extreme heat days without getting wiped out in the desert climate in which I live.

*Continued on Page 4*

## 2022 NTD 8<sup>TH</sup> INTERNATIONAL CHINESE VOCAL COMPETITION



GOLD AWARD \$10,000  
Merkin Hall-KMC  
NEW YORK Sep. 2022

VOCAL.NTDTV.COM

REGISTER  
+1-888-477-9228  
VOCAL@GLOBALCOMPETITIONS.ORG

# Pros and Cons of Guarana

This potent stimulant has health benefits, but you need to be careful



GUARANA SEEDS contain more than **6X** the caffeine of coffee beans.

DEBORAH MITCHELL

If you enjoyed an energy drink recently, chances are it contained an ingredient known as guarana (*Paulinia cupana*). This plant, which is native to the Amazon rainforest, is the source of a substance associated with several health benefits, along with some cautionary notes.

Guarana is a Brazilian plant highly regarded by natives for its healing qualities. The mature fruit of this climbing vine is bright red and the size of a coffee berry. The black seed in the berries is a significant source of the stimulants of caffeine, theobromine, and theophylline, as well as the antioxidants of catechin, saponin, and tannin.

### Health Benefits of Guarana

**Kills Bacteria:** It's been suggested that caffeine, along with the tannins or catechins found in guarana, is the source of guarana's antibacterial properties. However, it's been shown that guarana can kill *Escherichia coli* and *Streptococcus mutans*, bacteria that can cause diarrhea and tooth decay, respectively.

**Is High in Antioxidants:** The various antioxidants found in guarana can help to fight cell and tissue damage related to free radical activity.

**Boosts Mental Energy and Focus.** The high caffeine content of guarana (the seeds contain up to six times more caffeine than coffee beans) can help to increase mental energy, reduce fatigue, and improve focus. A study comparing people who took vitamins containing guarana and a placebo group found that those who consumed the guarana had less fatigue.

**Improves Memory and Learning Ability:** Research has indicated that low doses of guarana (37.5 mg or 75 mg) improved learning ability and did so better than at higher doses. The authors suggested this shows that compounds other than caffeine are providing this benefit. In a study that compared the brain-enhancing compound ginseng with guarana, the use

of the latter resulted in faster task performance times and better concentration.

**May Aid Weight Loss.** The high caffeine content in guarana may accelerate metabolism by as much as 11 percent during a 12-hour period and thus aid in weight loss. Guarana's impact on fat cell production, however, isn't clear.

**Enhances Heart Health.** You've probably heard of bad cholesterol (also known as low-density lipoprotein, or LDL). Guarana may reduce oxidation of this harmful substance, according to research. The antioxidants in guarana also may improve blood circulation.

**Improves Skin Health:** Some cosmetics contain guarana, as the antioxidants may reduce skin damage associated with aging, minimize wrinkles around the eyes, and reduce sagging skin in the cheeks.

**Helps Digestive Problems:** Do you experience constipation or diarrhea? The tannins in guarana may help with diarrhea since they are an astringent. Low doses of guarana can have an antidiarrheal effect. High doses (and thus more caffeine) may help with constipation.

### Cons of Guarana

When consumed in amounts typically



The black seed in the berries is a significant source of the stimulants of caffeine, theobromine, and theophylline, as well as the antioxidants of catechin, saponin, and tannin.

found in foods, or in the short-term for medicinal purposes, guarana is usually safe for most adults. In a 2019 review, the authors found that "guarana is not currently known to be associated causally with any serious health risks when consumed properly" and that "if guidelines for caffeine intake are respected," using guarana is "not likely" to cause harm.

**The high caffeine content of guarana can help to increase mental energy, reduce fatigue, and improve focus.**

However, high doses (more than 400 mg of caffeine daily), long-term use, or use by individuals who have certain health challenges may cause mild to severe side effects. These can include stomach irritation, nervousness, vomiting, and insomnia.

Individuals who have specific conditions such as bladder control problems, diabetes, bleeding disorders, heart disease, high blood pressure, glaucoma, irritable bowel syndrome, or seizures may experience reactions associated with their health issues.

### Bottom Line

Guarana is a natural remedy that may provide significant health benefits when used wisely. You can find guarana in energy drinks and as a supplement (pills, capsules, and powder), but in all cases, be aware of the caffeine content.

To find the studies referenced in this article, please see the article online at [TheEpochTimes.com](http://TheEpochTimes.com)

Deborah Mitchell is a freelance health writer who is passionate about animals and the environment. She has authored, co-authored, and written more than 50 books and thousands of articles on a wide range of topics. This article was originally published on [NaturallySavvy.com](http://NaturallySavvy.com)

ALL PHOTOS BY SHUTTERSTOCK

## A Flamboyant Flora With Many Uses

Guarana has long been grown by family farmers in the rainforests of Brazil for its many medicinal benefits. Now the plant is used in many products around the world.



Guarana seeds contain antioxidants like catechin and tannin.



Guarana is used in many cosmetics because of its potent antioxidant and antimicrobial properties.

Guarana is often used in energy drinks because it has stimulants like caffeine and theobromine.

## THE TANG LEATHER COLLECTION

Elegance Inspired by a Golden Age



ShenYunShop.com  
TEL: 1.800.208.2384

## New Book Challenges COVID-19 Vaccine Narrative

KRISTEN FISCHER

As more research is published on people who have taken the COVID-19 vaccine, more data—at least the data that make it to publication—are revealing that many people have had harmful effects from the injections.

Of course, COVID-19 itself came with health consequences, and everyone understood that. The vaccine was supposed to be so safe and effective that it was acceptable to even coerce people into getting it. In fact, even those who caught COVID-19 and achieved natural immunity were compelled to get the vaccine.

In her latest book "Neither Safe Nor Effective: The Evidence Against the COVID Vaccines," Dr. Colleen Huber shares some of the data that have been emerging.

The Arizona-based naturopathic medical doctor says the damage done so far from the mRNA vaccines is undeniable. She also highlights issues in the medical and media fields



"Neither Safe Nor Effective: The Evidence Against the COVID Vaccines" by Dr. Colleen Huber.

that have kept people from getting access to facts. This all comes as many people are still being pressured to take the vaccine or are suffering consequences.

Huber encourages people to pick up the book and to think for themselves while reading it.

"You won't get past chapter one without being convinced that these vaccines shouldn't be used on anyone, because of all the damage that has been seen in vaccinated populations," she said.

### Examining Vaccine Effects

In the book, Huber discusses how mRNA is the culprit behind the risks and damage in people. The technology had never been used safely in the past. It's always had "wildcard dangerous effects in the body," she said.

The mRNA mechanism sets in motion a process that can affect the DNA of the person and impact multiple organs in unwanted ways.

For example, a Swedish study published this year shows that the Pfizer vaccine enters the DNA of liver cells within six hours.

"This, in turn, changes how the DNA of the body produces new proteins," Huber said. "In other words, the liver of a vaccinated person is gradually becoming different, and it is too early to know how and to what extent.

"The liver is responsible for hundreds of metabolic functions, so this is one of

many reasons why taking these vaccines is so horribly reckless.

"We cannot yet be certain about this happening in other organs, because that research hasn't yet been done, and this, again, is because the technology is still so new."

Based on data she reviewed from the United States, Europe, and Israel, Huber said there are demonstrated cardiovascular injuries such as heart attack, cardiac arrest, myocarditis, and pericarditis.

Other common side effects were neurological injuries such as Bell's palsy and seizures, new and aggressive cancers, and liver diseases.

In the book, Huber focuses on evidence of the first three adverse effects, because they were "by far the most thoroughly documented, and the least deniable," she said.

The book includes data presented by Pfizer and the FDA under court order (after a lengthy back-and-forth battle). The data show that of the 30,096 people in the clinical trial (and an additional 2,990 on whom they have no data), there were 1,223 deaths and 11,361 people who had "not recovered at the time of report."

It's too early to know the effects of the vaccine, especially in those who got the initial vaccine (or two-dose vaccines) but didn't get the boosters. Some people who had the initial vaccine and had some adverse effects took ivermectin, vitamin D, N-Acetyl Cysteine (NAC), and pine needle tea for relief. Ivermectin gives the best results, Huber believes, because it has known mechanisms against the spike proteins.

### More Jobs, More Damage?

Huber believes that the more vaccines (or "boosters") a person gets, the more dam-

age that can be done.

She highlights data from the United Kingdom that show an especially high COVID death rate there. The U.K. is one of the most heavily vaccinated countries in the world, with 92 percent of people older than age 12 vaccinated.

The poorer outcomes, she believes, are linked to more mRNA being added to the body "in order to churn out even more of the devastating spike proteins into the cardiovascular system."

**The mRNA mechanism sets in motion a process that can affect the DNA of the person and impact multiple organs in unwanted ways.**

### Setting Records Straight

In addition to issues surrounding the quality and suppression of data, there's also conflict about research that gets published and those that never make it into journals (and, therefore, the mainstream media).

Huber echoes Dr. Peter McCullough, a well-known cardiologist who has sounded the alarm on how journals have suppressed research on early treatments for COVID-19.

Huber said that it's hard to get her hands on data, especially if the data have never made it to publication.

"Governments in one country after another, first the U.S., then the UK and Scotland, which had collected the most data, suddenly hid data," she said.

### Unmasking the Medical Community

If the vaccines were so harmful, why did so many doctors pressure patients to take them?

"Doctors are threatened in many ways by rogue and frequently lawbreaking medical boards—the domineering antagonists to the passive doctors—to 'shut up and do what we tell you,'" she said, citing her own experience.

"Few doctors have the time, energy, bandwidth, or, frankly, the 'cojones' to rebel against the bureaucrats."

If the general trend of the medical profession is to recommend COVID vaccines, and if threats are made against any who would choose to rebel, you will find a majority going along, Huber said. "That is, until the tide turns. When the tide begins to turn," she said, "it's much easier for an individual doctor to move with the herd against bad medical treatments, such as the COVID vaccines."

She said many doctors are no longer pressuring patients to get the vaccines. "And it all seems to be happening at once, at least in pediatrics and cardiology," she said.

"When the flock of birds turns and starts flying in a different direction, each bird turns in cooperative, almost choreographed, synchrony."

Huber compares the shift to that which occurred with the pain-relieving drug Vioxx. In the early 2000s, it was highly recommended. But in 2007, the harms of the drug were exposed, and doctors stopped prescribing it.

Now, avoiding that drug is "not at all controversial," she said. "No medical board punishes a doctor for avoiding Vioxx."

Kristen Fischer is a writer living in New Jersey.

## Intermittent Fasting Can Improve Blood Sugar in Diabetics: Study

MAT LECOMPTÉ

New research has found that intermittent fasting, a popular eating style, may help people with Type 2 diabetes to better control their blood sugar.

The study found that people with diabetes who restricted their eating to a daily 10-hour window had blood sugar levels in the normal range for about three hours longer than when they ate whenever they pleased.

The patients also experienced lower 24-hour blood sugar levels and consistently lower morning fasting glucose levels when they participated in a time-restricted eating pattern.

For the small study, 14 adults with Type 2 diabetes were asked to limit their food intake to a 10-hour window each day, with 6 p.m. being the cutoff point. They wore a continuous glucose monitoring device that measured their blood sugar every 15 minutes.

People were told to eat how they usually would during their intake window, with no food restrictions. They spent three weeks on the intermittent fasting diet and another three weeks eating without any time limitations.

**When you fast, your body breaks down glycogen stores, which is sugar stored in the body.**

During the time-restricted eating, the participants had normal blood sugars for an average of 15 hours per day, compared to 12 hours when they ate whenever they wanted.

The 10-hour window was also safe for the participants, who didn't experience any significant increase in hypoglycemia (low blood sugar) or any other serious side effects.

When you fast, your body breaks down glycogen stores, which is sugar stored in the body. When they're gone, your body turns to using fat. In essence, it optimizes sugar metabolism to limit excess sugar in the bloodstream. It can also contribute to some fat loss.

A 10-hour eating window is also relatively generous, as other types of intermittent fasting set a six- to eight-hour eating window.

What's also interesting about this study is that there were no dietary limitations. Had the participants been instructed, for example, to eat more fruits, vegetables, and healthy fats, while limiting processed foods, the results may have been even better.

Mat Lecompte is a health and wellness reporter for *Bel Marra Health*, which first published this article.



Intermittent fasting gives the body a rest from digesting food, a metabolic break with benefits. A study finds it could help diabetics manage blood sugar.

# How the Brain Clears Toxins

Neurological disease linked to abundance of toxins in the brain

RICHARD SCHOONMAKER

Many of you have heard of the lymphatic system—the waste removal system of the body responsible for clearing out cellular debris, fluid, and inflammatory byproducts. The lymphatic system is found throughout the body and is comprised of multiple organs including the spleen, tonsils, adenoids, and the thymus gland. Lymph nodes are small, bean-shaped organs located along lymph channels, which help pump and remove lymphatic fluid, the waste product of the various systems of the body.

Lymph nodes are located deep within the body along the limbs, but also strategically placed around internal organs, too. What's interesting about the lymphatic system, though, is that while its function is well understood for much of the body, we've just begun to understand how it works for the brain.

## The Self-Sustaining Body

But before we dive into what we've newly learned about this system, let's discuss how and why the body must regulate energy and waste removal.

The human body is exceptionally capable of taking care of itself. It comprises a vast system of internal organs, nerves, connective tissues, and many other structures. These structures and tissues each have specific functions, from support to energy production, signal transmission, secretion, elimination, and more.



The glymphatic system helps the brain clear out cellular debris and waste products created during normal function. If waste accumulates, problems ensue.

While the body is almost infinitely self-sustaining when given the right tools to support an optimal internal environment, maintaining that self-sufficiency requires several processes. One of these processes includes the removal of harmful byproducts of cellular metabolism in the body.

The body is a multitude of complex structures and systems that work coherently to generate life. In order to give expression to that life, it must produce energy. In order to produce energy, we must consume enough food, get enough hours of sleep at night, and drink enough water—the general staples of well-being.

## ATP: Cellular Energy

Energy, in its most broken-down form, is found within a molecule known as adenosine triphosphate (ATP). This molecule is the energy source for the cells. ATP is composed of a single adenosine molecule with three separate phosphate groups attached. The energy from ATP is found within the bonds of the molecule—stored up until a phosphate group cleaves off, resulting in the release of energy.

While one portion of metabolism creates and uses ATP, the body must also be able to clear out the waste after ATP has been used. This is akin to carbon dioxide emissions from gasoline-burning vehicles—we have to be able to “burn off” our emissions that are created from the energy-producing cells in the body.

So what does this waste buildup process look like? Examples of this can be found throughout the course of the day in many of the different actions we perform, from eating and drinking to exercising—and even simply breathing.

They can include when we contract a muscle over a brief period of time during a bicep curl, and even when we're fighting off pathogens.

When we exercise, we utilize phosphocreatine to generate adequate levels of ATP in muscle fibers, leaving behind creatinine and broken down myofibrils—both of which must be removed in order for proper muscle tissue healing to occur.

When we fight off a virus, our immune system detects a foreign pathogen and initiates a response that includes increasing our metabolism. This increased metabolism demands a higher energy requirement from ATP to fuel the immune cells to fight off the virus—part of the reason why we commonly develop a fever.

Following this immune process, dead cellular debris and neutralized viral cells must be eliminated in order to prevent



If our glymphatic system isn't working well, our brain can't clear out toxins and we risk cognitive decline.

chronic inflammation and buildup of unnecessary materials.

Waste elimination takes many forms in the body and throughout every region. It's paramount to overall health. What's exciting is that it wasn't until recently that research began focusing on this component of the human body—further deepening our understanding of how the body neutralizes substances and what the body must then do in order to eliminate byproducts before they can cause harm.

## What Is the Glymphatic System?

Now that we have a deeper understanding of energy generation via ATP, the lymphatic system and its included structures, and a basic understanding of waste removal, let's look at the glymphatic system, also known as the lymphatic system of the brain.

The reason the glymphatic system is referred to as such is due to its association with the formal lymphatic system of the body, while being tightly regulated by a major group of cells within the central nervous system called glial cells.

The primary form of glial cells include astrocytes, microglial cells, and oligodendrocytes.

These types of cells have multiple purposes and are incredibly important for the central nervous system to function at its most homeostatic, efficient state.

Because glial cells perform multiple actions and constantly fluctuate in activity, their rate of energy consumption is high. Having a higher energy consumption, therefore, results in significant and abundant waste products.

The glymphatic system receives cerebrospinal fluid and interstitial fluid waste

from the brain and drains into the peripheral lymphatic system of the body.

Not only does the glymphatic system eliminate waste created from the brain, it also removes any excess waste that's able to pass through the structures protecting the brain in the first place.

There's a tightly regulated barrier between the brain and the blood vessel system surrounding it, called the blood-brain barrier (BBB). This barrier is responsible for strictly controlling neurotransmitters, solutes, molecules, ions, and various other materials from entering the brain, whether they be beneficial or harmful.

Under normal conditions, the BBB is capable of preventing damaging materials from passing through. However, metabolic disease, neurological dysfunction, trauma, malnutrition, and various other conditions are capable of weakening the BBB and allowing unnecessary waste products and damaging molecules to pass through.

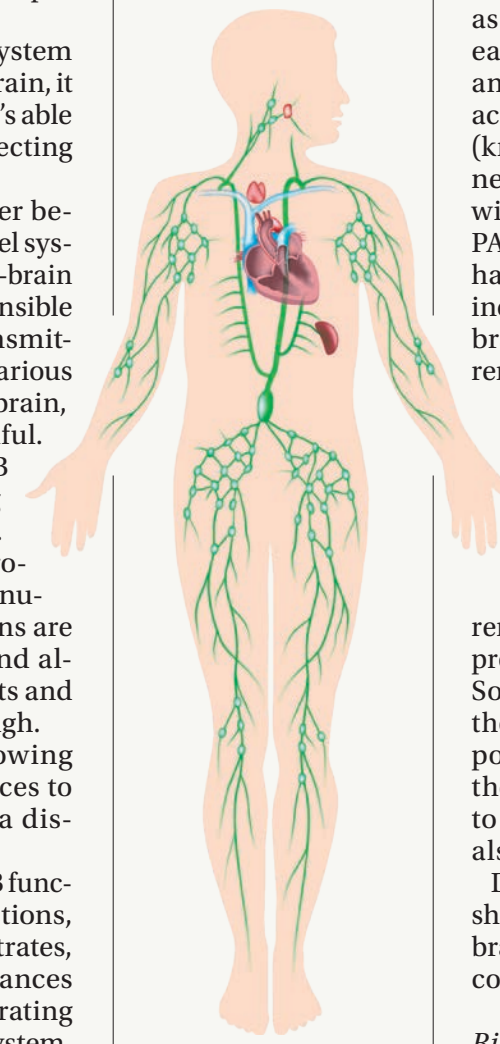
It goes without saying that allowing these types of damaging substances to cross the BBB will only further a diseased state.

Normal transport through the BBB functions via ion channels, tight junctions, aquaporins, and other gated substrates, and once through the BBB, substances are further distributed via a penetrating vascular system and ventricular system.

In various areas of the brain, there are ventricles that house cerebrospinal fluid, a fluid critical in clearing the brain of toxins, cellular debris, soluble proteins, and metabolic products.

This fluid then joins interstitial fluid to be drained out of channels known as

**A significant overload of waste material is found in patients diagnosed with some of the more common neurological diseases.**



Our body uses the lymphatic system to clear cellular debris and more.

ALL IMAGES BY SHUTTERSTOCK

aquaporin-4 channels into the Virchow-Robin space, a region that surrounds the blood vessel system beneath the sub-arachnoid space, which is one of the layers surrounding the brain just beneath the skull. It's the space between the thin layer closest to the brain known as the pia mater and thicker arachnoid mater of the brain that is one layer closer to the skull.

From this space, the combination of cerebrospinal fluid and interstitial fluid eventually drains into the peripheral lymphatic system via the jugular vein and joins the rest of the body's waste material.

## Neurological Diseases

The reason the glymphatic system deserves more attention is due to the growing body of research demonstrating the significant overload of waste material found in patients diagnosed with some of the more common neurological diseases.

Patients suffering from conditions such as Alzheimer's disease, Parkinson's disease, dementia (of the Alzheimer's type and not), neuro-autoimmunity, pediatric acute-onset neuropsychiatric syndrome (known as PANS), pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (known as PANDAS), concussion, and many others have been shown to have a significantly increased level of waste products in the brain, and furthermore a dysregulated removal system of those products.

In several of these diseases, there's an altered brain neurochemistry due to an overdominant inflammatory response. When left unchecked, this inflammation can result in further damage and dysfunction.

Allowing a pro-inflammatory state to remain untreated only results in disease progression and worsening of symptoms. So while addressing key components of these diseases outside of the brain is important, ensuring that we're providing the optimal environment for the brain to rid itself of toxins and pathogens is also vital.

Due to the glymphatic system's relationship to removing waste material from the brain, providing treatment to this system could provide a therapeutic benefit.

*Richard Schoonmaker is a board-eligible chiropractic neurologist practicing at Restorative Wellness Center in Exton, Pa. He's currently earning his post-doctorate master's in clinical neurology and has an interest in neurophysiology and its relationship to the autonomic nervous system.*

# Healthy Ways to Replenish Electrolytes

Electrolytes fuel the electrical charges that are the very spark of human life

Continued from Page 1

I shared this information with clients and friends who were experiencing feeling drained by the heat, and many of them echoed what I experienced—that electrolyte replenishment beverages helped them feel more hydrated and nourished and better able to weather the dog days of summer.

## Electrolytes, Dehydration, and Electrolyte Imbalance

Electrolytes are minerals that have an electrical charge. They assist in proper muscle function, maintaining fluid balance, and supporting nerve activity. They include sodium, chloride, potassium, magnesium, and calcium. When you lose a lot of fluid in a short period of time, you can become deficient or imbalanced in these nutrients.

Electrolytes are required for conducting electrical charges through the body. These charges are involved in every bodily function, from cellular signaling and brain function, to nerve signaling and muscle movement. They are the very spark of life.

Dehydration—a condition that occurs when more fluid leaves the body than enters the body—can affect the concentration of the body's electrolytes, leading to an electrolyte imbalance. Because most people don't drink enough water, mild dehydration is a common medical condition.

Dehydration and electrolyte imbalance can also develop from sweating while working or exercising outdoors on a hot summer day; from medical conditions such as diarrhea, vomiting, fever, loss of blood; from diseases such as diabetes; or as a side effect of some medications such as diuretics.

Elderly people are at a higher risk of dehydration and electrolyte imbalance because

they are more apt to develop medical conditions or to take medications that increase this risk.

Signs and symptoms of dehydration in adults and the elderly include fatigue, dizziness, confusion, headache, irritability, being disoriented, thirst, dark urine, and sunken eyes. Especially in older adults, weakness and dizziness can provoke falls, a common cause of injury in the elderly.

Depending on which type of electrolyte imbalance develops, a number of symptoms can result, including muscle aches, spasms, twitches, and weakness; heart palpitations or irregular heartbeat; blood pressure changes; excessive tiredness; confusion; and nervous system disorders.

Moderate dehydration and electrolyte imbalance are often treated with intravenous hydration in urgent care, the emergency room, or the hospital. Mild dehydration and electrolyte imbalance can usually be treated by having the person drink more fluids.

## Sugar-Free Ways to Replace Electrolytes

A 20-ounce Gatorade thirst quencher con-

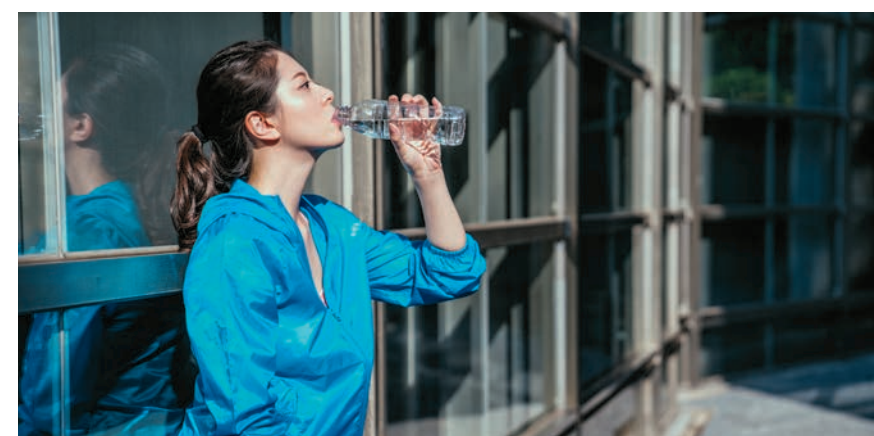
tains 34 grams of sugar—all from added sugars. Though some serious performance athletes may need to quickly fuel with calories from sugar, if you're the average American, you won't. According to the Centers for Disease Control and Prevention, Americans are eating and drinking too many added sugars, which can contribute to health problems such as weight gain, obesity, Type 2 diabetes, and heart disease.

To avoid drinking commercial electrolyte replacement beverages made with added sugars, artificial sweeteners, artificial colors, or additives, try the following healthier ways to increase your intake of electrolytes.

*Melissa Diane Smith is a holistic nutrition counselor and journalist who has been writing about health topics for more than 25 years. She is the author of several nutrition books, including "Syndrome X," "Going Against the Grain," "Gluten Free Throughout the Year," and "Going Against GMOs."*

To find the studies referenced in this article, please see the article online at [TheEpochTimes.com](http://TheEpochTimes.com)

ALL PHOTOS BY SHUTTERSTOCK



Our body depends on an electrically-charged biochemistry. Certain minerals called electrolytes are critical to that electrical symphony.

## Coconut Water

Coconut water is a clear liquid in the fruit's center that is tapped from young, green coconuts. It contains easily digested carbohydrates in the form of naturally occurring sugar and is rich in antioxidants, electrolytes, and minerals.

Sometimes dubbed “Mother Nature's sports drink” by marketers, unsweetened coconut water has fewer calories, less sugar, less sodium, and more potassium than a commercial sports drink, which has added sugars. A 2010 study with different groups of exercisers concluded that coconut water showed fluid retention similar to a sports drink, and, for those who accept and tolerate coconut water well, the drink may be recommended for post-exercise rehydration.

The healthiest brands of coconut water are made from young coconuts that are sustainably grown and harvested, contain no additives, preservatives, or added sugars, and aren't made from concentrate. Brands to look for include Taste Nirvana and Harvest Bay plain variety. For an eight-ounce serving, these brands of coconut water supply 40 to 48 calories and eight to nine grams of naturally occurring sugar.

Coconut water powder, available from several different companies, is another option. Stir or shake one tablespoon of powder into a glass of water to quickly create a hydrating sports drink, or follow the label directions. To avoid added sugars, read labels of coconut water powder carefully, watching out for sneaky forms of sugar such as maltodextrin. Laird Superfood Hydrate coconut water powder, available in three flavors, is one brand that contains no added sugars.

Coconut water contains easily digested carbohydrates, antioxidants, electrolytes, and minerals.



## Cactus Water or Cactus Nectar

The people of the Sonoran Desert have long used prickly pear cactus, also called nopal, for medicinal and nutritional purposes. They believe it's an essential element to their health and survival. That may be for good reason: Research has found that prickly pear cactus is a good source of nutrients, including electrolytes and antioxidants.

### TRUE NOPAL CACTUS WATER:

This convenient, ready-to-drink beverage is made with water, prickly pear concentrate, and natural flavor. It has a refreshing yet subtle fruit taste and no added sugars or sweeteners. It contains about half the calories and sugar as the leading brand of coconut water while still providing electrolytes, especially potassium and magnesium, and antioxidants. An eight-ounce serving supplies 20 calories and four grams of naturally occurring sugars.

### ARIZONA CACTUS RANCH:

Comes as prickly pear nectar, or 100 percent pure prickly pear concentrate. As a source of electrolytes and antioxidants, take one teaspoon per day. Or make prickly pear electrolyte water by adding two to four teaspoons of prickly pear nectar to a 16-ounce bottle of water, and shake it or stir it before drinking.

### NOTE

Both coconut water and cactus water are low in sodium. If you think you could be deficient in sodium, which is common during electrolyte depletion, add a pinch of high-quality salt to a meal, or eat a salty snack, such as salted nuts, fermented raw sauerkraut, or a pickle, in addition to drinking these higher-potassium electrolyte beverages.



Prickly pear is native to the Americas.

## A Homemade Electrolyte Drink

There are creative ways to make your own electrolyte replacement beverages that naturally supply potassium, sodium, magnesium, and calcium. Here are two ideas of no-added-sugar, electrolyte-containing combinations to try:

### RECIPE ONE

Juice 6 stalks of celery (a natural source of sodium, potassium, magnesium, chloride, and phosphorus), 1 apple, and 1 lemon.

### RECIPE TWO

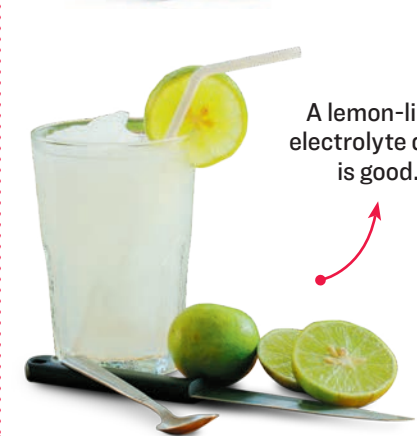
Blend 1 banana, 1 cup almond milk, and 1 cup kale. The banana and almonds are rich in magnesium and potassium. Kale is a superfood and an excellent source of calcium and magnesium.

### THE PALEODIET.COM

This website has recipes for several electrolyte drinks including a lemon-lime electrolyte drink made by blending until smooth 1/2 cup freshly squeezed lemon juice, 1/2 cup freshly squeezed lime juice, 3 or 4 pitted Medjool dates, and 5 cups of water until smooth in a high-speed blender. The dates add potassium, calcium, and magnesium—and natural sweetness.



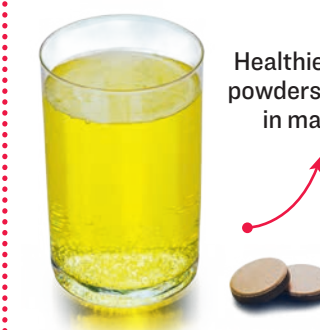
Add some Medjool dates and it's even better.



A lemon-lime electrolyte drink is good.

## Powdered Electrolyte Supplements

You can also mix a powdered electrolyte dietary supplement into water and drink it as needed. Ultima Replenisher Electrolyte Mix and Vega Sport Hydrator are dietary supplements not sweetened with sugar, but rather are naturally sweetened with sugar-free stevia extract. Containing just nutrient supplements and stevia, the Ultima Replenisher product has zero calories. Vega Sport Hydrator contains coconut water powder in addition to nutrients and stevia, and has five calories per serving.



Healthier electrolyte powders are available in many stores.

## Eat Mineral-Rich Foods and Drink Water

Marketers have done an effective job of making you think you need a beverage to replace electrolytes. But you can obtain the critical minerals from many foods, too. In most cases, you can eat foods rich in appropriate minerals and accompany them by drinking water to adequately replenish electrolytes without a special drink.

### FOR SNACKS OR WHEN MAKING MEALS, INCLUDE:

- Real salt, pink Himalayan salt, or Celtic sea salt to provide sodium and chloride;
- fresh fruits and vegetables to load up on potassium;
- protein-rich foods, such as meats, poultry, fish, nuts, and beans for phosphorus;
- dark green leafy vegetables and nuts to supply magnesium; and
- dairy products, nuts, and greens for calcium.



Salt offers sodium and chloride.

**Elderly people are at a higher risk of dehydration and electrolyte imbalance because they are more apt to develop medical conditions or to take medications that increase this risk.**

# ‘Chemical Imbalance’ Theory of Depression Hugely Profitable—and It’s Not Even True

Ignoring other causes of depression has left millions of Americans without truly effective treatment

Continued from Page 1

## A Powerful Drug Franchise

It’s hard to overestimate the medical, financial, and sociological consequences of the chemical imbalance theory, which propelled the 1987 FDA approval of the SSRI antidepressant Prozac and which is still followed to this day. Several years ago, Harvard Health Publishing estimated that about 1 in 4 American women in their 40s and 50s were taking antidepressants.

Thanks to direct-to-consumer marketing (or “mongering,” as some say) about depression, people with life problems or occasional bad moods absorbed the chemical imbalance messaging, diagnosed themselves with depression, and presented themselves to doctors’ offices.

Family, job, health, money, or housing problems were no longer a reason for feeling down or defeated, suggested aggressive SSRI advertising campaigns; if you were depressed, you had a chemical imbalance—regardless of whatever else may have accounted for your depression (such as the loss of meaning and social connection often observed in modern society).

Whereas the antidepressants that preceded SSRIs, some called monoamine oxidase inhibitors, were connected to neurotransmitters in the brain such as serotonin, dopamine, and norepinephrine, SSRIs reduced the chemistry to a simple problem-solution equation, which the public readily bought. Thanks to the new chemical imbalance of serotonin theory of depression, drugmakers had a formidable new franchise; doctors, a ready-made, patient-pleasing tool; the media, reliable new advertisers; and Wall Street, hot new stocks—all almost overnight. Worldwide sales of SSRIs have been estimated to soar as high as \$18.29 billion by 2027.

## Response From Mainstream Medicine

Psychiatrists and the American Psychiatric Association (APA), which is highly funded by drugmakers—70 percent of authors of the APA’s Diagnostic and Statistical Manual of Mental Disorders Fifth Edition were drugmaker funded, as reported by ABC news—were among the first to push back against the Molecular Psychiatry article. Chief among protestations were “we never promoted the ‘chemical imbalance’ theory”—no, you let drug makers do that, cynics might say—and “no one really understands why or how antidepressants work.”

The “third rail” for drugmaker-funded practitioners is the suggestion that mental illness may not be from physical conditions at all. As Mark Horowitz, co-author of the Molecular Psychiatry article, put it, “One interesting aspect in the studies we examined was how strong an effect adverse life events played in depression, suggesting low mood is a response to people’s lives and cannot be boiled down to a simple chemical equation.”

If depression comes from stress, trauma, grief, loneliness, and social conditions such as poverty, as Horowitz suggests, it wouldn’t be amenable to medication treatment. Worse, if it weren’t a permanent chemical imbalance as the serotonin theory of depression implies, it wouldn’t turn into lifelong medication prescriptions, which drugmakers seek and treasure the most.

“Although viewing depression as a biological disorder may seem like it would reduce stigma, in fact, research has shown the opposite, and also that people who believe their own depression is due to a chemical imbalance are more pessimistic about their chances of recovery,” Moncrieff said.

Psychiatrist Peter Breggin, who has been called the Conscience of Psychiatry, elaborated on this idea to The Epoch Times:

“Since the ancient Greeks, physicians have wanted to believe the mental and emotional distress must have biological origins. That allowed them to include ‘mental diseases’ within their specialty. “With the development of massive drug company involvement in routine psychiatric practice during the advent



of the antipsychotic drugs in 1954, drug companies also began pushing the biochemical and biological basis of human experiences such as anxiety, depression, manic-depression (now bipolar-disorder), and schizophrenia.

“Then, in the late 1980s, in anticipation of the approval of Prozac for depression by the FDA, Eli Lilly and Company conducted an international advertising campaign claiming that depression is caused by a biochemical imbalance in serotonin. It was apparent from the start that this was pure fantasy.

“In my books and scientific articles as far back as 1983, I pointed out the continuing truth that there are no known biochemical imbalances in the brains of mental patients until they are put there by the neurotoxic effects of all psychiatric drugs.

“Now, a review article by British psychiatrist Johanna Moncrieff has reconfirmed that research fails to show any connection between depression and abnormalities in serotonin metabolism in the brain. No so-called ‘mental illnesses’ are known to be genetic or biochemical in origin—it’s all medical and pharmaceutical company hype.”

Breggin and his wife, Ginger, wrote the new book “COVID-19 and the Global Predators: We Are the Prey.”

## Don’t Stop SSRIs Abruptly, Warn Both Sides

Whether they believe SSRIs are specious and over-prescribed or valuable treatments, clinicians warn patients not to stop the drugs abruptly.

In 2018, The New York Times exposed that SSRI antidepressants can be difficult to quit and downright addictive (though drugmakers prefer to call the addiction effects a “discontinuation syndrome”). Some patients say they weren’t warned by their doctors that they may be indefinitely

parked on the drugs because of the side effects such as dizziness, nausea, headache, and brain zaps that they experience when trying to stop the drugs, the newspaper reported.

Brian, a 29-year-old Chicagoan who asked not to give his last name, said that he has remained on an SSRI antidepressant for years despite his wish to quit.

“Every time I try to stop, I get something that feels like an electrical current in my head, and I can’t do it,” he said.

The NY Times article drew a huge backlash from psychiatrists. “By amplifying the social media echo chamber, the article creates the unfortunate impression that most patients are forced to continue antidepressants out of fear of withdrawal rather than out of prevention of recurrence,” read a letter to the editor signed by a group of 39 psychiatrists, who termed depression as “chronic” and “undertreated.” At least 35 of the letter signers were affiliated with Columbia University’s College of Physicians and Surgeons, an institution that received a \$250 million gift from former Merck CEO Roy Vagelos and his wife, Diana, in 2017.

Since their original marketing, SSRI antidepressants are also now known to increase bone loss and fracture risk, as well as the risk of the dreaded intestinal condition of Clostridium difficile.

## Then, Why Do SSRIs Work?

It’s generally agreed that SSRI antidepressants sometimes work, though not impressively, and not for all patients. But why? According to a follow-up paper by Moncrieff and Horowitz, “Any drug that changes normal brain activity is likely to have some impact on mood, and ... by virtue of changing brain chemistry, antidepressants also produce changes to normal mental activity and experiences.”

Antidepressants also cause numbing of the moods, the researchers say—“including not just sadness and anxiety but welcome emotions like happiness and joy”—which can reduce depression scores, making the drugs appear to be effective.

A paper in the Springer journal Inflammopharmacology suggests a possible SSRI mechanism could be decreasing “neuroinflammation [in the brain] through multiple mechanisms including the reduction of blood or tissue cytokines or regulating complex inflammatory pathways.”

Whatever the explanation, it remains true that other methods to treat depression, including exercise and cognitive behavioral therapy, have proven efficacy with additional benefits and no side effects.

## A Final Irony

Even as the premise through which millions of Americans were put on psychoactive drugs has been demolished, raising questions about the interface between medical care and misleading drug marketing, some news outlets have sought to politicize the contretemps.

Many media outlets went on the attack after Fox News host Tucker Carlson said: “First, we were told that SSRIs would save lives. Now, we learn they don’t actually work as intended. In fact, the whole idea behind the drug was completely wrong. And yet—and here is the best part—people are ignoring this news, and the drugs are still being prescribed.”

Rolling Stone magazine published a hit piece portraying Moncrieff as a conspiracy nut with a history of criticizing the over-medication of mental conditions and attributing some mass shootings to psychoactive drugs. The article, “Who Is the Psychiatrist Behind the Antidepressant Study Taking Over Right-Wing Media?,” reveals the 180-degree turn that progressive outlets have taken toward drugmakers since COVID-19—forgiving and forgetting original distrust of corporatism, capitalism, monopolies, and the drugmaker-caused opioid scourge—in order to be able to demonize rivals.

Meanwhile, millions on SSRI antidepressants now face the prospect of quitting.

*Martha Rosenberg is a nationally recognized reporter and author whose work has been cited by the Mayo Clinic Proceedings, Public Library of Science Biology, and National Geographic. Rosenberg’s FDA expose, “Born with a Junk Food Deficiency,” established her as a prominent investigative journalist. She has lectured widely at universities throughout the United States and resides in Chicago.*



A review of decades of research shows there’s no evidence that serotonin levels or serotonin activity are responsible for depression.

# Why Goals Fail, and How to Do Better

There is one thing we fail to plan for that can derail our progress on goals

MIKE DONGHIA

A goal is any outcome in your life that wouldn’t happen without an intervention. It’s a detour from the path of least resistance.

Maybe you recognize that your current habits aren’t cutting it. You have greater ambitions for your life than the trajectory your current behaviors have you on.

You’re going to need to change those behaviors, a pursuit that is going to be hard work no matter how you approach it.

In fact, embracing the difficulty, preparing for it, and coming up with a plan for the kind of person you want to be when it arrives is exactly the point on which your success will hinge. And failing to plan for this is the No. 1 reason, in my experience, that goals fail.

Are you up for the challenge? Let’s start by understanding why setting goals is so easy, but achieving them is so hard.

## Goal Setting Is Easy

The moment you set a goal is the moment of peak optimism. At that point, you have recognized a deficiency in your current path, and are imagining a better future for yourself.

There’s a strong case to be made that a healthy dose of self-belief (maybe even a little self-delusion) is exactly what you need in the beginning, otherwise, you might talk yourself out of the hard work that lies ahead.

Goal setting also temporarily relieves some of the existential pressure you may be feeling. Are you disappointed in yourself, or frustrated with your lack of progress in life? Well, at least now you have a plan in place. Simply knowing that the future might be brighter, is enough to make us feel better. But don’t be fooled into thinking that this is real progress, it’s only the beginning.

## Change Is Hard

It’s only after recognizing a need to change, and setting an intention to improve some area of your life that the real work begins. Here’s a roadmap to keep in mind.

**Honeymoon Phase:** At first, in what’s known as the honeymoon phase, you will be excited by your new goals. The novelty of the change will be its own motivation source for a few days to a few weeks.

**The Dip:** You’ve reached the first hard part. You are currently in “no man’s land,” the low place between the initial supply of motivation provided by novelty and optimism,

# Research Finds Benefits of Guilt and Confession

A new study has found there are times when it helps to admit our lapses in self-control

LIZ ENTMAN

Guilt plays a role in whether admitting to a lapse in self-control helps us resist temptation in the future or makes us more likely to give in again, according to new research.

We’ve all slipped up when we’re trying to improve ourselves, perhaps by eating better or spending more wisely, and sometimes when we do, we tell someone. But little is known about what we actually do next. Does admission help us or hurt us in reaching our goals?

“Most research on confession examines either religious contexts or criminal ones,” said Kelly Haws, a professor of marketing at the Owen Graduate School of Management at Vanderbilt University. “What we wanted to look at was the consequences of confessing everyday lapses of self-control—the kind of instances



When we start working on a new goal, we are full of hope. But then things get difficult and hope dims. That’s when it’s time to ask some questions.

ALL IMAGES BY SHUTTERSTOCK

## Tips to Reaching Your Goals



We are more motivated by avoiding pain than we are in gaining pleasure. Use this to your advantage and think about what you’ll miss out on if you don’t ever start on your path to reaching your goals.



Set realistic and easily achievable goals. We may want the stars, but first reach the moon. Make success easy at first to keep up the motivation.



Draw a roadmap. Without a set goal in mind, when things get difficult, we may easily lose our way, and our motivation.

be easy, right? I’m going to briefly describe how you might prepare in advance for the dip and why it works. But what I’m about to say won’t blow your mind, it’s going to sound rather simple.

The truth is, there’s no way to make meaningful behavior change feel easy. It’s hard work. The goal, rather, is to make you feel empowered. To remind you that there’s something you can do in those moments to work through your strong emotions. It won’t sound complicated, because complicated isn’t what you need when your emotions are running hot, what you need is a way to keep putting one foot in front of the other.

**Step 1: Create** a list of the negative emotions that most often derail you. Some examples include stress, uncertainty, frustration, or boredom.

**Step 2: Learn** to recognize and name these emotions when you feel them. Some triggers to look for are a faster heartbeat, shallow breathing, or a general sense of uneasiness.

**Step 3: Prepare** in advance a list of thoughtful questions to ask yourself once you’ve identified that you are in one of these emotional states. A helpful frame of mind for this activity is to think of what questions or advice you might offer a close friend who came to you for help. A few ideas:

- What emotions are you feeling right now?
- Why do you think you feel that way?
- Is it a normal part of the process of change, or a sign that something is off?
- Is this goal still aligned with your values? How important is it to you?
- If you were feeling magnanimous, how would you like to act?
- Is there anything stopping you from acting as if you were?

**Step 4: Now** for the crux of the practice: pause from your current activity and take a few minutes to work slowly through your own list of questions. Answer as if you are responding to a close, trusted friend. Better yet, do this activity with a close friend.

Yes, this in itself is another habit to adopt, but I think you’ll find that if you are without motivation to do “real work,” it may be just the diversion you need. Research affirms that the healthiest way to work through hard emotions is to express them, not to repress them—which can lead to physical and psychological side effects.

The reason this four-step process works is that it slows you down and allows you to engage the rational side of your brain, instead of reacting impulsively. Also, if the questions are good, it creates a feedback loop where you can begin to learn what triggers your uncomfortable emotions and what you can do about them.

Thinking calmly through your emotions and creating a single, small intention (the smaller the better), reminds you that you aren’t powerless in the face of your strong emotions, you have agency and the power to act.

Go forward and use that power to do as much good as you can in the world.

*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.*



We all make mistakes. If we regret our actions and want to do better in the future, it helps to tell someone what we did.

on confession: public accountability and self-discrepancy—the degree to which a person feels their actions diverge from their standards.

“If you just wrote your confession on a piece of paper and tore it up, it wouldn’t work,” Haws said. “You need to know that someone else might see it.”

Furthermore, she said, when guilt is high, confessing reduces self-discrepancy—in other words, it brings us closer in line with how we think we ought to be—and that seems to help empower us to do better next time.

Haws said this research could eventually help organizations like weight-loss support groups and addiction recovery facilities understand how and when publicly confessing missteps to their peers can help their clients change their behavior—and when it might undermine them instead.

The paper appears in the Journal of Personality and Social Psychology.

*This article was originally published by Vanderbilt University. Republished via Futurity.org under Creative Commons License 4.0.*

ALL IMAGES BY SHUTTERSTOCK

# The Surprising Benefits of Cold Plunge Therapy

Research reveals the helpful effects sudden cold can trigger in the body

## 56 DEGREES F

Water at this temperature is cold enough to trigger a release of the neurotransmitter norepinephrine. Many people use colder water.



To find the studies mentioned in this article, please see the article online at [TheEpochTimes.com](https://www.theepochtimes.com)

LISA ROTH COLLINS

Perhaps you're familiar with the polar bear plunge, where individuals willingly jump, run, or dive into icy cold water.

Such events are typically done as fundraisers and aren't a routine activity. However, some people participate in cold plunge therapy, a healing technique that can be helpful for a wide variety of conditions and ailments when done correctly and with guidance.

If you try it, you'll be following in the footsteps of history, as people such as Hippocrates and Thomas Jefferson were advocates of cold water therapy.

### What Is Cold Plunge Therapy?

Cold plunge therapy, also known as cold water immersion or cold water therapy, is the practice of immersing yourself in cold water for a short period of time for healing purposes. Based on research, it appears that the temperature of the water may be adjusted depending on your tolerance, what you hope to achieve, and your health status. (Yes, there can be health risks, which are covered later.) Common temperatures used in cold plunge therapy can range from the high 30s to 59 degrees Fahrenheit.

### If you're looking for an energy boost and an improvement to attention span and focus, cold water therapy may be for you.

**Benefits of Cold Plunge Therapy** One of the more popular uses for cold plunge therapy is for athletes to help to reduce muscle soreness, improve athletic performance, and boost energy. Among several new studies on this topic is one published in the Journal of Experimental Orthopaedics in which the authors found that cold water immersion was significantly better at helping athletes to recover from exercise-induced muscle damage than was the use of ice massage.

If you're looking for an energy boost and an improvement in attention span and focus, cold water therapy may be for you. According to researcher Rhonda Patrick, making the plunge produces norepinephrine, a neurotransmitter that helps control energy, focus, and attention. Her research has also shown that cold plunge therapy may have the ability to improve insulin sensitivity, enhance memory, prevent muscle atrophy, boost the growth of new brain cells, and improve longevity.

Levels of norepinephrine are also associated with mood and depression. Research has shown that norepinephrine plays a significant role in motivation, intellect, and cognition, and naturally boosting its levels can positively impact mood and depression. One study has shown that healthy individuals who immersed themselves in cold water (56 degrees F) for 20 minutes demonstrated a significant improvement in mood when compared with those who didn't take the plunge.

Cold water therapy is also good for your immune system. The cold water causes the white blood cells to circulate more rapidly through your body. These infection-fighting cells also help produce other infection fighters, such as antibodies and T-cells.

Exposure to cold water can increase your resting metabolic rate, which may result in weight loss. However, this benefit has yet to be proven. Insulin sensitivity, however, may improve with cold water exposure.

According to a 2021 review published in the Journal of Applied Physiology, several studies have shown that "both acute and repeated exposures to the cold can improve insulin sensitivity and reduce fasting glycemia" in people who have Type 2 diabetes. Other potential benefits of taking the cold water plunge include improved sleep, better mood, increased blood flow, and reduced inflammation. Your resilience and mental toughness may improve as well.

### Cautions About Cold Plunge Therapy

As noted in one review study of previous research, "When cold water swimming is practiced by experienced people with good health in a regular, graded and adjusted mode, it appears to bring health benefits."

However, cold plunge therapy isn't for everyone. The body experiences significant stress when entering cold water, which is why it's strongly recommended that you consult your health care provider before engaging in this practice. It's also recommended that you proceed slowly, entering the water gradually and allowing your body to adjust to the shock.

Side effects can be serious, even deadly. Hypothermia is the main effect, which is characterized by shivering, confusion, memory loss, slurred speech, and exhaustion. Individuals who have known or unknown heart conditions are at risk of arrhythmia, respiratory distress, cardiac arrest, and sudden death.

### Cold Showering

If you don't have a tub for doing a cold immersion, taking a cold shower can also have similar effects. You can start with warmer water, slowly adjust it to colder water, finish with two minutes of cold water, and work your way up to more time.

### Bottom Line

Cold plunge therapy isn't for everyone, but it's a natural healing option that can be especially helpful for athletes and anyone who experiences exercise recovery challenges or injury, as well as for those who may want to improve their immune function, sleep, and mood, insulin sensitivity, and more. Be sure to consult your physician before trying it.

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



Hippocrates and Thomas Jefferson Were Advocates of Cold Water Therapy

Thomas Jefferson credited cold water foot baths for helping maintain his health.

The "Father of Medicine" used either hot or cold water therapy, depending on the need.

# Health Risks Linked to Leaving Lights on at Night

Light at night can disrupt sleep patterns and contribute to obesity, diabetes, and more

Our circadian rhythm is far more important than most people realize.



JOSEPH MERCOLA

**E**nsuring your bedroom is pitch black at night—without light exposure from a television, window, cellphone, or even your alarm clock—is a simple way to reduce your risk of chronic disease. It was only about 130 years ago that electric light was invented, bringing with it drastic changes in the way humans function on a daily basis.

Now that we're able to work, eat, and play well after the sun sets, artificial lighting has had immense benefits for us, but our endogenous circadian clocks haven't fully adjusted. The fact is, exposure to unnatural electric light, including light at night (LAN), disrupts sleep and many other biological processes.

The full effects of exposure to light at

**Remove all sources of light from your bedroom, including a digital alarm clock or cellphone.**

night are only beginning to be understood, but a study published in Sleep in June has demonstrated that exposure to any amount of LAN has detrimental effects on the health of older adults, increasing the risk of obesity, high blood pressure, and diabetes.

### Exposure to Light at Night Raises Risk of Chronic Disease

For millennia, humans were exposed to light from the sun during the day and near complete darkness at night, except for light from the moon, stars, and fire. Now, it's difficult for humans to avoid light exposure at night, which comes from televisions, computers, cellphones, light pollution, and a multitude of other sources.

"Whether it be from one's smartphone, leaving a TV on overnight, or light pollution in a big city, we live among an abundant

number of artificial sources of light that are available 24 hours of a day," Dr. Minjee Kim, lead author of the new study and assistant professor of neurology at Northwestern University Feinberg School of Medicine and a Northwestern Medicine physician, said in a statement.

Kim and colleagues conducted a real-world study involving 552 men and women between the ages of 63 and 84. They wanted to determine if exposure to LAN increased risk factors for cardiovascular disease, so they measured light exposure using wrist-worn devices over a seven-day period.

Compared to adults who weren't exposed to LAN, those who did experience light exposure at night were significantly more likely to be obese or have high blood pressure or diabetes. Specifically:

Continued on Page 12

# Glutamate: A Neuron Killer in Disguise

This common ingredient that makes snack foods irresistible is linked to neurodegenerative disease

DANIEL STANISLOWSKI

The discovery of glutamate more than a century ago was a milestone in the quest to make food as tasty as possible. Unfortunately, it took decades longer to learn that this amino acid is a critical neurotransmitter and that overeating it can have devastating effects.

Glutamate, in all its varied forms, has become a foundational additive in the so-called hyper-palatable processed foods we can hardly stop ourselves from

eating—despite endless warnings to do so. Processed foods are a leading cause of disease, and many are almost irresistible because of the savory umami flavor bestowed by glutamate.

Glutamate's most famous form—monosodium glutamate, or MSG—was discovered early on by the same Japanese chemist who discovered glutamate's flavor-enhancing power.

In 1908, Kikunae Ikeda extracted glutamate from seaweed and sparked a multibillion-dollar flavor-enhancing phenomenon. Today, it's widely used in potato chips, canned tuna, meat products, frozen meals, infant formulas, and other processed foods, and even in cosmetics and vaccines.

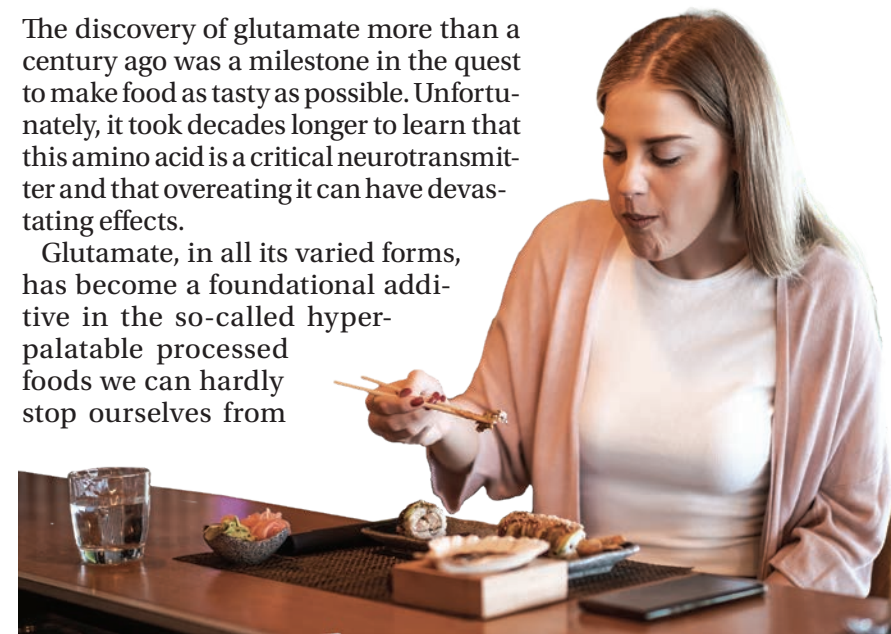
The most famous synthesized glutamate added to restaurant and processed foods is monosodium glutamate, or MSG.

**Consequences of Overconsumption** Significant research links the presence of too much glutamate in the brain to some of the most unsettling ailments of our day, including the neurological conditions of Lou Gehrig's disease, multiple sclerosis, Alzheimer's disease, Parkinson's disease, Huntington's disease, and others.

And avoiding it isn't easy, since it hides under many different names, from its more chemical-sounding variants such as L-Glutamic acid or sodium glutamate, to far less obvious ingredients such as yeast extract, gelatin, textured protein, or soy protein isolate.

There are some important differences between these different kinds of glutamate, however, notes DrAxe.com, the website of Josh Axe, a clinical nutritionist and certified doctor of natural medicine.

Continued on Page 13



MLADEN MITRINOVIC/SHUTTERSTOCK

## DONATE YOUR CAR

To a media that stands for TRUTH and TRADITION

Your old vehicle can support The Epoch Times' truthful journalism and help us get factual news in front of more readers.

### WHY DONATE TO US?

- Accept cars, motorcycles, and RVs
- Free vehicle pick-up
- Maximum tax deduction
- Support our journalists

Donate Now: [www.EpochCar.org](http://www.EpochCar.org) ☎ 1-800-822-3828

Our independence from any corporation or holding company is what ensures that we're free to report according to our values of Truth and Tradition. We are primarily funded through subscriptions from our readers—the stakeholders that we answer to, who keep us on the right track.

THE EPOCH TIMES

## 2022 NTD 8<sup>TH</sup> INTERNATIONAL CHINESE VOCAL COMPETITION



GOLD AWARD \$10,000  
Merkin Hall-KMC  
NEW YORK Sep. 2022

VOCAL.NTDTV.COM

REGISTER  
+1-888-477-9228  
VOCAL@GLOBALCOMPETITIONS.ORG

## The Sometimes Surprising Benefits of Chewing

Chewing does more than aid in digestion; it can change the biochemistry of your food and more

JOEL FUHRMAN

Your mother was right: It's important to chew your food thoroughly before swallowing it. Chewing is the first step in digestion. It breaks food into smaller particles, which increases the surface area so that digestive enzymes can more readily extract nutrients from it.

If we rush through our meals, we don't get the full phytochemical benefit of the foods we're eating. Slowing down and chewing thoroughly allow us to absorb more nutrients, help us to maintain a healthy weight, and even bring dental health benefits.

For some foods, particularly cruciferous vegetables (kale, cabbage, broccoli, etc.) and allium vegetables (onions, garlic, leeks, etc.), breaking down the structure of the food matrix drives chemical reactions that provide beneficial phytochemicals.

### Phytochemical Benefits of Chewing Thoroughly

The carotenoids in raw carrots are made more accessible when the plant cell walls are ruptured by chewing thoroughly. Carotenoids are embedded in the matrix of the food, and the structure needs to be broken down to allow the digestive system to extract and absorb them.

Glucosinolates in cruciferous vegetables (including cauliflower, collards, and bok choy) are converted by the enzyme myrosinase into breakdown products including indole-3-carbinol and isothiocyanates (ITCs), which are compounds with beneficial anti-cancer activity.

The extent of formation of ITCs depends on a number of factors, such as the food's glucosinolate content, temperature, pH, the presence of vitamin C (which accelerates the production of ITCs), and, importantly, how much the food is broken down by chopping, crushing, or chewing.

Glucosinolates and myrosinase are physically separated in the intact vegetable, and damage to the cellular structure is necessary to bring them into contact and start the chemical reaction. Heat inactivates myrosinase, and also degrades vitamin C, which slows or stops the reaction.

To maximize the health benefits, cruciferous vegetables should be eaten raw or chopped finely before cooking.

Similarly, onions, garlic, leeks, scallions, and shallots contain an enzyme called alliinase that is damaged by heat and physically separated from the sulfur compounds it metabolizes. Physically disrupting the plant cell structure by chopping or chewing well starts the chemical reaction that produces allicin and other beneficial compounds with antioxidant, anti-inflammatory, and anti-cancer effects.

Chewing thoroughly also enhances the conversion of dietary nitrate to nitric oxide by oral bacteria on the surface of the tongue. The body needs nitric oxide for a variety of functions, including cell signaling and blood pressure regulation.

Green vegetables are the richest sources of nitrate, and the production of nitric oxide by oral bacteria increases when we chew more thoroughly. Note that this process only occurs in the presence of oral bacteria.

For example, when we blend cruciferous greens into a smoothie, we'll achieve good conversion of glucosinolates to ITCs, but we won't get as much nitric oxide produc-

tion in the mouth as we'd gotten had we chewed the greens instead.

### Chewing and Body Weight

In addition to extracting more phytochemicals from vegetables, studies suggest that chewing thoroughly and eating more slowly help to maintain a healthy weight. Observational studies have found that participants who reported eating more slowly had lower body weight or gained less weight over time, compared to faster eaters. In another study, a greater number of chews and longer chewing time were associated with lower body mass index.

Chewing more thoroughly may promote a healthy weight by affecting hunger and satiety signals, which could reduce caloric intake in the current meal, and delay or reduce caloric intake in the next meal.

A meta-analysis of studies on chewing time found that participants reported feeling lower levels of hunger after a meal of longer versus shorter chewing time. Several studies also have found that prolonged chewing reduced intake of calories either at that meal or the next meal.

For example, one study had participants eat as much as they liked of a meal while chewing either 15 or 50 chews per bite. Those who chewed 50 times per bite consumed fewer calories. A similar study comparing 15 and 40 chews had similar results. A smaller bite size is also linked to lower food intake.

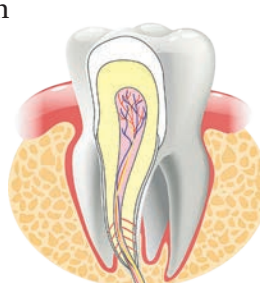
Diet-induced thermogenesis, also called the thermic effect of food, is the energy burned to digest, absorb, and metabolize food. It's a significant contribution to our daily calorie burn, making up as

much as 10 to 15 percent of the calories we expend in a day. There's evidence that chewing more thoroughly increases diet-induced thermogenesis.

### Better Chewing Protects Our Teeth

Chewing thoroughly stimulates more saliva production, which is a key factor in preventing dental erosion and dental caries (cavities). First, the extra saliva helps to remove small food particles and sugars from the teeth. Increasing saliva production helps to restore proper pH in the mouth after a meal by diluting and buffering acid; an acidic environment promotes erosion of tooth enamel. Plus, saliva contains minerals, specifically calcium and phosphate, which help to remineralize teeth.

*Joel Fuhrman, M.D. is a board-certified family physician, seven-time New York Times best-selling author and internationally recognized expert on nutrition and natural healing. He specializes in preventing and reversing disease through nutritional methods.*



Chewing increases saliva production which protects your teeth.

## DONATE YOUR CAR

To a media that stands for  
TRUTH and TRADITION

Your old vehicle can support The Epoch Times' truthful journalism and help us get factual news in front of more readers.

### WHY DONATE TO US?

Accept cars, motorcycles, and RVs  
Free vehicle pick-up  
Maximum tax deduction  
Support our journalists

Donate Now:  
www.EpochCar.org  
1-800-822-3828

Our independence from any corporation or holding company is what ensures that we are free to report according to our values of Truth and Tradition. We're primarily funded through subscriptions from our readers—the stakeholders that we answer to, who keep us on the right track.

THE EPOCH TIMES

Eating moss is a unique feature of the Nordic diet that is not included in the Mediterranean diet.



## The Nordic Diet

This counterpart to the Mediterranean diet is gaining fans

DUANE MELLOR

Every month, there seems to be a new diet doing the rounds online. One of the latest is the Nordic diet, which some claim could be better for your health than the Mediterranean diet. And research is starting to suggest that it could at least have some similar benefits.

The Nordic diet is based on the traditional foods available in Nordic countries. The core foods making up the diet are whole grains (particularly rye, barley, and oats), fruits (especially berries), root vegetables (such as beets, carrots, and turnips), fatty fish (including salmon, tuna, and mackerel), legumes, and low-fat dairy.

But unlike the Mediterranean diet, which has a long heritage and the health benefits of which have been consistently observed in population studies and investigations, the Nordic diet was actually developed by a committee of nutrition and food experts, alongside chefs, food historians, and environmentalists. The motivation for creating it was to improve dietary guidelines in Nordic countries in a sustainable way while also seeking to create a local identity linked to food and culture.

Still, the Nordic Diet shares a number of similarities with the Mediterranean Diet, in that it's made up of more whole foods and less or no highly processed foods. It also encourages eating more plant foods and less meat.

Perhaps the key feature of the Nordic diet is that it encourages people to include a diverse range of locally available foods, such as mosses, seeds, vegetables, and herbs (including those growing wild). This is why berries such as lingonberries are a core element of the Nordic diet, while citrus and tropical fruits aren't.

Although the bulk of both the Nordic diet and the Mediterranean diet are made



Nordic eating patterns were associated with a lower risk of heart disease and Type 2 diabetes in people from Nordic countries.



The Nordic Diet is similar to the Mediterranean Diet, in that it consists of more whole foods and few—if any—highly processed foods.

up of plants, the types of plants are very different. People following the Nordic diet would be encouraged to eat foods such as seaweeds and kelp (which are rich in nutrients such as iodine, omega-3 fatty acids, and even vitamin D), as well as other locally available vegetables and fruits. For the Mediterranean diet, people would include leafy vegetables such as spinach, as well as onions, courgettes, tomatoes, and peppers, which are all local to the region.



Lingonberries are local to the region and included in the Nordic diet.



Root vegetables are an important part of the Nordic diet.



Whole grains are one of the core food groups of the Nordic diet.

**The key feature of the Nordic diet is that it encourages people to include a diverse range of locally available foods like mosses, seeds, vegetables, and herbs.**

### What Does the Evidence Say?

The Nordic diet is still relatively new, being first published in 2010. This means that it's probably too early to tell if it reduces the risk of chronic diseases.

The Mediterranean diet, on the other hand, has been studied by researchers since the 1950s and 60s—meaning that we have a much better understanding of its links to lower risk of heart disease, Type 2 diabetes, and some cancers.

But some studies that have looked retrospectively at peoples' eating habits have found that people who ate diets similar to what's now known as the Nordic diet tended to be healthier. These studies found that Nordic eating patterns were associated with a lower risk of heart disease and Type 2 diabetes in people from Nordic countries. However, the relationship between lowering the risk of disease and Nordic diets is less strong in people from other countries. The reason for this is currently unclear.

The difficulty with these population studies is that they looked at a dietary pattern that technically didn't exist—as it hadn't been defined until after they took part in these studies. This means that the participants may not have followed the Nordic diet deliberately—making it hard to truly know if the health benefits were because of the Nordic diet itself.

However, a recent (but small) review looking at studies on the Nordic diet found that it can lower some risk factors for disease—including body weight and LDL cholesterol (often termed the "bad" cholesterol). But no significant improvements were seen in blood pressure or total cholesterol.

At the moment, it's probably too early to say whether following the Nordic diet has long-term benefits for health—although research on the foods included in the diet and its general dietary pattern certainly support it. Based on the research that is out there, it does appear that the Nordic diet is promising for health.

Research shows that some of the main staples of the Nordic diet (including whole grains and oily fish) are on their own linked to better health—including reducing the risk of heart disease. This suggests that combining these foods together when following the Nordic diet could lead to similar health benefits.

### Eat Local

The Nordic diet isn't just about health. It was also developed to help the planet by using local and sustainable foods to make a healthier diet.

At the moment, some of the main barriers preventing people from adopting the Nordic diet are taste preferences and cost. But if these barriers are overcome, the Nordic diet could very well be a more sustainable way of eating for those in Nordic countries, as might a locally derived diet for others.

While it's perhaps too early to say if the Nordic diet is healthier than other well-known diets out there—such as the Mediterranean diet—it might help inspire us to look at how we can adapt diets to focus more on consuming whole foods available and grown locally.

However, eating more of the foods common to both Mediterranean and Nordic diets—such as vegetables, seeds, legumes, whole grains, and fish—alongside consuming less red and processed meat, is likely to be the basis of a healthy diet. This, alongside eating a variety of foods and trying to be primarily plant-based, is more important for health than following a particularly named diet.

*Duane Mellor is the lead for evidence-based medicine and nutrition at the Aston Medical School of Aston University in England, and Ekavi Georgousopoulou is an assistant professor in nutrition and dietetics at the University of Canberra in Australia. This article was originally published by The Conversation.*



Some plants have unique biochemistry with two active ingredients locked away from each other by the structure of the plant's cells. And when you chew, they mix and magic happens.

## Tweak Your Diet to Prevent Recurring Kidney Stones

MAT LECOMPTÉ

If you've ever had a kidney stone, it wouldn't be surprising if your top priority in life is to make sure you never get another one.

The blinding, excruciating pain that comes when passing one is enough to strike fear into anybody.

New research suggests that about 30 percent

of people who've passed a kidney stone have a recurrence within five years. But the data also say there's something you can do to help to prevent it—and it's relatively easy.

Change your diet. It might not even require a full-scale change, either. It could be as simple as eating a little bit more calcium and potassium while cutting back on the processed foods that are all too common in the Western diet.

The researchers recommend two to three servings of low-fat dairy per day (milk, cheese, yogurt, etc.) to get roughly 1,200 milligrams per day (which is the current recommended daily intake).

Potassium consumption is a little less defined, but eating as many fruits and vegetables as possible can ensure that you're getting plenty.

Potassium-rich fruits and vegetables include bananas, grapefruits, apricots, mushrooms, peas, cucumbers, zucchini, and melons such as cantaloupe and honeydew.

Researchers from the Mayo Clinic arrived at their conclusion using data from questionnaires completed by kidney stone patients between 2009 and 2018. They compared the diets of 411 people who'd had kidney stones and a control group of 384 who hadn't.

During a median follow-up period of just more than

four years, 73 patients had recurrent kidney stones. Lower levels of calcium and potassium predicted that recurrence.

The good news is that, although people are unlikely to make dietary adjustments to prevent a first kidney stone, they're likely to make some changes to prevent having to live through the excruciating pain ever again.

Drinking plenty of water—upward of nine 12-ounce glasses per day—may also help prevent a recurrence.

If you're hoping to avoid another kidney stone, try increasing potassium and calcium intake. It could make a huge difference in your risk for recurrence.

*Mat Lecompté is a health and wellness reporter for BelMarra Health, which first published this article.*



Increase your potassium by eating a variety of fruits and vegetables.

# Health Risks Linked to Leaving Lights on at Night

Light at night can disrupt sleep patterns and contribute to obesity, diabetes, and more



Nighttime exposure to light inhibits the secretion of melatonin, which can cause circadian disruptions that play a role in cancer.

A study involving **43,722** women found that exposure to artificial light at night while sleeping was significantly associated with an increased risk of weight gain and obesity.

Continued from Page 9

- 40.7 percent of those exposed to LAN were obese, compared to 26.7 percent of those not exposed
- 17.8 percent of those exposed to LAN had diabetes, compared to 9.8 percent of those not exposed
- 73 percent of those exposed to LAN had high blood pressure, compared to 59.2 percent of those not exposed

Those exposed to LAN were also more likely to wake after falling asleep, and the researchers suggested more studies should be conducted to understand the long-term effects of light exposure at night on cardio-metabolic risks.

## Why You Should Turn Off the TV Before Going to Sleep

Past research has also highlighted the health risks of not sleeping in complete darkness. In March, a study of 20 healthy young adults published in PNAS, a journal of the National Academy of Sciences, revealed that even one night of sleep with moderate light exposure increased nighttime heart rate, decreased heart rate variability, and increased next-morning insulin resistance.

"These results demonstrate that a single night of exposure to room light during sleep can impair glucose homeostasis, potentially via increased SNS [sympathetic nervous system] activation," the researchers noted. In 2019, JAMA Internal Medicine published a study involving 43,722 women that also found that exposure to artificial light at night while sleeping was significantly associated with an increased risk of weight gain and obesity.

The link was particularly strong for women who slept with the television or a light on in their bedroom, and the researchers suggested incorporating strategies to reduce nighttime light exposure in public health recommendations for obesity:

"Given the association found between exposure to ALAN [artificial light at night] while sleeping and subsequent weight gain and obesity in our study and the cross-sectional evidence from other studies, public health strategies to decrease obesity might consider interventions aimed at reducing ALAN while sleeping."

Compared with women who had no exposure to artificial light at night, sleeping with a television or light on in the room was associated with a greater risk of gaining about 11 pounds (5 kilograms) or more, a body mass index increase of 10 percent or more, incident overweight, and incident obesity over the course of the follow-up period.

There were notable differences in weight

gain depending on the type of light exposure. While sleeping with a small night-light wasn't associated with weight gain, sleeping in a room with light coming from outside the room was associated with a modest weight increase. However, women who slept with a light or television on were 17 percent more likely to have gained about 11 pounds or more.

Study co-author Chandra Jackson, head of the National Institute of Environmental Health Sciences (NIEHS) Social and Environmental Determinants of Health Equity Group, explained that the study could have implications for people living in urban areas, where sources of artificial light such as streetlights and neon signs could interfere with the sleep hormone melatonin.

"Humans are genetically adapted to a natural environment consisting of sunlight during the day and darkness at night," she said in a 2019 National Institutes of Health article. "Exposure to artificial light at night may alter hormones and other biological processes in ways that raise the risk of health conditions like obesity."

## Studies Highlight the Detrimental Effects of Light at Night

Disrupted sleep may partly explain why LAN increases obesity risk, and previous studies have also linked sleep disruptions to obesity and diabetes. A study published in Diabetes Care in 2019 that followed 2,003 men and women for a mean of six years found irregular sleep patterns increased the risk of metabolic syndrome by 23 percent for each one hour of sleep difference, while chronic one-hour loss increased the risk by 27 percent.

The research revealed that irregular sleep, including day-to-day variability in sleep duration and timing, is associated with metabolic abnormalities. Not sleeping enough has also been linked to similar health risks. The study reads:

"Modern environment and lifestyle, such as increased light exposure and activities during night and widespread use of electronic media and mobile devices, not only deprive humans of sufficient sleep but also considerably disturb the regularity of sleep behaviors.

"An adequate amount of sleep, which is essential for global rejuvenation of the human body, plays a central role in normal functioning of metabolism and energy homeostasis. As a result, reduced quantity of sleep has been associated with higher

risk of obesity, metabolic syndrome, and diabetes in numerous previous studies."

## Light at Night Increases Cancer Risk

Exposure to light leads to advances or delays in your circadian rhythm, known as phase shifts. Typically, exposure to light early in the morning causes a phase advance, which leads to earlier waking. Light exposure at bedtime will lead to a phase delay, or later waking.

Nighttime exposure to light inhibits the secretion of melatonin, which can cause circadian disruptions that play a role in cancer, notes a study published in the journal Cancer in 2021. The same study found evidence that suggests LAN may increase thyroid cancer risk, too, as thyroid function is regulated by circadian rhythm.

Another study published in the International Journal of Cancer in 2020 found that higher exposure to outdoor light at night may increase the risk of postmenopausal breast cancer.

A study published in the journal Cancer followed 464,371 participants in the National Institutes of Health-American Association of Retired Persons Diet and Health Study for an average of 12.8 years. Satellite data were used to estimate nighttime light exposure, which was then linked to residential addresses, while thyroid cancer cases were followed via state cancer registries.

A positive association was found between light exposure at night and thyroid cancer risk, in a study published in the International Journal of Molecular Sciences in 2017.

Those in the highest quintile of nighttime light exposure had a 55 percent increased risk of thyroid cancer compared to those in the lowest quintile. Aside from helping you sleep, melatonin may help prevent cancer, acting as a "full service anti-cancer agent," inhibiting the initiation, progression, and metastasis of cancer.

The suppression of melatonin that occurs during exposure to light at night is one explanation for LAN's detrimental effects. According to a review by NIEHS researchers:

"Potential adverse health effects from light-induced circadian disruption are mediated in part by melatonin suppression. Light at night of sufficient level and duration, appropriate wavelength, and appropriate timing can shift the timing and/or reduce the amplitude of the nighttime melatonin signal, as may happen in

night-shift workers.

"This may contribute to sleep changes and circadian disruption, which in turn affect a host of cellular mechanisms (such as metabolism and cell cycling) and neurobehavioral processes (such as mood regulation and cognitive outcomes). These disturbances may potentially lead to adverse health outcomes."

Because it involves exposure to artificial light at night, shift work has been categorized as a probable carcinogen that induces circadian disorganization, which, in turn, is linked to elevated rates of "cancer, diabetes, cardiovascular risks, obesity, mood disorders and age-related macular degeneration," notes a review published in Life Sciences in 2017.

## Even Dim Light at Night Should Be Avoided

Making a conscious effort to eliminate light in your bedroom can go a long way toward protecting your health. If your bedroom is affected by light pollution, be sure to use blackout shades to keep light out, or wear an eye mask when you go to sleep. Remove all sources of light from your bedroom, including a digital alarm clock or cellphone.

You should also swap out LED lights with incandescent bulbs, which are less efficient at suppressing melatonin, particularly in areas where you spend most of your time during the day and evening, such as your kitchen, bathroom, and bedroom. Leave the LEDs for areas such as hallways, closets, garages, and porches, where your exposure to them is minimal.

When it gets to be late afternoon and evening, wear amber-colored glasses that block blue light, and turn off electronics—or at least be sure to wear the glasses while you're using them. You can also install blue light-blocking software, such as Iris, on your computer, cellphone, and tablet. Many devices have built-in blue light reduction modes you can turn on or even schedule for certain times of the day.

In addition to sleeping in pitch blackness, you can further optimize your circadian rhythm by getting exposure to bright natural light during the day. Ideally, strive for at least 15 minutes of sunlight exposure in the morning hours to help to regulate the production of melatonin, dropping it to normal daytime levels, so you feel awake during the day and can sleep better at night.

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

# Glutamate: A Neuron Killer in Disguise

This common ingredient that makes snack foods irresistible is linked to neurodegenerative disease

Continued from Page 9

Glutamate is naturally found in many foods, especially in meat and dairy. It's a substance that occurs naturally in plants and animals. And in these natural states it's bound together with other minerals, proteins, and compounds that help it move through the body without issue.

But the processed and synthetic forms of glutamate are different. "Free glutamate ... is the modified form that is absorbed more rapidly. The modified, free form is the type linked to more potential health problems," DrAxe.com states.

Its widespread use means glutamate is consumed by people in most industrialized nations. MSG is consumed in amounts of 0.3 to 1.0 grams a day.

The European Food Safety Authority (EFSA) established an MSG acceptable daily intake of 30 milligrams per kilogram of body weight, or about 2.1 grams for a 154-pound (70-kilogram) individual. Those who routinely eat processed foods likely eat far more glutamate than that amount.

While there's some debate about the actual side effects of eating too much of the flavor enhancer, glutamate consumption is associated with adverse reactions. However, the EFSA noted that some studies support safe consumption of much higher levels than what was ultimately recommended.

Those recommendations and any insights about glutamate consumption, however, will depend heavily on the individual, for reasons we'll explore.

## In 1908, Kikunae Ikeda extracted glutamate from seaweed and sparked a multi-billion-dollar flavor-enhancing phenomenon.

### Glutamate Means Go

It's important to understand that glutamate, in and of itself, isn't problematic. It's when we have too much glutamate that problems arise.

Glutamate is a nonessential amino acid. In nutritional terminology, "nonessential" means that you don't need to get it from outside sources, as your body has the ability to synthesize it through the impossible miracle of human biochemistry. Your body naturally produces it as a vital constituent of proteins.

Glutamate isn't a small player in the body. "Glutamate is the most abundant excitatory neurotransmitter released by nerve cells in your brain," the Cleveland Clinic stated.

Neurotransmitters have a kind of yin yang duality, with some leading to an inhibited state in the receiving neuron, and some leading to an excited state in the receiving neuron. The body is in a constant process of trying to balance various systems amid every changing condition, ranging from temperature, to time of day, to stages in our life, and more. Glutamate is the most abundant "on" trigger in the brain.

"It plays a major role in learning and memory. For your brain to function properly, glutamate needs to be present in the right concentration in the right places at the right time. Too much glutamate is associated with such diseases as Parkinson's disease, Alzheimer's disease, and Huntington's disease," the Cleveland Clinic noted.

We eat both naturally occurring and man-made glutamate all the time. And glutamate isn't just used in the brain. Once in the gut, specialized transport proteins shuttle glutamate into intestinal epithelial cells where it helps produce other amino acids and nucleic acids—the building blocks of DNA and RNA.

It's also used to create the essential energy used by our cells, known as adenosine triphosphate, or ATP. The glutamate molecules that escape gut metabolism find themselves in the bloodstream, and that's when problems arise.



ALL PHOTOS BY SHUTTERSTOCK

Glutamate receptors aren't just in neurons; they populate many of the organs of the body including the heart, kidneys, lungs, liver, and several others. When we have too much glutamate, it has access to glutamate receptors throughout the body, which act as switches that start or stop (depending on glutamate receptor type) specific cell activity.

Hence, there's an association of MSG and glutamate with a host of health problems.

### The Brain on Glutamate

As the Cleveland Clinic notes, too much glutamate is associated with some of the most devastating neurodegenerative diseases. Accessing the brain, however, requires leaping over an extra hurdle: the blood-brain barrier.

The blood-brain barrier acts as a finely tuned sieve to allow only necessary molecules through to our most sensitive organ. Studies conducted in mammals have been inconclusive about MSG's ability to penetrate this barrier.

Most consumed glutamate is broken down in the gut. Beyond that, it has great difficulty overcoming the tightly knit cells surrounding the brain. But that isn't always the case, and understanding that reality may make it prudent to question the amount of glutamate, including MSG, that the FDA and like institutions generally regard MSG as safe.

Science is conducted in more-or-less idealized scenarios to remove as many confounding factors as possible and better reveal the effects of the studied treatment.

That's why experiments are often done in petri dishes using human cells, or in mice that have very specific characteristics. But these conditions don't truly mimic the immense variety of human bodies in the real world. People have a host of different diets, habits, ailments, medications, and biochemical states that are beyond anything scientific experiments can begin to account for.

An example is the emergence of gut issues, in particular leaky gut syndrome. These people suffer a kind of weakness along intestinal walls that can let substances out of the digestive tract and into the body, where they can cause a host of problems. Such people will likely be at greater risk of glutamate toxicity because the more they eat, the more will enter the bloodstream.

And even with the blood-brain barrier, glutamate may still enter the brain.

The blood-brain barrier doesn't protect the entirety of the brain. The brain contains cerebroventricular organs designed to let substances in and out of parts of the brain so that the brain and body can communicate. For example, one such organ, the pineal gland, produces melatonin and helps to signal the body to go to sleep.

Like much of the body, cerebroventricular organs aren't fully formed until puberty and can be weakened by fever, head injury, and aging. A 2010

Glutamate is found in many forms, all of them savory and delicious. That's why it is added to all kinds of foods, much to our misfortune.

## Naming Glutamate

Here are a few forms of synthesized, or free-form glutamate, you may see on your snack's ingredient label:

- Monosodium glutamate or sodium glutamate
- Sodium 2-aminopentanedioate
- Glutamic acid, monosodium salt, monohydrate
- L-Glutamic acid, monosodium salt, monohydrate
- L-Monosodium glutamate monohydrate
- Monosodium L-glutamate monohydrate
- MSG monohydrate
- Sodium glutamate monohydrate
- UNII-W81N5U6RGU
- Flavor enhancer E621



Healthier forms of glutamate are found in natural foods, especially meat and dairy.

The sure-fire way not to be poisoned by free-form glutamate (MSG and its kin) is to avoid processed foods and the restaurants that use them.



study published in Brain Research revealed that MSG supplied directly into the bloodstream of newborn mice immediately enters the brain and induces seizures, which are the result of acute excitotoxic events. These findings specifically call into question the wisdom of adding MSG to infant formula.

Because glutamate is the primary excitatory neurotransmitter in the brain, glutamate is the brain's major signaling molecule. Glutamate exerts its excitatory function by instructing other neurons to release their neurotransmitters in a process known as neurotransmission. Excessive, uncontrolled glutamate in the brain can beget excessive, uncontrolled neurotransmission, which can cause major health problems.

Glutamate neurotoxicity results from neurons being in an "on" state for too long. The received glutamate signal from outside the neuron causes calcium levels inside the neuron to increase. Too much calcium inside the neuron activates proteins that degrade other proteins and lipids, eroding the integrity of the neuron's structure.

To compensate, the neuron's energy factories, the mitochondria (which exist in all cells), absorb the excess calcium. Once the mitochondria are overwhelmed, however, they begin to shut down and leak molecules, which truly signals the end for the neuron. What follows is generation of a diverse cadre of damaging reactive oxygen species and a state of neuron death. If this occurs in a large enough swath of brain cells, lesions can develop, which can result in disease.

A 2021 study in Frontiers in Neuroscience details the ability of MSG (and presumably all free-form glutamate) to cause the studied protein to lose its shape and to aggregate. Correct shape is required for the proper function of any protein. Protein aggregates are an accumulation of many copies of the same protein type, which, should they grow large enough, become difficult for the cell to deal with and have the potential to kill the cell—and spread the protein aggregation effect to nearby cells.

Though the researchers investigated MSG's effect on bovine serum albumin, a carrier protein abundant in the blood of cows, they acknowledge the potential of this MSG protein aggregation phenomenon to extend into neurodegenerative diseases.

Alzheimer's, Parkinson's, Lou Gehrig's, and Huntington's diseases are all associated with an overabundance of protein aggregation-induced neuron death in specific brain regions.

A 2019 study published in the Journal of Alzheimer's Disease analyzed the response of oral administration of MSG to mice susceptible to Alzheimer's disease. It was found that the molecular markers of Alzheimer's disease appeared earlier, and the capacity for memory formation was further impaired in the mice that were orally given MSG.

## How to Avoid MSG Toxicity

The surefire way not to be poisoned by free-form glutamate (MSG and its kin) is to avoid processed foods and the restaurants that use them (which is basically all of them). Instead, base your diet on whole foods such as organic fruits and vegetables, as well as meats and dairy from grass-fed animals.

If you do down a bag of chips or an MSG-laden meal and want to minimize any consequences, a study published in Nutrients found garlic powder to be effective at counteracting the brain ravages of MSG.

In addition, curcumin, lycopene from tomatoes, green tea extract, gingerols and shogaols from ginger, rosmarinic acid in rosemary, quercetin, and vitamins C, D, and E all negate much of the oxidative damage and cell death caused by free-form glutamates such as MSG in the body, according to a research review published in the Iranian Journal of Basic Medical Sciences in 2020.

*Daniel Stanislowski's life's work is to seek and expound truths for the health and wellness of all people. He holds a doctorate in molecular biology and biochemistry and volunteers as the chief science officer of Midwest Public Health Coalition where he passionately educates about informed consent, medical tyranny, and much more.*

# To Break Unhealthy Habits, Stop Obsessing Over Willpower

2 behavioral scientists explain why routines matter more than conscious choices

ASAF MAZAR & WENDY WOOD

If you're like many Americans, you probably start your day with a cup of coffee—a morning latte, a shot of espresso, or maybe a good ol' drip-brew.

A common explanation among avid coffee drinkers is that we drink coffee to wake ourselves up and alleviate fatigue.

But that story doesn't completely hold up. After all, the amount of caffeine in a cup of coffee can vary wildly. Even when ordering the same type of coffee from the same coffee shop, caffeine levels can double from one drink to the next. And yet, we coffee drinkers don't seem to notice.

So what else might be driving us in our quest for that morning brew?

That's one question we set out to answer in our recent research. The answer has far-reaching implications for the way we approach major societal challenges such as diet and climate change.

As behavioral scientists, we've learned that people often repeat everyday behaviors out of habit. If you regularly drink coffee, you likely do so automatically as part of your habitual routine—not just out of tiredness.

But habit just doesn't feel like a good explanation; it's unsatisfying to say that we do something just because it's what we're used to doing. Instead, we concoct more compelling explanations, like saying we drink coffee to ease our morning fog.

This reluctance means that we fail to recognize many habits, even as they permeate our daily lives.

## Unpacking What Lies Behind Habits

To test whether people underestimate the role that habit plays in their life, we asked more than 100 coffee drinkers what they think drives their coffee consumption. They estimated that tiredness was about

twice as important as habit in driving them to drink coffee. To benchmark these assumptions against reality, we then tracked these people's coffee drinking and fatigue over the course of one week.

The actual results starkly diverged from our research participants' explanations. Yes, they were somewhat more likely to drink coffee when tired—as would be expected—but we found that habit was an equally strong influence. In other words, people wildly overestimated the role of tiredness and underestimated the role of habit. Habits, it seems, aren't considered much of an explanation.

We then replicated this finding in a second study with a behavior that people might consider a “bad” habit: failing to help in response to a stranger's request. People still overlooked habit and assumed that their reluctance to proffer help was due to their mood at the time.

The gap between the actual and perceived role of habit in our lives matters. And this gap is key to understanding why people often struggle to change repeated behaviors. If you believe that you drink coffee because you are tired, then you might try to reduce coffee drinking by going to bed early. But ultimately you'd be barking up the wrong tree. Your habit would still be there in the morning.

## Why Habits Are Surprisingly Difficult to Change

The reason that habits can be so difficult to overcome is that they are not fully under our control. Of course, most of us can control a single instance of a habit, such as by refusing a cup of coffee this time or taking the time to offer directions to a lost tourist. We exert willpower and just push through. But consistently reining in a habit is fiendishly difficult.

# How Toxic Relationships Can Trigger Cancer

Mind and body are inseparable, especially when it comes to our relationships

JAMES TEMPLETON

We focus a lot on diet, therapies, and a wide range of alternative natural treatments for cancer, but one area that doesn't often get the attention it deserves is the state of our relationships with those closest to us. But the data are in. Research proves that our social relationships directly influence our physical health—for better or for worse.

Toxic relationships, in particular, don't just affect our self-esteem, but they can also kill us. The emotional carcinogens of a destructive relationship can be just as damaging as other, more commonly recognized causal factors.

## Your Body Knows

It could be a relationship with a spouse, family member, or even your circle of friends



Healthy relationships with positive, like-minded people are a potent antidote to chronic stress.

that's causing more harm than good—and your body responds accordingly. According to research conducted at UCLA's School of Medicine, negative social interactions are linked to increased inflammation, a known root cause of a range of illnesses. The pro-inflammatory cytokine activity produced, specifically, cytokines IL-6 and TNF- $\alpha$ , which have been linked to heart disease, depression, diabetes, and some cancers.

In the above-mentioned study, researchers monitored a group of 122 healthy men and

To illustrate, imagine you had to avoid saying words that contain the letter “l” for the next five seconds. Pretty simple, right? But now imagine if you had to maintain this rule for a whole week. We habitually use many words that contain “l.” Suddenly, the required 24/7 monitoring turns this simple task into a far more onerous one.

## We've learned that people often repeat everyday behaviors out of habit.

We make a similar error when we try to control unwanted habits and form new, desirable ones. Most of us can achieve this in the short run—think about your enthusiasm when starting a new diet or workout regimen. But we inevitably get distracted, tired, or just plain busy. When that happens, your old habit is still there to guide your behavior, and you end up back where you started. And if you fail to recognize the role of habit, then you'll keep overlooking better strategies that effectively target habits.

The flip side is also true: We don't recognize the benefits of our good habits. One study found that on days when people strongly intended to exercise, those with weak and strong exercise habits got similar amounts of physical activity. On days when intentions were weaker, however, those with strong habits were more active. Thus, strong habits keep behavior on track even as intentions ebb and flow.

## It Isn't Just Willpower

American culture is partly responsible for the tendency to overlook habits. Compared with residents of other developed nations, Americans are more likely to say that they

women, tracking the stressful events and emotions as portrayed in their diaries and comparing these incidents to the results of a cheek swab. Those participants who indicated stress-inducing negative situations just before the swab was taken had a higher number of the proteins produced by the body that create the conditions for an increased risk of disease.

Their findings indicated that those who are more socially integrated “live longer and are less likely to experience specific disease outcomes.”

## Toxic relationships, in particular, don't just affect our self-esteem, they can also kill us.

Interestingly, it's not only our current relationships that can be destructive, past childhood experiences may also play a factor in the development of disease. For example, researchers cited an early family environment that was “cold and conflict-ridden” as being tied to elevated levels of C-reactive protein (CRP) in adulthood. CRP is a byproduct of IL-6 and a known diagnostic marker of cancer. Researchers defined this type of chronic relationship stress as being characterized by

control their success in life.

Accordingly, when asked what stops them from making healthy lifestyle changes, Americans commonly cite a lack of willpower. Granted, willpower is useful in the short term, as we muster the motivation to, for example, sign up for a gym membership or start a diet.

But research shows that, surprisingly, people who are more successful at achieving long-term goals exert—if anything—less willpower in their day-to-day lives. This makes sense: As explained above, over time, willpower fades and habits prevail.

If the answer isn't willpower, then what is the key to controlling habits?

Changing habits begins with the environments that support them. Research shows that leveraging the cues that trigger habits in the first place can be incredibly effective. For example, reducing the visibility of cigarette packs in stores has curbed cigarette purchases.

Another path to habit change involves friction: in other words, making it difficult to act on undesirable habits and easy to act on desirable ones. For example, one study found that recycling increased after recycle bins were placed right next to trash cans—which people were already using—versus just 12 feet away.

Effectively changing behavior starts with recognizing that a great deal of behavior is habitual. Habits keep us repeating unwanted behaviors but also desirable ones, even if just enjoying a good-tasting morning brew.

*Asaf Mazar is a postdoctoral fellow in behavioral science at the University of Pennsylvania, and Wendy Wood is a provost professor emeritus of psychology and business at the USC Dornsife College of Letters, Arts and Sciences. This article was originally published on The Conversation.*

“conflict, mistrust, and instability.”

## Change Can Be Healthy

Back when I had cancer (more than 35 years ago), I didn't know the science behind toxic relationships. But I knew instinctively that I needed to be around positive people with a like mindset. And that's exactly what I did. The time I spent at the Kushi Institute in New England took me out of my Texas comfort zone and propelled me into a new world full of hope and encouragement, teaching, and training. The relationships I made while there were life-changing. You can read more about it in Chapter 5 of my book, “I Used to Have Cancer.”

Let's face it. Stress is inevitable. And sometimes we find ourselves in situations and relationships that aren't helping us. When you're facing a cancer diagnosis, it's not selfish to disengage from those toxic relationships and surround yourself with positive, like-minded people. It just may be the impetus that changes your body's chemical reactions, alleviating the chronic stress you may be under and elevating you to a more healthy reaction to the stressors life brings your way.

*James Templeton founded Uni Key Health Systems in 1992 and now the Templeton Wellness Foundation as a way of giving back and helping others achieve the health and wellness they are seeking.*

# Avoid the Manipulations of Advertisers

Here are 10 ways you can keep advertisers from dictating your life

JOSHUA BECKER

“Civilization is a limitless multiplication of unnecessary necessities.”—Mark Twain

The task of living an intentional life focused on things that matter is enormously complicated these days by constant, modern propaganda.

Commercials, advertisements, and marketers work tirelessly to convince us that products manufactured on assembly lines and digital services delivered on our devices will make us happier.

But in reality, these unnecessary purchases separate us from our dollars and add stress, burden, and obligation to our lives—they don't bring happiness; they keep us from it!

The goal of Madison Avenue is to distract our desire. Their messaging changes our attitude from “that's extravagant” to “that would be nice” to “I want that” to “I need it.”

And they're so subtle at their craft that we hardly even realize we're being brainwashed. Subconsciously, they take control of our desires, our checkbooks, and ultimately, our lives.

To stop letting advertisers dictate our lives, we must make firm moves to counter their assault. Here are 10 steps you can take today:

**1. Realize (and decide for yourself) that happiness isn't an item to be purchased; it's a decision to be enjoyed.** Beware of destination addiction—the belief that happiness will be realized in your next purchase. The dopamine rush from a new purchase is immediately fleeting. Happiness is a decision available to all of us. ... It's not for sale on Amazon.

**2. Identify what advertisements are trying to sell you.** The emphasis in advertising has moved away from fact-based proclamations to creating associations in the mind of the viewer.

Advertisers appeal to our subconscious desires (status, sex, prestige, happiness, appearance, self-esteem, identity, or reputation) and fears (loneliness, security, weaknesses, or uncertainty). Be aware of their strategy so you won't be fooled by it.

**3. Buy things for their usefulness, not their status.** Purchase items for their ability to meet your needs, not their ability to impress your neighbor.

MAT LECOMPTÉ

Being in tune with your emotions may sound straightforward, but it isn't. For example, have you ever found yourself irritated by a person that has literally done nothing more than ask you how your day was?

Many people overestimate their level of self-awareness. Even people who think they're in touch with their emotions—perhaps they cry or laugh easily—often don't recognize the full spectrum of their feelings. Improving self-awareness can require digging a little deeper.

Improved self-awareness is one of the benefits of mindfulness. Focusing on the here and now and being present, accepting whatever arises in your awareness without judgment, can help build emotional intelligence and self-awareness.

To help focus on emotions, try doing this. Sit quietly in a comfortable position with

your eyes closed and start to think about something sad, but not overwhelming. Notice where in your body you're feeling the sadness and place one of your hands there in a caring and soothing way. Repeat the steps, but use different emotions, such as fear, anger, and joy.

**4. Limit marketing messaging.** Unsubscribe from email lists. Cancel junk-mail. Mute your radio/TV during advertisements, or better yet, stop watching television altogether.

Enjoy outdoor recreation (biking, exercising, hiking, gardening, or camping) or occupy your mind with reading, art, conversation, philosophy, or meditation instead.

**5. Recognize your trigger points.** Are there certain stores that prompt unnecessary purchases in your life? Products, addictions, or pricing patterns (clearance sales) that prompt an automatic response from you? (I used to be almost magnetically drawn to clearance racks).

Maybe there are specific emotions (sadness, loneliness, grief, or stress) that give rise to excess consumption. Identify, recognize, and understand these weaknesses. This is one of the most important steps in taking back control of your actions.

**6. Count the hidden cost of purchases.** The price of purchasing any item isn't limited to the sticker price. Our purchases always cost more.

They require our time, energy, and focus (cleaning, organizing, maintaining, fixing, replacing, or removing). They prompt worry, stress, and attachment. Each purchase takes up physical space in our homes and mental space in our minds.

Henry David Thoreau said it best: “The price of anything is the amount of life you exchange for it.”

Look beyond the price tag.

**7. Practice gratitude and generosity.** Gratitude turns what we have into enough. When we stop focusing on the things we don't have, we're better able to appreciate the things we already do. This mindset shifts our passions away from the promises of advertisers and onto the blessings we already enjoy.

Equally important, generosity reminds us that we already have enough and brings greater fulfillment and satisfaction into our lives.

# Self-Awareness: The First Step to Self Mastery

Tuning in to our own feelings and reactions can be key to managing anxiety and anger

your eyes closed and start to think about something sad, but not overwhelming. Notice where in your body you're feeling the sadness and place one of your hands there in a caring and soothing way. Repeat the steps, but use different emotions, such as fear, anger, and joy.

## Improved self-awareness is one of the benefits of mindfulness.

Increasing self-awareness of these sensations can help you become more emotionally intelligent. By looking at emotions more carefully, you can learn how the body responds to an image, thought, or situation. The better you can recognize your body, the more you'll be able to know



Once our basic needs have been met, the happiness found in consumerism is not noticeable.

## Purchase items for their ability to meet your needs, not their ability to impress your neighbor.

**8. Embrace the sharing economy.** The internet has brought many new opportunities to us. One of the most important is the emergence of the sharing economy.

Whether people are sharing homes, vehicles, tools, toys, or clothes, there's less need today for ownership than ever before. Ownership is being replaced by relationship—and that's always a good trade-off.

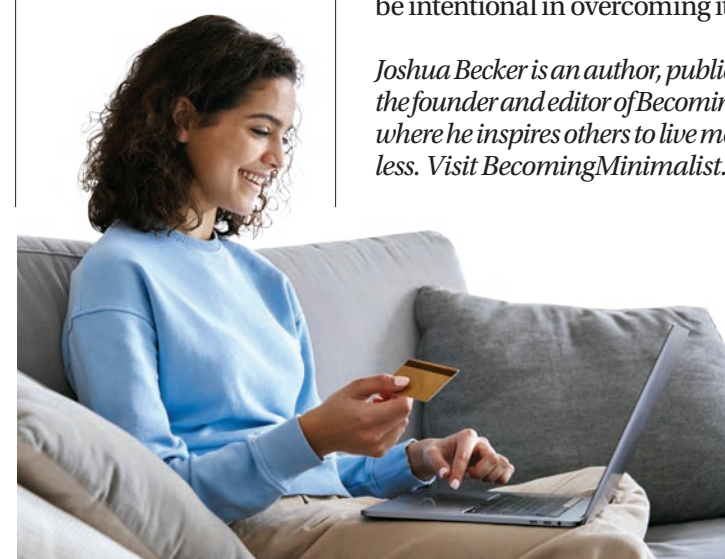
**9. Enforce a 30-day wait period on major purchases.** Avoid regrettable judgments by implementing a month-long waiting period on items that cost more than \$100 (or pick a dollar amount more applicable). This cooling period will provide the opportunity and space to better answer these questions: “Do I really need this?” “Will it make me happier in the long run?” “Are there any subconscious motives for this purchase?” “Can I find it cheaper elsewhere?” and “What could I do with the money instead?”

**10. Do more of what makes you happy.** Your possessions aren't making you happy. Once our basic needs have been met, the happiness found in consumerism isn't noticeable.

Instead, find what it is that truly makes you happy and do more of it. I find my happiness in faith, family, friends, and contribution. Your list may differ from mine. But either way, owning a whole bunch of stuff is almost certainly not on it.

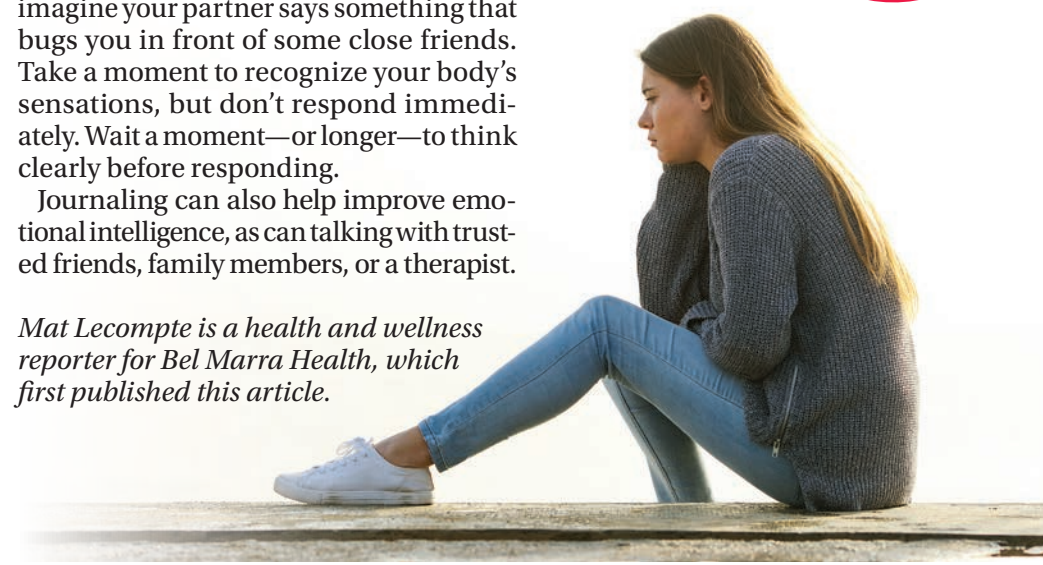
The only release from the influence of marketers and a consumerist society is to exit—to decide that enough is enough and that the relentless pursuit of possessions will never lead to an intentional life. The first step is to be intentional in overcoming it.

*Joshua Becker is an author, public speaker, and the founder and editor of Becoming Minimalist, where he inspires others to live more by owning less. Visit BecomingMinimalist.com*



Unfortunately, the joy you get from a new purchase won't last long. More durable happiness comes from intangible sources.

Sensations can be an early warning signal for negative emotions that you might not want to act on immediately.



*Mat Lecompte is a health and wellness reporter for Bel Marra Health, which first published this article.*



FIZKES/SHUTTERSTOCK

# Music to Treat Alzheimer's and Support Caregivers

Small study finds worthwhile benefits to using personalized music therapy in Alzheimer's treatment



Music touches a place inside that can fall to disuse when it isn't enlivened.

ZACHARY SWEGER

John Bufalini remembers clearly the first time he witnessed what music can do, as a first-year medical student at Penn State College of Medicine.

He watched as the room of an assisted living facility was transformed as an older woman danced to the music from her youth. When her husband later took her hands and joined her in a two-step tour of the space, Bufalini watched in awe as the couple's joy filled the room of the skilled nursing care unit.

"That was when I first witnessed the true power of music," said Bufalini, who's now an internal medicine resident at Penn State Health Milton S. Hershey Medical Center.

"I watched a quiet woman go from sitting in a chair, passively interacting with her world, to a lively lady dancing around the room. I also saw her husband enjoy every step of that transformation as well."

Bufalini observed that moment while collecting data during a research study supervised by Daniel George, associate professor of humanities and public health sciences, and Paul Eslinger, a professor of neurology and a neuropsychologist. Bufalini worked with George and Eslinger to evaluate the effects of personalized music interventions on people with dementia and their caregivers.

While previous studies have shown that music-based interventions may improve the quality of life for those living with Alzheimer's disease and related disorders, the researchers believe their study was one of the first to study how music could also benefit caregivers, who are often spouses, adult children, and siblings. They found that caregivers reported feeling less overwhelmed after participating in the music sessions.

"Caregivers experience significant joys but also burdens in caring for their loved ones and are overlooked in many studies," George said. "The number of caregivers, often family members, continues to grow as the world ages and dementia incidence increases."

"We hypothesized that personalized music would lead to increased interpersonal interactions between residents and their caregivers and that it would foster a greater sense of well-being."

According to the researchers, Alzheimer's disease and related forms of dementia—which affect 6 million Americans each year and 25 million people globally—can significantly affect not only individual cognition, but also family relationships. They say being able to stay connected personally and emotionally through music may complement current medication treatment as the illness progresses.

"A person's own memories of music can span many decades and be associated with key life experiences and memories," Eslinger said. "Music can trigger those memories and experiences more automatically than through words, since they have been associated in an emotional way."

## Caregivers reported feeling less overwhelmed after participating in the music sessions.

"Those types of emotion-based memories are more resistant to Alzheimer's pathology, which is why music can still elicit them."

Seven residents of a skilled nursing facility (aged 76 to 92) and their caregivers (aged 53 to 84) participated in eight music intervention sessions in which participants listened to personalized playlists for approximately 15 minutes. Before and after each session, caregivers answered questions about whether they felt overwhelmed or useful to the resident, and their perceptions about the care and condition of the resident. During the sessions, Bufalini observed the pairs for eye

contact, physical touch, smiling, relaxed breathing and posture, and positive verbal communication.

Even though the sample size was small, data analysis revealed that caregivers reported feeling significantly less overwhelmed after the music intervention sessions. The researchers also noted there were still trends in the data that could have clinical implications. Caregivers reported feeling more positive and optimistic and had a greater appreciation of their relationship with the resident. The researchers also observed increased bonding between the pairs. The results of the study were published in the *Journal of Alzheimer's Disease Reports* in February.

"Given the substantial challenges in drug development for dementia, approaches that engage the senses and connect with something quintessentially human are our best tools for supporting quality of life for people living with dementia," George said.

Although the researchers don't have immediate plans to expand upon their study, they hope others can continue to explore the use of music to improve caregiver and patient quality of life, given the strong neurological and social-emotional rationale for the activity. They noted that the personalized intervention could take place both within private homes as well as at an institutional level. Given the low cost of the design, they believe it can be implemented anywhere, including in facilities with limited resources.

"Personalized music-based interventions might help caregivers provide assistance to their loved one who has memory loss," Bufalini said. "They may also improve the caregiving experience by reducing stress and caregiver burdens."

The researchers reported no conflicts of interest.

Support for the project came from the Penn State Clinical and Translational Science Institute through the National Center for Advancing Translational Sciences of the National Institutes of Health and from the Joseph and Mary Caputo Research Award from the Penn State College of Medicine Doctors Kienle Center for Humanistic Medicine. The content is solely the responsibility of the authors and does not necessarily represent the official views of the funders.

This article was originally published by Penn State. Republished via Futurity.org under Creative Commons License 4.0.



## THE 6<sup>TH</sup> NTD INTERNATIONAL FIGURE PAINTING COMPETITION

Reviving the pure authenticity, beauty, and goodness in art

June 2023 | New York City

Call for Global Entries / Deadline : 1/15/2023 / US\$25,000+ in Awards

**NTD**

1-888-477-9228 | Oilpainting@globalcompetitions.org

OILPAINTING.NTDTV.COM

