

# THE EPOCH TIMES

# MIND & BODY

## Vitamin C Potentially Lifesaving for Sepsis

Standard intravenous antibiotic therapies often prove futile against sepsis' complex nature



### A Powerful Antioxidant

High doses of vitamin C, more than you could get from simply eating oranges, have been shown to outperform antibiotics in treating sepsis and should be the standard treatment, say experts.

By Vance Voetberg

Sepsis claims more than 350,000 lives each year, making it a leading cause of death among U.S. hospital patients. Standard intravenous antibiotic therapies often prove futile against sepsis's complex nature. Yet new hope may be found in an unlikely alternative: vitamin C.

### 'One of the Most Challenging Conditions to Treat'

When the body fights an infection, the

immune system mobilizes briefly and then retreats. Sometimes, however, it persists in attacking the body; sepsis is such a condition.

Sepsis occurs unpredictably and can be aggressive, spinning the immune response out of control. In the worst cases, vital organs shut down, leading to death.

"Sepsis is one of the most challenging conditions to treat in the ICU," Dr. Paul Marik, a pulmonary and critical care specialist and chairman and chief scientific officer of the Frontline COVID-19 Critical Care Alliance, told The Epoch Times.

Millions of people in the United States are affected, and it's present in 30 percent to 50 percent of hospitalizations that result in death. In a 2019 investigative report from the Journal of the American Medical Association (JAMA), researchers noted that most sepsis deaths are unlikely to be preventable through better hospital-based care.

The likelihood of a positive outcome from treatment is highly dependent on two factors: the type of sepsis and the time between onset and treatment, Dr. Marik said. "Medical sepsis" stems from

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## How Antacids Work Like a 'Gateway Drug'

By Amy Denney

Misusing antacids won't solve digestive issues and can lead to unneeded proton-pump inhibitors

Popping an antacid to cope with troublesome digestive symptoms can often offer fast and easy relief.

And antacids aren't addictive. They can be found anywhere from pharmacies to gas stations, and they're considered among the safest of remedies.

But, like most medications, antacids don't address the underlying cause.

Using them routinely can also lead to a vicious cycle by contributing to gastrointestinal damage that creates more of the very symptoms that you're trying to resolve.

Dr. Vikki Peterson, a functional medicine practitioner and chiropractor with Root Cause Medical Clinic, told The Epoch Times that taking an antacid tablet is fine for the occasional upset stomach

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Many Americans mistakenly believe their indigestion and heartburn are from too much stomach acid.



# Promise or Peril

## COVID-19 mRNA Vaccine Issues Series

### PART 3 CRITICAL ISSUES IN MRNA LIPID NANOPARTICLE DESIGN

Studies reveal the nanoparticle designed to shuttle mRNA to our cells can trigger clotting and immune issues

**In this series, we explore how the introduction of mRNA technology lacked an adequate regulatory framework, setting the stage for serious adverse events and other concerns related to inadequate safety testing of lipid nanoparticles, spike protein, and residual DNA and lipid-related impurities as well as truncated/modified mRNA species.**

By Allison Krug, Ram Duriseti, Xiaoxu Sean Lin & Yuhong Dong

When the Food and Drug Administration (FDA) relaxed the approval requirements for mRNA vaccines, we were left with animal testing on how the lipid nanoparticle (LNP) shells dispersed in the body but not the mRNA package they were delivering.

The FDA and European Medicines Agency (EMA) authorized this novel vaccine product based on laboratory studies and animal models and then applied these findings to humans. In addition, most of the mRNA research prior to the pandemic used intravenous (IV) injection directly into the bloodstream, not intramuscular (IM), as vaccines are typically delivered.

All of this means we had little reliable data on how these vaccines would affect people.

A deeper dive into what we've learned about these LNPs reveals other concerns.

As detailed previously, the LNP is like a capsule that carries the mRNA vaccine. The engineering of these LNP molecules must keep the capsule containing the mRNA stable during transit but also allow it to dissolve quickly once injected.

If the LNPs are too stable, they may move throughout the body to distant organs instead of disintegrating locally at the injection site as intended. Other properties of the LNPs also affect the likelihood of adverse events, such as their electrical charge and their tendency to cluster.

Various design challenges had to be overcome to create this vaccine but some of these useful features of the LNP may be the flaws potentially contributing to adverse events.

#### LNP Design Features

The LNP is a capsule comprised of four different lipids carrying the mRNA inside.

Imagine a drop of oil descending into a glass of water. The oil doesn't disperse in the water—it stays together. This is how the LNPs stay together to carry the mRNA to a cell membrane where it can be absorbed.

Certain features of the lipids cause them to organize into the LNP capsule shape. The tail of the lipid is hydrophobic, meaning it doesn't mix with water because it has a neutral charge. The head of the lipid is a phosphate that has an electrical charge, making it hydrophilic. These features cause them to organize themselves.

The lipids gather together—tails pointing in and heads pointing out—creating a ball. When the polyethylene glycol (PEG) adheres to a lipid, the PEG-lipid helps to stabilize the molecule, encouraging it to form smaller LNPs and preventing it from adhering to proteins in the blood.

In other words, the PEG is like a glue that holds the LNP shell together without it collecting proteins from blood once injected.

In the center of the LNP is the RNA, which has a negative charge. When you add up the negative charge of the RNA and the positive charge of the phosphate heads on the lipids, the LNP net charge is mostly neutral, if not slightly negative.

The PEG-lipids help keep the LNP from breaking apart. Once inside the

cell, however, the LNP needs to split open to release the mRNA cargo. The cone-shaped configuration of the LNP can help this process.

The amount of PEG-lipids can affect particle size and zeta potential. Zeta potential is the electrical charge that develops around the surface of a particle. The zeta potential is important because it determines whether the LNPs tend to disperse or clump together. A high zeta potential—positive or negative—helps the nanoparticles disperse and float freely.

In addition, certain other PEG modifications affect how fast the kidneys and immune system clear the LNPs. If it takes a long time to clear the LNPs, they can circulate longer in the blood and create the potential for adverse events.

#### LNP Design Dilemmas: Stability Versus Fragility

The LNP design dilemma had serious implications: whether to create a stable LNP capsule that doesn't fall apart readily or a more fragile capsule that breaks down quickly. This design challenge affects how the capsule behaves in the body.

A highly stable capsule is useful for mRNA gene therapy, which is how this technology was originally developed. For gene therapy, the mRNA needs to be stable enough to reach its intended target and either produce a missing protein or turn off a harmful gene.

For vaccination, however, the opposite effect is desired: The LNP needs to be less stable so it will dissolve quickly at the injection site and release the fragile mRNA immediately. Otherwise, it will allow the LNP to travel throughout the human body to an unintended organ or tissue.

The biodistribution studies covered in Parts 1 and 2 of this series revealed that the LNP mRNA design failed this "dual mission impossible." Dispersion to distant organs peaked within about 48 hours. The effect of expressing spike protein on cells in these organs in humans is unknown, so simply adopting LNPs designed for gene therapy for direct usage in mRNA vaccine delivery will likely prove to be a significant mistake.

#### LNP Design Features Affect Clotting

In addition to the challenge of creating a stable LNP that breaks down quickly at the injection site, the LNP design may also cause clustering leading to clotting. If the LNP falls apart, the charges on the lipids and the loose mRNA may promote interactions with other substances in the blood.

These two factors may explain the potential for "thromboembolic" events. Thrombotic events involve the formation of a clot (thrombosis) in the bloodstream. Formation of the clot itself or its movement to another site (embolism) may block the flow of blood.

#### LNPs Can Cluster, Cause Clotting

When the LNPs diffuse into the blood system, the tiny particles can increase in size based on the Ostwald ripening phenomenon. This is a process in which small crystals dissolve in solution and then redeposit, forming larger clusters.

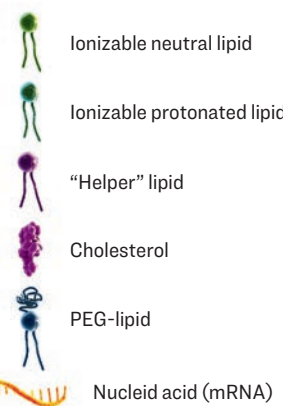
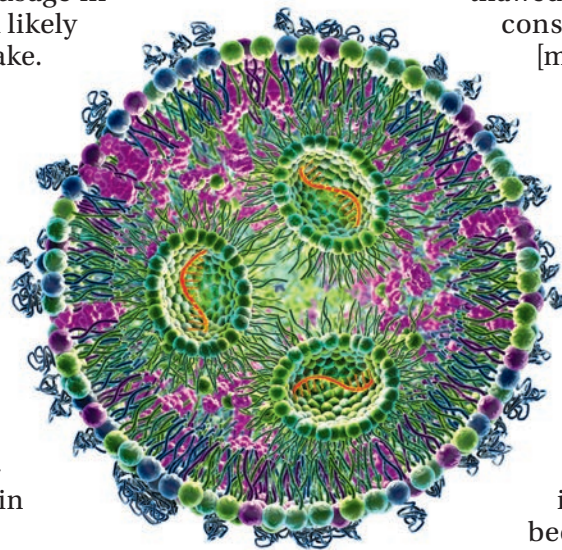
The diameter of arterioles, small blood vessels connecting arteries and capillaries, varies from 8,000 to 60,000 nanometers (nm). A typical COVID-19 mRNA vaccine LNP is 60 to 200 nm. If the size of the clustered mRNA LNP particles increases to 5,000 nm and above, LNPs could block blood vessels and cut off blood flow.

When thromboses occur within

What was known about the potential of LNPs to affect clotting before the pandemic?

#### The Lipid Nanoparticle mRNA Vaccine

Specially designed lipids are held together by PEG to create an easily broken "shell" designed to get mRNA "eggs" into the body. But the shell has to break apart soon after injection to ensure the mRNA doesn't spread too far beyond the injection site.



blood vessels, blood flow to critical organs can be obstructed. This includes the heart, lungs, kidneys, intestines, and even the brain.

For example, an autopsy review of 25 unexpected deaths that occurred within 20 days of COVID-19 vaccination found eight cases of thrombotic events, including five with "myocardial infarction," two with "pulmonary embolism," and one with "deep vein thrombosis."

Have human studies been conducted to assess the degree to which the LNPs cluster? To our knowledge, nothing has been published.

#### The LNP Can Fall Apart

If the LNP falls apart, two components, the capsule and the mRNA cargo, may cause interactions that promote clotting because of the electrical charge on each component.

The charge controls where the particles travel in the body. For instance, a positively charged LNP capsule can target the lung; a negatively charged LNP can target the spleen; while an LNP with an intermediate charge (such as mRNA COVID-19 vaccines) has a greater tendency to travel to the liver, as was seen in the preclinical biodistribution studies.

The potential for negatively charged free mRNA to cause problems was also seen with the adenovirus vector vaccines made by AstraZeneca and Johnson & Johnson, which caused blood clots in some people with a genetic predisposition.

Similarly, if the negatively charged mRNA slips out of the LNP carrier, it could theoretically lead to clotting because of its negative charge.

Could the challenges of maintaining a strict "cold chain" (freezing temperature required for vaccine stabilization from manufacturing to injection) have introduced the potential for LNPs to fall apart prior to injection?

"When the LNPs are frozen and thawed," according to biotechnology consultant Christie Grace, "the [mRNA] can slip out, charges can start interacting with the human body and [potentially] cause clots."

Dr. Ko, a South Korean professor of pharmacy who has written dozens of articles on LNPs, agrees that the molecules can break down and separate if pH and temperature aren't carefully controlled.

What happens if the LNPs disintegrate in the vial before injection? What testing has been done to evaluate exposed mRNA (not lipid nanoparticle encapsulated mRNA) interactions in the blood?

#### LNP Engineering Can Alter Clotting

Nanoparticle interactions can be helpful or harmful. For example, nanoparticles can be engineered to help the blood to clot, which is useful for those with clotting disorders. On the other hand, if LNP interactions with other substances in the blood cause clotting, this is harmful.

What was known about the potential of LNPs to affect clotting before the pandemic?

In 2020, Faizullin, et al. reported: "We observed pronounced changes in both clot morphology and kinetics of fibrin clotting in the presence of artificial liposomes." In other words, previous research on LNPs noted that clots looked different and fibrin behaved differently with LNPs.

Fibrin is a part of the human body's



Documents submitted for the approval of new mRNA vaccines reveal that major questions were left unasked and unanswered.

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natural clotting cascade. Binding to fibrin accelerates the normal clotting process. Faster fibrin clotting has been observed in laboratory studies using blood from patients with COVID-19. This clotting tendency may be due to the presence of the spike protein's S1 subunit. Thus, the LNP mRNA vaccine may promote clotting either due to the design of the LNP, the presence of the spike protein's S1 subunit, or both.

#### 'Immune Overdrive'

Finally, the mRNA was engineered to help it sneak past our natural immune defenses. This clever design feature may have a fatal flaw.

Our immune system looks for special patterns to detect invading microbes. One of these patterns is foreign RNA. To avoid being detected before the vaccine has a chance to work, one part of the COVID-19 vaccine mRNA—uridine—was replaced with N1-methylpseudouridine.

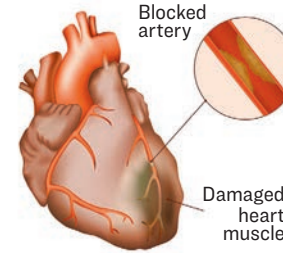
However, if the immune system never notices, then we don't get the intended benefit. Adjuvants, such as aluminum, are added to vaccines for this reason—to wake up the immune system. Once stimulated, the immune system ramps up its production of antibodies and memory T cells.

The lipids used to create the LNP capsule may also stimulate the immune system via the same pattern detectors used to find harmful invaders. Although this may make them an effective adjuvant for the vaccine, mouse models suggest that LNPs may put the immune system into "overdrive."

The European Medicines Agency (EMA) noted in its report that the innate immune system ramps up immediately after injection, peaks at six hours, then returns to baseline nine days later. An article in Cell also discussed the innate immune system in the context of vaccine adverse events (AEs). The authors noted that "frequent booster immunizations may increase the frequency and/or the severity of the reported AEs."

Our immune system looks for special patterns to detect invading microbes.

#### Myocardial Infarction



It is unclear if any studies have looked at the risk of myocardial infarction (heart attack) from LNP clusters caused by new vaccines.

What Was Known Prior to Authorization?

Early research on LNPs suggests the following issues were well-documented before the COVID-19 vaccines were authorized:

- 1) Off-target travel throughout the body is determined by the charge of the LNP.
- 2) The innate immune system is triggered by LNPs that could run the risk of causing an over-reaction.
- 3) The cationic (positively charged) lipid particles are linked to immune stimulation.
- 4) The mode of delivery matters (via muscle or bloodstream), affecting where the LNPs travel.
- 5) The LNPs were specifically designed for the uptake by the lymphatic system, as discussed in a previous Epoch Times article.

These effects were known prior to FDA authorization and strongly suggest that more testing should have been done in humans.

Carrasco et al. appear to agree with our concerns about the need to better understand biodistribution in humans. They noted that "a specific and important application of these new insights is in the reduction of systemic distribution and off-target expression after IM vaccine delivery."

Knowledge about charged particle trafficking throughout the body is limited and primarily based on intravenous (IV) injections; only one study published prior to the pandemic explored how an intramuscular injection would affect LNP dispersion.

A 2021 Nature article sums up the importance of careful design. They

note, as did the EMA, that negatively charged LNPs concentrate in the liver following injection. "This undesirable systemic off-target expression of mRNA-LNP vaccines could be minimized through appropriate design of the ionizable lipid and LNP."

Pulling back the curtain on the LNP design, we see that several features intended for stealth delivery of mRNA to the cell have set the stage for a wide range of adverse events which should have been anticipated through testing, and prevented through cautious policy.

Allison Krug is an epidemiologist and program manager with experience leading population health programs. She's the lead author of the first stratified risk-benefit analysis of mRNA vaccination among adolescents and founder and CEO of Artemis Biomedical Communications, LLC.

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Xiaoxu Sean Lin is an assistant professor in the Biomedical Science Department at Feitain College in Middletown, New York. He is a veteran who served as a U.S. Army microbiologist and also a member of Committee on the Present Danger: China.

Yuhong Dong, M.D., Ph.D., is a senior medical columnist for The Epoch Times. She is a former senior medical scientific expert and pharmacovigilance leader at Novartis Headquarters in Switzerland with preclinical research experience in virology, immunology, oncology, neurology, and ophthalmology, and also has clinical experience in infectious disease and internal medicine.

NEXT WEEK A closer look at the mRNA and its encoded spike protein.





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# The Ultimate Guide to KICKING SUGAR

## PART 7 COCONUT SUGAR: BETTER FOR BLOOD SUGAR AND MORE

This refined sap is anti-inflammatory, heart-protective, and nutritious

**In this series,** we explore the good and bad sugars and sweeteners, including popular natural ones, uncover the unexpected outcomes of cutting out sugar, and discover the ultimate way to do so.



Previous Parts:  
TheEpochtimes  
/KickingSugar

By Flora Zhao

When it comes to healthy natural sugars, many people think of coconut sugar. Some might assume because of its name that coconut sugar is extracted from coconut fruit. However, to be precise, this type of sugar is called “coconut blossom sugar,” as it’s derived from sap that flows from the coconut tree’s inflorescences, which are clusters of flowers on a stem. Coconut sugar boasts numerous health benefits not widely known.

### How Is Coconut Sugar Produced?

To obtain coconut sugar, coconut farmers usually climb coconut trees twice a day. During this process, they adeptly employ knives to cut into the unopened inflorescences of the coconut trees, collecting the sap that flows from them. The sap is then boiled, concentrated, and processed into sugar syrup, blocks, or granules.

The main producers of coconut sugar are Southeast Asian countries, such as the Philippines, Indonesia, and Thailand. A single inflorescence from a coconut tree can yield 1.5 liters of sap each day,

which contains 15 percent sugar, enough to produce 200 grams of coconut sugar. On average, a coconut tree grows a new inflorescence each month, and each can be tapped for sap for more than 40 consecutive days. This harvesting cycle of coconut trees can extend up to 20 years.

### Low Glycemic Index of Coconut Sugar

In general, foods with a glycemic index (GI) of 55 or lower are classified as low-GI foods, as they result in a gradual change in blood sugar levels after consumption. Foods with a GI value between 56 and 69 are classified as medium-GI foods, and foods with a value of 70 or higher are considered high-GI foods.

Various sources indicate that the GI of coconut sugar falls between 35 and 54, similar to that of maple syrup and lower than that of honey, which has a GI value of 60. The GI of coconut sugar is lower because of its sugar composition. Coconut sugar made from fresh coconut sap without preservatives is made up of about 49 percent sucrose, 16 percent glucose, and 14 percent fructose. However, if preservative lime is added during the sap collection process, it will break down a smaller amount of sucrose into glucose and fructose. As a result, the produced coconut sugar will contain a higher sucrose level.

Coconut sugar also contains a certain amount of inulin, approximately 4.7 grams per 100 grams. Inulin is a type of

dietary fiber that can help slow the rise of blood sugar.

### The Health Benefits of Coconut Sugar

#### Heart-Healthy Anti-Inflammatory and Antioxidant

The process of boiling coconut sap involves a Maillard reaction, an interaction of sugars, amino acids, and other macromolecules. The products of the Maillard reaction contribute to the nutritional value and sensory enjoyment of coconut sugar. However, the effects of the Maillard reaction are intricate and heterogeneous and can result in advanced glycation end products, which are something that should generally be avoided.

But some of these substances also possess antioxidant and anti-inflammatory activities. American scientists conducted a small-scale pilot

study employing a double-blind, randomized, placebo-controlled design published in the International Journal of Applied Physiology. The study demonstrated the potential cardioprotective effect of coconut sugar on middle-aged and older adults.

Nineteen adults around the age of 55 participated in the experiment. One group of participants consumed 1.5 grams of coconut sugar daily, and the other received a placebo. After eight weeks, the participants who consumed coconut sugar experienced a reduction in systolic blood pressure from 117 to 109 mmHg. The consumption of coco-

nut sugar was associated with an improvement in arterial stiffness among participants.

#### Anti-Diabetic

One of the factors leading to Type 2 diabetes is oxidative stress, which can induce insulin resistance and impair insulin secretion. Coconut sugar contains high levels of polyphenols, which can reduce oxidative stress.

“Research has confirmed that there are five main phenolic compounds, such as gallic acid, protocatechuic acid, caffeic acid, p-coumaric acid, and alanine in coconut sap. These will be in coconut sugar, but the amount will definitely change (increased in this case) due to longer processing time and higher processing temperature,” Yus Aniza Yusof, from the Department of Process and Food Engineering at the Faculty of Engineering, Universiti Putra Malaysia, told The Epoch Times.

Experiments have demonstrated that coconut sugar possesses a certain inhibitory effect on alpha-amylase. A study published in the International Journal of PharmTech Research in 2015 suggested that coconut sugar could be used to treat Type 2 diabetes.

Coconut sugar also contains amino acids such as leucine, arginine, and isoleucine, which may have anti-diabetic properties.

In a study published in Foods in 2022, researchers fed diabetic rats cookies made from various raw materials. The results show that, compared with cookies containing added sucrose and margarine, rats that consumed corn cookies made with coconut sugar and coconut oil experienced a significant reduction in blood sugar levels and oxidative stress. Notably,

their previously low hemoglobin levels and body weight also improved. After maintaining this diet for four weeks, the blood sugar indicators of the diabetic rats improved, and their overall condition became comparable to that of normal rats.

### Retains More Nutrients Than Refined Sugar

Ms. Yusof mentioned that coconut sap contains 0.27 percent ash, which represents the content of minerals and trace metals such as calcium, magnesium, manganese, copper, sodium, potassium, zinc, and iron.

“As the minerals are more stable and don’t destroy even by burning, hence they are present in coconut sugar too,” she explained.

The iron, magnesium, and zinc content in coconut sugar is twice, four times, and 10 times higher than in cane sugar, respectively. Coconut sugar also contains more phosphorus and potassium.

According to Ms. Yusof, although the quantities of these substances in coconut sugar aren’t substantial, consuming coconut sugar can, to some extent, provide the body with minerals and trace metals.

Coconut sugar contains the amino acids required for protein synthesis, and it’s also a rich source of vitamins B1, B2, B3, and B6.

### Coconut sugar contains high levels of polyphenols, which can reduce oxidative stress in the body.

### Consume Coconut Sugar in Moderation

Coconut sugar contains 16 calories per teaspoon, the same as regular sugar. Although coconut sugar has some nutritional components, the quantities are relatively limited. Excessive consumption can offset the benefits because of the overall intake of sugars.

German researchers conducted a sensory evaluation of various coconut sugars, and interestingly, coconut sugar was described as having neither the aroma nor the taste of coconut.

The more affordable coconut sugars tend to have a darker color and coarser granules and are primarily characterized by their sweetness.

On the other hand, the more expensive coconut sugars tend to be light brown, have a finer texture, and exhibit higher fluidity. They were described as having a combination of sweet, caramel, malt, and roasted flavors.

**NEXT WEEK** What happens when you get off added sugars?

## Sweet Potatoes: A Nutritional Powerhouse

These nutrient-rich tubers nurture eye health, regulate blood sugar, and lower inflammation

By Amber Yang & JoJo Novaes

Eating whole foods such as sweet potatoes has become a dietary guideline for those seeking better health and weight management. Sweet potatoes and sweet potato leaves offer abundant fiber that aids digestion, detoxification, and satiety, making them beneficial for weight management.

Additionally, they help to prevent eye diseases caused by electronic devices and offer protection against chronic conditions such as diabetes and high blood lipids.

In an interview on Health 1+1, nutritionist Huang Yiling from Koi Nutrition in Taiwan discussed the nutritional value and best ways to prepare sweet potatoes and sweet potato leaves—as well as some dietary precautions.

### Nutritional Characteristics of 3 Sweet Potato Varieties

Sweet potatoes are rich in starch. They also contain substantial fiber, calcium, vitamin A, beta-carotene, and polyphenolic compounds such as flavonoids.

Nutrients can vary slightly among the different varieties. Yellow-fleshed sweet potatoes have higher calcium, flavonoids, insoluble fiber content, and relatively more starch. Orange-fleshed sweet potatoes are richer in beta-carotene and vitamin A. Purple-fleshed sweet potatoes contain abundant anthocyanins, high levels of flavonoids, and insoluble fiber.

### Beta-carotene, found in sweet potato leaves, converts to vitamin A in the body, contributing to the function of the light-sensitive cells in the retina.

### Sweet Potatoes Aid in Blood Sugar Control

Ms. Huang said that sweet potatoes can help to stabilize blood sugar levels, primarily because of the following factors:

#### 1. Protect Pancreatic Cells

Sweet potatoes contain polyphenolic compounds such as flavonoids, which act as antioxidants, reducing oxidative stress on pancreatic cells and protecting them.

#### 2. Regulate Blood Sugar

The polyphenolic compounds in sweet potatoes function similarly to incretin. Incretin-based medications are commonly used in diabetes management and aid in better blood sugar control by reducing glucose production in the liver.

A review study published in July in the journal Foods confirmed the potential for sweet potatoes to effectively treat Type 2 diabetes. The phenolic acids, flavonols, flavones, and anthocyanins in sweet potatoes are active substances against diabetes. Therefore, it’s better for individuals with diabetes to replace starchy foods such as rice with sweet potatoes.

However, Ms. Huang cautioned that sweet potatoes are rich in starch, and excessive starch consumption can affect blood sugar levels. Thus moderation is key.

### Nutritional Functions of Sweet Potato Leaves

Taiwan’s popular detoxification meals feature sweet potato leaves. Ms. Huang highlighted some important nutritional components and health benefits of sweet potato leaves:

#### 1. Insoluble Fiber

Insoluble fiber acts as a “gut sweeper,” increasing stool volume, stimulating intestinal movement, and promoting gut movement and the speedy passage of food through the digestive system. Insoluble fiber can also dilute accidentally eaten toxins (such



Sweet potatoes have phenolic acids, flavonols, flavones, and anthocyanins shown to combat diabetes.

as heavy metals, and pesticides), reducing the chance of toxins coming into contact with the intestinal wall. These tubers also encourage peristalsis, the muscle movement of the intestines that pushes food through the gut and which can help flush toxins out of the body as quickly as possible.

#### 2. Chlorophyll

Sweet potato leaves, as a deep-green vegetable are rich in chlorophyll—an excellent antioxidant.

#### 3. Lutein, Zeaxanthin, and Beta-Carotene

In the modern world, people are frequently exposed to electronic screens. Lutein and zeaxanthin in sweet potato leaves help to reduce the harm to the eyes caused by blue light. Beta-carotene, found in sweet potato leaves, converts to vitamin A in the body, contributing to the function of the light-sensitive cells in the retina. A reduced ability to see in dim light and even night blindness can occur when we don’t eat enough vitamin A and beta-carotene.

#### 4. Calcium, Potassium, Magnesium

Calcium, magnesium, and potassium found in sweet potatoes are vital nutrients for maintaining the health of bones, teeth, nerve and muscle function, metabolism, and proper body osmotic pressure. Magnesium is also beneficial for sleep and nervous system stability.

### Prevent Chronic Disease With Sweet Potatoes and Leaves

Sweet potatoes and sweet potato leaves are excellent food choices for preventing chronic diseases, according to Ms. Huang.

#### 1. Suppress Chronic Inflammation

Many chronic diseases begin with chronic inflammation in the body. Sweet potatoes and sweet potato leaves contain numerous antioxidants that protect DNA within cells from damage caused by free radicals or other pollutants, thereby inhibiting chronic inflammation.

#### 2. Detoxification

When the intestinal wall suffers prolonged exposure to toxins it can lead to a cytopathic effect. The high insoluble fiber content in sweet potato leaves facilitates the rapid elimination of toxins from the body.

#### 3. Prevent Cardiovascular and Cerebrovascular Diseases

The rich dietary fiber and antioxidant nutrients in sweet potatoes and sweet potato leaves regulate blood sugar, blood pressure, and blood lipids, reducing the risk of heart and cerebrovascular (involving blood flow to the brain) diseases.

A review study published in 2021 in the International Journal of Molecular Sciences found that sweet potatoes have been effective in treating high blood sugar and regulating abnormal blood lipids.

#### 4. Eye Protection

Many people experience deteriorating eyesight linked to inadequate nutrient intake, Ms. Huang said.

Sweet potatoes and their leaves are rich in antioxidants that protect cellular DNA from free radical damage.



Sweet potatoes are rich in insoluble fiber that helps your body expel toxins quickly.



Different varieties of sweet potatoes have slightly different nutrients.





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# How Antacids Work Like a ‘Gateway Drug’

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but can also establish a trajectory of worsening health if abused.

“It will decrease the symptoms. If that happens twice a year, and got you relief and got you out of pain, then OK. It’s not going to give you any bad results,” she said. “When you’re getting into the chronic nature of using them, it’s time to really figure out the why behind it and not just keep putting up with symptoms.”

As the name implies, antacids are designed to relieve excess stomach acid. What many people don’t realize, however, is that low stomach acid also mimics the symptoms of too much acid, namely heartburn, an uncomfortable burning in the center of the chest that can sometimes be quite severe, and reflux, acid making its way up the esophagus and even into the throat.

### Why We Reach for Antacids

Hypochlorhydria is a condition characterized by too little output of hydrochloric acid by the stomach, and hyperchlorhydria is the opposite. As

opposites, they shouldn’t be treated the same.

The problem is that without tests, it’s impossible to know what’s happening with your stomach acid. Most people assume that they have hyperchlorhydria, and in addition to self-diagnosing, they tend to self-medicate with over-the-counter (OTC) solutions such as antacid tablets. These work by reducing stomach acid or neutralizing it by interfering with the enzyme pepsin that’s used to break down food in the digestive process.

Antacids are approved by the U.S. Food and Drug Administration for occasional mild cases of heartburn and reflux. They aren’t intended for daily symptoms, although according to Cleveland Clinic, they can certainly provide relief for more serious, long-term issues such as gastroesophageal disease (GERD), stomach ulcers, and gastritis.

“They contain calcium carbonate and magnesium hydroxide, which are safe to take periodically and in small quantities. Taking large amounts of antacids could raise blood levels of calcium and magnesium, but in normal recommended amounts, they are considered very safe,” Dr. William Li, medical doctor and New York Times bestselling author of “Eat to Beat Your Diet: Burn Fat, Heal Your Metabolism, and Live Longer,” told The Epoch Times in an email.

### Hidden Dangers of Antacids

However, chronic usage can go on for years—unknown by doctors—among people who don’t realize the risks of underlying conditions. A

JAMA Internal Medicine study of 155 subjects in 1998 revealed a variety of diagnoses among a cohort



Long-term use of antacids can cause acid rebound, affect digestion, and mask serious disease.

# Vitamin C Potentially Lifesaving for Sepsis

Continued from Page 1

an illness such as pneumonia or a urinary tract infection. “Surgical sepsis” refers to sepsis that requires emergent surgical intervention and results most frequently from the rupture of an abdominal organ. Medical sepsis, however, responds to early intravenous vitamin C.

### How Can Vitamin C Help?

Historically, vitamin C was used to treat scurvy. However, in recent years, vitamin C has been established to have various beneficial effects that have led to its use in diseases such as cancer and sepsis.

Patients with sepsis often have widespread inflammation and increased reactive oxygen species (ROS). ROS can cause severe injury that ultimately

results in multiple organ dysfunction.

Vitamin C, being a powerful antioxidant, scavenges and disengages trouble-causing ROS. It also helps fight inflammation and has wide-ranging effects that may further benefit sepsis.

Most people’s serum vitamin C levels exceed 50 micromoles per liter. However, doctors have noticed that vitamin C levels in patients battling sepsis experience a rapid reduction, with levels in critically ill patients dropping below 11 micromoles per liter. Researchers hypothesize that this reflects that vitamin C is being used up as the body works to regain equilibrium. This same observation has been seen in patients battling cancer.

Multiple studies have investigated whether vitamin C could reduce sepsis severity.

A 2020 double-blinded randomized

controlled trial of 137 patients gave one sepsis group the standard treatment and another the standard treatment plus intravenous vitamins C and B1 and hydrocortisone. The combination group resolved sepsis shock significantly faster than the group that received the standard therapeutic protocol. Dr. Marik and his colleagues utilized this combination therapy for “countless patients.”

Another trial found about a 14.3 percent mortality rate with high doses of IV vitamin C versus about 64.3 percent without it. There’s a “complex pathophysiology of a lethal cascade of cytokines and inflammatory proteins underlying sepsis,” and vitamin C can “theoretically suppress the inflammatory cascade,” authors of a 2022 systematic review and meta-analysis wrote. Researchers reviewed 23 studies on the efficacy of high-dose vitamin C as a sepsis treatment. They concluded that vitamin C lowered mortality, instances of organ failure, and the need for blood pressure drugs.

High-dose vitamin C is typically administered via IV, given its 100 percent absorbance by the blood. Such a dose

can range from 2 to 10 grams per day or more. However, even though intravenous formulations are generally preferred in critically ill patients and may rapidly increase serum vitamin C levels, no difference in clinical efficacy has been reported between intravenous and oral formulations of vitamin C, according to a recent review. According to Dr. Marik, the optimal dose for vitamin C in the hospital is 1.5 grams intravenously every six hours during the treatment session.

“Given its low cost and minimal adverse effects, we strongly encourage further large, randomized trials to establish vitamin C as a standard of care in sepsis management,” authors of the 2022 systematic review and meta-analysis wrote.

Antibiotics remain central and life-saving if used properly. However, according to one report, inappropriate antibiotic use occurs in more than 31 percent of sepsis patients. This misuse can raise mortality risk and hospital stays. In a separate study, researchers found that misuse of antibiotics in sepsis patients was associated with neurological decline.

while the root causes still go unaddressed.

Overreliance on antacids is a problem that isn’t diminishing. A March 2022 review published in the Journal of International Medical Research reported an increase in gastrointestinal (GI) symptoms since the beginning of the COVID-19 pandemic that were connected to a change in dietary habits and increased anxiety related to lockdowns. Where GI issues arise, antacids often follow.

### Why Low Stomach Acid Occurs

Age is a risk factor for low stomach acid, as it’s associated with a decrease in hydrochloric acid, which also reduces the amounts of digestive enzymes and leads to malabsorption, according to Dr. Peterson.

Stomach acid is important to immunity because it kills bad microbes, such as infectious bacteria and viruses, which can be accidentally ingested and then migrate to the small intestine, where they can leak into the body and cause disease. Small intestinal bacterial overgrowth, or SIBO, is the condition of too many bacteria accumulating in the upper small intestine where they don’t belong.

At least one infectious bacterium, *Helicobacter pylori*, also causes low stomach acid because it creates chronic inflammation of the stomach.

Other causes of low stomach acid, according to Cleveland Clinic, are alcoholism, autoimmune diseases, and acid-reducing medications.

More than half the participants in the JAMA study reported that caffeine also made their symptoms worse. Generally, inflammation is a positive biological function that helps the body to repair tissue and defend itself against pathogens. However, when inflammation is prolonged, it can deplete the body and contribute to other diseases.

Because the gut microbiome—which is composed of bacteria, viruses, fungi, and other microorganisms—plays a role in modulating inflammation, it’s believed to be involved with symptoms associated with heartburn. Dr. Peterson said that anything introduced to the stomach can be a cause of inflammation and that repeated dietary exposures that cause or nurture inflammation will interrupt healing.

This functional hypothesis that SIBO is the root cause of GERD is made in Norman Robillard’s book “Fast Tract Digestion,” which proposes that gases made by the fermentation of out-of-place bacteria in the small intestine can compress the stomach and lead to acid shooting into the esophagus through the lower esophageal sphincter. Hiatal hernias can also put pressure on this valve, Dr. Peterson said.

### Finding Safe Relief

In the short term, one alternative to antacids for quick relief is diluted apple cider vinegar. There’s no conclusive scientific evidence that it works, but it’s fairly low risk.

A long-term approach is weeding out medications and foods that might increase an inflammatory response in the body, Dr. Peterson said. Eating only foods that are one ingredient—a

whole food diet—can slowly reverse symptoms.

“Americans eat horribly. Sixty-five percent of our calories are ultra-processed foods,” she said. “You can’t even call it food because it’s such a departure from what food is supposed to be. We have to work hard and make that extra effort not to get lured in by the food engineers that make foods so hyper-palatable and addictive.”

Dr. Li offered these additional tips:

- Sit upright with a straight back to help prevent stomach acid from flowing into your esophagus by gravity.
- Avoid eating too close to bedtime. Late-night snacks can get your stomach acids roiling to digest the food, and when you lie down to sleep shortly afterward, the acid flows up your esophagus and causes heartburn.
- Don’t drink alcohol, which can relax your esophageal sphincter, making it more likely that acid will travel from your stomach into your esophagus.

Dr. Li said that if you still have heartburn after implementing lifestyle changes, it’s time to visit a physician to look for more serious problems.

## Testing Stomach Acid

If you’re concerned that you have stomach acid issues, it may be worth looking more closely. There are several different medical tests used to diagnose low stomach acid.

They include:

- **The Heidelberg pH test:** A small capsule with a radio transmitter is swallowed to measure the pH level in your stomach. After that, a baking soda solution is consumed to measure how long it takes your stomach to return to baseline.
- **The SmartPill test:** Similar to the Heidelberg test, this test measures gastric acid levels rather than pH.
- **The gastric string test:** A capsule attached to a string is swallowed. After 10 minutes, the string is removed and tested with pH paper.

Both Cleveland Clinic and Dr. Peterson also said the baking soda test can give you a general idea about low stomach acid. Baking soda combined with stomach acid produces carbon dioxide, which will cause you to burp.

To try the test at home, you can drink four ounces of cold water mixed with a quarter teaspoon of baking soda on an empty stomach. If it takes longer than five minutes to burp, there’s a likelihood that you don’t have enough stomach acid.



AKARADECH PRAMOOSIN/GETTY IMAGES

### Why Aren’t Hospitals Using Vitamin C?

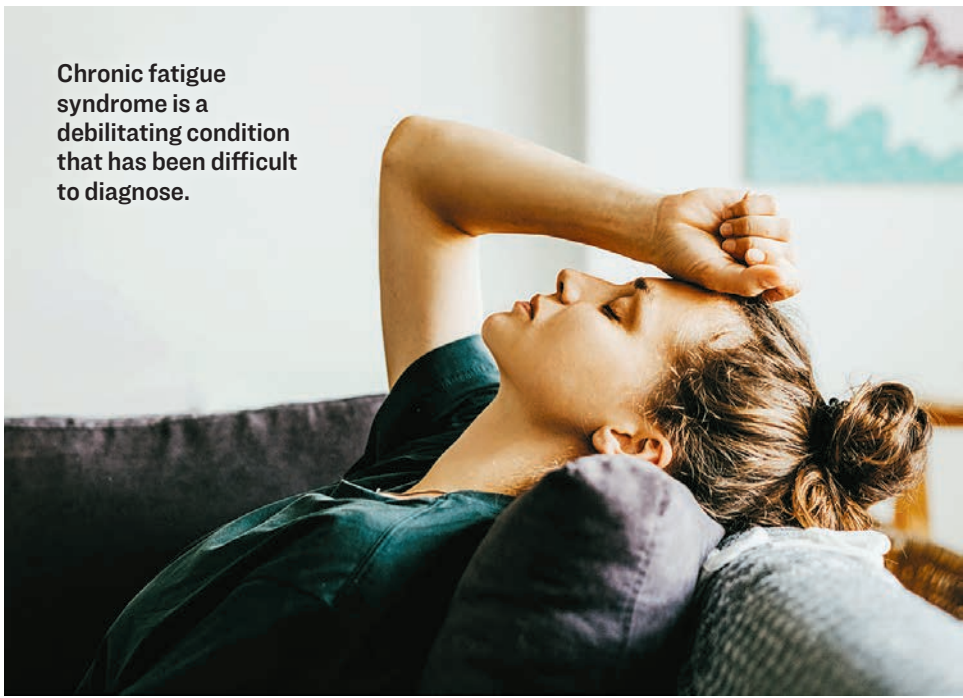
Vitamin C as an adjunct therapy remains minimally used in hospitals across the country. “It is hard to know precisely why intravenous vitamin C might not be used in each sepsis case,” Dr. Marik said.

He cited possible reasons such as lack of awareness or hospital policies favoring antibiotics over vitamin C.

“There is a disturbing trend by medical

authorities and hospitals to view only new and expensive treatments with often questionable safety records as effective when we should first look at what is readily available, well-studied, and relatively safe,” he said. This bias seems to be a major factor in vitamin C’s limited sepsis use, he noted.

“Given the challenges with treating sepsis, there is no medical reason not to try intravenous vitamin C in a treatment protocol,” Dr. Marik said.



MARIA KORNEEVA/GETTY IMAGES

# New Blood Test Detects Chronic Fatigue Syndrome

By Mary Gillis

A novel blood test designed for speedier diagnosis of a debilitating illness that affects tens of millions of people worldwide shows potential for accurately detecting myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), according to a recent study published in *Advanced Science*.

The single-cell Raman spectroscopy method successfully determined disease presence and severity in close to 100 study participants with 91 percent accuracy.

The test was also 84 percent effective in distinguishing among mild, moderate, and severe disease.

### What Is Raman Spectroscopy?

Raman spectroscopy uses light scattering and molecular vibrations to analyze the chemical composition of a substance and create a “molecular fingerprint.” Single-cell Raman spectroscopy enlists artificial intelligence to “interrogate individual cells” to distinguish between individual cell types, according to the study authors.

This new application of single-cell Raman spectroscopy as a diagnostic tool gives scientists an edge over other imperfect diagnostics. Self-reports and questionnaires usually used in diagnosing ME/CFS are subjective and devoid of objective biological markers. This often leaves doctors and patients in a frustrating limbo between guesswork and a definitive diagnostic answer.

### Abnormal Metabolite Levels in Diseased Patients

The team of University of Oxford-based researchers focused on a specific cell type known as peripheral blood mononuclear cells (PBMCs). Researchers analyzed the PBMCs of 61 patients with mild, moderate, or severe ME/CFS and compared them with 37 controls (some healthy and some with multiple sclerosis, which has clinically similar symptoms to ME/CFS).

Analyses showed that both ME/CFS and MS subjects had notably elevated levels of the essential amino acid tryptophan, related to mood and fatigue, in their PBMCs compared with healthy controls.

“Brain cells synthesize their own serotonin from tryptophan, [so] the build-up of tryptophan in the immune system might lead to reduced availability and decreased serotonin synthesis in the brain, thereby contributing to central fatigue,” the authors wrote. “Conversely, elevated blood tryptophan levels could indicate an increase in serum serotonin. Excessive serotonin levels ... can produce symptoms resembling those seen in ME/CFS ... [and] can have detrimental effects on the blood-brain barrier.”

### What Is ME/CFS?

ME/CFS is a complicated illness involving severe fatigue that gravely affects quality of life. Its origins are unclear, but science suggests that ME/CFS emerges because of an atypical reaction to an enterovirus infection. Genetics may also play a role.

According to the National Institutes of Health, up to 2.5 million Americans have ME/CFS. One in four people are either bedbound or housebound at some point in the disease. Unfortunately, the prognosis is poor, and most people never regain

their whole pre-disease level of functioning. People of all ages, races, and socioeconomic groups can develop ME/CFS, but women are two to four times more likely to be affected than men.

According to the U.S. Centers for Disease Control and Prevention, patients are often overwhelmed by a tiredness that can’t be remedied no matter how much they sleep. What may seem like simple tasks are exhausting for people with ME/CFS. They can get wiped out by going to the grocery store, showering, or attending a child’s school event.

Symptoms of ME/CFS include the following:

- Brain fog.
- Dizziness or lightheadedness.
- Weakness or fainting after standing up.
- Muscle pain, weakness, and aches.
- Joint pain without swelling or redness.
- Headaches, either new or worsening.
- Tender lymph nodes in the neck or armpits.
- Recurring sore throat.
- Digestive issues such as irritable bowel syndrome.
- Chills and night sweats.
- Allergies and sensitivities to foods, odors, chemicals, light, or noise.
- Shortness of breath.
- Irregular heartbeat.

The diminished ability to perform everyday activities that weren’t an issue before the illness must last six months or longer for a person to be diagnosed.

### Diagnostic Potential for Other Diseases

“Blood-based biomarkers may prove useful in quickly and accurately diagnosing ME/CFS by supplementing current sets of indicators measured during routine medical check-ups,” the study authors wrote. An objective blood draw provides a clear snapshot of disease status that can better inform treatment by allowing doctors to track how the disease progresses.

“Early diagnosis would enable patients to manage their conditions more effectively, potentially leading to new discoveries in disease pathways and treatment development,” the authors wrote.

They also expressed optimism about the potential of blood-derived markers, as they may prove useful in differentiating diseases with overlapping symptoms with ME/CFS, such as MS, fibromyalgia, chronic Lyme disease, and long COVID.

*Mary Elizabeth Gillis is a health reporter and cardiopulmonary specialist with over a decade of experience. After graduating with her doctorate in applied physiology, she earned a master of science degree in journalism from Columbia University.*

UP TO  
**2.5**  
MILLION  
Americans have chronic fatigue syndrome.



# What You Need to Know ABOUT SURGERY

## PART 4 STRESS EFFECTS: MANAGING STRESS FOR BETTER SURGICAL OUTCOMES

Getting stress under control can have a powerful effect on how the body handles surgery and recovers afterward

By Amy Denney

In this series, we'll share how to determine whether your surgery is right for you, how to ask the right questions, and what you can do to prepare and recover optimally.

Patients who come to surgery with increased anxiety are likely to experience more pain after surgery than those with less stress.

Surgery triggers inflammatory stress that can undermine healing and recovery.



JESTER-FLIM/SHUTTERSTOCK

2022 Annals of Medicine and Surgery. And those with high postoperative pain will have higher mortality, worse recovery, impaired wound healing, less satisfaction, and longer hospital stays.

### The Stress of Surgery

If there were a way to inhibit the sympathetic system and enhance the parasympathetic system during surgery, it would create a cascade of desirable anti-inflammatory benefits and reduce the potential for secondary injuries, as pointed out in the 2020 article in the International Journal of Surgery.

Inflammation in surgery is when blood rushes to the site of injury, causing an accumulation of fluids, swelling, and pain, as well as a temporary loss of function that necessitates rest.

In surgery, incision, excision, cauterizing, manipulation, suturing, and anesthesia can all increase sympathetic discharge, which is changes in organs, tissues, hormones, and more triggered by the stress response. Included among these tissues are the adrenal medullae, which release epinephrine and norepinephrine into the blood.

Various attempts have been made to control the nervous system's response during surgery and restore balance to the sympathetic and parasympathetic systems and suppress inflammation and lower the body's energy demand. Yet no drug therapy has fully succeeded.

The delicate balance of a patient's nervous system on the operating table might be out of medicine's reach. Still, there's evidence that patients can tend to their stress before and after surgery and lower their risks.

"Knowing the association between preoperative anxiety and postoperative pain can help to decrease their synergic effect," the Annals of Medicine and Surgery study reads.

### A Holistic Relaxation Tool

It's a subject that Dr. Brij B. Agarwal is particularly passionate about. Dr. Agarwal makes a point of informing his patients of proven techniques that can improve their recovery from surgery. He's a colorectal surgeon, researcher, and innovator of gentle surgical techniques who spent a year of his medical studies getting a yoga diploma.

"Yoga is a wonderful prehabilitation," he told The Epoch Times, noting that it's time-tested and harmless and has a very easy point of entry.



Relaxing activities support the nervous system's rest and recovery processes.

Research suggests that surgical patients benefit from the relaxation, breathing, and mindfulness components of yoga. Just 20 minutes of yoga breathing daily can lower inflammatory markers, according to a 2016 BMC study. This holistic approach to preparing for and recovering from surgery can benefit patients, according to naturopath Dr. Rosia Parrish.

"Prior to surgery, practicing gentle yoga and relaxation techniques can help manage preoperative stress and anxiety, which can positively impact the immune system and overall well-being," she told The Epoch Times. "After surgery, certain yoga poses and breathing exercises can aid in improving circulation, maintaining flexibility, and promoting relaxation, all of which contribute to a smoother recovery."

### Evidence for Yoga

A study placed 173 older cancer survivors who received surgery, chemotherapy, radiation, or some combination of the three into groups doing yoga or a behavioral placebo of health education. Those in the yoga group reported significant positive differences in quality of life, with 94 percent describing the intervention as useful for symptoms and something they would recommend to others. Results were shared this year at the American Society of Clinical Oncology annual meeting.

An older study, in the International Journal of Yoga, looked at whether 98 breast cancer patients in a yoga program had better postoperative outcomes and wound

healing. It found that those in the yoga group had shorter hospital stays as well as other markers that indicated they were healing without complications.

"Our findings are consistent with earlier studies using behavioral and relaxation approaches to improve postoperative outcomes. A variety of hypnotic-relaxation interventions appear to shorten hospital stays, decrease pain, and promote faster recovery following surgery," the study authors wrote. "Others such as relaxation with guided imagery and exercise have demonstrated stress-relieving outcomes closely associated with wound healing."

Dr. Agarwal said yoga doesn't need to be complicated. Mostly, it's about a simple posture—any posture or even movement—in which the same breathing technique is maintained for four to six minutes. The key is to hold a posture without being hyper-aware of it, even if it's to lie down in what's sometimes called "corpse pose."

### Training for Surgery

A practice of mindfulness and relaxed breathing will help you on surgery day, especially if you're able to practice stress reduction techniques for 10 to 14 days, according to Miranda Jo Davis, a health and wellness coach. The more anxious you are about your surgery, the more these methods are likely to help.

She suggested spending 15 minutes a day preparing by:

- Taking even breaths in and out

to a count of four, working up to a count of eight with deeper and fuller expansion.

- Incorporating aromatherapy such as lavender or frankincense, which has been used to treat anxiety and inflammation.

- Repeating a phrase such as "I am" with each inhale and "relaxed" or "calm" with each exhale.

"Repeating that over and over helps the brain take the suggestion and bring it into the body, calming the parasympathetic nervous system," Ms. Davis said. "Hopefully you'll notice by practicing these techniques pre-surgery that you'll want to practice them post-surgery because you recognize your body's physiological response to stress was greatly lessened."

Daily practice is a vital part of conditioning the body and brain to use the tool once under stress when it's harder to think, according to physical therapist and yoga instructor Lara Heimann, founder of the LYT Method that combines physiology, kinesiology, neurology, and functional movement.

She suggested a combined grounding and diaphragmatic breathing technique that can be done standing, sitting, or lying down by putting the hands on the ribs,

either by hugging yourself or placing them on the side of the body, to feel the expansion of the ribcage as you inhale.

"Direct breath to the hands," Ms. Heimann said. "Just think, 'Move the breath into my hands.' What this does is help with diaphragmatic breathing which triggers a parasympathetic response. That just means it's activating the parasympathetic nervous system to better regulate stress so you feel calmer. That's really important."

Most people do not involve the diaphragm when they breathe, and she said shallow breathing can sometimes create a sympathetic response. Focusing on the breath has the added benefit of keeping the mind centered on the present moment and not thinking about the past or worrying about the future.

"After you've had a surgery, you can feel less-than, you can feel weakened, you can feel scared, even if it's a minor surgery," Ms. Heimann said. "We need to come into our body and help become more resilient. We can do that by paying attention to how we move and being really present with that."

There are many other ways you can also lower your stress levels, from spending time with loved ones to walking in nature to becoming more aware of thoughts that trigger stress and thereby bringing them under conscious control.

NEXT WEEK Can anesthesia lead to cognitive decline?

## Study Shows Chemical in Licorice Fights Pancreatic Cancer

Researchers have discovered a safe way to potentially enhance chemotherapy treatments for this typically fatal cancer

By Conan Milner

Think licorice and you probably imagine a chewy black rope with a unique sweet flavor. If you get a traditional recipe of this humble confection, it may even contain a cancer-killing chemical.

Scientists from Hong Kong Baptist University (HKBU) recently published findings that a flavonoid in licorice root can inhibit the progression of pancreatic cancer. Researchers showed that this same licorice-based chemical may also enhance the efficacy of chemotherapy drugs used

to treat pancreatic cancer.

The research was published in the international academic journal Phytomedicine and presented at the Annual Congress of the European Association for Cancer Research 2023 in Torino, Italy.

The findings are important because pancreatic cancer has characteristics that make it potentially more devastating than other cancers. It's aggressive and has a high mortality rate. According to Global Cancer Statistics 2020, a report released by the American Cancer Society and the International Agency for Research on Cancer, the mortality-to-incidence ratio of pancreatic cancer is greater than 93 percent.

The World Health Organization estimated pancreatic cancer as the third-leading cancer-related cause of death in people of all ages in the United States and several European countries.

It's a vicious cancer that can strike without any clear warning. Patients typically

experience little or no symptoms with pancreatic cancer—until it has considerably progressed. When doctors do finally catch it, the disease is very advanced and has spread to other organs.

When most any cancer is caught early enough, a surgeon may be able to remove it. But by the time a patient receives a pancreatic cancer diagnosis, surgical removal is usually no longer an option. Only about 20 percent of pancreatic cancer patients are eligible for surgery (known as a Whipple operation or pancreaticoduodenectomy).

For those who make the cut, the recurrence rate of cancer is high. Long-term complications from the Whipple procedure (which include pancreatitis, hernia, ulcer, and bowel obstruction) occur in nearly a third of cases, and nearly one-fifth of all procedures require re-intervention.

The typical treatment for pancreatic cancer is chemotherapy. Serious side effects are common.

### Licorice's Healing Legacy

These are the realities that a pancreatic cancer patient must face. So why would HKBU scientists study licorice as a source of medicine for such a daunting disease? In part, because of its traditional use. Licorice root has been used as a medicine around the world since ancient times.

In China, licorice root is known as gan cao (which means "sweet herb") and has

ISL possesses a unique property of inhibiting pancreatic cancer progression through the blockade of autophagy.

Joshua Ko Ka-Shun, associate professor, School of Chinese Medicine, Hong Kong Baptist University

been used for a number of health conditions for millennia. Because of its sweet flavor and a long-held reputation for harmonizing combinations of other herbs, licorice is found in a vast array of traditional Chinese herbal formulas.

Licorice root has long been used in the West as well, for treating gastrointestinal, respiratory, and inflammatory diseases. Modern science continues to validate the root's healing potential.

A meta-analysis of the anti-inflammatory actions of licorice, published in a 2017 edition of the journal Pharmaceutical Biology, determined that several compounds in the root "exhibit evident anti-inflammatory properties."

In an analysis published in 2020, licorice was found to nurture health in several ways, including supporting hormonal balance and having antibacterial, antiviral, expectorant, anti-cancer, and other properties.

### Understanding ISL

When modern science analyzes a plant's healing power and potential, it isolates the chemicals it contains. Licorice root contains several chemicals with medicinal properties. A saponin called glycyrrhizin is the best-known and most frequently studied of these chemicals, but many others remain. The licorice compound at the heart of the HKBU study is known as isoliquiritigenin (ISL).



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A study in mice found isoliquiritigenin as effective as a common drug used in pancreatic cancer chemotherapy.

such as anemia, a drop in white blood cells, and weight loss.

Although GEM (and 5-fluorouracil) are typically the standard of care when it comes to pancreatic cancer, these drugs are frequently met with chemoresistance, which means the cancer is able to evade the treatment. Instead of killing the cancer as intended, these chemo drugs can encourage the growth of cancer cells.

Mr. Ko and his team examined how ISL might help in counteracting chemoresistance. Researchers looked at pancreatic cancer cells treated with chemo drugs alone, compared to cells where the drugs were used in tandem with ISL. They found that ISL combined with GEM inhibited the growth of pancreatic cancer cells 18 percent more compared to the group treated with GEM alone.

ISL combined with 5-fluorouracil was 30 percent more effective than chemo by itself.

Researchers concluded that ISL could considerably enhance conventional treatment.

"The findings in this study open a new avenue for developing ISL as a novel autophagy inhibitor in the treatment of pancreatic cancer," Mr. Ko said. "We hope to collaborate with other research partners to further evaluate the effectiveness and potential clinical application of ISL in treating pancreatic cancer."

Traditional licorice uses licorice root for its flavoring.



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# Exercises to Lower Alzheimer’s Disease Risk

These 5 lean muscle-building exercises can improve your physical fitness and help prevent dementia

By Kevin Shelley

Dementia is one of the most insidious diseases. In lunchtime conversations for over three decades, I’ve seen nurses and therapists agree that it’s the disease we’d most like to avoid. Where other diseases tend to impose health and functional deficits on intact individuals, dementia can actually change who you are.

Although the exact causes of dementia aren’t fully understood, there is robust evidence that regular exercise has the potential to prevent Alzheimer’s disease and cognitive decline.

Exercise promotes the growth of new neurons (neurogenesis) by inducing certain metabolic factors. It also has anti-inflammatory benefits

and improves brain redox balance, which is one of the hallmarks of Alzheimer’s disease.

**Exercise and Alzheimer’s Disease**  
A recent study published in the Journal of the American Medical Association found that building lean muscle may reduce Alzheimer’s disease risk. Another recent review published in Ageing Research Reviews concluded that exercise and high levels of lean muscle provide numerous benefits through different pathways that might help reduce the risk and progression of Alzheimer’s disease. Lean mass, or the difference between total mass and fat mass, was associated with higher cognitive task scores.

In rehabilitation, we have a saying: “Healthier before, healthier after.” Patients who were fit before enter-

ing the medical system usually have healthier outcomes than those who were not fit to begin with. It can make the rehabilitation process much easier for everyone involved. This concept appears to apply equally to cognitive health.

My colleague, Isaac Raj, a certified exercise physiologist and fitness trainer, recommends the following exercises for optimal muscular growth. These exercises are designed to target all areas of the body quickly and efficiently, which can build more lean muscle mass and reduce dementia risk.

This is intended as a higher-intensity workout, so we recommend that you transition between the different exercises rapidly—resting just long enough to catch your breath before moving on to the next one.

*Kevin Shelley is a licensed occupational therapist with over 30 years of experience in major health care settings. He is a health columnist for The Epoch Times.*

## SIMPLE EXERCISES TO TO LOWER ALZHEIMER’S DISEASE RISK

### 1 SIT-TO-STANDS

This exercise targets lower body strengthening. It includes the large quadricep, hamstring, and gluteal muscles, which respond well to exercise and can significantly increase your lean muscle mass while strengthening core muscles.

“Use good form and pace your movements. Workout specificity reduces fall risks and helps you to better benefit from this exercise,” Mr. Raj told The Epoch Times.

**Step 1:** Sit on a couch, a chair, or a comparable firm surface.

**Step 2:** Slowly rise into a standing position, taking a full second to complete the movement. Once standing, slowly lower yourself back down into a seated position, taking a full second to complete the transition. Transition immediately from one position to another throughout the exercise to maximize intensity.

**Step 3:** Rising into a standing position, then sitting back down again counts as one repetition.

Try to complete 10 repetitions per set and do three sets.

This exercise can be performed with your arms by your sides, but if it’s difficult to rise up without losing your balance behind you, then hold your arms straight out in front of you to shift your weight forward.



### 2 SUPINE BANDED PULL-APARTS

Supine banded pull-aparts provide upper back strengthening and focus on muscles associated with good posture. These muscles include the rear deltoids, trapezius, and neck musculature.

Performing these exercises in a supine position (lying on your back with your face upward) helps maintain external rotation (rotation away from the center of the body) and promotes good shoulder stability.

**Step 1:** Lie on the floor or another firm surface. You can lie on your bed if it’s firm, but softer surfaces are less ideal.

**Step 2:** Grasp an elastic exercise band with each hand, keeping hands approximately one foot apart with your arms extended straight up toward the ceiling.

**Step 3:** Slowly pull the band apart, moving your arms straight out to the sides until your hands make contact with the surface you are lying on. Raise your hands back up into the starting position. Move slowly in both directions, especially when moving your hands back up. Do not let the band pull your hands together quickly, but try to control the movement all the way back up.

**Step 4:** Try to do three sets of 10 repetitions.

Band exercises are highly adaptable. If you struggle to fully extend the band, hold it about a foot and a half apart. If there’s not enough resistance, you can use two bands or fold one band in half. The more you do this exercise, the better feel you’ll have for working with the bands.



Step 1



Step 2

### 3 GLUTE BRIDGES

“This exercise focuses on the posterior chain—the groups of muscles that run down the back of your body—and includes the gluteal, hamstring, and back extensor muscles,” Mr. Raj said.

Glute bridges collaterally strengthen your pelvis, assist in hip stability, and have been shown in some cases to reduce pain associated with pelvic instability in aging adults.

**Step 1:** Begin by lying down on a firm, supportive surface.

**Step 2:** Bend your knees and move your feet up until they are flat on the surface. Your hands should be by your sides with your palms touching the surface.

**Step 3:** Bring your hips up off the floor until your entire trunk is straight, taking one full second to complete the movement. Pushing on the floor with your arms can help stabilize your body and provide leverage for lifting. Be sure your trunk isn’t sagging or arching.

It may be helpful to have someone observe your movements and posture during this exercise. Once you’re up, hold the position for five seconds, then slowly lower yourself back down. Once down, immediately rise up into the next repetition without resting.

**Step 4:** Try to complete 10 repetitions per set and three total sets.

Bridges can be difficult exercises, but they provide many benefits. Good form is important to enhance the benefits. Don’t skimp on the five-second hold at the top of the movement; this is where your body is working the hardest and where the most benefit occurs.



Step 1



Step 2

### 4 CRUNCHES

“The word “crunches” can sound scary, but they are a superb exercise for increasing core stability and trunk strength by fortifying the abdominals and obliques,” Mr. Raj said.

**Step 1:** Start by lying on your back on a flat surface with your knees bent, your feet flat on the floor, and your palms down and touching the floor.

**Step 2:** Slowly bring your shoulders up, moving as close as you can to your knees. “Focus on breathing, expelling air at full contraction, tightening your core, and holding movements for three seconds if possible,” Mr. Raj advised.

**Step 3:** Slowly lower back down until you are flat on the floor, then immediately begin rising up into the next repetition.

**Step 4:** Try doing three sets, with 10 repetitions per set.

You can intensify this exercise by crossing your arms, which adds more weight to your trunk. Lifting your feet off of the floor with your lower legs in a tabletop position (horizontal to the floor), or holding your arms either over your head or behind your head can also add intensity.



Step 1



Step 2

### 5 CHAIR PUSH-UPS

Chair push-ups focus on upper body strength, including the triceps, shoulder, and chest muscles.

**Step 1:** Push a chair against a wall to keep it from sliding. You can actually use any sturdy surface. Assume a push-up position off of either the armrests (if they are sturdy) or the seat cushion. Your arms should be straight and fully extended.

**Step 2:** Slowly bend your elbows and lower your upper body toward the chair. Take one full second to perform the movement. Do not rush. Hold for one second, and then push back up until your arms are straight.

**Step 3:** Perform 12 repetitions per set and three sets.

Both regular push-ups and chair push-ups involve aspects of the traditional plank movement, and as a consequence, they can be quite challenging. Start where you can and work up from there. If you find that you can do more than the recommended number, just make sure you maintain an adequate pace and do not rush.



#### Other Recommendations

Each of these exercises can be performed individually or combined by rotating through a “circuit” by doing one after the other. I encourage you to explore both options to see what works best for you. Some combinations and positions will challenge you more than others, so try to make them your own. A consistent routine will lead to significant improvements in posture and muscle form while reducing your risk of developing Alzheimer’s disease.

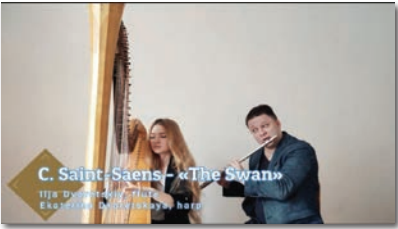
*If you have health or mobility issues that may present problems, consult with your physician before commencing any exercise regimen.*



# EDITOR'S PICKS: LIFESTYLE AND ART ON EPOCHTV

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## PERFORMANCE



### Camille Saint-Saens: 'The Swan'

"The Swan" illustrates the fleeting nature of beauty with its interpretation of the legend of the swan song. It is the penultimate movement of "The Carnival of the Animals" by Camille Saint-Saens. Ilja Dvoretzkiy, flute. Ekaterina Dvoretzkaya, harp.



## VITAL SIGNS



### From 'Rocky' to 'Creed': Boxing as a Cultural Icon

Professional boxing poses the risk of concussion-related brain trauma, yet boxing still persists as a cultural icon. Does boxing's value as a sport and the lifeline it can offer young people justify its potential danger?



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# Integrative Medicine –a Whole-Person Approach to Health and Well-Being

A medical movement based on a rational understanding of how humans exist is offering new approaches to health and well-being

By Emma Suttie

In recent years, there has been an increasing interest in integrative medicine. One of the great strengths of integrative medicine is that it recognizes each person as a unique individual with many aspects that are vital to their health and well-being. Integrative medicine differs from conventional allopathic medicine in some fundamental ways. While conventional medicine focuses on symptoms and disease, integrative medicine focuses on

root causes and health. Allopathic medicine concentrates on the physical and breaks the body into separate, disconnected parts, whereas the integrative approach treats the human being—body, mind, and spirit—as a unified whole. While it may seem that integrative medicine is a relatively new approach gaining momentum in the mainstream, it has existed for millennia. It's the foundation of many traditional medicines—such as Chinese medicine, Ayurvedic medicine, homeopathy, and naturopathy. Today, some conventional physicians

employ an integrative approach and refer their patients to various integrative medicine practitioners to meet their health needs.

## The Whole Person Approach

The whole-person approach of body, mind, and spirit works from the premise that these realms are intricately connected and vital to a healthy, happy human being. Our health and well-being depend on balance in every aspect of our lives, and practitioners aim to understand each of these realms to help

their patients rebalance and heal.

## Our Different Aspects

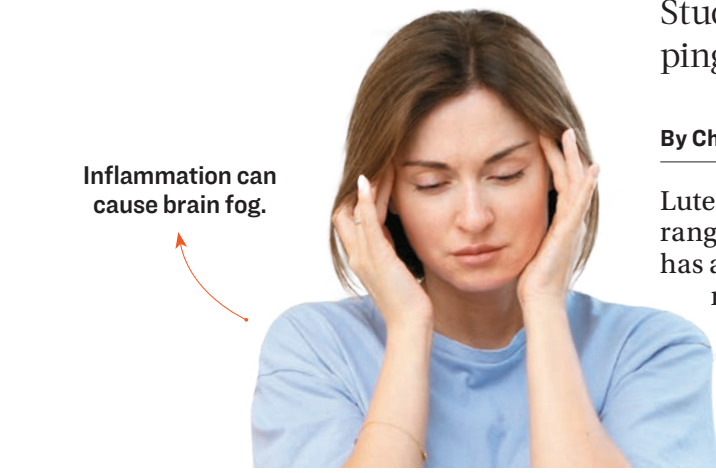
Once integrative practitioners have a more complete picture of who you are, they can better determine where problems lie and how to help resolve them. Treatment usually begins with a detailed intake process, including a thorough medical history. Practitioners aren't interested in your disease or illness but in you—all of the different parts of your life and the various roles you play. Here's a list of some of the "realms" that practitioners are interested in and may ask about.

## Physical

Our bodies are the vessels through which we experience the world and are one of the places where illness can manifest. Our bodies provide us with vital feedback mechanisms that—if we choose to recognize them—let us know when something isn't right. These messages are often in the form of pain and various sensations (such as an intuitive or "gut" feeling) and are the body's way of getting our attention. The physical realm encompasses the way that we take care of our bodies. How much physical activity we do; how

Continued on Page 19

# Memory Boosting Flavonoid Combats Cancer and Brain Fog



Studies show luteolin is an anti-inflammatory capable of stopping cancer cells from growing and spreading

By Christy Prais

Luteolin, a flavonoid found in a wide range of fruits, vegetables, and herbs, has a history of use as an anti-inflammatory herbal remedy and is a staple in traditional Chinese medicine for conditions such as upper respiratory tract infections, diabetes mellitus, and rheumatoid arthritis.

This natural compound is also famous for its ability to fight oxidative stress in the body, and more recently, scientists have discovered that it also has the power to help combat cancer.

## Diverse Health Benefits of Luteolin

**Antioxidant** Most flavonoids have strong antioxidant properties and are responsible for pro-

tecting the body against reactive oxygen species (ROS). ROS are chemically reactive molecules containing oxygen naturally produced in the body as by-products of various metabolic processes. While some ROS serve essential functions in cell signaling and immune response, excessive ROS can be harmful. When produced in excess, ROS can cause oxidative stress and damage cell components such as DNA, proteins, and lipids. This oxidative stress contributes to the aging process and various

Continued on Page 16

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## Mouthwash Contains Chemicals That Can Cause Diabetes and More

Oral hygiene is essential for health, but dangerous chemicals may be hiding in your favorite mouthwash

By Mary Gillis

Mouthwash is a bathroom staple in many households, but these minty antimicrobials could do more harm than good—harm that extends beyond people’s pearly whites, according to a new comprehensive study of the risks of mouthwash.

Although the number of ingredients and their concentrations vary among mouthwash brands, scientists have concluded that some ingredients in mouthwash are linked to side effects ranging from minor skin irritation and headaches to life-threatening conditions such as heart problems and cancer.

Researchers in Turkey examined 45 mouthwash formulas used by 17 commercial brands found in the five largest chain stores in Istanbul.

They found that 31 out of the 45 formulas (more than 68 percent) contained glycerin, associated with kidney and liver deterioration, 29 (more than 64 percent) included the known carcinogen sodium saccharin, and 28 (about 62 percent) contained propylene glycol—a chemical linked to organ failure when used in large doses.

Despite its link to tooth decay, the antiseptic chlorhexidine gluconate was included in 7 out of 45 formulas. Other ingredients, such as the plaque-reducing agent cetylpyridinium chloride and acid orange 7 dye, can cause tooth discoloration and staining.

“The limited array of mouthwashes found on store shelves poses a concern for both oral and public health,” study authors wrote in the International Dental Journal. “Furthermore, the intricate composition of these products, consisting of numerous ingredients with the potential for adverse effects, warrants serious attention.”

### Mouthwash a Substitute for Toothpaste?

According to the American Dental Association (ADA), mouthwash isn’t meant to replace toothpaste but is a valuable addition. Swishing and gargling can help reach areas that are sometimes hard to reach with a toothbrush.

There are two main types of mouthwash: therapeutic and cosmetic. Therapeutic mouth rinses are available both over-the-counter and by prescription and help control plaque, gingivitis, bad breath, and tooth decay. Cosmetic mouthwashes temporarily control bad breath but aren’t meant to eliminate plaque, gingivitis, or tooth decay.

### Warnings, Recalls, and Other Risks

Several warnings and recalls have been released over the past decade regarding the dangers of mouthwash.

In 2017, the U.S. Food and Drug Administration issued a warning about a rare but severe allergic reaction to the antiseptic chlorhexidine gluconate used for gum disease. According to the warning, an allergic reaction to chlorhexidine gluconate may involve wheezing and difficulty breathing, face swelling, hives, severe rashes, and shock, a life-threatening condition that occurs when blood flow is reduced.

In 2020, pharmaceutical repackaging company Lohxa issued a voluntary recall of a batch of chlorhexidine gluconate oral rinse because of potential contamination with Burkholderia lata bacteria. The recall of the defective product has since been terminated.

In a study published in the Nitric Oxide Society’s official journal, scientists linked mouthwash to type 2 diabetes. Analyses show that people who used mouthwash more than twice per day had a significantly greater risk of pre-diabetes or diabetes than people who used mouthwash less frequently. Researchers suggested that the link was due to the effect on beneficial oral microbes critical for creating nitric oxide.

The ADA discourages children younger than 6 years old from using mouthwash unless directed by a dentist. Children may accidentally swallow it, leading to nausea, vomiting, and alcohol intoxication, depending on the amount of alcohol in the rinse.

### Use of Both Mouthwash and Toothpaste Compounds Effects

“The purpose of the present study was to investigate the effects and intended usage of the ingredients included in commercially available mouthwashes as well as to identify any possible adverse impacts,” the study authors wrote. “According to the research on toothpaste, many compounds that might cause harmful effects ... can also be ingested through mouthwash, hence boosting the body’s concentration of these agents.”

It’s critical that chemicals with hazardous effects be eliminated from dental care products, they said. They recommended further research in this area to ensure consumer safety.

*Mary Elizabeth Gillis is a health reporter and cardiopulmonary specialist with over a decade of experience. After graduating with her doctorate in applied physiology, she earned a master of science degree in journalism from Columbia University*

### Same Chemicals in Toothpaste

According to a paper published in the *Bosnian Journal of Basic Medical Sciences*, mouth rinses have practically the same composition as toothpaste. Some overlapping chemicals are:

- Abrasives that remove substances on tooth surfaces without scratching them.
- Binders that prevent the product from drying out.
- Solvents that dissolve ingredients so they can be mixed. Water makes up the majority of solvents, but alcohol is also used.
- Foaming agents that enhance the cleaning effect.
- Flavoring agents that eliminate unpleasant smells and provide a refreshing taste, such as spearmint, peppermint, and eucalyptus.
- Coloring agents such as titanium dioxide, which is used to make toothpaste white.
- Preservatives that prevent the growth of microorganisms.

Some mouthwash ingredients may cause skin irritation, headaches, or serious conditions like diabetes.



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## Biotech Firms Target Meat Supply With mRNA Vaccines

Concerns over shrimp, pork, and beef affected by future mRNA gene therapies spur calls for research, labels

By Megan Redshaw

Shrimp has become the latest addition to a growing list of food sources targeted by mRNA gene therapy technology. An Israeli company seeking to bring mRNA vaccines to shrimp farming has raised \$8.25 million from a group of venture capitalists to promote and improve animal health in marine species through its orally administered RNA-particle platform.

ViAqua, a biotechnology company, created an RNA-based vaccine product that uses ribonucleic acid interference (RNAi) to manipulate gene expression in shrimp. RNAi is a biological process through which RNA molecules are used to inhibit gene expression or translation by neutralizing targeted mRNA molecules.

The vaccine comes in the form of a coated feed supplement designed to enhance resistance to white spot syndrome virus (WSSV)—a viral infection that causes an annual loss of about \$3 billion and a 15 percent reduction in global shrimp production. ViAqua suggests that RNA molecules can inhibit the expression of genes that cause disease with every meal containing its coated product.

According to a 2022 proof-of-concept study, the nanovaccine was roughly 80 percent effective in a lethal WSSV challenge model and exhibited excellent in vivo safety profiles. Yet the risks of altering gene expression in shrimp and the effects of consuming vaccinated shrimp are unknown.

“Oral delivery is the holy grail of aquaculture health development due to both the impossibility of vaccinating individual shrimp and its ability to substantially bring down the operational costs of disease management while improving outcomes,” Shai Ufaz, CEO of ViAqua, said in a statement. “We are excited to bring this technology to market to address the need for affordable disease solutions in aquaculture.”

ViAqua plans to begin production in India in 2024 and stated that its technology has numerous applications in aquaculture and beyond.

### mRNA Vaccines Already Used in Pigs

The aquaculture industry isn’t the only market being targeted with mRNA vaccines. Genvax Technologies, a startup creating mRNA vaccines for animals, secured \$6.5 million in funding in 2022 to develop a self-amplifying mRNA (saRNA) platform that allows for rapid development of a herd or flock-specific vaccine matched 100 percent to the circulating variant at the root of a disease outbreak.

Genvax’s technology involves inserting a specific transgene or “gene of interest” matched to the variant strain into the platform. The saRNA then generates an antibody response without requiring the whole pathogen to be matched to the circulating strain.

In April 2022, Genvax was awarded a \$145,000 grant by the Foundation for Food and Agriculture Research to develop an saRNA vaccine for African swine flu (ASF) in collaboration with the U.S. Department of Agriculture. ASF is a highly contagious virus with a 100 percent swine mortality rate. It has never occurred in the United States.

According to a 2022 paper published in eClinicalMedicine, saRNA technology uses lipid nanoparticles to encapsulate saRNA. When injected as a vaccine, the lipid nanoparticle encapsulation facilitates “endosomal uptake and release into the cytoplasm of target cells in vivo.” This novel technology has “significant and previously untested potential” to be used in drugs and vaccines.

Genvax isn’t the first company to harness mRNA technology in pigs. Merck, in 2018, introduced SEQUIVITY, a “revolutionary swine vaccine platform” that uses RNA particle technology to create “customized prescription vaccines against strains of influenza A virus in swine, porcine circovirus (PCV), rotavirus and beyond.”

SEQUIVITY uses electronic gene sequencing to generate RNA particles that, when injected into an animal, provide



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As companies explore gene therapies for animals, some states have begun looking at whether affected meat products should be labeled.

instructions to immune cells to translate the sequence into proteins that act as antigens, similar to how the COVID-19 vaccine causes the body to generate spike proteins. The idea is that the animal’s immune system, when challenged with the actual live pathogen, will recognize the antigen and be able to respond effectively.

According to Merck, their RNA particle technology allows for the development of a “safe and flexible” custom swine flu vaccine in only eight to 12 weeks compared with traditional vaccines that take years to develop.

Although it’s claimed that vaccines using RNA technology are safe and effective, studies appear to be scarce with little to no research to determine what effects consuming pork from vaccinated pigs may have on the human body.

“Consumers deserve the right to choose whether to consume beef from a country where mRNA injections are being given to cattle.”

Max Thornsberry, veterinarian

### mRNA Vaccines in Cattle Raise Concerns Among Producers

According to the National Cattlemen’s Beef Association, mRNA vaccines currently aren’t licensed for use in U.S. beef cattle. The vaccines are being developed to treat and prevent diseases in cattle, whose meat could make its way to the dinner table.

Ranchers-Cattlemen Action Legal Fund United Stockgrowers of America (R-CALF USA), a national nonprofit organization with more than 5,000 members dedicated to ensuring the continued profitability and viability of the U.S. cattle industry, has raised concerns over using mRNA vaccines in cattle.

In April, R-CALF USA met with doctors and a molecular biologist regarding the status of mRNA injections in the global protein supply chain. Veterinarian Max Thornsberry reported that some researchers have found that mRNA and its coded virus could pass to humans who consume dairy or meat products from an mRNA-injected animal.



Mr. Thornsberry raised concerns about the unknown long-term effects of consuming meat from animals injected with mRNA vaccines and called for more extensive research. Although the United States hasn’t yet approved an mRNA vaccine for use in cattle, the country is increasing imports of beef from other countries that either vaccinate cattle with mRNA vaccines or plan to.

“This points to the urgent need for MCOOL (mandatory country of origin labeling),” he said. “Consumers deserve the right to choose whether to consume beef from a country where mRNA injections are being given to cattle, and the only way they can have that choice is if Congress passes MCOOL for beef.”

R-CALF USA plans to develop a policy direction for the organization at an upcoming meeting but “strongly reinforces the need for mandatory country of origin labeling” of beef.

In an op-ed posted on its website, R-CALF USA CEO Bill Bullard said the organization has been attacked for its position and accused by pharmaceutical-backed publications of “fearmongering and misinformation.”

“Iowa State University researchers submitted a multi-year research project to the U.S. Department of Agriculture to test a cattle mRNA vaccine system for bovine respiratory syncytial virus (RSV) infection,” Mr. Bullard said.

“According to the submission, researchers planned to test the mRNA on cattle during the second year of the project with a completion date of 2026. It would be naïve not to assume that such a research project signals an effort to obtain approval for mRNA injections in U.S. cattle.”

Mr. Bullard encouraged others to not “simply trust the pharmaceutical companies and the government” and said his organization “intends to learn the truth by continuing to disclose differing scientific findings, seeking more research into the long-term effects of mRNA injections for cattle, and demanding more transparency from pharmaceutical companies and the government.”

Several states have already drafted or proposed legislation seeking to require the labeling of products derived from animals administered mRNA vaccines, including Tennessee, Idaho, Arizona, Texas, and Missouri.

*Megan Redshaw is an attorney and investigative journalist with a background in political science. She is also a traditional naturopath with additional certifications in nutrition and exercise science.*

The long-term implications of eating pork, beef, and shrimp treated with mRNA vaccines are unknown but there are concerns about the potential transmission of mRNA and its coded viruses to humans.

  
**\$8.25**  
**MILLION**  
An Israeli firm secured \$8.25 million from venture capitalists to advance mRNA vaccines for shrimp farming.

  
**8 to 10**  
**WEEKS**  
Merck claims its RNA technology enables them to create a “safe and flexible” swine flu vaccine in eight to 12 weeks.



# Memory Boosting Flavonoid Combats Cancer and Brain Fog

Continued from Page 13

Luteolin is known to scavenge ROS and reduce oxidative stress, which may help prevent chronic diseases and cancer.

## FOOD SOURCES

According to the book “A Century of Valuable Plant Bioactives,” radicchio (Italian chicory) and raw Chinese celery are the most abundant vegetable sources of luteolin. Oregano and juniper berries are the highest herbal sources, with raw lemon without the peel being the highest fruit source.

Luteolin content (mg/100 g) in different sources. (Manzoor et al., 2017)

Fresh and dried oregano.



Radicchio aka Italian chicory.



Fresh celery and celery juice.



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diseases, such as cancer, insulin resistance, diabetes mellitus, cardiovascular diseases, and atherosclerosis.

Luteolin is known to scavenge ROS and reduce oxidative stress, which may help prevent chronic diseases and cancer.

### Anti-Cancer

The anti-cancer property of luteolin has been extensively researched in many cancer types.

Luteolin appears to be capable of stopping cancer cells from growing and spreading, as well as preventing the formation of new blood vessels that tumors need to grow, according to a 2021 study published in *Oxidative Medicine and Cellular Longevity*.

Luteolin has been shown to initiate a process in cancer cells that leads to their programmed self-destruction and reverses specific changes that contribute to cancer development. It can also alter cell structures while increasing the presence of reactive molecules within cells.

Although these findings are mostly from studies done in the lab and on animals, they suggest that luteolin could have promising benefits in the fight against cancer.

### Colon Cancer

In an in vivo study on rats, luteolin was seen to shield the outer part of cells and keep their structure strong. This led to a lower chance of developing colon cancer, suggesting that luteolin might help protect against it.

### Colon Cancer Liver Metastasis

In another study done on rats, luteolin reduced the spread of colon cancer cells to the liver by 24 percent.

### Luteolin has demonstrated its ability to diminish neuroinflammation through its anti-inflammatory properties.

### Pancreatic Cancer

Luteolin in combination with gemcitabine (Gem) caused significant tumor cell death in pancreatic tumor cells compared to the control group in a 2015 study. Gem is a chemotherapy medication used in the treatment of various types of cancer.

### Hepatocellular Carcinoma (HCC)

Some research shows that luteolin could be a beneficial complementary treatment for HCC, a type of liver cancer that's often very resistant to chemotherapy. A 2018 study done on rats found that luteolin

reduced the number of certain cells that promote the growth of blood vessels in tumors. Luteolin also triggered a process called apoptosis, which is a way that cells self-destruct, specifically in liver cells.

### Ovarian Cancer

A 2017 study found that luteolin reduced the levels of certain proteins in cancer cells, resulting in slower growth and movement of ovarian cancer cells.

Luteolin has also been shown to be effective against many other cancer types, including lung, breast, glioblastoma, prostate, colon, liver, and head and neck cancer.

### Anti-Inflammatory

Luteolin has been shown to suppress and inhibit the production of pro-inflammatory cytokines such as IL-6, TNF-alpha, iNOS, and COX-2, showing potential for treating inflammatory diseases.

Cytokines are signaling proteins that regulate the immune system's inflammatory response in the body.

This is important because chronic inflammation is found to be the root cause of many diseases.

For example, studies show that the effect of COVID-19 on the cardiovascular system is more severe in patients with significantly elevated levels of inflammatory factors such as the cytokine IL-1beta. A 2020 study published in the *PMCCOVID-19 Collection* by Wiley found that luteolin not only has anti-inflammatory properties but can also inhibit mast

cells secretion of pro-inflammatory cytokines including IL-1beta.

Mast cells are blood cells that play a crucial role in the immune system and are responsible for allergic reactions and the body's response to parasitic infections. When triggered by allergens or pathogens, they release chemical substances such as histamine, which can cause various symptoms such as itching, swelling, and inflammation.

Luteolin has several helpful effects—in addition to reducing inflammation—such as protecting brain cells and improving brain function and memory.

### Neuroprotective Effects

The anti-inflammatory effects of luteolin have also been shown to reduce neuroinflammation—inflammation of the nervous system, including the brain and spinal cord.

Neuroinflammation is a significant contributor to various neurodegenerative conditions, including Alzheimer's disease, Parkinson's disease, stroke, traumatic brain injury, spinal cord injury, demyelinating disorders, and central nervous system infections.

Alzheimer's disease is one of the most common neurodegenerative disorders. A 2018 study pub-

lished in *Nutrition Research* found that the combination of luteolin and L-theanine improved symptoms associated with Alzheimer's disease, possibly by enhancing insulin signaling in the hippocampus, regulating norepinephrine metabolism, and reducing neuroinflammation, suggesting that it could be a promising treatment option.

Luteolin has also been a key factor in mitigating brain fog and reduced memory and brain function.

### Cytokines are signaling proteins that regulate the immune system's inflammation response in the body.

### Improved Memory and Brain Function

As we age, many of us experience memory loss and issues with brain function. Pro-inflammatory cytokines called microglia play a role in cognitive aging, as they can become dysregulated during the aging process.

Studies show that luteolin not only improved memory in older mice but has also been shown to effectively reduce inflammatory microglia in the aging brain, consequently improving cognitive function.

One study found that adding luteolin to the diet of mice re-

duced the activity of microglia as mice aged and when they were exposed to a certain stimulus (lipopolysaccharide). This suggests that luteolin could potentially help lower brain inflammation and enhance thinking abilities in older adults by regulating microglia activity.

### Brain Fog

Brain “fog” encompasses various symptoms, including decreased mental sharpness, difficulty focusing, and memory issues—both short-term and long-term.

Those with neuroimmune diseases, long COVID, and autism spectrum disorders suffer from brain fog. Research shows that brain fog may be caused by inflammation-related molecules, such as cytokines and histamine, which are released from mast cells.

A 2015 review published in *Frontiers in Neuroscience* found that a special form of luteolin found in olive fruit extract not only enhanced attention in kids with autism spectrum disorders but also helped with brain fog in patients with mastocytosis, which is an abnormal growth of mast cells. Luteolin's antioxidant, anti-inflammatory, and neuroprotective properties were also shown to effectively reduce behavioral symptoms associated with autism spectrum disorders in children in an open-label pilot investigation. Importantly, no significant adverse effects were observed in children who received a luteolin dose of 10 milligrams per kilogram of body weight.

### Bio Availability

Although it's documented that increasing dietary luteolin has many health benefits, research also shows that it has low bioavail-

ability when consumed through foods or used as a therapeutic compound in medications.

Bioavailability is the proportion of a compound that can be absorbed by the body and made available in the bloodstream when ingested orally.

This limitation has prompted research into delivery strategies, such as lipid carriers and nanoformulations, to enhance luteolin's overall effectiveness when used as a therapeutic agent.

While studies and sources suggest that increasing luteolin intake through diet or supplementation may be beneficial for our bodies, more research is needed to understand the optimal luteolin intake for various health benefits.

## OTHER STUDIED HEALTH BENEFITS OF LUTEOLIN

- Reduces the incidence of cardiovascular disease.
- Chronic inflammatory and neuropathic pain management.
- Protection from metal overload toxicity.
- Treatment of psychiatric and behavioral disorders.
- Prevention of metabolic disorders, including obesity and diabetes.
- Protection from musculoskeletal diseases.
- Antimicrobial and antiviral effects including against COVID-19.

# Is AI the Future of Breast Cancer Detection?

Studies find AI is better able to detect breast cancer on mammogram images without raising incidents of false positives

By Emma Suttie

Advancements in artificial intelligence (AI) could provide breakthroughs in the way that we detect breast cancer and evaluate breast cancer risk.

A recent Swedish study found that AI was able to detect 20 percent more breast cancer than experienced radiologists—in addition to cutting their mammography reading workload by more than 40 percent. The study suggests that AI could be a useful tool for breast cancer detection as well as help doctors and radiologists to do their jobs more effectively.

The study—a randomized, controlled, population-based trial published in *The Lancet Oncology*—looked at 80,033 mammograms of women in Sweden. The participants, ages 40 to 80, were split into two groups. From April 2021 to July 2022, the mammograms of one group of women were read by AI before being analyzed by a radiologist, and the second group had their mammograms read by two radiologists without the use of AI.

The group of women who had their mammograms read by the AI as well as a radiologist had 20 percent more cancers detected than the group whose mammograms were read by two radiologists.

“In our trial, we used AI to identify screening examinations with a high

risk of breast cancer, which underwent double reading by radiologists. The remaining examinations were classified as low-risk and were read only by one radiologist. In the screen reading, radiologists used AI as detection support, in which it highlighted suspicious findings on the images,” Kristina Lang, the study's lead researcher, wrote in an article about the study on the Lund University website. Ms. Lang is an associ-

ate professor in diagnostic radiology at the university, as well as a consultant at Skane University Hospital.

The study found that in the AI group, 75 percent of cancers detected were invasive and 25 percent were in situ. Among those who had their mammograms analyzed by two radiologists (considered the control group), 81 percent of cancers detected were invasive and 19 percent were in situ.

### Carcinoma in Situ

Carcinoma in situ happens when cells may look cancerous under the microscope but are localized and haven't spread beyond their source. The words “in situ” mean “in its original place.” Carcinoma in situ is considered a stage zero, or noninvasive cancer. The in situ cells aren't malignant or cancerous, but they can sometimes become cancerous and spread from their original location. Carcinoma in situ can occur anywhere in the body, but there are two types associated with the breast: ductal carcinoma in situ (DCIS) and lobular carcinoma in situ (LCIS).

Ductal carcinoma in situ occurs when cells are growing in the milk ducts of the breast, and lobular carcinoma in situ means that they're growing in the lobules of the glands in the breast that produce milk.

DCIS turns into cancer in only about 20 percent of cases, and about 60,000 people are diagnosed with DCIS each year in the United States.

It's important that women understand the meaning of carcinoma in situ—and especially DCIS and LCIS, which pertain to the breast—in order to decide whether they would prefer it to be treated or not. Many doctors may not fully explain DCIS and LCIS, which may cause women to have treatments that aren't necessary. Detecting these

types of cancer via mammography lets doctors and oncologists pay attention to them to ensure that the cells don't spread from their origin and develop into breast cancer in the future.

### Helped to Decrease Workload

The study also concluded that the mammogram-reading workload was reduced by 44 percent using AI. To put that in perspective, the AI-supported group had 46,345 mammograms and, according to Ms. Lang, radiologists read an average of 50 screening examinations per hour. The researchers estimated that the AI reduced the time that it would have taken radiologists to read that number of screenings by about five months.

In Sweden, each breast screening examination is read by two breast radiologists—called a double reading—in order to ensure accuracy. However, problematically, there's a shortage of breast radiologists in Sweden and elsewhere. Perhaps in the future, the addition of AI can help to alleviate some of the work hours involved in reading breast screening examination results.

### AI Had No Effect on False Positives

“We found that using AI resulted in the detection of 20 percent (41) more cancers compared with standard screening, without affecting false positives. A false positive in screening occurs when a woman is recalled but cleared of suspicion of cancer

after workup,” Ms. Lang wrote.

False positives are a concern with mammography screening programs. The chance of having a false positive after a single mammogram is thought to be about 7 percent to 12 percent, and is more common in younger women and women with dense breasts (about 40 percent of women). The chances of receiving a false positive result increases over time, however, with the risk after 10 years of annual mammograms climbing to 50 percent–60 percent.

Doctors and scientists are urgently searching for more effective ways to detect breast cancer and predict breast cancer risk, as incidence rates are increasing at a rate of 0.5 percent a year. Breast cancer now accounts for about 30 percent of all new cancer diagnosed in women in the United States annually and is now the most common cancer in the world, accounting for 12.5 percent of all new cases of cancer worldwide annually.

### Other Studies Using AI to Detect Breast Cancer

Other studies have also explored ways that AI can help to identify breast cancer.

One study showed that AI is better at predicting breast cancer risk than standard clinical risk models. The study used mammograms that were assessed with five AI algorithms, and all were able to predict five-year breast cancer risk better than the standard models used to determine risk. The algorithms identi-

fied both missed cancers and features in breast tissue that help to predict future cancers. The study also found that the combination of the AI algorithms and the risk models further improved breast cancer prediction.

An article in *Becker's Hospital Review* states that Hungarian physicians are using AI that's able to detect breast cancer four years before it develops. The technology is called computer-assisted detection, and with it, the AI can identify areas on a mammogram that radiologists and physicians should inspect more closely.

### False positives are a concern with mammography screening programs.

MIT's computer science and artificial intelligence lab has also developed an AI prediction model that's able to foresee the development of breast cancer up to five years in advance by using a patient's mammogram. The algorithm was trained using more than 200,000 exams and was significantly more accurate than previous methods in predicting cancer risk and identifying groups that were high risk. A resulting study was published in *Science Translational Medicine*.

A recent study published in *Radiology* sought to assess how effective AI could be for detecting breast cancer. Using a commercially available AI algorithm, researchers compared the AI with 552

human readers of screening mammograms. The study found that the AI performed as well as human readers in detecting breast cancer.

The National Cancer Institute estimates that about 20 percent of breast cancers are missed using mammography. Perhaps the addition of AI algorithms may be able to augment breast cancer detection and increase women's odds of survival.

So what does the future hold for using AI for breast cancer screening? In a statement on the Lund University website about the Swedish study, Ms. Lang notes that screening is a complex process and states:

“The balance between benefit and harm must always be taken into account. Just because a screening method finds more cancers does not necessarily mean it's a better method. What's important is to find a method that can identify clinically significant cancers at an early stage.”

“However, this has to be balanced with the harm of false positives and the overdiagnosis of indolent cancers. The results from our first analysis show that AI-supported screening is safe since the cancer detection rate did not decline despite a substantial reduction in the screen-reading workload.”

A planned analysis of interval cancers—cancers that show up suddenly between regular screenings and are often aggressive—will show whether AI-supported screening also leads to a more accurate and effective screening program, according to Ms. Lang.



▲ When a radiologist and an AI read mammograms the pairing detected 20 percent more cancers than when two radiologists read the scans.

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# How Music Transforms Our Health

Researchers have been documenting some of the many mental and physical benefits of music

Music has a profound impact on well-being, from soothing anxiety to regulating heart rate.

MILORAD KRAVIC/GETTY IMAGES



By Michelle Standlee

Angie Mack has lived and breathed music since childhood. As a girl, she sang and danced to the Neil Diamond records her father played. As a teen, she rang handbells in the church choir. Later, as a certified nursing assistant, she cared for nursing home patients, stepping in to play worship music.

Today, she mentors students in music and acting at her studio in Wisconsin.

As a breast cancer survivor, Ms. Mack has experienced firsthand music's transformative physical and mental health benefits for her students and herself.

"My breast cancer journey has led me to conclude that I need to express myself to stay alive," Ms. Mack told The Epoch Times. Music helped her cope with treatment.

From calming an anxious mind to regulating heart rate, studies show that music—either listening to it or playing instruments—can profoundly affect overall well-being.

## How Music Can Enhance Mental Health

Many don't understand the very real trauma that can accompany illness, Ms. Mack said. Music therapy can be beneficial in treating post-traumatic stress disorder and managing patients' symptoms.

It can also help with other mental disorders.

## Aids in Expressing Feelings

Some of Ms. Mack's students suffer from depression, anxiety, and other conditions.

"After working with children and families for over 20 years, I can tell you that our future generations need some immediate assistance in expressing their emotions," she said, noting that suicide rates among young people are climbing.

The suicide rate among teenagers aged 15 to 19 increased by 57 percent between 2009 and 2017, from 7.5 deaths per 100,000 to 11.8, according to a recent report by the U.S. Centers for Disease Control and Prevention. Additionally, the suicide rate for young adults aged 20 to 24 rose by 63 percent between 2001 and 2021, from 11.9 deaths per 100,000 to 19.4.

"We need more safe places for a teen to communicate the rage and confusion that they might be feeling inside," Ms. Mack said.

Listening to or creating music can be cathartic. It can serve as a powerful tool for processing and releasing pent-up feelings, providing a nonverbal outlet for

emotions. Different genres and styles of music can capture a wide range of emotions, from joy and excitement to sadness and anger.

Many people find solace in music that reflects their own emotional experiences. Hearing lyrics or melodies that reflect their feelings can create a sense of connection and understanding.

## Improves Autism, Anxiety, Depression

Lori Ann Locke, a board-certified music therapist, echoed the view that music profoundly affects health and well-being. Growing up with a neighbor who had special needs taught Ms. Locke to relate to people of different abilities. She began playing the piano at age 7, deciding then to become a music teacher.

Years later, Ms. Locke became a music therapist, working with Alzheimer's and neurological disorder patients, some with dual diagnoses such as autism and anxiety.

"When students learn an instrument while in therapy, then they have a coping skill; when they're feeling anxious, they can play the drum or the piano even when they're not in the therapy session."

A 2020 meta-analysis in *Psychiatry Research* demonstrates that adjunct music therapy significantly improved behavioral health, including negative symptoms such as social withdrawal and apathy, depression symptoms, and quality of life in people with schizophrenia.

Patients are not the only population to benefit from music intervention. When researchers implemented music therapy and yoga for health care workers during the COVID-19 outbreak, the caregivers experienced reduced symptoms of depression, anxiety, and stress, according to a 2021 article published in the *International Journal of Social Psychiatry*.

Some research has shown that autistic children can benefit from music therapy that incorporates rhythmic movements such as clapping or marching.

Music and movement therapy can support both fine and gross motor skills and enhance communication through these motor skills, a 2013 review in *Frontiers in Integrative Neuroscience* found.

## Science Affirms Music's Physical Health Benefits

For Ms. Mack, music has provided more than an emotional boost; the melodies and rhythms provided tangible physical relief from the ravages of cancer. Research affirms her experience.

## May Lower Blood Pressure

Music can help tune up heart health and regulate blood pressure, studies suggest.

A 2019 cross-over study published in *Explore* notes that music tuned to 432 Hz can lower blood pressure, heart rate, and respiratory rate better than music tuned to 440 Hz, the current modern standard.

## May Kill Cancer Cells

Research shows that music may have effects on cancer cells. A 2016 article in *Evidenced-Based Complementary and Alternative Medicine* discussed how breast cancer cell lines respond to music.

The study found that music influenced the breast cancer cell line MDA-MB-231, the triple-negative breast cancer cell line, by reducing cell viability and inducing apoptosis, which is the process the body uses to destroy unhealthy cells.

## Improves Memory

Research shows that music profoundly benefits those with neurological disorders such as dementia, reducing mood symptoms, easing agitation, and evoking personally meaningful memories, according to a 2020 *Neuroscience & Biobehavioral Reviews* article.

When Ms. Locke plays music from a dementia patient's youth, it makes the patient more verbal and improves recall, she said. In her experience, singing hymns also enables patients to sing along word-for-word, demonstrating music's power to engage Alzheimer's patients by tapping into long-term memories.

Combining music with movements using both sides of the body, such as tapping both hands or moving both legs, has significant effects, Ms. Mack said. This can include playing piano, dancing, or participating in drum circles.

A 2014 study in *Experimental Brain Research* used functional magnetic resonance imaging to examine brain activity during bilateral movement coordination. Researchers found greater activation in certain areas of the brain, including subcortical areas—which are important for cognitive function and emotion processing—when participants coordinated movements on both sides of the body.

## Helps Babies in NICU

Music therapy and other music-based interventions in neonatal intensive care units (NICU) can lead to a reduction in heart and respiratory rate, improve infants' sleep and food intake, and reduce the anxiety of mothers, according to a 2019 *Medicines* systematic review of randomized controlled trials on different music-based interventions and a meta-analysis on music therapy for infants.

A 2021 systematic review and meta-analysis published in the *Journal of Advanced Nursing* reflects the notion that music holds incredible potential to support neonatal health. Researchers stated that music therapy can be an effective non-pharmacological intervention to support preterm infants by regulating heart rate, respiratory rate, stress level, and oral feeding while reducing maternal anxiety.

Although studies show that music can support newborn well-being, a 2014 article in *Advances in Neonatal Care* noted some limitations of available research.

First, study sizes are generally small. Second, the American Academy of Pediatrics recommends that NICU sound be kept under 45 decibels to protect the newborns' hearing. However, the sound levels used in some research were much higher. Too much sound, even from music, could exceed safe levels and disrupt infants' heart rate, blood pressure, breathing, oxygenation, and sleep cycles.

## Reduces Inflammation

Music can have anti-inflammatory effects, lowering inflammatory white blood cells and signaling proteins, antibodies, hormones, and immune system neurotransmitters, according to a 2021 study in *Brain, Behavior, & Immunity-Health*.

The study showed that when participants listened to pleasant, relaxing music, they experienced decreased levels of stress hormones, including cortisol, epinephrine, and norepinephrine.

Music is more than an art form. It can touch hearts, calm our minds, and strengthen the body.

"We are music," Ms. Locke said. "Our heartbeat is like a drum. It's part of us."

*Michelle Standlee, R.N., is a health reporter for The Epoch Times. She has a background as a registered nurse and medical writer, covering topics including mental and behavioral health, women's and children's health, traditional health care, complementary medicine, and alternative medicine.*

# Want to Quit Coffee But Scared of Withdrawal? Try Decaf

By Mat Lecompte

People might want to quit coffee for any number of reasons: bladder irritation, the jitters, or a belief that it might be putting their health at risk.

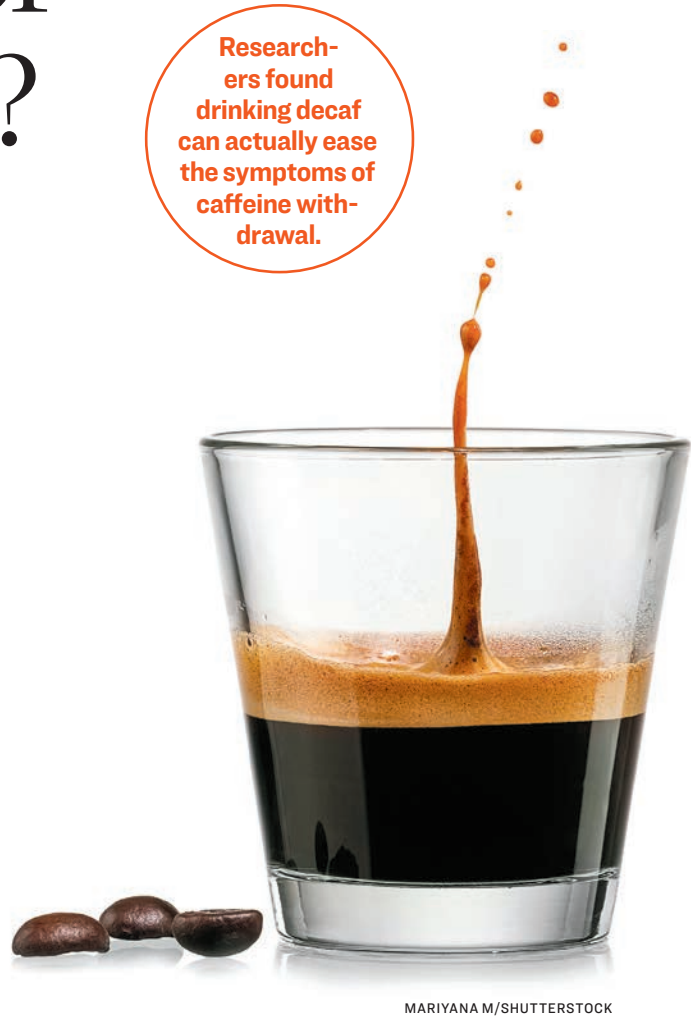
Whatever your reason is, there could be one thing holding you back: the fear of caffeine withdrawal.

Withdrawal is uncomfortable and challenging. Symptoms range from headaches to irritability, fatigue, and bad moods. It makes cutting back on coffee tough and, for some, unsustainable.

But new research suggests an effective tool to help: decaf.

Researchers from the University of Sydney School of Addiction Medicine in Australia found that people experienced fewer withdrawal symptoms

Researchers found drinking decaf can actually ease the symptoms of caffeine withdrawal.



MARIYANA M/SHUTTERSTOCK

# Integrative Medicine—a Whole-Person Approach to Health and Well-Being

Continued from Page 13

much time we spend being sedentary; the kinds of foods we eat; whether we stay hydrated; the quantity and quality of our sleep; how much caffeine, alcohol, or tobacco we consume; and even our feelings of safety and security are essential components to consider if we want our bodies to thrive.

## Emotional

Anyone who has been nervous before a big exam or lost someone whom they love knows how powerful emotions can be. Emotions are a vital part of being human, but sometimes, when life presents us with challenges, they can be overwhelming and difficult to manage. Being emotionally healthy requires a certain level of self-awareness and the ability to process our feelings healthily.

Unprocessed emotions can build up and interfere with our health, and the effect of that buildup on our overall health can be significant.

Emotional health also pertains to our outlook and attitude on life and how we feel about ourselves—all of which impact our health and well-being.

## Social Relationships and Community

There's a direct relationship between our health and our social connections. Social connections can be romantic relationships, friendships, and our relationships with our families and mem-

Our connections to others impact our health and well-being.

Maintaining emotional well-being calls for a good dose of self-awareness.



JACOB LUND/SHUTTERSTOCK

when they drank decaf.

The study involved 61 people who said they consumed three or more cups of coffee every day. Each went caffeine-free for 24 hours, and withdrawal symptoms were measured.

Participants were then separated into three groups: one was given decaf unknowingly, one was given decaf and was told about it, and the third was given water. Forty-five minutes after consumption, withdrawal symptoms were measured again.

The group that unknowingly drank decaf reported the biggest drop in withdrawal symptoms, even though there was no pharmacological reason it should have that effect. It was simply the belief that they were drinking real coffee.

Surprisingly, there was a big drop in symptoms in the people who knew they were drinking decaf, as well. The water group didn't report a reduction in symptoms.

Perhaps the smell, taste, and ritual of drinking the decaf coffee was enough to quell caffeine withdrawal symptoms.

A cup of decaf may help a person ride out the worst withdrawal symptoms as they work toward becoming caffeine free.

To get the biggest benefits, avoid loading up your decaf with sugars and syrupy creams, which can present various health risks.

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

an aspect of particular significance, especially when it comes to our hectic, fast-paced lifestyles. In today's world, it's increasingly difficult to maintain a healthy work-life balance, so this is something that an integrative practitioner will likely discuss with you to make sure that you're getting adequate rest, can recharge your batteries, and have time to yourself, which is a vital part of being a happy, balanced human.

## The Cost of Integrative Medicine

Because many health insurance plans don't cover integrative medicine practitioners, people may be reluctant to try this approach. But integrative medicine has many benefits that, over time, exceed the expense, because of its focus on root causes and the whole-person approach.

Focusing on root causes allows practitioners to get to the bottom of what's causing your health problems and work with you to change the conditions that led to these issues so they can be corrected. Although this generally takes a little longer because of the investigative process involved, it often leads to better, longer-lasting results—as long as the patient is willing to participate in the process.

Treating all aspects of a person often costs less in the long run and empowers the patient to actively participate in their healing and health maintenance, resulting in the person being more likely to stay healthy and avoid future problems.

## Final Thoughts

Everyone must find the approach to health care that makes the most sense to them. Integrative medicine offers a broader view of health and the underlying causes of illness, which differs from the conventional medicine approach that many of us are used to. Integrative medicine treats human beings as beautifully complex miracles of life and biology—rather than objects of disease.

In the United States, we spend more per person on health care than in any other country in the world, yet we have worse outcomes. Nearly 60 percent of Americans have one chronic disease, and about 40 percent have more than one chronic condition. Among those older than 50, the number of people with at least one chronic disease is expected to increase by 99.5 percent—to 142.66 million by 2050 from 71.522 million in 2020. Concurrently, those with more than one chronic condition, or multimorbidity, are projected to increase by 91.16 percent.

With the health challenges that we face, having choices when it comes to our health care is essential, and integrative medicine is worth exploring.

## Environment

We may not often think about our environment when we think about health, but it has a significant impact on our health and well-being. The environment can mean many things—the surroundings where we live and spend our time, such as our homes and our workplaces, and the effect of our relationships and the energy they create for us.

For example, if you have a job that you love but a boss who constantly singles you out and makes your life miserable, it can create a toxic work environment that can contribute to psychological, emotional, and even physical symptoms.

Conversely, living in a moldy, damp basement apartment can cause many health problems.

So your environment can refer to anything from the physical environments in which you spend your time to the energy in those environments created by the people with whom you share them. In integrative medicine, all of these factors are taken into consideration as they can affect our happiness and ability to thrive.

## Work and Life Balance

Balancing work with the rest of life is



STOKKETE/SHUTTERSTOCK

WISE HABITS

# How to Create When You’re Feeling Overwhelmed

Life rarely gives you the ideal conditions for that meaningful project, but this need’t stop you

By Leo Babauta

Our days can be overwhelming, and because of this, many people put off their creative work. It just doesn’t feel possible.

If you’re in this camp, one or more of these will sound familiar to you:

- I’m too busy right now; I can always do (insert creative work here) later
- Things have to be just right before I can do (creative work)
- When things are settled, that’s when I’ll start
- I need to clear out my desk, my office, my life before I can start

Of course, the time never comes when you’re feeling settled, when you’re not busy or stressed or overwhelmed. There’s always a reason to put off the creative work.

So the opportunity is to work with the conditions you’re in and create no matter what the situation.

Let’s talk about how to do that.

### How to Create When Overwhelmed

The first thing is to notice that you’re feeling busy, stressed, overwhelmed, etc. What does it feel like in your body? Can you bring some breath, presence, or love to help calm it down?

Once you’re present with the stress in your body, decide whether you’d like to take responsibility for creating what you want to create in your life. Are you up for choosing something new?

If you are, then create the space. You

can create it right now, or block off some time for later. What do you need to do to create the space? Set things aside, clear off your desk, close apps, play some music, whatever you need to do.

Now that you’ve created the space, see if you can calm down your nervous system some more. Breathe. Sit in stillness for a minute.

Now take a single step: one brush stroke, one sentence, one note on the instrument.

Notice that you can take that one small step in the midst of chaos—that means you can take another. And possibly another.

And soon you are proving your old narrative wrong—you can create even when you’re overwhelmed.

### How to Practice

I suggest a daily practice—possibly every weekday, or several times a week. Something that’s regular and more frequent than once a week.

Commit yourself to creating something specific—writing blog posts or a book, painting, sketching, making music, making videos, writing a research report, making a marketing campaign, etc.

It also helps to commit to sharing it with someone—an accountability partner, a group of beta readers, an audience for your work. This will call you forward when you’re feeling resistance.

Create the space: “Every morning as I’m having coffee.”

**Our days can be overwhelming, and because of this, many people put off their creative work.**

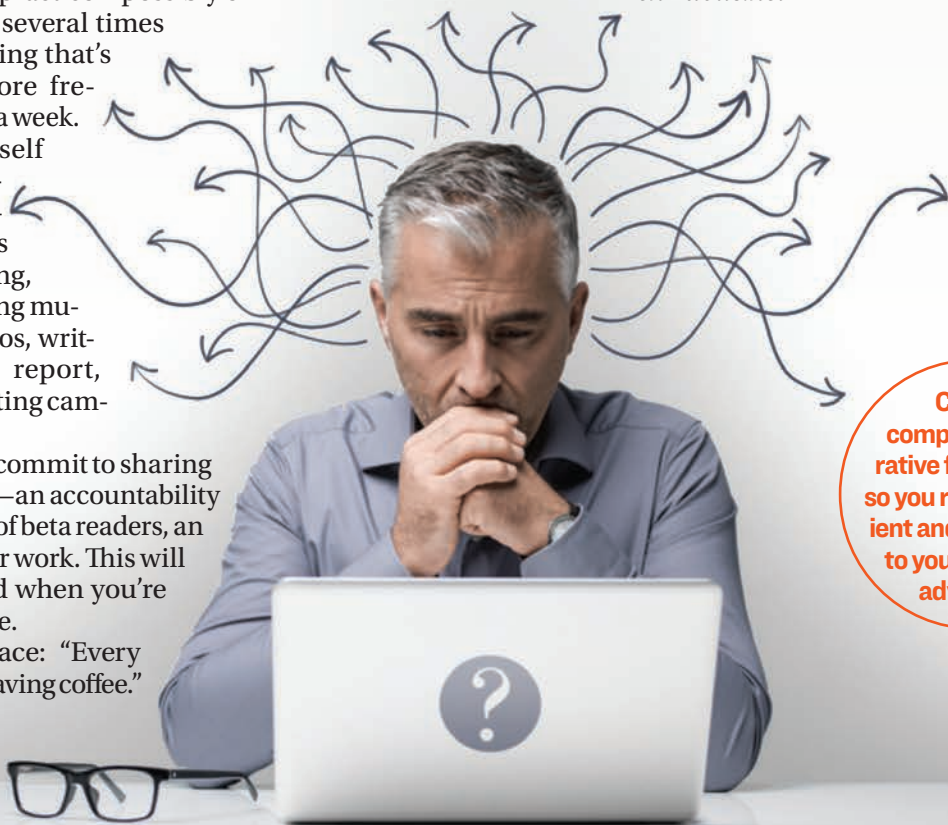
“Every evening after I close out my work day.” “Every day at lunch.” Block it off on your calendar, clear out distractions as much as you’re able to. It doesn’t have to be perfect.

Then practice as described above—show up and start creating despite stress and chaos.

Notice when you get pulled away by distraction, or shut down by being overwhelmed or not knowing. Just notice. There is no need to be hard on yourself. Breathe, and come back. Over and over.

Create a new story for yourself—a powerful one in which you can show up for yourself and your art in the midst of a storm.

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



**Craft a compelling narrative for yourself so you remain resilient and dedicated to your art amid adversity.**



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