WEEK 28, 2023 THE EPOCH TIMES By Conan Milner

Cellular Sedition: A New Paradigm on Cancer Cancer is form of cellular revolt,

and a new theory finds that insight to be full of potential



ancer is a disease as old as recorded history, and yet modern science still hasn't managed to

cure it. There's certainly a huge incentive to find a cure. Cancer has been a leading cause of death worldwide for decades. In the United States and other industrialized nations, cancer is second only to heart disease in regard to fatalities, claiming about 600,000 lives a year.

In pursuit of a cure, President Richard Nixon famously declared a "war on cancer" in 1971 with the National Cancer Act. Billions of taxpayer dollars have gone into fighting the disease every year since. Just for 2024 alone, the proposed budget of the National Cancer Institute is \$7.8 billion.

But finding the magic bullet that will finally put an end to this brutal war has taken much longer than anticipated. Throughout the '70s and '80s, the annual cancer death rate only grew. Annual cancer fatalities did finally see some decline in the 1990s, but not because of new cures. Instead, the credit goes to public health efforts to cut cigarette smoking.

So what exactly have we learned in the more than 50 years since this war began, and why do we still lack better weapons to fight it? Dr. Jason Fung examines these questions in his book "The Cancer Code, a Revolutionary Understanding of a Medical Mystery."

Fung says that while the miracle medicines we've eagerly awaited have been slow to materialize, we have gained many insights into how the disease forms and the ways in which we can prevent it.



A Variety of Causes

Fung is a Toronto-based nephrologist best known for his work in treating diabetes with diet. His interest in cancer began as he was examining its connection to obesity. Large cohort studies find that individuals with severe obesity present an elevated risk of some types of cancer by up to seven times.

In 2016, after reviewing more than a thousand studies, the International Agency for Research on Cancer concluded that 13 different cancers are clearly obesity-related.

Continued on Page 6

SUPPLEMENT WELL

9 Science-Backed Benefits of Creatine

This natural supplement is a super fuel for our brain, body, and immune system

By Sheramy Tsai

In the bustling world of fitness, the cacophony of clanging weights often mingles with tales of the latest and greatest supplements-metabolic boosters, muscle builders, and fat burners.

Scan the room, and you'll spot the gym bros, their arms clutching shaker bottles filled with a spectrum of rainbow-hued liquids. Creatine, a key component of these vibrantly colored brews, holds court as a favorite for those pursuing their next personal best.

Yet, the power of this naturally sourced supplement doesn't stop at aiding those who are seeking sculpted biceps or chiseled abs. With roots in everyday proteins, creatine delivers a host

of surprising health benefits that are gaining attention beyond the gym walls.

Nature's Lesser-Known **Power Player**

Do you ever wonder how sprinters can maintain such high speed over short distances or how weightlifters can hoist hefty loads? That's creatine at work.

During strenuous activities, our bodies rapidly convert creatine into creatine phosphate, which in turn produces adenosine triphosphate (ATP)—our bodies' primary energy currency. When muscles contract, ATP is broken down to produce energy. The more ATP is available, the more energy can be utilized, enhancing performance and faster recovery.

Continued on Page 10



 Creatine is well known to muscle builders but its benefits are far more extensive than previously known.

DOLLAR GILL/UNSPLASH

Debunking THE DOGMA ABOUT FAT

PART II THE GREASY FACTS OF HIGH-HEAT COOKING

Saturated fats add flavor to your dish and some research suggests they have some health benefits, too

Palm oil, derived from

the fruit of palm trees, is

a vegetable cooking oil

known for its stability.

Butter is rich in butyric

acid, a fatty acid that is

teria in the gut when they

break down dietary fiber.

also produced by good bac-

In this series, we will break down the actual health effects of vegetable oils and whether they are better alternatives to saturated fats. Follow this series to find out whether what you are using to cook with is really the best option.

Previously: For half a century, health agencies and experts have recommended vegetable oils over saturated fats for cooking. They have told the public that *Q* vegetable oils are cardiacprotective. However, research suggests that these oils may not be as innocuous as they seem.

By Marina Zhang

or half a century, health agencies and experts have recommended vegetable oils over saturated fats for cooking. They have told the public that vegetable oils are cardiac-protective. However, research suggests that these oils may not be as innocuous as they seem.

While saturated fat has historically faced criticism due to its association with blood cholesterol levels and coronary heart disease, emerging studies have provided a more nuanced understanding of this topic, including this fat's potential advantages in high-temperature cooking.

Compared to polyunsaturated fats, saturated fats exhibit greater stability when exposed to heat and oxygen. However, the type of saturated fat and its smoke point still determine how to use them appropriately.

The following is a list of vegetable and animal oils known for their significant saturated fat content.

Coconut Oil

Coconut oil, obtained from the fruit of 0 the coconut, is composed of around 90 percent saturated fat. However, coconut oil is generally considered less stable for cooking purposes despite its high saturated fat content.

This is because most coconut oils are short-to medium-chain fatty acids, which are less stable than longer-chain saturated fatty acids. As a result, unrefined coconut

EAT WELL

Ultra-Processed Foods: A Seductive Killer

Large studies and overwhelming data link these cheap, easy, and tasty foods to disease and early death

By David Chu

In recent decades, ultra-processed foods (such as fast-food hamburgers, instant noodles, cakes, potato chips, etc.) have entered nearly every household. They taste good and are convenient and affordable. However, research shows that ultra-processed foods may cause serious health problems, and excessive consumption can increase the risk of death.

Excessive Consumption Increases the Risk of Early Death

Data show up to 71 percent of packaged foods sold in the United States are considered ultra-processed. Although there are differences based on education and income levels, the intake of ultra-processed foods is generally high across all socioeconomic levels.

Study findings published in the British Medical Journal in May 2019 showed that consuming large amounts of ultra-processed foods (more than four servings per day) increased overall mortality by 62 percent over the maximum 15-year follow-up period. For every additional daily serving of ultra-processed food consumed, over**OF PACKAGED** FOODS sold in the United States are considered ultraprocessed.

Processed foods made from fat, salt, and sugar (including carbohydrates) are cheap, tasty, and dangerous.



ABRAMOVA ELENA/SHUTTERSTOCH

oil tends to have a lower smoke point of around 350 F or 177 C.

Refined coconut oil has undergone industrial processing, resulting in a higher smoke point of about 400 to 450 F, making it more suitable for high-heat cooking. However, the refining process removes the unique flavor, aroma, vitamins, and antioxidants.

Coconut oil can be used for low-heat cooking, such as sautéing and frying. It's also preferable for baking.

Almost half of the fat content in coconut oil is comprised of lauric acid, a type of saturated fat known for its antimicrobial properties.

Palm Oil

Palm oil, derived from the fruit of palm trees, is a vegetable cooking oil known for its stability. Approximately 50 percent of palm oil is saturated fat, with an additional 40 percent being monounsaturated fat.

Virgin or unrefined palm oil has a smoke point of 455 F. It obtains its deep red or orange color and carrot-like flavor from the rich beta-carotene content in palm fruit. On the other hand, refined palm oil is neutral in taste and appears white. Palm oil's smooth, buttery texture makes it popular for baking, and it's also a plentiful source of tocotrienols, the most potent form of vitamin E.

Palm oil, the most widely used vegetable oil, is commonly used as a low-cost fat in processed foods, which tarnishes its reputation. Palm kernel oil, which is extracted from the seeds rather than the fruit's flesh, is also used to prolong the shelf life of processed food. Palm kernel oil

has a higher saturated fat content than palm oil, around 80 percent, making it more stable for commercial cooking and nutritious food, especially from pasfrying. Palm oil, however, has more anti- ture-raised animals. It's rich in essenalso have cardioprotective effects.

thousands of years, and it continues to cial amounts of sodium, calcium, and be highly valued in tropical regions for phosphorus. frying purposes.

Butter

and 2014.

Butter is widely acknowledged as a ber. It supports gut health, helps prevent

all mortality increased by 18 percent.

This study followed 19,899 participants

(7,786 men and 12,113 women) with an

average age of 37.6 years for a median

duration of 10.4 years between 1999

The researchers pointed out that

this study is observational and can't

establish causality, though several

other studies have revealed specific

mechanisms of action that link key

ingredients in processed foods to dis-

ease-causing cellular processes such

as insulin resistance and systemic in-

flammation. Unmeasured confound-

ing factors may also influence some

observed risks. Nevertheless, these

and other findings support studies

linking ultra-processed foods with

The research team stated that poli-

cies must be developed to limit the

proportion of ultra-processed foods

in diets and promote the consump-

tion of unprocessed or minimally

processed foods to improve global

The term "ultra-processed foods"

comes from the NOVA food classifica-

tion system developed by researchers

at the University of São Paulo in Brazil.

The system categorizes foods into four

Higher Consumption Raises

Certain Cancer Rates

adverse health conditions.

public health.



oxidants than palm kernel oil. Some stud- tial vitamins such as A, E, D, B12, and ies suggest that consuming palm oil may K2. K2 vitamins are mainly found in animal products or fermented foods. Humans have consumed palm oil for Additionally, butter contains benefi-

Butter is rich in butyric acid, a fatty acid that is also produced by good bacteria in the gut when they break down dietary fi-

groups based on their degree of pro-

cessing during production:

- 1. Unprocessed or minimally processed foods: Fruits, vegetables, milk, fish, beans, eggs, and nuts that have not had any ingredients added and have undergone minimal changes com-
- pared to their natural state 2. Processed ingredients: Foods added to other foods and not consumed
- alone, such as salt, sugar, and oil 3. Processed foods: Made from the first two food groups and can be changed in various ways (examples: jams, pickles, canned fruits, homemade bread, cheeses)
- 4. Ultra-processed foods: Usually contain five or more ingredients with a long shelf life and often contain many industrial additives such as preservatives, emulsifiers, sweeteners, and artificial colors and flavors.

A study published in February in the eClinicalMedicine journal found that consuming large amounts of ultraprocessed foods is associated with an increased risk of cancer, particularly ovarian and brain cancer. In addition, the study found that high consumption of ultra-processed foods is associated with an increased risk of mortality from cancer, especially ovarian and breast cancer.

Coconut oil. obtained from the fruit of the

coconut, is composed of

around 90 percent satu-

rated fat.

inflammatory gut diseases, and helps Tallow alleviate constipation.

cooking, clarified butter or ghee is rec-high-heat cooking. ommended.

the clarification process removes dairy omega-6 content. proteins and sugars, including lactose.

Regular butter has a smoke point of 350 boasts a high smoke point of 400 F or tion that may occur during cooking. For 177 C, suitable for low- to medium- 205 C, (though some experts say it is Tallow is a good source of arachi- unsaturated fat content, are more prone to heat cooking and baking. For high-heat higher) making it ideal for medium to donic acid, an essential omega-6 fatty oxidation than animal and vegetable oils

Ghee has a higher smoke point of 482 F ly has a beneficial omega-3 to omega-6 essential for reducing anxiety. Addior around 250 C. People who are lactose ratio of around 1:2. However, tallow from tionally, pasture-raised tallow is rich intolerant can use ghee for cooking, as grain-fed ruminants may have a higher in fat-soluble vitamins A, D, E, K1, and

Tallow's abundance of saturated and

Tallow, derived from beef or lamb fat, against omega-3 fatty acid degrada-

acid used by the body to produce en- rich in saturated fats. Organic, pasture-raised tallow typical-docannabinoids, a neurotransmitter B1. Nutritional levels may vary based on the diet of the ruminant.

The study found that for every 10 per-recruited 10,775 participants ages 35 their diet) experienced a 28 percent **Ultra-Processed Foods and Teens** For every 10 percent increase in ultraprocessed food consumption, there was a 6 percent increase in overall cancer mortality rates, a 16 percent incancer mortality rates.

This is the most comprehensive assessment of the association between ultra-processed foods and cancer risk to date.

"This study adds to a growing body of evidence suggesting that ultra-processed foods may have negative health effects, including an increased risk of cancer," said Eszter Vamos, the study's lead senior author and senior clinical lecturer in public health medicine at Imperial College London.

Ultra-Processed Foods Linked to Various Diseases

A study published in JAMA Neurology in December 2022 found that limiting the intake of ultra-processed foods may help reduce cognitive decline in middle-aged and older people.

The research team from the School of Medicine at the University of São Paulo in Brazil pants were followed for a median of the course of the study. eight years.

The statistics showed that compared 2019 in the British Medical Journal,

Teenagers who consume more ultra-processed foods are more likely to eat lower quality junk foods.

cent increase in ultra-processed food to 74. It divided them into four groups faster decline in cognitive ability and The latest evidence suggests that intake in the diet, there was a 2 percent based on the percentage of ultra-pro- a 25 percent faster decline in "execu- teenagers who consume more ultraincrease in cancer rates and a 19 per- cessed foods that they consumed as tive function," which is necessary for processed foods are likelier to make cent increase in ovarian cancer rates. part of their overall diet. The partici- learning, working, and daily life, over unhealthy dietary choices than those In a different study, published in May

with the group that consumed the least researchers from France and Brazil crease in breast cancer mortality rates, amount of ultra-processed foods, mid- evaluated the association between link between poor dietary habits and and a 30 percent increase in ovarian dle-aged people who consumed the ultra-processed food intake and car- certain ultra-processed foods, such as highest percentage (three-quarters of diovascular disease (CVD) risk, including heart disease and stroke.

PAULA BEREZO/GETYY IMAGES

They divided 105,159 partici-

years (2009 to 2018). increased by 10 food consumption.

who consume less. Study results released at the American Heart Association's Hypertension Scientific Sessions held in September 2022 found a pastries, candy, and frozen desserts.

In a two-month experiment, more than 300 teenagers completed a dipants (21,912 men and 83,247 etary survey detailing their ultrawomen) with an average age of processed food intake. The results 42.7 years into groups based showed an increase in the frequency on the processing level of the of frozen dessert consumption was foods in their diets. They also associated with an 11 percent inmeasured disease inci- crease in all other ultra-processed dence during a follow- food consumption; an increase in up period of up to 10 the frequency of pastry consumption was associated with a 12 percent in-Researchers found crease in all other ultra-processed that when the ab- food consumption; and an increase solute proportion in the frequency of candy consumpof ultra-processed tion was associated with a 31 percent foods in the diet increase in all other ultra-processed

> percent, there was Maria Balhara, the study's lead rea corresponding in- searcher and a student at the David crease in overall CVD Brautman College in Florida, said: incidence rates by 12 "Ultra-processed foods are designed percent, with the rate to be very tasty or designed to be as of heart disease in- addictive as possible. They are cheap creasing by 13 per- and convenient, making them difcent, and the rate ficult to resist. Most people eat too of stroke increas- much of these foods without realizing by 11 percent. ing it."

Refined Versus Unrefined

The health effects of the refinement process used in oils are still uncertain, and some doctors have expressed concerns about the refinement process introducing toxins into the body. However, most research has focused on polyunsaturated vegetable oils such as canola and soybean rather than saturated fats.

Vegetable oils are typically deodorized to remove rancid scents. But, according to research, this can result in the formation of trans unsaturated fats, which are considered the most harmful fats to consume, as well as glycidol, a known carcinogen.

Animal fats can also undergo hydrogenation, leading to the production of trans fats in the final product. While lard and tallow primarily consist of saturated fats, they contain some polyunsaturated fats that can be hydrogenated to enhance the solidity and shelf life of the product.

Compared to polyunsaturated fats, saturated fats exhibit greater stability when exposed to heat and oxygen.

Where Do Other Oils Fit?

Vegetable and animal oils rich in polyunsaturated fats, such as sunflower, flaxseed, and fish oil, may not be the best options for cooking due to their vulnerability to oxidation. However, these oils can still be used for things such as salad dressings and spreads. Flaxseed oil, for example, contains essential omega-3 fatty acids, making up around 39 to 60 percent of its composition.

Sesame oil is a versatile cooking oil with diverse applications. Traditional sesame seed oils, derived from roasted sesame seeds, have a long history in Asian cuisines. The roasting process unlocks special sesame antioxidants like sesamol and sesaminol, which help extend the oil's shelf life.

Vegetable oils rich in monounsaturated fats, such as olive and avocado oil, are commonly recommended for low-heat cooking. However, there is an ongoing debate about their suitability for high-heat cooking and frying. Some studies suggest that extra-virgin olive and avocado oils are less stable, while others indicate they are the most stable and oxidation-resistant.

Olive oil has a historical culinary significance, while avocado oil emerged more monounsaturated fats helps protect recently in New Zealand in the early 2000s. However, despite their high smoke points, both oils, especially with their high mono-

> Next Week: Research has indicated that the instability of some vegetable oils during oxidation can potentially lead to inflammation and the formation of cancer-causing byproducts, such as aldehydes.



Easy Exercises to **Combat Chronic Pain** PART IV STRENGTHEN WEAK ANKLES AND PREVENT PAINFUL INJURIES

These 5 exercises can strength the muscles and tendons your ankles rely on to keep you moving

► In this series, "Easy Exercises to Combat Chronic Pain," occupational therapist Kevin Shelley focuses on common issues associated with chronic pain and simple and exercises to strengthen weak muscles and enhance ioint mobility, with the goal of helping you become pain-free. By Kevin Shelley

> \frown our ankles and surrounding to an injury such as a sprain, which

can take you out of commission for weeks.

Ongoing ankle pain may be linked to injury to the bones, ligaments or tendons, as well as different types of arthritis. Making sure the ankle has adequate support from surround muscles and tendons is key to their healthy function.

Ankle exercises can help you strengthen weak ankles and adjoining ligaments, which can prevent painmuscles absorb a lot of force ful injuries and improve your mobilas you move throughout ity and stability. Maintaining strong your day. If they're weak, ankles will also keep you from putting you'll be more susceptible extra strain on your knees and hips.

"Flexibility and strength contribute can easily occur by rolling your ankle to happy ankles," Mahesh Kodikalla, a while playing sports, or simply step- geriatric physical therapist and fall preping off a curb. An unexpected sprain vention expert, told The Epoch Times.

Ongoing ankle pain may be linked to injury to the bones, ligaments or tendons, as well as different types of arthritis.

NERTHUZ/SHUTTERSTOCK

Common Causes of Ankle Pain The ankle is a complex arrangement of muscles, tendons, and ligaments. Many things can contribute to ankle pain, but experiencing pain in otherwise healthy ankles can often be attributed to functional patterns and muscle weakness, explained Kodikalla.

Functional Patterns

Excessive running or jumping can put considerable compressive force on the ankle and can provoke pain. Walking on uneven surfaces with weak ankle muscles and tendons can create problems, especially with repetitive movements. Improperly fitting shoes without adequate support can put stress on your ankles, making them more prone to weakness and injury. A sedentary lifestyle will allow the ankle muscles and tendons to weaken, making you more susceptible to injury.

Muscle Weakness

Ankle pain can often originate from muscle weakness. For example, weak plantar flexor muscles can lose their ability to support the foot and ankle during walking and running, creating alignment imbalances that eventually can lead to painful conditions, explained Kodikalla.

Fortunately, many people find that a regimen of simple, safe, and effective exercises can keep their ankles strong and pain-free.

Next Week: While specific medical conditions such as diabetes are closely associated with foot pain, functional patterns and muscle weakness are the primary causes of foot pain in healthy feet. Simple exercises can strengthen supporting muscles, often making all the difference.

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.



The ankle has two major muscle groups: the foot dorsiflexors on the front of the lower leg, and the foot plantar flexors on the back of the lower leg.

Plantar flexion

Plantar flexion occurs when you point your toes or stand on the tips of your toes with activities such as:

Standing on the tip of your toes to reach for something high. Pressing down on the gas pedal of your car while driving.



Foot Dorsiflexors

Foot dorsiflexors allow you to flex your foot in the"dorsal" or upward direction, bending the ankle toward your shin. Full ankle dorsiflexion is essential to maintaining good posture and

for movements like walking, running, jumping, and squatting.

Having tight ankles can cause you to compensate and develop undesirable issues such as plantar fasciitis, inside knee pain, and other painful conditions.

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EXERCISES TO STRENGTHEN THE ANKLES

Mahesh Kodikalla recommends doing bodyweight exercises to strengthen the ankles since when performed properly, they are very effective and allow you to exercise anywhere.

SITTING ALPHABET

The sitting alphabet exercise is a fantastic way to engage all of the tendons, ligaments, and muscles that support the ankles.

Kodikalla recommends starting with this exercise to warm up before doing other exercises.

Step 1: Sit in a chair. Alternatively, you can perform this movement in a standing position as long as you hold on to something like a chair or counter for stability.

Step 2: Extend one foot out until your knee is straight, your foot is off the ground, and your toes are pointed.

Step 3: Begin writing the alphabet in the air with your big toe, making the letters about a foot tall.

Step 4: Complete 10 to 30 repetitions per set and try to do two sets. For fun, you can do uppercase and lowercase letters; try writing in cursive for an extra challenge.

Resist using your leg to do all of the movements. Instead, try to use your ankle for as many of the movements as possible. Don't bounce or rush the movements; instead, take two to three seconds to write each letter. Try to be accurate with the letters.

"I always tell my patients to demonstrate good penmanship," said Kodikalla.

O STANDING CALF RAISE

The standing calf raise focuses on the plantar flexors on the back of the calf, especially the gastrocnemius and soleus muscles, which are critical for pushing through the end of leg travel during walking and running.

Step 1: Stand up on a flat surface. You can hold on to a chair, table, or counter for stability. Step 2: Place your feet side by side. Step 3: Slowly move up on your toes as far as you can. Hold for one second and then lower back down.

Step 4: Complete 10 to 30 repetitions per set and try to do two sets. Be sure not to bounce or rush the movements. Pay attention to your body and don't push into pain or discomfort.

It's important to not be overly aggressive; take your time and focus on proper form at first, advised Kodikalla.

3 STANDING SINGLE-LEG HEEL RAISE

Similar to the standing calf raise, this exercise works the same muscles but boasts considerably higher intensity because it is performed on only one leg instead of two.

Step 1: Stand up on a flat surface while holding on to a stabilizing surface. Step 2: Lift one foot off the floor.

Step 3: Push up on your toes with your standing leg, while keeping it straight.

Step 4: Complete 10 to 30 repetitions per set and try doing two sets. Take a second to move in either direction and don't bounce or rush the movements. This exercise places considerable demands on your calf muscles, so listen to your body and don't push into pain or discomfort You can bend forward at the hips during this exercise at first to reduce the amount of weight your leg has to lift.

SINGLE-LEG TOWEL STANCE

Instead of targeting a specific muscle, this advanced exercise effectively targets every part of the ankle. The single-leg towel stance is an advanced activity that provides small, fast-paced balance movements.

Step 1: Fold a large towel several times and place it on the floor near a supportive surface like a countertop.

Step 2: Stand in front of the supportive surface and grasp it with both hands.

Step 3: Step onto the towel with one of your feet. The towel must be large enough to accommodate your entire foot.

Step 4: Lift your other foot off the floor. **Step 5:** While standing on the towel with one foot, try lifting your

hands a few inches off the counter while maintaining your balance with the foot standing on the towel.

Step 6: Try to stand in place for 30 seconds, then repeat the exercise with your other foot. Perform this three times with each leg. Keep your hands close to the stabilizing surface at all times to

maximize your safety.

This exercise can be quite challenging at first, so don't give up if it's difficult-the more you do it, the easier it will become.

G SEATED TOE RAISES

While several of these : Step 1: Sit in a chair with your back straight. exercises focus on the muscles on the back of the lower leg, seated toe raises focus on the dorsiflexor muscles in front, especially the tibialis anterior, which will help you to increase your ability to raise your foot during walking and running.

Step 2: Place your feet side-by-side on the floor.

Step 3: Keeping your heels on the floor, lift your toes up as high as they can go. Don't bounce or rush the movements. Take a second to move in either direction and be sure you lift your toes all the way up in order to get the most

out of this exercise. You can make this exercise more challenging by resting the heel of one foot on the toes of the foot being exercised.

Step 4: Complete 10 to 30 repetitions per set and try to do two sets.

While it's important to pay attention to functional patterns that may be responsible for ankle problems, being proactive by doing exercises to strengthen your ankle muscles can go a long way. Performing these exercises at least three times per week will help prevent painful injuries, improve your mobility and stability, and will put less strain on your hips and knees.

If you have any mobility, muscle or other issues that may affect your balance or functional ability, you should consult with your physician before commencing exercise activity.



Cellular Sedition: A New Paradigm on Cancer



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If the human body is a cellular civilization, cancer is selfish corruption that threatens it

Continued from Page 1

"Obesity has been linked to cancer in a

very strong relationship," Fung said. According to the National Cancer Institute, individuals who have a higher body mass index (BMI) at the time that their cancers are diagnosed, or who have survived cancer, have a higher risk of developing a second, unrelated cancer.

The thing is to look at the environmental causes and try to get rid of them. Dr. Jason Fung, nephrologist

Of course, lots of environmental influences have also been linked to cancer formation, such as exposure to asbestos, radiation, and dioxin chemicals, just to name a few. The World Health Organization (WHO) maintains an ever-growing list of carcinogens and their cancer-causing potential.

Carcinogens of all varieties are certainly something to be mindful of. However, many of the items found on this list don't have the effect that you might imagine. In fact, a majority of cancers can be traced back to our own daily habits.

"When they rank the population attribution risk, smoking is the highest one, at about 30 to 35 percent. A lot of the other things we think about, like chemicals and so on, are very, very small in terms of how much it contributes to a population's risk of cancer-it's like one or two percent," Fung said. "There's another massive one, about 30 to 35 percent, which is diet."

According to the WHO website, about one-third of deaths from cancer are due to tobacco use and a high BMI, as well as alcohol consumption, low fruit and vegetable intake, and lack of physical activity. This information tells us what can trig-

SUPPLEMENTATION

▲ Dr.

Jonathan

Hartwell

assistant

Kornberg

conduct

chemother

apy tests at

the National

circa 1950.

Cancer

Institute,

Sylvy R.

Levy

and his

ger cancer. But big mysteries still remain. "Why does this happen? And why does it happen to so many people?" Fung asks.

Chasing Mutations

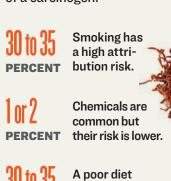
Cancer is characterized by mutating cells, and these mutations can emerge anywhere in the body and allow cancer cells to develop the ability to grow beyond what the body would normally allow.

With benign cancers, a large mass may form, but it isn't life-threatening. However, when malignant cancer develops, it invades and destroys normal, healthy tissue. In order to save a patient from a malignant mass of mutated cells, doctors rely on heavy artillery in the form of surgery, chemotherapy, and radiation.

"These are all treatments that are inherently toxic to all cells, but they kill cancer cells a bit faster than they kill regular cells. So they tend to have a lot of side effects," Fung said.



Attribution risk is a percentage that represents the potency of a carcinogen.



PERCENT factor

KATERYNA KON/SCIENCE PHOTO LIBRARY/GETTY IMAGES

is a major risk

Various forms of this cancer-killing approach have been around for about a century and remain the predominant methods of treatment. Yet over the course of this killing spree, researchers have repeatedly reported that safer, more sophisticated treatments lie just around the corner.

This premise and promise came with the discovery of DNA, as researchers began to look at the genetics of cancer to better understand the nature of the disease. They found genes that controlled growth (oncogenes) and discovered mutations of these genes that resulted in excessive growth. They also discovered genes that slow down growth, called tumor-suppressor genes, as well as mutations that reduce tumor-suppressing abilities.

These observations gave rise to what is known as the somatic mutation theory, and for years, doctors and drug companies believed that this theory would

Since oxidative stress can cause tu-

mors, accelerate aging, and fuel chronic

disease, it's natural to think that supple-

menting with glutathione is a suitable

means of prevention. Unfortunately,

once glutathione enters the body, it de-

composes before it can reach the cells. To

reduce this waste of glutathione, some-

one suggested wrapping it in liposomes

functions.

and using this carrier to bring it into cells

is a problem here. Bring-

ing too much glutathione

to the cells may affect free

radicals' normal positive

Therefore, the amount

of glutathione in the hu-

man body can be neither

too much nor too little.

The important thing is

maintaining a balance.

The amount of glutathione

the body produces is best

determined according to

the body's own needs.

Supplements to Prevent Disease and Slow Aging

A combination of nutrients can help your body create the perfect amount of one of its most important antioxidants-glutathione



Eating well and supplementing well can help your body do the work it needs to help you age well.

By Jingduan Yang

Can supplementing with nutrients pre- won't damage tissues vent disease and slow aging? A recent and cells in their quest clinical trial found that supplementing for atomic completion. In with the nutrient combination of N-acet- medicine, the interaction lcysteine (NAC) and glycine can increase and balance between free he body's glutathione level.

Glutathione plays a vital role in antiaging, anti-cancer, and anti-tumor pro- reactions. cesses and is useful in treating chronic diseases.

The human body can be thought of as dants will cause oxidative a high-performance machine. It can per-stress. Oxidative stress can form essential functions, but at the same damage various organs, tissues, and cells 3 Nutrients Help time, it also produces waste products, in the body, resulting in tumors, diabetes, causing wear and tear on the machine heart disease, cerebrovascular diseases, itself. However, the body is a machine of and neurodegenerative diseases. extreme precision that can self-recover. While constantly producing waste and **Glutathione Eliminates** causing wear and tear on cells and tissues, Oxidative Stress o self-repair.

Several important elements are involved here: free radicals, antioxidants, oxidative stress, and glutathione.

Free Radicals: A Delicate

Balance for Health Free radicals are substances the body

produces as it metabolizes fats, proteins, and sugars. They are very active, and they search for electrons to make them stable because they lack an electron. When the body is infected, free radicals use their affinity for electrons to destroy bacteria and viruses. If the body produces too many free radicals, this will initiate the body's self-repair mechanism. These are

Antioxidants are our body's counter directly. This sounds ingenious, but there

an extra electron they can provide to free radicals to stabilize them so they radicals and antioxidants are called oxidative stress

Too many free radicals and insufficient antioxi-

the body also constantly cleans up waste Glutathione plays a vital role in the body's process of antioxidation. In cells, it's mainly used to balance the adverse effects of free radicals.

Glutathione can be synthesized in the body from glycine, cysteine, and glutamic acid, but sometimes not enough is made to balance our levels of free radicals, resulting in oxidative stress.

(NAC) and glycine can increase the body's

Synthesize Glutathione The best way to supplement antioxidants isn't to supplement glutathione directly but to supplement the nutrients the body needs to produce glutathione. These substances include a form of cysteine called N-acetylcysteine (NAC), glycine, and glutamic acid. Once the essential substances for producing glutathione are available, the body will decide on the appropriate amount of glutathione to make according to its needs, which is preferred.

However, if the body is having trouble producing glutathione in the first place, supplementation may not help at all. The

the positives of free radicals. to free radicals. They have

Supplementing with the nutrient combination of N-acetylcysteine

glutathione level.

lead to an efficient, high-tech approach to cancer medicine. If cancer's growth is merely the result of mutating genes, then why not simply focus on the undesirable mutations?

Fung says that the first few drugs to spawn from this strategy were remarkably successful and suggested that a cancerfree future might not be far off. One of these drugs, called Imatinib, targeted a type of leukemia and effectively cured the disease. Instead of aiming to kill cancer cells through surgery, chemotherapy, or radiation, Imatinib was designed to fix the genetic mutation that caused the disease. "By the 1990s, we're starting to get these treatments, and people were just incredibly excited. There was huge enthusiasm,"

The problem was that the mutations behind most cancers were far more complex than the leukemia that Imatinib targeted. The Cancer Genome Atlas project, for example-which sequenced the genes of several thousand cancer specimens to see what kind of mutations were found to occur-uncovered a vast universe of possibilities that one or two wonder drugs would never be able to reach.

Fung said.

A project to catalog all the known mutations found in various types of cancer in 2018 revealed about 6 million. As these dizzying details emerged, the once-high hopes of a gene-based cure to extinguish every cancer began to fade.

According to Fung, somatic mutation theory advanced our understanding of cancer, but not in the ways scientists had anticipated. Instead of allowing us to decode and tweak a few problematic genes, it unearthed an untenable plethora of possibilities that could develop into cancer. The theory collapsed under the weight of all these variables and failed to deliver more than a few effective treatments for a few rare genetic cancers.

"The number of genetically targeted drugs that make a difference in cancer you could probably count on one hand, because you can target one mutation, but vou can't target 70 mutations or 100 mutations," Fung said. "So it was a dark period in oncology where the progress, which was so optimistic at the beginning, just sort of fell right down by the wayside."

A New Direction

more than 50 years—a new understanding has arisen.

figure it out."

This emerging ideology builds on the endlessly and compete with neighboring that happens when a once-great human then, again, public health measures genetic knowledge gained from the past cells for resources.



but also adds a more plausible understanding of why these mutations develop. While the somatic gene theory viewed cancer as a handful of random genetic accidents that somehow manage to outsmart our immune defenses, this new said. "A liver cancer cell acts completely approach sees cancer as a means of cellular survival.

was always very strange about the so- It's going to do everything it can to dematic mutation theory is that it was just Following the dashed dreams of somatic this huge array of possibilities of what gene theory—which had been the pre- you can do with cancer once you move a multicellular organism." vailing ideology in cancer research for past this genetic paradigm. It explains a lot about cancer.'

The developing picture of cancer comes 2010," Fung said."It's leading once again which originate from our own multicel- radiation. to huge optimism that we'll be able to lular organism, begin to develop traits of Fung compares the change from recognize that obesity is related to can

"A liver cell is going to try and play nice to stay where it's supposed to stay in the gets flushed out into the open." liver, and it's going to help the lung. It's different. It will grow. It will invade other things. It's going to grab resources from opposed to the cooperation mandate of

It's the exposure of any chronic, subfor this breakdown of multicellular coop-

civilization crumbles. Imagine that nor-should really try to combat that."



MILENA MAGAZIN/GETTY IMAGES

Cigarette smoking has declined in recent years but for those who smoke, the cancer risk is still significant.

mal cells behave much like people do in a stable human society. They live and die in predictable cycles and, in a way, benefit the body as a whole.

In the post-apocalyptic world of cancer, however, it becomes a world of every cell for itself. Once civilization breaks down, due to prolonged exposure to one cancercausing agent or a multitude of carcinogens, sickened cells strike out on their own. They no longer follow the rules of polite society and begin acting independently, rejecting civilization in a selfish focus on their individual interests.

When this switch occurs, our immune systems come to see these cancerous cells as a separate species.

"We have the immune system to patrol against these invasive species like bacteria and viruses and so on, and it will try and kill cancer cells, because it sees it as a foreign cell," Fung said.

While the somatic gene theory imagined cancer as a kind of fluke, it failed to explain why so many people developed it. Flukes are rare, but cancer isn't.

"In fact, cancer is a very, very common occurrence," Fung said. "It's basically these small pockets of rebellion that are all over the body, and the immune system is there like a police force trying to stamp it out. Sometimes it's able to hide with all the rest of your cells. It's going and sometimes it gets killed, because it

The knowledge that stems from this going to help your heart, and so on," Fung new paradigm will inevitably influence how we treat cancer going forward. Fung mentions new treatments in this vein that are currently in development, such as "It's not random. That's the thing that other cells. It's going to invade the lung. methods that may boost our immune systems. But he notes that the first step stroy the other cells. But that's because must always be to stop the influence that bad luck," Fung said. "So this opens up it's acting as a single-celled organism, as may be responsible for the body developing cancer.

"The thing is to look at the environmental causes and try to get rid of them. The lethal cellular damage that's responsible most successful thing we've ever done, of course, is the stop smoking campaign. "That started to happen from about from observations that show that cells, eration, be it tobacco smoke, asbestos, or That's really probably saved more lives than anything else," Fung said. "If you a single-celled organism. They replicate healthy cells to cancer cells to the shift which is already well established now,



assumptions above are based on whether the body can still produce glutathione, which is an issue for some people.

Study Indicates 2 Nutrients

Combine for Anti-Aging Effects In January, a clinical trial published in The Journals of Gerontology Series A Biological Sciences and Medical Sciences found that supplementing with NAC and glycine can address glutathione deficiency and help reduce aging indicators in older people related to mitochondrial function, telomere length, oxidative stress markers, body fat metabolism, abdominal obesity, muscle function, walking speed, and more.

Researchers supplemented participants with a relatively large dosage—100 mil- promote health in aging humans." ligrams of NAC and glycine per kilogram (2.2 pounds) of body weight daily—while drial function, inflammation, endothesupplementing the control group with a lial function, insulin resistance, systolic *N.Y., since July 2022.*

Consuming more antioxidant-rich foods such as berries, nuts, and dark leafy greens can help the body naturally produce higher amounts of glutathione

placebo alanine of 200 milligrams per kilogram of body weight daily. The combination of the first two nutrients is much larger than the U.S. Food and Drug Administration (FDA)-recommended dosage of NAC (140 milligrams per kilogram of body weight), but the findings of this 16-week trial were compelling.

Researchers reported the supplement regimen was safe and well-tolerated and described it as "an effective nutritional supplement that improves and reverses multiple age-associated abnormalities to The combination improved mitochon-

blood pressure, and more. However, the study's sample size was relatively small, and the variations among participants were relatively limited, so this nutrient combination may not be helpful for everyone because nutritional

needs vary from person to person. Still, this experiment proved that antioxidants are essential in preventing chronic diseases, accelerated aging, tumors, and Alzheimer's disease.

Antioxidant-Rich Foods

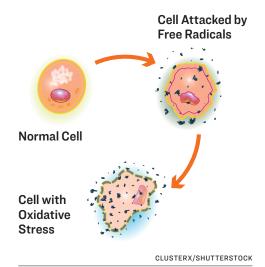
If you don't want to take supplements, you can also get enough antioxidants from food.

Many foods are rich in antioxidants. Such foods include various berries, cherries, citrus fruits, dark-green vegetables, onions, carrots, and tomatoes, as well as various nuts, olive oil, fish, green tea, turmeric, garlic, and cinnamon, among others. These are all significant sources of antioxidants.

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

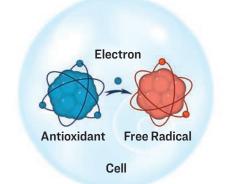
Oxidative Stress

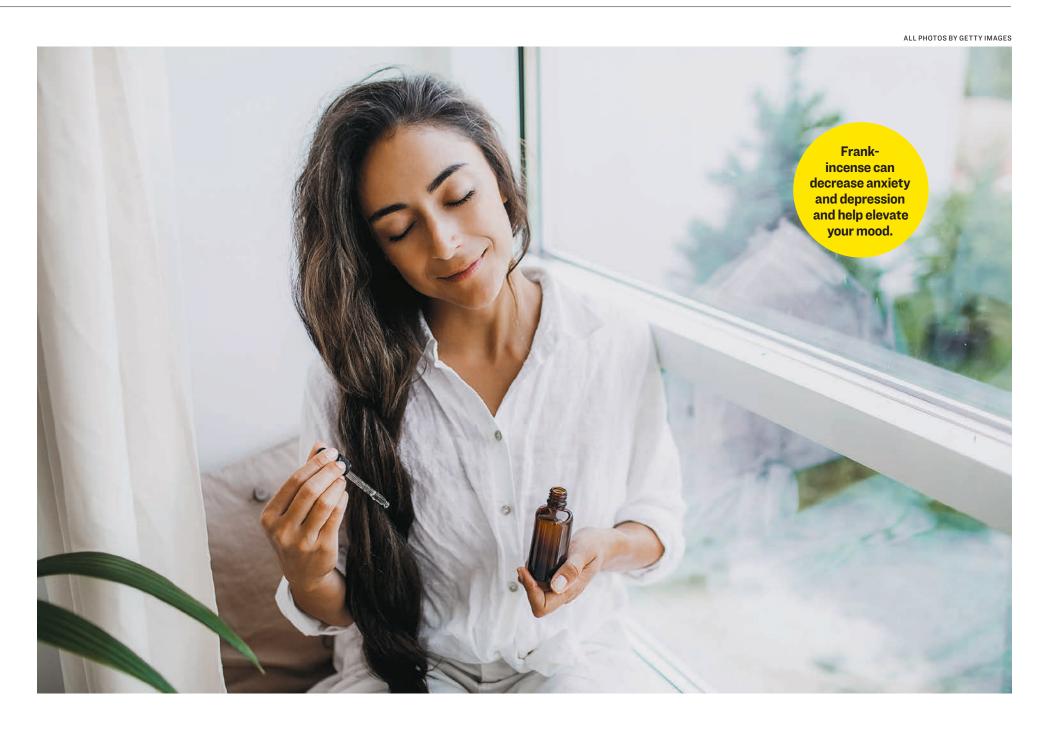
Free radicals from various sources spur a degenerative process that damages cells over time.



Antioxidation

Antioxidants supply an electron to free radicals which neutralizes them so they no longer cause oxidative stress.





HERBAL FIRST AID Treat Acute Injuries With Natural Medicine

PART IV FRANKINCENSE: LONG-REVERED FOR GOOD REASON

This anti-microbial essential oil can reduce pain and inflammation, combat infection, and elevate your mood

THERAPEUTIC EFFECTS

Studies have confirmed that frankincense contains numerous healing properties, including:

- Anti-cancer
- Anti-diabetic
- Anti-arthritic
- Anti-inflammatory
- Stress reducer
- Anti-depressant
- Immunomodulatory
- Anti-microbial
- Anti-fungal
- Analgesic

Frankincense

is a resin that

comes from the

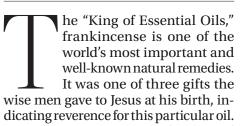
Boswellia tree.

· Neuroprotectant and memory enhancer

we look at natural alternatives to mod-properties, frankincense can replace sev*ern first aid kits, which usually consist* of medications made from synthetic chemicals. If you are looking for natural solutions for acute conditions, these herbs are safe, effective, and easily available.

Previously: Peppermint is a culinary herb with medicinal and aromatherapeutic properties. It can be used to treat indigestion, headache, nausea, and more.

By Sina McCullough



Frankincense essential oil is derived from resin of the Boswellia tree. Highly revered in Ayurvedic and

traditional Chinese medicine, frankincense has been used since antiquity in religious ceremonies, perfumes, and incense, as well as medicine. In traditional medicine, frankin-

cense was used to treat constipation, microbial infection, and chronic diseases such as cancer, diabetes, rheumatic disease, Crohn's disease, and ulcerative colitis.

Frankincense essential oil is known for its ability to combat fatigue. A

2018 case report concluded that frankincense provided relief from atigue in a cancer pa-

tient. According to the report, "The topical application of the frankincense helped to take her fatigue from being barely able to lift her head to being able to do some basic activities

of daily living."

In this series, "Herbal First Aid Kit," Because of its diverse array of healing eral man-made medications commonly found in a modern first-aid kit.

> When experiencing muscle soreness or joint pain, I reach for frankincense instead of Bengay, Aspirin, Aleve, or Motrin.

Because of its ability to reduce pain and swelling, frankincense is an effective topical treatment for muscle soreness and joint pain.

While frankincense and Bengay are both topical analgesics, frankincense is a natural plant remedy while Bengay can contain ingredients derived from fossil fuels, such as propylparaben and methylparaben.

Aspirin also contains synthetic ingredients including carnauba wax, D&C yellow No. 10 aluminum lake, polysorbate 80, propylene glycol, and triacetin.

Meanwhile, Aleve and Motrin are • Enhance memory nonsteroidal anti-inflammatory drugs • Decrease anxiety (NSAIDs), which have well-known adverse • Elevate mood effects such as increased risk of myocar- • Reduce inflammation dial infarction, stroke, and gastrointestinal • Improve sleep bleeding "from the first day of use," accord- • Combat skin infection ing to a 2016 editorial in the British Journal • Reduce headache of General Practice.

In traditional Chinese medicine, frankincense was used to treat infected wounds.

When experiencing a minor cut or scrape, I reach for frankincense instead

of Neosporin. Frankincense was used to treat infected wounds in traditional Chinese medicine. It contains antiseptic and anti-inflammatory properties, making it an excellent

remedy for minor cuts or scrapes. According to a report in the Journal of the Royal Society of Medicine, frankincense has "measurable antiseptic, antifungal and anti-inflammatory properties" and therefore is valuable for "wound dressings."

The common man-made alternative is Neosporin, which contains petrolatum, a synthetic chemical made from fossil fuels.



Frankincense can kill oral cavity pathogens, making it an excellent natural mouthwash.

When to Use Frankincense

Frankincense has been shown through scientific studies to be useful due its ability to:

Reduce pain

- Decrease joint stiffness

Different Forms to Choose From

The best options for a first-aid kit include undiluted frankincense essential oil and aromatherapy. Below are my favorite recipes along with common dosages.

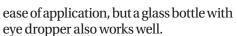
A Word on Frankincense Quality

Avoid frankincense essential oils that state "fragrance oil" or "perfume oil" on the label. Those oils can be synthetic. Only purchase oils that are labeled "100 percent essential oil."

When choosing an essential oil, I only purchase products that are organic, don't contain additives or synthetic chemicals, and have been tested for heavy metals, microbes, and glyphosate.

Frankincense Used Topically

Frankincense essential oil can be applied neat (with no dilution) directly to the skin. For sensitive skin, or if using for the first time, prepare a dilution by adding 10 drops frankincense essential oil to two teaspoons organic fractionated coconut oil. I add the oils to a glass essential oil roller bottle for



Apply the frankincense oil, neat or diluted, to the skin where needed. For example, to relieve a tension headache, apply frankincense essential oil to the temples and back of the neck; gently massage into the skin. For joint pain, massage the oil directly on the joint. For minor cuts or scrapes, gently dap or drip oil on the cut.

Frankincense for Aromatherapy

Add 2 to 3 drops frankincense essential oil to a vaporizer or diffuser and enjoy the woody aroma. For a soothing bath, add a couple drops of essential oil directly to the bathwater and breath in the vapors. Alternatively, add five drops of frankincense to three cups distilled water in a spray bottle and spritz your home, car, or office.

To clear congestion and reduce inflammation in the lungs, stir a few drops of frankincense oil into a large bowl of hot water. Drape a towel over your head and inhale the fumes deeply. Make sure the water isn't boiling or the steam may burn the skin.

To ease throbbing pain from a sinus infection or headache, soak a washcloth in a solution of warm water and frankincense oil, then lay the washcloth across the eyes, nose, and forehead. For muscle soreness, place the soaked washcloth directly on the muscle.

When on-the-go, simply open the lid of the frankincense essential oil bottle and breath in the earthy aroma for 1 to 3 minutes. Alternatively, place a drop of frankincense under your nose and take deep breaths.

Frankincense in Mouthwash

Due to its antiseptic properties, frankincense is an effective mouthwash. Frankincense contains a compound that is so effective at killing "oral cavity pathogens," researchers recom-

mended using frankincense as a "mouthwash for preventing and treating oral infections," according to a study published in the Journal of Traditional and Complementary Medicine.

Add 2 to 3 drops frankincense essential oil to one cup of warm water. Swish the solution through vour teeth for one minute, making sure it contacts the front and back of each tooth, under the tongue and across the roof of the mouth. Next, gargle and then spit into the sink.



For aromatherapy, add 2 to 3 drops of frankincense essential oil to a vaporizer or diffuser.

Frankincense Used Orally

Frankincense can be consumed orally if diluted properly and unadulterated. Add one drop frankincense essential oil to eight ounces of water or one tablespoon honey. If ingesting frankincense essential oil, make sure the product is 100 percent pure oil.

Frankincense capsules are also available for purchase online.

Precautions and Possible Interactions:

Frankincense "has not shown any serious side effect and is considered to be safe." according to a review in the Journal of Traditional and Complementary Medicine, Pregnant or breastfeeding women should consult their health care provider

before consuming frankincense. Frankincense may interact with conventional medications to create toxicity or undesired side effects. For instance, frankincense has reportedly interfered with warfarin and leukotriene inhibitors. Frankincense has blood-thinning effects and, therefore, shouldn't be used if on blood-thinning medication.

Although rare, frankincense can cause minor skin rashes and digestive problems, including nausea and stomach pain.

Next Week: People's Paste is a combination of herbs that were used by ancient cultures to stop bleeding, disinfect wounds, and heal cuts and punctures. In an emergency, it can take the place of stitches.

Dr. Sina McCullough is the creator of the online program "Go Wild: How *I Reverse Chronic & Autoimmune* Disease," and author of "Hands Off My Food" and "Beyond Labels." She has a doctorate in nutrition from the University of California-Davis. She is a master herbalist, Gluten Free Society certified practitioner, and a homeschool mom of three.





Vitamin K Protects Against Diabetes, New Study Finds

By Emma Suttie

A recently published Canadian study has discovered the cellular process that allows vitamin K to protect against diabetes. The discovery opens up new ways to treat and prevent this growing epidemic that affects 415 million people worldwide.

Vitamin K helps with gamma-carboxylation, one of the countless biochemical processes that our cells carry out, turning one substance into another for various functions in the body. Gammacarboxylation is important to many bodily functions; for example, it produces proteins used in bone formation and blood coagulation.

Researchers are not sure what other roles gamma-carboxylation plays in the body, but they do know that it requires vitamin K. They also know that the enzymes that facilitate this process are present in larger numbers in pancreatic beta cells.

These are the cells that produce insulin, which is a vital hormone that helps to get glucose out of the blood and into cells and tissues where the body can use it for energy. Diabetes arises when there are not enough of these beta cells or beta

carboxylation in order to work and is very important for diabetics.

"Our study shows that this protein plays an important role in maintaining physiological levels of calcium in beta cells in order to prevent a disturbance was more pronounced with vitamin K2. of insulin secretion," Dr. Julie Lacombe, a researcher involved in the study, said in an article on the institute's website.

Dr. Mathieu Ferron, an associate professor of medicine at the Université de Montréal, led the team that conducted the research.

"Diabetes is known to be caused by a reduction in the number of beta cells or by their inability to produce enough insulin, hence our keen interest in this novel finding," Ferron said in the institute's article. "In order to elucidate the cellular mechanism by which vitamin K maintains beta cell function, it was essential to determine which protein was targeted by gamma-carboxylation in these cells."

The findings also support a link between gamma-carboxylation and the way beta cells adapt to stress. Researchers found that glucose regulates gammacarboxylation activity and that treatment with vitamin K1 can protect beta cells from the harmful effects of high glucose and endoplasmic reticulum stress. The endoplasmic reticulum is a network of levels of the vitamin were relatively high. sac-like structures and membranous tubules in the cytoplasm of a cell.

The Canadian study builds upon previous research that implicated vitamin K deficiency in the development of diabetes, although the underlying mechanisms had been unclear until now.

Increased Dietary Vitamin K and Decreased Diabetes Risk

In a previous prospective cohort study published in 2010 in Diabetes Care, researchers investigated whether dietary intake of vitamin K1 and K2 were related to Type 2 diabetes risk.

The study involved 38,094 Dutch men and women aged 20–70 at the outset



Animal foods like liver and fermented foods like natto are healthy sources of vitamin K2.

and followed up with them for more than 10 years.

The study, led by Dr. Joline W.J. Beulens of the University Medical Center Utrecht in the Netherlands, found that those receiving the most vitamin K from their diets had an approximately 20 percent lower risk of developing Type 2 diabetes during the decade the researchers followed up with them.

At the time, the findings were among the first to show a relationship between Research Institute discovered a new min K as the reason for the decreased min K that has gone through gamma-study on whether vitamin K deficiency cup of cooked broccoli. plays a role in the development of Type 2 diabetes.

> In the study, higher intake of both vitamin K1 and K2 were associated with lower Type 2 diabetes risk, but the effect

> The findings were based on questionnaires that participants completed, including a detailed dietary survey used to estimate vitamin Kintake and questions about their overall health and lifestyle habits. The results were adjusted for other factors, such as weight, age, and level of physical activity.

Those with the highest intake of vitamin K2 were 20 percent less likely to be diagnosed with Type 2 diabetes.

They found that the quartile of participants with the highest intake of vitamin K2 were 20 percent less likely to be diagnosed with Type 2 diabetes than the quartile of participants with the lowest intake of vitamin K2.

As for vitamin K1, researchers didn't see a decrease in Type 2 diabetes risk until These findings were similar, though, in that the quartile of participants who received the most vitamin K1 were 19 percent less likely to develop Type 2 diabetes than the quartile with the lowest levels.

Why We Need Vitamin K

Vitamin K is a fat-soluble vitamin and is best known for its vital role in blood clotting. Vitamin K comes in two biologically active forms, K1 (phylloquinone), found in plant foods such as leafy green vegetables, and K2 (menaquinone), found in meat, cheese, eggs, fermented foods, and the microbiome of your intestine—which is how the body processes some vitamin K2 naturally

Vitamin K is vital for several functions in the body, such as blood clotting, bone formation, and heart health, and is essential in how the body uses calcium. Vitamin K helps control how much calcium is laid down to create strong bones while also limiting how much accumulates in arteries, which can contribute to atherosclerosis-a risk factor for cardiovascular disease and death. Some research suggests that vitamin K also has anticancer properties, and recent research found that a form of vitamin K acts as an antioxidant that may be a key in preventing Alzheimer's disease and other conditions.

Recommended daily intake of vitamin K is 120 micrograms daily for men and 90 micrograms daily for women.

Very little vitamin K is stored in the body, so it's vital that we get enough of this crucial vitamin in our diet so we do not become deficient. Without enough vitamin K, we become more susceptible to osteoporosis, heart disease, and bleeding disorders.

Thankfully, most people get enough vitamin K in the foods they eat, which is preferable to taking it in supplement form. For example, you can get 443 percent of the daily recommended amount cells no longer produce enough insulin. vitamin K intake and lower diabetes by eating half a cup of cooked kale, 346 Researchers at the Montreal Clinical risk. Although they didn't show vita-percent by eating half a cup of mustard greens, 121 percent by eating a cup of raw protein called ERGP, which needs vita-risk, they laid a foundation for further spinach, and 92 percent by eating half a

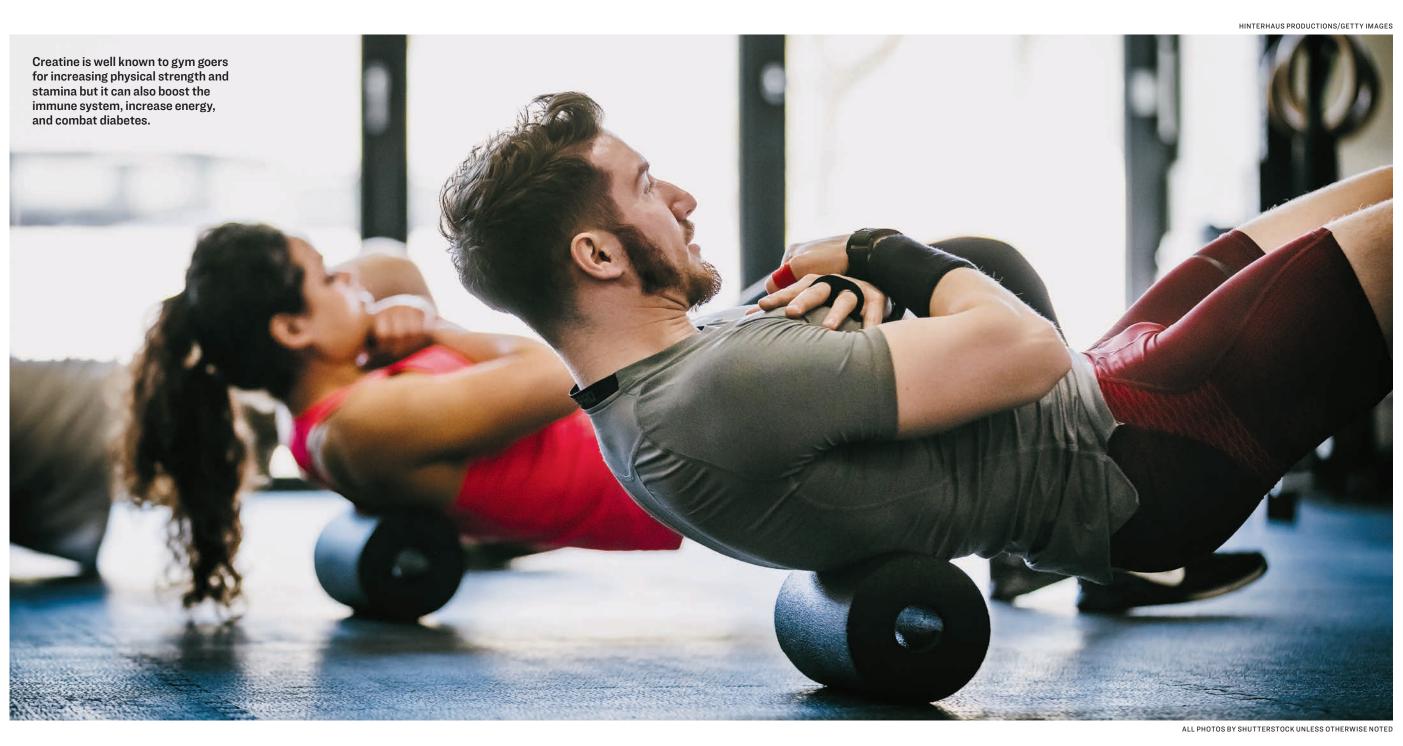
FOODS RICH IN VITAMIN K

Below is a list of foods high in vitamin K.

- Natto
- Turnip greens
- Collard greens
- Swiss chard
- Broccoli
- Soybeans
- Carrot juice
- Edamame
- Canned pumpkin
- Pomegranate juice
- Spinach
- Kale
- Dry roasted cashews
- Okra
- Beef liver
- Chicken breast, chicken liver
- Goose liver pate
- Egg yolks
- Cheeses
- Butter
- Sauerkraut
- Kefir

Natto, a fermented soy product traditionally eaten in Japan, tops the list with 850 micrograms (mcg) per 3-ounce serving.





SUPPLEMENT WELL

9 Science-Backed Benefits of Creatine

Creatine is a cellular super fuel that powers the brain and immune system just as well as it powers our muscles

Continued from Page 1

This amplified energy production doesn't just power our muscles-it spurred research into its more compretoo. In doing so, it could play a role in taking note. regulating inflammation and oxidative stress in the body, contributing to broader health benefits beyond physical strength and stamina.

Our bodies, with their remarkable biochemical adaptability, craft much of the creatine we need in-house. The liver, kidneys, and pancreas join efforts to transform three common amino acids—arginine, glycine, and methionine—into creatine. We can also get creatine from eating animal foods, or get the amino acids that build creatine from plant foods.

Creatine has a knack for finding its way to the parts of the body that hunger for energy the most. Through a sophisticated transportation system, it moves through the bloodstream and into high-energy-demand areas, particularly the brain and skeletal mus-95 percent of creatine sets up shop in the skeletal muscles.

Creatine: For More Than Muscles Richard B. Kreider, a professor at Texas A&M University and a member of the scientific advisory board for Creatine for Health, is one of the foremost experts in creatine.

Creatine isn't

just for gym bros

anymore.

points out that the benefits of creatine are farreaching, spanning from pregnancy to the elderly.

"A lack of creatine in the diet of children and adolescents has been

shown from NHANES data set

less muscle mass," Kreider told The Epoch Times. A burgeoning interest in creatine has

optimizes mitochondrial function, hensive health benefits-and people are "Word is getting out. There has been a

doubling in worldwide sales of creatine monohydrate (CrM), and back supply primarily from companies adding creatine to supplements focused on middleaged and older individuals," Kreider said.

According to MarketWatch, the global creatine market was valued at about \$286 million in 2022 and is projected to nearly double to about \$526 million by 2028.

9 Science-Backed Benefits of Creatine

Here are nine evidence-based potential benefits of creatine that substantiate its growing reputation.

Wards Off Depression

There's emerging evidence that cles. Research reveals that a whopping creatine may serve as a potent ally in the fight against depression. A 2020 study published in Nature's Translational Psychiatry journal included 22,692 U.S. adults and found that those with the highest dietary creatine intake had nearly half the prevalence of depression compared to those with the lowest intake, particularly among women. By addressing disruptions in brain energy production and utilization associated with depression, Kreider's research this supplement shows promise as an antidepressant.

2 Combats Diabetes

Emerging research indicates that taking creatine supplements, especially with physical activity, might help improve blood sugar regulation. This potential benefit appears to be driven by creatine's ability to boost insulin production, enhance the storage of energy in muscles, and decrease high blood sugar levels.

These early promising findings come mainly from several smaller studies. Yet, a more comprehensive review didn't completely validate these findings. Therefore, to result in a more thorough investigation is needed shorter kids to confirm creatine's impact on blood with higher sugar management and its prospective body fat and use as a weapon against diabetes.

Protects and Improves $\mathbf{3}$ **Brain Health**

Our brains expend significant energy for cognition, problem solving, and memory recall. Creatine is critical in providing this energy, aiding essential functions within our brain cells.

A meta-analysis published in Nutrition Reviews found that creatine supplementation can enhance memory performance in healthy people

"Subgroup analysis showed the effects of creatine were more robust in older adults," it concluded.

An animal study published in the Journal of Neurochemistry in 2009 found that "combination therapy using CoQ(10) and creatine may be useful in the treatment of neurodegenerative diseases such as Parkinson's disease and [Huntington's disease]."

A research review published in F1000 Research in 2014 looked at research into creatine supplementation for age-related disease and found that "creatine has the potential to elicit positive effects in muscle strength, memory, and has further influence on neurodegenerative conditions."

The study noted that it remains to be seen if creatine can affect the intermediate or late stages of age-associated, progressive neurodegenerative disorders but that its energy metabolism and neuroprotective mechanisms make it an attractive target for future research.

While clinical trials have produced a medley of results, creatine's robust neuroprotective properties, potent antioxidant prowess, and capability to spark energy metabolism highlight its potential as a supplement in the battle against these relentless diseases.

Provides a Boost of Energy

Creatine plays a pivotal role in the way our bodies generate energy. It does this by aiding in producing adenosine triphosphate (ATP), our primary cellular energy source. Thus, creatine supplementation can boost energy, whether for a high-intensity workout or to carry out our daily tasks, proving beneficial for athletes and anyone who needs a lift in their energy levels.

5 Improves Cardiovascular Health

Creatine is making waves in the realm of cardiovascular health. It's been linked to healthier blood lipid management, driving down cholesterol and triglycerides in a bid to bolster heart health. It doesn't stop there; animal studies found that creatine could prevent fatty liver disease in rats, further fueling metabolic well-being.

The unsung hero of creatine's heartfriendly roster is its potential to curb homocysteine levels, a notorious heart disease risk factor. Coupled with its antioxidant shield that defends against cellular havoc, creatine emerges as a multifaceted champion for heart health and metabolic vigor. All these findings



66

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fat and less

muscle mass.

Dr. Richard B. Kreider

professor, Texas A&M

University

Creatine monohydrate is the most effective, safest, and best studied form of creatine available.

indicate the diverse roles of creatine in promoting a healthier heart.

6 Enhances Immunity

Creatine supplementation may play a pivotal role in bolstering the immune system. Particularly, it's crucial for the optimal functioning of T lymphocytes—vital immune cells that are critical for the body's response to viral infections. Under stressful scenarios, such as facing a viral load, insufficient in 2021 found that "creatine suppleimmune response.

help combat post-viral fatigue, such as importantly, to synergize with other canthat experienced by many COVID-19 cer immunotherapy modalities." patients. A 2023 study suggests that creatine levels are reduced in those with long COVID, implying that creatine **Promotes Bone Health** and safety. Others are either less effective, or more expensive." could be beneficial in facilitating a faster atine may help slow bone loss and poreturn to normal activity levels and aiding recovery from post-viral fatigue.

ery after intense workouts by easing used with resistance training. The pronflammation, a factor that could give a roundabout boost to immune health. So, beyond its famed act in enhancing athletic performance, creatine could potentially amplify our bodies' built-in and responsive immune functions, fostering ies question the significant benefits of tions and is globally approved as a dioverall wellness.

A review published in Nutrients in 2021 cautions that creatine "has diverse effects on components of the innate and adaptive immune repertoire" and should therefore be taken with some caution and not be overused.

It also notes, however, that creatine's effect on inflammation may be particu- A 2021 research review in Nutrients larly helpful for some people.

"For example, if an individual has a condition exacerbated by proinflammatory mediators, then creatine administration should be considered as ticularly during crucial stages marked an adjuvant therapy since it appears to by hormonal changes such as men-harmful in healthy or diseased populaameliorate proinflammatory processes characteristic of an M1[macrophage] phenotype, and all available data attest to its safety," the journal noted.

combat cancer," notes a study published in the Journal of Experimental Medicine et al muscle size and function when that adhere to recommended manufacin 2019. Creatine's critical role as a source consuming high doses of creatine and turing practices and undergo third-party of cellular energy becomes important in favorable effects on bone when com- testing for assured quality. this scenario, researchers found.

a gene that limited creatine uptake and noted that "creatine uptake deficiency severely impaired antitumor T cell immunity." Supplementing creatine in those mice "showed

"We further demonstrated that cre- energy levels." atine acts as a 'molecular battery' concreatine as an important metabolic be beneficial during these life stages. regulator controlling antitumor T cell immunity, underscoring the potential of creatine supplementation to improve T cell-based cancer immunotherapies," the study authors said.

Another study published in Nutrients Creatine supplementation may also preclinical mouse tumor models and,

posed mechanism is that creatine improves the energy availability for bonebuilding cells, helping them to work more effectively.

creatine on bone health. While it's plausible that creatine could minimize bone loss, more comprehensive research must conclusively establish its effectiveness in mitigating osteoporosis risk.

9 Helps Women Navigate Hormonal Changes

that examined studies on the effects of hydrate's safety is confirmed by huncreatine on women described findings that creatine supplementation might prove helpful for women's health, parstruation, pregnancy, postpartum, tions." Instead, many studies vouch for and menopause.

"Creatine supplementation among cal or diseased groups. pre-menopausal females appears to be effective for improving strength may also experience benefits in skelbined with resistance training."

and bone loss.

finds that creatine becomes necessary. supplementation can improve mood and

Choosing the Right Creatine

Navigating the plethora of creatine prod- benefits for body composition and cogucts available online can be overwhelming. Researchers found more than 175 creatine-marketed products in an Ama- one else—should not take it," Antonio creatine levels could compromise the mentation has been shown to enhance zon search, suggesting that consumers said. "The benefits are tremendous." antitumor T cell immunity in multiple may find that deciding which one to buy

studies have reported that creatine can creatine monohydrate (CrM) is the most ing and raising three children.

Creatine steps in to help with recov- promote bone mineral density when effective and safest creatine form available. The study underscored that most marketed creatine forms are less bioavailable, less effective, more expensive, or lack adequate research about their safety and efficacy. CrM is recommended Yet, it's crucial to note that some stud- by professional societies and organizaetary ingredient or food additive.

Safety Profile of Creatine

The safety of creatine, particularly creatine monohydrate, is well-documented and corroborated by significant scientific research.

According to Kreider: "Creatine monodreds of clinical trials and over three decades of usage. It has Generally Recognized As Safe (GRAS) status in the [United States], and no data suggests it's its health benefits across different clini-

The Mayo Clinic further supports the safety of creatine, indicating that when **Anti-Cancer** and exercise performance," reported used orally at appropriate doses, it's likely the authors. "Post-menopausal females safe for up to five years. However, they advise consumers to choose products

> Sparse evidence hints at a possible worsening of kidney dysfunction in estrogen levels can those who are already grappling with contribute to muscle kidney disorders due to creatine. Yet, for those sporting healthy kidneys, creatine The review noted seems to leave no mark. Nonetheless, that preclinical and for individuals with preexisting kidney clinical evidence issues, treading carefully with creatine

Jose Antonio, a leading expert in health and human performance at Nova Southsynergistic tumor suppression efficacy." cognition, "possibly by restoring brain eastern University-Florida and the CEO and co-founder of the International So-Therefore, due to changes in creatine ciety of Sports Nutrition, affirms this serving bioenergy to power T cell activi- bioavailability related to hormonal perspective. Drawing from his extenties. Therefore, our results have identified changes, creatine supplementation can sive research and publications, he told The Epoch Times that "after hundreds of studies, there are zero harmful side effects." He further encouraged the use of creatine, emphasizing its significant nitive health.

"There is no reason why you—or any-

Sheramy Tsai, BSN, RN, is a seasoned Krieder simplifies this dilemma, stating: *nurse with a decade-long writing* expertise to deliver impactful content.

INTENTIONAL LIVING

The Real Cost of What We Buy

Every purchase is a choice about what we value-and a limitation on future choices

By Joshua Becker

"The price of anything is the amount of life you exchange for it." —Henry David Thoreau

If you want to become more intentional with your spending, here's a truth that we buy something, we're deciding that it's worth more than anything else we could have used that money for.

You see, we only get to spend our money once. And every time we make a purchase, we have less money for somemore money, but that doesn't change the reality that we can never re-spend the dollars we just spent.

sure the items we purchase are more lars left over for that girl's trip, spontanevaluable than the things we are turning down.

Now, before I continue, I should menmake a purchase—whether it be \$10, \$100, or \$10,000.

money; we're making decisions about what we value most. This simple realization can change how we approach our finances and, in turn, our life.

As Henry David Thoreau once said, "The price of anything is the amount of life you exchange for it."

And this truth applies to not just the dollars spent or the time that we gave up to earn the money in the first place. It also applies to the "other thing" we could have spent our money on. Because every time we make a purchase, is helpful to keep in mind: Whenever we have less money for something else.

Every unplanned clothing purchase and every nonessential kitchen gadget eats into our financial capacity to explore, learn, and give. Every new tech gadget or bathroom upgrade means less money for family trips that create thing else. Sure, we can always make life-long memories, less money for tackling debts, or less money for supporting causes we care about.

Every small little purchase on Amazon So it would be wise for us to make that we "click to ship" means fewer dolously planned by our friends, that we hadn't saved enough money to afford.

This is not an article to guilt anybody tion that this isn't a post about thrift or into changing their habits. Instead, it's frugality. I am not about to argue that an invitation to be mindful about where we should stop spending money alto- our money goes, to make sure our purgether. Just the contrary. This post is chases reflect our true selves and values. about recognizing the choices we make Turning the tide of spending can ripple with our money and re-examining the into an ocean of change, and with invalues we're living by every time we creased intentionality, we can be the initiators of that change.

What if we chose not to buy an unnec-We're not just buying things with our essary item and instead used that money



▲ The time we spend working is like moments of our life ticking away-how we choose to spend the rewards for that expenditure can deeply influence our quality of life beyond work.

We're not just buying things with our money; we're making decisions about what we value most.

to contribute to a cause, invest in an experience, or assist someone in need? The joy from a new purchase always fades, but the fulfillment from these other choices can last a lifetime. Rarely is an unneeded item, added to our already-full homes, worth more than the opportunity we let slip by.

So, before your next purchase, ask yourself: Is this item really worth more than the something else I am passing up?

When we start to consider all the possible better purchases, we're doing more than managing our finances. We're saying "yes" to the potential of our money to bring us closer to the life we desire—not one filled with possessions, but with experiences, growth, and impact.

Joshua Becker is the founder and editor of Becoming Minimalist, where he inspires others to live more by owning less.

is challenging.

"Creatine monohydrate is the only type career. An alumna of Middlebury of creatine extensively studied for efficacy College and Johns Hopkins, Tsai and safety. Others are either less effective, combines her writing and nursing

His statement is grounded in robust Living in Vermont, she balances her tentially reduce osteoporosis risk. Some research. A 2022 study affirmed that professional life with sustainable liv-

Taking creatine supplements, especially

with physical activity,

might help improve

blood sugar regulation.

Researchers looked at mice that had This is important, given that decreased



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How fresh is your fruit? While Edipeel prolongs the appear ance and crispness of produce, the preservation of nutrients isn't yet established.

Looking Beneath the Edipeel Produce Coating

Is this new protective coating for fruits and vegetables a cure for food waste or a potential health hazard?

a variety of produce

By Conan Milner

nealthy food choices—but they don't last. Before you have called Apeel Scienca chance to eat your avocado, es, and their solution orange, or apple, it may spoil. to food waste is called Within just a few days of purchase, many Edipeel: a thin, odorof these highly perishable foods can turn less, tasteless, and to trash

It isn't just a problem in individual to coat fruits and veghouseholds; it's a liability throughout the etables. It's designed to slow moisture on producers. entire supply chain. According to the U.S. loss and reduce oxidation on produce In a concerted effort to slow food waste, Department of Agriculture (USDA), be- so it's more likely to make the journey tween 30 and 40 percent of the nation's food supply never makes it to a belly.

One company has developed a prod-

uct aimed at tackling this problem by Edipeel has come to cover a variety of With claims that Edipeel can extend substantially increasing the shelf life of produce from all over the world. And its produce's shelf life to five times what it ruits and vegetables are foods that tend to spoil quickly.

The company is from all over the world.

colorless film used

from farm to table.

You probably haven't noticed this invisible layer, but starting a few years ago, lemon in the world with Apeel's coating.

reach continues to grow. In May, Apeel jor California-based Edipeel has come to cover

the grand aim is to make Edipeel an industry standard. Limoneira owner Harold Edwards said his goal is to cover every

would otherwise be, it's easy to see the partnered with a ma- draw for growers and distributors. However, some doctors, food advo-

lemon and avocado cates, and consumers aren't so sure. grower, Limoneira, A big part of the suspicion comes to coat their produce. from the globalist-minded organiza-Limoneira also has tions behind the company. The CEO the rights to license and founder of the Apeel is a World

Edipeel to other lem- Economic Forum Young Global Leader. And the grant used to kickstart the company in 2012 came from the Bill and Melinda Gates Foundation. However, concerns about Edipeel go beyond its affiliations. It's the same concern Continued on Page 16

A diet rich in fermented foods enhances immune responses

KETUT MAHENDRI/SHUTTERSTOCK



The Gut Microbiome That Helps You Live to Be 100

Researchers take a closer look at the bacteria–and viruses inside them–found in Japanese centenarians

By George Citroner

a new study published in Nature Microbiology says.

This research represents a significant leap forward in understanding the pivotal role played by the gut microbiome in safeguarding health and combating diseases.

"We are always eager to find out why some people live extremely long lives,' Researchers discovered a distinct gut first author of the study Joachim Jomicrobiome in examining 195 cente- hansen, from the Infectious Disease narians from Japan and Sardinia that and Microbiome Program at the Broad may unlock the secret to this segment of Institute of MIT and Harvard, said in the population's exceptional longevity, a statement. "Previous research has shown that the intestinal bacteria of old Japanese citizens produce brand-new rome (collection of viruses), including molecules that make them resistant to previously unknown viruses associated pathogenic—that is, disease-promoting-microorganisms."

Mr. Johansen further emphasized

that the protective properties of these people's unique microbiome likely contribute to their extended lifespans.

Viruses Play a Key Role in Gut Health

The gut microbiome consists of trillions of microorganisms (bacteria, viruses, fungi) in the human digestive system. Unlike other parts of the body, it's highly dynamic and responsive to environmental factors, such as diet, medication, and stress.

Researchers found that viruses are crucial in maintaining a healthy microbiome and overall health.

According to the study, among three groups—younger adults, people between 60 and 99, and centenarianscentenarians had the most diverse vi-

with the gut bacteria Clostridia.

Continued on Page 16



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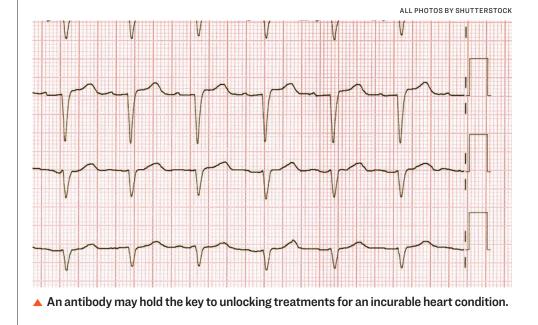
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NEW TREATMENTS Reversal of Previously Incurable Heart Condition Offers Hope

Spontaneous reversal of 3 cases of transthyretin cardiac amyloidosis reveals possible antibodybased therapy

By Jessie Zhang

In a groundbreaking development, a recent study revealed that three men have successfully reversed their previously incurable heart failure condition.

The condition, transthyretin cardiac amyloidosis, is characterized by the accumulation of sticky and toxic proteins in and around the heart. Typically, patients diagnosed with this condition face a grim prognosis, with about half succumbing to the disease within four years.

The toxic proteins progressively weaken and damage the heart, impeding its detected. ability to pump blood efficiently and ultimately leading to heart failure. Common symptoms include fatigue, swelling in the legs or abdomen, and shortness of breath, with the disease advancing Amyloidosis. "However, our data indiuntil it proves fatal.

However, a new study published in the New England Journal of Medicine found that three men, aged 68, 76, and 82, were Transthyretin cardiac amyloidosis is able to recover from their condition natu-known to arise from the formation of deposrally. The critical factor behind their remarkable turnaround was the deployment of their bodies' antibodies, which naturally helped them fight the disease.

The discovery came to light when one

tional cases were identified. The three patients' reversals were confirmed through rigorous blood tests, ultrasounds, and heart scans, revealing the complete clearance of the toxic protein buildup.

"We have seen for the first time that the heart can get better with this disease," Marianna Fontana, the study's lead author and professor of cardiology at University

College London (UCL) Di-

vision of Medicine, said in a statement. "That has not been known their approach to cardiac amyloidosis, until now, and it raises the bar for what ultimately expediting the availability of might be possible with new treatments." new treatments to patients.



The critical

factor behind

their remarkable

turnaround was

the deployment

of their bodies'

antibodies, which

naturally helped

them fight the

disease.

▲ Researchers found patients who had reversed a protein buildup in and around their hearts.

Natural Immunity Against **Heart Disease**

Upon delving deeper into the three cases, researchers found antibodies in the three men that exhibited a distinct affinity for the protein deposits within the heart. This immune response differed significantly from those observed in patients whose condition followed a typical progression.

The origin of these antibodies is intriguing and remains unclear. An additional 350 patients were tested

for similar antibodies, but none were "Whether these antibodies caused the

patients' recovery is not conclusively proven," said Julian Gillmore, senior author and head of the UCL Centre for cates that this is highly likely, and there is potential for such antibodies to be recreated in a lab and used as a therapy."

its primarily composed of a blood protein called transthyretin. It can manifest as an inherited genetic disorder or a nonhereditary condition.

The researchers said that these antipatient reported a notable reduction bodies could serve as a foundation for in symptoms. Subsequently, two addi- developing novel therapies aimed at halting the toxic pro-

tein's production.

"This work not only represents a breakthrough in our understanding of cardiac amyloidosis but crucially opens up new possibilities for more effective treatment options," said Jon Spiers, CEO of the Royal Free Charity in London.

He said that scientists, armed with this new insight, can explore strategies to revolutionize



Long COVID Tamed by Popular Diabetes Drug

By Sheramy Tsai

A recent study published in The Lancet Infectious Diseases journal revealed that the use of metformin, a widely available and low-cost diabetes medication, reduces the risk of developing long CO-VID by 41 percent.

Ivermectin, another drug that has been the subject of much debate and scrutiny, showed no significant impact on the incidence of long COVID.

Deep Dive Into the Study

The University of Minnesota spearheaded a large-scale, placebo-controlled study called COVID-OUT. The study aimed to determine whether administering metformin, ivermectin, or fluvoxamine during the early stages of COVID-19 outpatient treatment could decrease the likelihood of developing metformin may inhibit the replication long COVID.

This expansive phase 3 trial spanned researchers worked with a substantial participant pool of more than 1,100 over- make COVID-19 symptoms worse. weight or obese adults aged 30 and older. None of these individuals had been previously infected with COVID-19 and about half had received a COVID-19 vaccination. All participants experienced COVID-19 symptoms for less than a week and tested positive for the virus within three days before enrolling in the study.

Once diagnosed, participants were COVID severity. randomly divided into different treatment combinations. Some received metformin combined with either ivermectin or fluvoxamine. Some others received rest were given either ivermectin or flu- for COVID treatment. voxamine alongside a placebo. Lastly, one group was given two placebos.

The study found that 6.3 percent of participants who received metformin developed long COVID within the 10-month follow-up period, compared to 10.4 percent of those who received a placebo.

Essentially, a two-week course of metformin reduced the incidence of long COVID by 41 percent. Interestingly, starting metformin within three days received as a possible treatment for of symptom onset led to an even greater COVID-19. While some had hoped reduction in long COVID risk.

Unveiling the Power of Metformin

Metformin is a common and cost-effective medication traditionally prescribed to manage high blood sugar in people with Type 2 diabetes. For those without insurance, a 500-milligram pill of metformin-the same dosage used in the The persistent challenge of long COstudy—can typically be purchased for VID continues to strain health care about 33 cents.

"Not only did we demonstrate that with the lingering aftermath of the metformin, an inexpensive and safe COVID-19 pandemic. Long COVID. treatment, may prevent the develop- or Post-Acute Sequelae of SARS-CoV-2 ment of long COVID in many people, infection, is an umbrella term for a wide

real disease in that a 14-day treatment can reduce the risk of long COVID symptoms and a doctor's diagnosis over many months," Dr. John Buse, co-author and senior associate dean for clinical research at the UNC School of Medicine, said in a press release.

The protective impact of metformin held across various demographic groups and multiple viral strains, including the Omicron coronavirus variant. The results echo previous findings that metformin may reduce the severity of COVID-19 and improve outcomes such as emergency department visits, hospitalizations, and deaths.

Study authors acknowledge that the mechanisms by which metformin helps prevent long COVID aren't entirely known, although they pose some theories. Previous studies show that of the SARS-CoV-2 virus by blocking the production of viral proteins. The drug severe and mild COVID-19 cases and six sites across the United States. The also helps reduce harmful inflammation and oxidative stress, factors that

Ivermectin Falls Short

In this trial, researchers also tested the potential effects of two other drugs, ivermectin and fluvoxamine, on long CO-VID. Fluvoxamine, an antidepressant commonly used to manage obsessivecompulsive disorder, had shown some potential in earlier studies for reducing

Ivermectin, on the other hand, is a drug usually used against parasites and showed some promise in the early stages of COVID. However, other research has metformin paired with a placebo; the indicated that it may not be as effective

Of those that received ivermectin, 7.7 percent developed long COVID compared to 8.1 percent who received a matched placebo.

"Neither ivermectin nor fluvoxamine had a significant effect on the incidence of long COVID," the study authors reported

This finding is noteworthy given the global attention ivermectin has that ivermectin might offer a dual benefit by both treating acute CO-VID-19 and preventing long COVID, the findings from this current study suggest otherwise.

The Ever-Evolving Battle Against Long COVID

systems worldwide as we grapple but we validated that long COVID is a range of symptoms that continue for

weeks, months, or even years following the initial recovery from the virus. In the United States alone, according to recent data from the Centers for Disease Control and Prevention, approximately 15 percent of individuals who contracted COVID-19 report symptoms of long COVID, underscoring the magni-

affected at nearly twice the rate of men. long COVID, including but not limited to cognitive challenges or 'brain fog,' breathlessness, chest discomfort, sleeping disturbances, fevers, gastrointestinal complications, anxiety, and depression. A recently published study revealed that fatigue is one of the most severe symptoms experienced by patients, so much so that it diminishes

Long COVID has been observed in can affect individuals regardless of age, underlying health conditions, or the severity of their initial infection.

Notably, long COVID also poses significant social and economic impacts. Numerous patients struggle to resume work and everyday activities. The additional demand for ongoing care and support places an intense burden on health care *children*. systems, underlining the lasting repercussions of the disease.

Limitations and Implications The research concentrated on individuals older than 30 who are overweight, leaving unanswered questions about the ef-



The protective impact of metformin held across various demographic groups and multiple viral strains, including the Omicron coronavirus variant.

fects of metformin on younger or less overweight populations. The participant pool was also largely white, offering a limited representation of other racial and ethnic communities.

The research focused on first-time CO-VID-19 infections. It's unclear whether metformin would be similarly protective tude of this crisis. Females appear to be against long COVID in individuals who had previously contracted the virus. The Hundreds of symptoms characterize study didn't imply that metformin is an effective treatment for long COVID but instead emphasized its potential as a preventive measure.

Despite these constraints, the study carries significant implications. If subsequent studies can validate these results, metformin may present a safe, economical, and widely available strategy to counteract the enduring effects of their quality of life to levels likened to COVID-19. Nevertheless, the need for those diagnosed with cancer or stroke. more comprehensive research remains paramount.

> Sheramy Tsai, BSN, RN, is a seasoned nurse with a decade-long writing career. An alumna of Middlebury College and Johns Hopkins, Tsai combines her writing and nursing expertise to deliver impactful content. Living in Vermont, she balances her professional life with sustainable living and raising three



This study found that Ivermectin had little effect in treating long COVID.

What Do Healthy Veins Look Like?

Keeping veins and arteries in top shape ensures your body gets blood where it needs it

By Mat Lecompte

functions.

The human body has more than 60,000 miles worth of veins and arteries, and the not your veins at all. The coltwo kinds of blood vessels differ in purpose; veins carry blood back to the heart, and arteries carry oxygenated blood away from the heart to be distributed. This is the process by which tissues if they suddenly begin to bulge and organs receive oxygen, nutrients, and the fuel they need to maintain their

Varicose veins are veins that have become swollen and twisted.

But what do healthy veins look like? Veins are colorless, but it's not uncommon to see them on your hands, arms, or other areas where the skin is thin. They may have a slight bulge and appear slightly purple, blue, or green. Those colors, in fact, are

or is simply the blood that's flowing through them.

If they look a bit blue or purple, don't worry about it. However, or become a dark color, talk to your doctor because it may signify an underlying condition.

Spider and var-

icose veins

are not usu-

ally harmful

but there are

ways to prevent

them.

ELENA PIMUKOVA

It could also be a symptom of common conditions such as varicose or spider veins.

Varicose veins are veins that have become swollen and twisted. veins healthy? You bet. Encouraging They usually take on a purplish or blu-healthy veins is easier than you might ish color and bulge more than regular think

They happen when there is increased *Mat Lecompte is a freelance health* pressure in the vein, causing damage. The *and wellness journalist. This article* valves in the vein can stop working, limit- was first published by Bel Marra ing the movement of blood. It pools and *Health*

stretches the vein, creating visible bulges or "knots."

Varicose veins aren't usually dangerous. However, they can occasionally indicate underlying conditions or develop

uncommon complications. Spider veins are another common venous condition. They are damaged veins that appear just under the skin and look like small red or purple threads. They are much thinner and closer to the skin than varicose veins. These veins are also generally without harm.

Are there ways to keep your

HOW TO ENCOURAGE HEALTHY VEINS

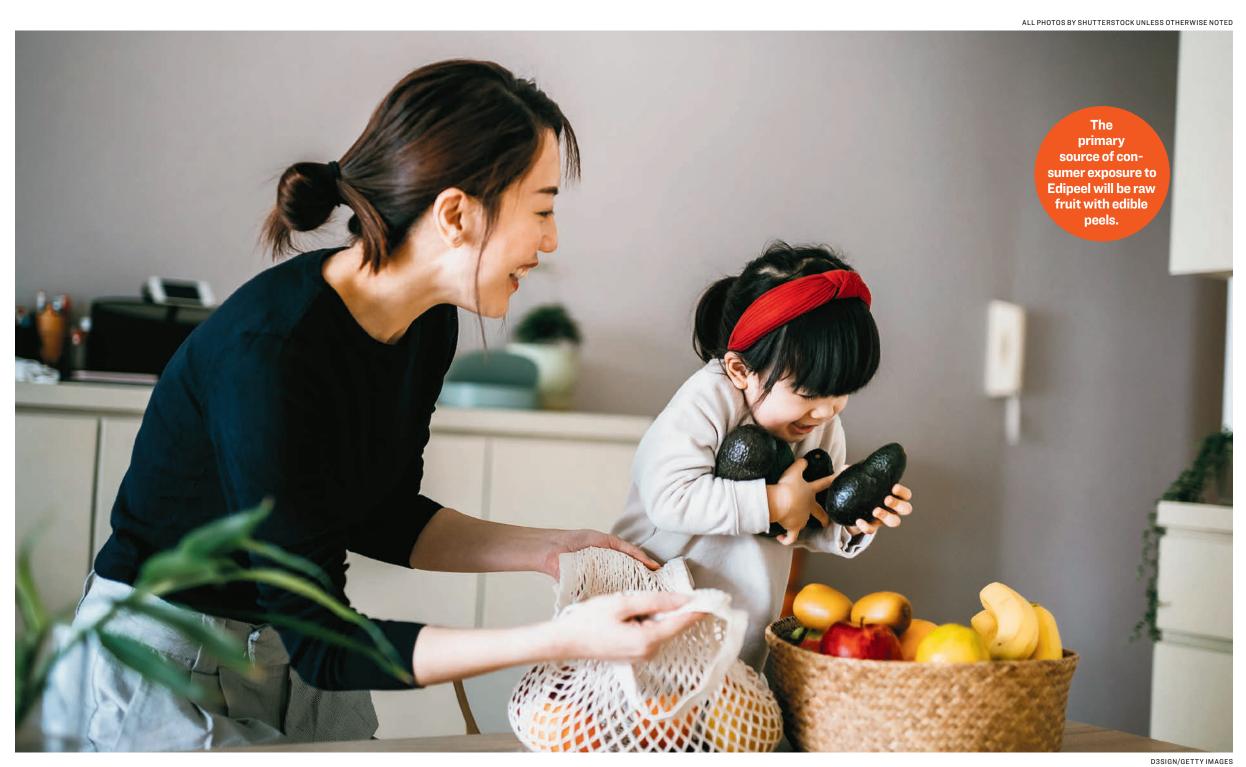
Drink plenty of water: Water helps thin blood so it flows more easily. When blood is thinner, it's easier for veins to carry it back to the heart.

Elevate your feet: Putting your feet up a few times per day for five minutes can help improve circulation, reduce swelling and relieve pressure on your legs.

Walk: Walking is one of the most efficient strategies to improve circulation and vein health.



Eat well: Fruits and vegetables, particularly those rich in vitamins C and K, can aid vein health. Try to limit your intake of salt and sugary and processed foods. ALL ICONS BY SHUTTERSTOCK



Looking Beneath the Edipeel Produce Coating

Continued from Page 13

that comes with any new food additive: Is it healthy, and is it safe?

That depends on who you ask. Regulators around the world vouch for Edipeel's safety. However, restrictions can vary. The product is allowed for use on all fruits and vegetables in Canada, Chile, China, Colombia, Japan, Kenya, Mexico, Peru, and South Africa, with no restrictions. However, in the European Union, Norway, Switzerland, and the United Kingdom, Edipeel is permitted only on produce that has peels not usually consumed: avocados, citrus, mangoes, papayas, melons, bananas, pineapples, and pomegranates.

Edipeel is generally recognized as safe (GRAS) by the U.S. Food and Drug Administration, and it has even been approved to coat certified organic produce.



What's It Made Of?

for hundreds of years. Distributors have However, the actual raw ingredients been coating produce with a variety of for Apeel's coating may vary. Accordedible waxes since the 1920s to preserve

freshness. These legacy food Limoneira owner Harold films are made primarily from plants. Carnauba wax, for a Brazilian palm.

But what exactly is Edipeel? The company website claims

that it's plant-based, vegan, non-GMO, and "composed of only food grade ingredients made from materials that exist in of plant. the peels, seed and pulp of all the fruits and vegetables we already eat."

But a definite source of this food film isn't so clear. The company provides a the company states.

lot of details about what it doesn't con-The premise of Edipeel is nothing new. tain-particularly common food aller-Protective food films have been around gens, such as soy, wheat, and peanuts.

ing to a 2016 article in The New York Times, Edipeel is made "using leaves,

Edwards said his goal is to stems, banana peels and other fresh plant cover every lemon in the materials left behind example, comes from world with Apeel's coating. after fruits and vegetables are picked or processed."

According to the Apeel website, the foundational elements the company uses can be found in virtually any type

"We put a lot of effort into selecting and adjusting our ingredients based on a balance of sustainability and economics,"

The Gut Microbiome That Helps You Live to Be 100

Japanese centenarians are providing clues as to what bacteria and viruses are linked to longevity

Continued from Page 13

These viruses primarily infect bacterial cells, and given the many bacterial types in our intestines, there are numerous bacterial viruses.

The researchers have already used a specially designed algorithm to map the intestinal bacteria and bacterial viruses The Importance of Hydrogen Sulfide in centenarians, aiming to understand the dynamics of the gut flora and identify beneficial bacteria for promoting health and longevity.

microbiome to various health outcomes, such as obesity, heart disease, and mental health issues. Although the mechanisms aren't fully understood, microorganisms in the gut likely influence the immune system and other organs viruses supported the production of to maintain healthy functioning and protect against disease.

According to a recent study, when a virus right amounts," Mr. Kash said.

infects a gut bacterium, it can enhance the bacterium's strength. The viruses found in healthy Japanese centenarians contained genes that boosted bacteria and facilitated the transformation of specific molecules in the intestines, stabilizing the gut flora and reducing inflammation.

In an email interview with The Epoch Times, Colby Kash, chief operating officer and co-founder of Camelot Bio-Capital and author of "The Autoimmune Previous research has linked the gut Plague: How to Regain Sovereignty Over Your Body and Life," noted the importance of a specific substance associated with a virus identified in the centenarian microbiome study.

> "The additional genes [found in the hydrogen sulfide, which is known to have a beneficial longevity effect in the

Viruses found in healthy Japanese centenarians contained genes that boosted bacteria, stabilizing the gut flora and reducing inflammation.

Consuming fruits and vegetables has been shown to increase Bifidobacteria levels in humans.

According to research, fasting encourages hydrogen sulfide production, which may be why it shows certain health benefits.

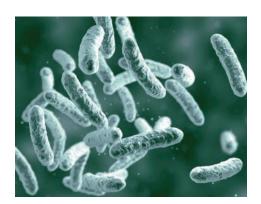
This compound supports intestinal resilience and resistance to gut pathogens.

How Microbiome Changes,

Aging Influence Each Other Does the degradation of the microbiome cause the aging process, or does the aging process cause the degradation of the microbiome?

Similar to how the microbiome differs in those who are overweight or have certain autoimmune diseases, it seems that there's a two-way relationship, Mr. Kash told The Epoch Times.

"Aging may contribute to a shift in microbiome, and microbiome shifts may contribute to aging," he said.



Produce

Edipeel is

What's the Harm?

The source material isn't what arouses concern as much as what it's turned into. Edipeel critics condemn the chemical alteration of these processed tion Bulletin reveals produce leftovers that ultimately end up on your food.

Although it may be derived from fruit contribute to gut and vegetable scraps, Edipeel is a kind and metabolic disof fat. In their GRAS application for the ease development FDA, Apeel explains that their product through alterations is manufactured through the "catalyzed to the gut microesterification of fatty acids with pro- biota, intestected glycerol" and the "catalyzed deprotection of the protected fatty esters." "These residual solvents and reactants

are monitored to ensure the product complies with the appropriate food regulations," the document states.

The final product are emulsifiers known as monoglycerides and diglycerides, which are also a type of trans fat.

Trans fats are typically made from an oil (often sov or canola) that is liquid at room temperature but altered to be turned into a solid fat at that temperature. The purpose of the process is to slow rancidity and extend shelf life. Thanks to these attributes, trans fats were a major ingredient of processed food for decades. But when a substan-

imbalanced microbiome can contribute challenging. to overall health issues.

For example, individuals with post- Science-Backed Ways to Improve traumatic stress disorder experience the Gut Microbiome and hormones because of psychological microbial environment.

"While in the opposite direction, an overgrowth of a pathogenic bacteria can inhibit vagal nerve stimulation to the brain, resulting in anxiety or insomnia," he said.

How Modern Medicine May Be Hurting the Gut

Several factors stand out as potential causes for microbiome changes as people age, including a sedentary lifestyle, decreased production of hormones such as testosterone and growth hormone, and antibiotics use. A recent study revealed that although antibiotic use has revolutionized medical care, these drugs can significantly affect microbiome health, adversely affecting overall well-being. Antibiotics disrupt microbial balance, compromising both the net-

working within the bacterial community and the host-microbiota

tial body of evidence revealed that these chemically altered fats raised the risk of heart disease, food manufacturers slowly abandoned them. By 2016, the FDA determined that trans fats were "unsafe to eat."

However, the FDA's distinction applied only to triglycerides, not monoglycerides or diglycerides, which are found in Edipeel. In a short video discussing Edipeel,

Jane Ruby, former pharmaceutical researcher and host of the "Dr. Jane Ruby Show," says that these fats may increase the risk of heart disease for some people.

"It's serious because it's full of monoand diglycerides, which are going to saturate your blood and, over time, make you sick," Ms. Ruby said.

But if these compounds really are so dangerous, their health concerns extend far beyond Edipeel. Lots of processed foods contain these emulsifiers, either to extend shelf life, prevent separation, or improve texture. You can find them in baked goods, ice cream, beverages, chewing gum, whipped toppings, and more.

In fact, in a 2017 article from the Journal of Experimental Food Chemistry, about 70 percent of the emulsifiers used in the food industry are monoglycerides or diglycerides.

But there is no consensus on how safe plication, Apeel states that it is "well levels up to 218 mg per day. established and recognized" that monoglycerides (or monoacylglycerides) are "naturally formed in the gastrointestinal tract in the breakdown of triglycerides."

"Given the metabolic sequel described above, and by applying scientific procedures, it can be concluded that a mixture of monoacylglycerides would not pose any health hazards different from commonly consumed dietary oils application states.

However, other research published online in the December 2019 edition of the Wiley Nutri-**Edipeel may preserve** concerns that these freshness but its

"emulsifiers may

effects on nutrients

is still uncertain.

Mr. Kash also said the disease state relationship. This disruption leads to compete harmful ones. and signaling in the rest of the body can the emergence of antibiotic-resistant influence the microbiome and that an bacteria, making clinical treatment

the chronic release of neurotransmitters Mr. Kash highlighted the significance of a diverse and robust microbiome, trauma, which can potentially alter the explaining that it fosters stability and enables beneficial microbes to out- can also be achieved via fasting."

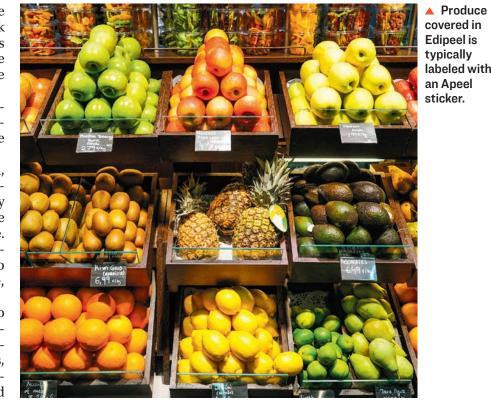
According to Mr. Kash, the study published in Nature Microbiology

identified a health-boosting effect that can be promoted by modifying eating patterns. "The paper mentioned the virome

led to an increase in lytic activity," he said. "This is when the body recycles old damaged cells and organelles. This



a healthy lifestyle and eating to nurture a diverse and robust microbiome



translocation and associated inflammatory response."

But how much of this stuff will we because if the coating were easily reultimately wind up eating? The GRAS moved, it wouldn't do its job well. application considers the consumption of a mixture of monoglycerides as An Illusion of Freshness these emulsifiers are. In its GRAS ap- an added food ingredient to be safe at Edipeel-coated produce is designed to

> How much Edipeel people will actually end up eating a day is another question altogether.

However much you end up eating ultimately depends on what kind of Edipeel-coated produce you consume. For oranges, avocados, and other fruits or vegetables that you peel before eating, the Edipeel coat is discarded. Apeel Sciences states that their product is "not expected to migrate through derived from plants or animals," the the fruit skin into the edible portions tables is to consume in-season produce of these foods."

> remove a bit of their the article reads. coating with

tinal mucus layer, increased bacterial water and scrubbing, but it's unlikely that you'd be able to remove all of it without damaging the produce. That's

hold up better in the supermarket than plain produce, but does it really maintain its freshness?

In an article discussing Apeel's product, the Weston A. Price Foundation, a group that regularly warns against innovations that stray from the ways our ancestors ate, states that Edipeel produce creates only the illusion of freshness.

"Informed consumers have long understood that the best way of getting high-nutrient-density fruits and vegethat is locally grown and organic or bio-The primary source of consumer ex- dynamic. This allows them to inspect posure to Edipeel their produce visually and use appearwill be raw fruit ance as a proxy indicator for gauging with edible peels. freshness and nutrient density. Because And unless you like Apeel's barrier coating halts the visual to peel all of your decay of fruits and vegetables (an otherproduce before you wise natural post-harvest occurrence), eat it, you're likely to it will prevent consumers from knowing eat some Edipeel in how long ago the produce was harvested the process. Apeel's and, therefore, will make it difficult to website says you may make inferences about nutrient density,"

> A case in point was recently posted to Twitter. A consumer who accidentally purchased an Edipeel-coated cucumber decided to do an at-home experiment to see how the vegetable would age over time. Over the course of six weeks, the cucumber lost most of its color but remained firm.

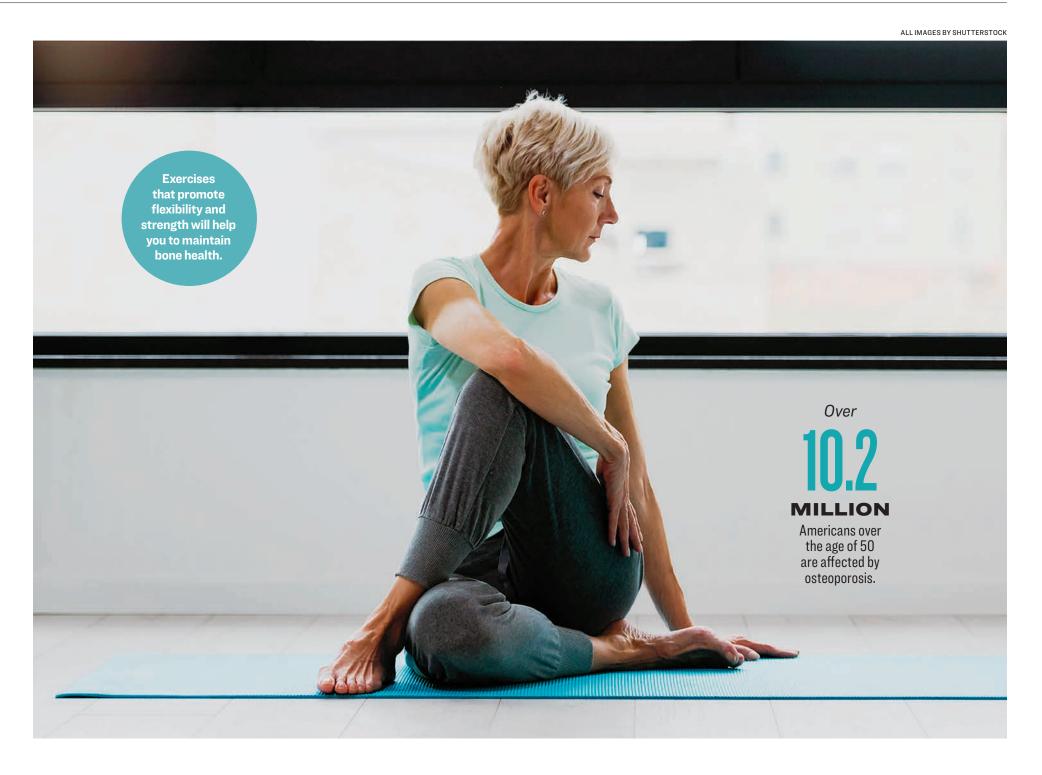
As with any new food innovation, some will embrace it, and some will avoid it. Even if you opt for organics, Apeel has an Edipeel formulation approved for **USDA** Certified Organic Produce. Since Edipeel is invisible, those who wish to avoid the coating will have to be observant shoppers.

"We work with our partner to ensure Apeel produce is labeled so you can make informed decisions," the company website states.

GUT HEALTH

Other ways to improve the gut microbiome include:

- Eating a diverse diet: Recent research suggests that a diverse diet leads to a more diverse and adaptable microbiome. It's advised to consume a range of plant- and animal-based foods
- Focusing on plant-based foods: Beneficial bacteria such as Bifidobacteria can reduce intestinal inflammation and promote gut health. Consuming fruits and vegetables has been shown to increase Bifidobacteria levels in humans.
- Eating fermented foods: A 10-week diet rich in fermented foods, such as yogurt, kefir, fermented cottage cheese, and kimchi, has been found to enhance microbiome diversity and improve immune responses, according to Stanford University researchers.



FUNCTIONAL MEDICINE

A Functional Approach to Osteoporosis and Bone Health

The body will find

a way to access

calcium if it's

under stress, and

if it can't find

it elsewhere, it

will pull calcium

from the bones.

Eating nutrient

dense, whole foods

and eliminating ultra

processed foods from

your diet will reduce

inflammation.

By Ashley Turner

these are within your control. spurs them to grow stronger. Rather than focus on one isolated deficiency or issue, it's **Chronic Stress** wise to consider your broader lifestyle Stress is to blame for so many physi- toxins every day, whether from lead, them out of trouble as quickly as posfor risk factors and take steps to prevent cal challenges, and osteoporosis is no aluminum, and other heavy metals or sible. Sometimes medication is necesthe osteoporosis.

is a primary driver of osteoporosis. If produced, so the body is not able to ucts such as body wash, shampoo, there is chronic, systemic inflamma- properly digest and use the necessary and shaving cream. Other sources of tion throughout the body, bone remodeling is inhibited, contributing to the quire. development of osteoporosis. Ongoing inflammation can arise from several factors, ranging from diet to stress to environmental toxins.

Osteoporosis often presents in com- cium to fight against the bination with another inflammatory inflammation. The body condition, such as diabetes and rheu- will find a way to acmatoid arthritis. Essentially, chronic cess calcium if it's under inflammation can lead to a chain reac-stress, and if it can't find tion of conditions.

Osteoporosis leaves the bones weak calcium from the bones. and prone to fractures with low bone mineral density. This disease can de- ic stress is elevated levels velop with few obvious symptoms of the stress hormone and now affects more than 10.2 mil- cortisol. This causes the lion adults in the United States over body to deposit calcium the age of 50.

Risk Factors for Osteoporosis Age

Women over the age of 50 account for Leaky Gut found with hip injuries.

Standard American Diet

Consuming a diet high in simple carbohydrates, refined sugars, and processed foods will cause oxidative Sensitivity, stress, triggering an immune system or Celiac response. This leads to elevated levels **Disease** of cortisol, causing bones to lose higher Whether someamounts of calcium.

Sedentary Lifestyle

As a person ages, they will naturally celiac disease (an autoexperience sarcopenia, a loss of muscle immune disease), conmass. This loss of muscle mass is often suming foods the body to blame for falls and bone-related in- has a reaction to is going juries that occur with age. Living an to trigger inflammation. active lifestyle is imperative to fighting The body sees these foods

this natural biological response. Being sedentary leads to increased bone deneveral factors can contribute sity reduction and general weakness. to osteoporosis, and many of Physical activity stresses the bones and Another leading cause of systemic

For example, systemic inflammation tion in the amount of stomach acid found in conventional hygiene prodnutrients and minerals that bones re-

> In addition, stress causes immune suppression. This can inhibit the body's ability to use calit elsewhere, it will pull Another effect of chron-

into urine rather than into the bones,

where it should go.

the vast majority of osteoporosis diag- Leaky gut is often a significant connoses because of the hormonal chang- tributing factor to chronic inflammaes women experience throughout the tion. As mentioned earlier, systemic stages of menopause. However, men inflammation can lead to malabsorpand younger women can also experi- tion, causing bone resorption as the ence low bone density, most commonly body seeks to find the vital minerals it needs to thrive.

Food Sensitivities, Gluten

one is dealing with a food sensitivity, gluten sensitivity, or as a threat and tries to fight them off. **Environmental Toxin Exposure**

inflammation is carrying a high toxins are plastics, alcohol, tobacco, mold, and a variety of pesticides.

How to Diagnose Osteoporosis

The most common method of assessing bone mineral density is through dual-energy X-ray absorptiometry (DEXA). This method uses low amounts of radiation to measure the solidity of bones such as the hip, wrist, and spine. This test is generally recommended for women over the age of 65, though

the DEXA scan is often performed on women or men who have risk factors for osteoporosis.

The DEXA scan assesses the bones and scores them based on a comparison with the healthy bones of a 30-year-old person. These results are given in a t-score, with anything greater than -1 considered to be "normal." An individual showing early signs

> of bone loss will usually have a t-score between -1 and -2.5, and scores lower than -2.5 are more likely to be diagnosed as osteoporosis. However, there

are some exceptions. Many women naturally have lower bone density and can naturally have a -3.5 t-score; for some women, this is absolutely normal and should not be an automatic point for

concern or automatic diagnosis and treatment. If an individual receives a score of

-4.0 or worse, they are considered to be under a significant risk of bone toxic load. Most individuals across fracture. If a score like this is given, a the globe come into a wide variety of provider's main focus should be getting exception. Stress can cause a reduc- from endocrine-disrupting chemicals sary while emphasizing nutrition and lifestyle.

Looking Deeper to Understand the Root Cause of Osteoporosis

Considering other inflammatory markers can be extremely helpful in identifving the root cause of osteoporosis.

C-Reactive Protein (CRP): Inflammation can be examined by testing for levels of CRP, which is produced by the liver. If the body is experiencing inflammation, the test results will show elevated CRP levels.

Ferritin: Testing ferritin levels in the blood shows how much iron the body is capable of storing. If ferritin levels are elevated, it can indicate a form of chronic inflammation.

Hormones: This is a common testing strategy for women going through one of the stages of menopause. As hormone levels (particularly progesterone and estrogen) fluctuate during these years, a woman's bones can be directly affected as their bone absorption and mass is often directly affected by the changing hormone levels.

Gut Microbes: A comprehensive stool test can be helpful to identify any type of inflammation or gut dysbiosis.

Total Toxin Burden: This comprehensive test will produce a wealth of information about a variety of factors directly affecting bone health such as heavy metals, environmental toxins, and mycotoxins. This can be particularly helpful in making an informed game plan to begin healing the body.

Dr. Ashley Turner is a traditionallytrained naturopath and boardcertified doctor of holistic health for Restorative Wellness Center. An *expert in functional medicine, Dr. Turner is the author of the gut-healing* guides "Restorative Kitchen" and "Restorative Traditions," a cookbook comprised of non-inflammatory holiday recipes.

The Functional Approach to Prevent Osteoporosis

Vitamin D: Vitamin D helps the body absorb calcium from food. It's important to get adeguate amounts of vitamin D from the sunshine each day and from vitamin D-rich foods such as wild-caught salmon, grassfed beef liver, sardines, and cod liver oil.

Magnesium: Magnesium is necessary if supplementing with vitamin D, as it converts vitamin D into an active form that the

body can put to use. Vitamin K2: Vitamin K2 activates osteo-

calcin so that calcium can bind to bones and stay out of the blood vessels.

Alpha-Lipoic Acid: Alpha-lipoic acid can be effective in lowering oxidative stress

and systemic inflammation. Berberine: Supple-

menting with berberine has been shown to be effective in lowering inflammation levels, helping to prevent bone loss.

Nutrient-Dense

Food: Avoid processed foods, sugars, and simple carbohydrates that will not nourish the body sufficiently. Additionally, avoid any individual food sensitivities in an effort to lower inflammation

Health Promoting Fats: Grass-fed butter, ghee, and tallow

levels. Eat whole foods.

are good sources of vitamins A, D, and K2.

Omega-3 Fatty Acids: These are essential, and the body can't

produce them, so they must be consumed in the diet. Foods rich in omega-3 fatty acids include salmon, mackerel, herring, oysters, cod liver oil, and sardines. Nuts and seeds, including walnuts, flaxseed, and chia

seeds, are also good sources of omega-3 fatty acids. Protein: Consuming a

diet with high levels of protein is necessary for preserving bone mineral density.

Exercise: Keep the body moving every day. Resistance exercise is

shown to be particularly helpful for bone health. These exercises include jumping rope, hiking, high-intensity interval training, and strength training. Exercises that promote flexibility, such as yoga and Pilates, are also particularly helpful. Remaining active and strong will help to preserve bone health, muscle mass, stability, and balance, helping to lower the risk of falls and other common osteoporosis-related accidents and injuries.

Stress Manage-

ment: There are many ways to lower stress levels, such as daily walks, breathing exercises, dancing, gardening, and journaling. Whatever the stress management method, it's important to make it a daily routine to move the body out of a sustained state of fight or flight.

Reduce Toxic Load: While this can seem overwhelming, small,

consistent changes have a significant effect on the body's overall toxic burden. Avoiding processed foods, harsh cleaners, cigarettes, and other common chemicals will help. Remove personal hygiene products, candles, and laundry and dish detergents that include synthetic fragrances. Eat high-quality whole foods made and grown without preservatives or pesticides.

While osteoporosis is a disease that affects many adults as they age, there are lifestyle choices that can help prevent this and other common age-related ailments. It's imperative to make a healthy lifestyle a priority. Consuming a nutrient-dense diet, living an active lifestyle, and keeping stress levels low whenever possible will all aid in preventing the onset of osteoporosis.

More Than Fat: Obesity Linked to Mental Disorders

Comprehensive study shows heightened risk of developing serious mental disorders for obese individuals

By Heather Frank

Obesity can significantly increase the risk of psychiatric disorder, according to a new study of the potential causal relationship between obesity and mental health.

The association between obesity and mental health is well established, including a 2006 epidemiologic survey of U.S. adults nationwide that found an association between obesity and a lifetime diagnosis of major depression, bipolar disorder, panic disorder, and agoraphobia.

The recent study, however, was the first to uncover whether obesity increased the risk of mental disorder or vice versa. Using 17 years of patient data, researchers found obese patients were far more likely than non-obese patients to develop mental disorders as serious as schizophrenia and that obesity usually predated psychiatric disorder.

The study provides another reason to manage weight gain and offer another therapeutic direction for those suffering from mental illness, joining earlier findings that exercise has multiple benefits for mental health and that certain foods can affect mood and mental well-being.

The Study

The new study used Austria's national data registry to analyze about 45 million hospital stays of 9 million patients with and without obesity between 1997 and 2014.

Published in Translational Psychiatry in May, it was conducted by researchers at the Complexity Science Hub Vienna and the Medical University of Vienna.

"Here, for the first time in a representative counter set, which means we show it for the whole Austrian population for a longer period of time, [we] can see that for the majority of people they

first get the obesity diagnosis," study author Alexander Kautzky told The Epoch Times. Mr. Kautzky, a researcher within the Medical

University of Vienna's Department of Psychiatry and Psychotherapy, said he thinks the study's biggest takeaway is that individuals diagnosed with obesity could benefit from early psychiatric screening and treatment for psychiatric Mr. Kautzky also discussed social and ecocomorbidities.

"The concept of which comes first, mental health or obesity, has been an ongoing challenge," Dr. Valerie Taylor, head of the department of psychiatry at the University of Calgary, told The Epoch Times in an email. "This study both helps highlight the strong obesity mental illness link and highlights some benchmarks for timelines."

Stratifying Austria's registry data into seven decade-long age groups

(10–19, 20–29, and so on), the researchers first compared incidence of mental health disorders in obese patients with that in non-obese patients. They then further divided the data set to evaluate sex differences.

The following eight psychiatric conditions were included in the analysis: nicotine use disorder, schizophrenia, schizoaffective disorder, depressive episode, recurrent depression, anxiety disorder, somatization disorder, and personality disorder. Patients with diagnoses of dia-

betes, hypertension, or coronary artery disease were excluded from the data set.

All psychiatric disorders examined, with the exception of schizoaffective disorder and schizophrenia, more commonly developed in patients after they received an obesity diagnosis. This relationship challenges the commonly held assumption that weight gain caused by psychopharmacological medications is responsible for the association between obesity and mental disorders.

Women are generally twice as likely to suffer from depression or anxiety as men are, and the study found that an obesity diagnosis worsened these trends. Depression rates were three times higher in obese women (13.3 percent versus 4.8 percent in female patients without obesity) compared with doubled rates in obese men (6.6 percent versus 3.2 in male patients without obesity).

Younger obese men (ages 20–39) had a higher risk of developing schizophrenia or schizoaffective disorder than their female counterparts, *ing in her spare time*.

but this trend reversed for older obese patients (ages 40–79).

Obese men were more likely to develop a nicotine use disorder than obese women, with the highest occurrence rate of almost 17 percent found in patients ages 40-49. In comparison, the highest occurrence rate observed in women was about 8.5 percent.

Dr. Taylor emphasized that while the obesity diagnosis is often made first, it can't be assumed that it precedes mental illness. She said that a cohort study in which retrospective analysis evaluates whether there was a mental illness before an obesity diagnosis could provide clarity.

The Dangers of Obesity

to Mental Health More than 1 billion people

worldwide are obese. While 1 in 4 people is estimated to have a psychiatric disorder, an obesity diagnosis increases those odds significantly. According to a 2013



More than

are obese. study, 2 in 5 obese people have at least one psychiatric disorder, though not all are affected

equally Women with a high BMI are more likely than men with a high BMI to suffer from major depression, suicide attempts, or suicide ideation,

according to a 2011 study. Obese women are also more likely to have mood and eating disorders than obese men.

A Possible Explanation

The study wasn't looking to explain why obesity contributed to mental illness, but Mr. Kautzky said that previous research suggests that inflammation of adipose tissue contributes to the relationship.

Adipose tissue, or body fat, triggers low-grade chronic inflammation, essentially a misfired immune response. This mechanism has also been linked to other serious illnesses.

One meta-study looked at the pro-inflammatory marker called tumor necrosis factor (TNF)-a

cytokine, or immune system signal cell, that is linked to insulin resistance. The study found that TNF, which is linked to obesity-induced Type 2 diabetes, is found at elevated levels in patients with major depression. But Mr. Kautzky cautioned that inflammation isn't a perfect explanation, since it only appears in some obese patients.

nomic factors that contribute to the complex relationship between obesity and mental health He said obese people are often stigmatized, which can lead to depression or other psychiatric disorders. An example is not being selected for a job on the basis of one's weight, an adverse experience that could feed into, for example, developing depression. He also cited low economic status, which lowers a person's capacity to

> live a healthy lifestyle, as a risk factor for developing both obesity and a mental health disorder.

Obesity Treatments for Both Mindand Body

The authors concluded their study with recommendations to screen patients for mental disorders at the time of an obesity diagnosis. "Routine screenings for depressive episodes, anxiety and somatization, psychosisspectrum such as schizophrenia and schizoaffective as well as personality disorders are called for whenever establishing a diagnosis of obesity," they wrote.

Mr. Kautzky predicted that early psychiatric screening will lower health care costs. "Most of these

patients end up as psychiatric patients anyway,' he said. "If we would be able to identify the risk earlier and prevent it from happening, most likely it would be a positive economic equation." Kautsky suggested that while doctors should generally refer obese patients to a psychiatric specialist, milder cases may be mitigated via self-help and other low-threshold interventions. These include community-based programs with minimal requirements for participation.

The findings also give further incentive to fund health care programs that support lifestyle changes that can arrest obesity and mental illness by promoting healthy physical activity and lower-calorie, nutrient-dense diets.

Heather Frank is a science and health reporter, as well as a trained food scientist. She has helped companies develop all-natural products and infrequently blogs about healthy eat-

Obese people are often stigmatized, which can lead to depression or other psychiatric disorders.

Obesity affects both

physical and mental well-

being, thus treatment

directed toward both is

most effective.

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MIND & BODY | 19

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Loneliness and Insomnia Linked to Work With AI Systems

Loneliness contributes to cardiovascular disease, dementia, depression, infection, anxiety, and more

By Jane Nguyen

People frequently working with artificial intelligence (AI) can be lonely, which can lead to insomnia and increased after-work drinking, a new study found.

The research was published online June 12 in the Journal of Applied Psychology.

Researchers noted that these findings establish correlations and don't prove that working with AI systems causes loneliness or other responses. The study, conducted across different cultures in the United States, Taiwan, Indonesia, and Malaysia, consisted of four experiments. The findings were consistent across cultures.

According to the report, the effect on mortality of being socially disconnected is similar to that of smoking up to 15 cigarettes per day and is even greater than those of obesity and physical inactivity.

"The rapid advancement in AI systems is sparking a new industrial revolution that is reshaping the workplace with many benefits but also some uncharted dangers, including potentially damaging mental and physical impacts for employees," said lead researcher Pok Man Tang, an assistant professor of management at the University of Georgia.

"Humans are social animals, and isolating work with AI systems may have damaging spillover effects into employees' personal lives."

However, working with AI systems

may have some positive aspects. The researchers found that employees who frequently used AI systems were more likely to offer help to their colleagues, but this response may be triggered by their loneliness and the need for social interaction.

The researchers also found that participants with high levels of attachment anxiety, which is the tendency to feel insecure and worried about social connections, reported that working with AI systems made them more likely to help others. They also suffered from loneliness and insomnia.

In one experiment, 166 engineers at a Taiwanese biomedical company working with AI systems were asked about their feelings of loneliness, attachment anxiety, and sense of belonging over three weeks. Coworkers rated each individual on their helpful behaviors, while family members of the focus subject reported on the workers' insomnia and after-work alcohol consumption. The results showed that employees who interacted more frequently with AI systems were more likely to experience loneliness, insomnia, and increased after-work alcohol consumption. However, they also showed helping behaviors toward their coworkers.

In another experiment with 126 real estate consultants in an Indonesian property management company, half were told not to use AI systems for three consecutive days, while the others were encouraged to work with AI systems as much as possible. The findings for people who worked with AI were similar to the findings of the previous experiment, except there was no association between the frequency of AI use and after-work alcohol consumption.

There were similar findings from an online experiment with 214 full-time workers in the United States and another 294 employees at a Malaysian tech company.

Mr. Tang suggested that developers of AI technology consider equipping AI systems with social features, such as a human voice, to emulate human-like



interactions. Employers can also limit the frequency of work with AI systems and offer opportunities for employees to socialize.

"Mindfulness programs and other positive interventions also might help relieve loneliness," Mr. Tang said. "AI will keep expanding, so we need to act now to lessen the potentially damaging effects for people who work with these systems."

According to a recent report from the U.S. surgeon general titled "Our Epidemic of Loneliness and Isolation," lone-liness is more than just a bad feeling; it harms individual and societal health. It's associated with a greater risk of cardiovascular disease, dementia, stroke, depression, infection, anxiety, and premature death.

According to the report, the effect on mortality of being socially disconnected is similar to that of smoking up to 15 cigarettes per day and is even greater than those of obesity and physical inactivity. Large population studies have documented that among initially healthy people tracked over time, those who are more socially connected live longer, and those who experience social deficits, including isolation, loneliness, and poorquality relationships, are more likely to die earlier, regardless of the cause of death, according to the report.

"Each of us can start now, in our own lives, by strengthening our connections and relationships," Surgeon General Dr. Vivek Murthy wrote. "Our individual relationships are an untapped resource a source of healing hiding in plain sight. They can help us live healthier, more productive, and more fulfilled lives. Answer that phone call from a friend. Make time to share a meal. Listen without the distraction of your phone. Perform an act of service. Express yourself authentically. The keys to human connection are simple but extraordinarily powerful."

Beth Brelje contributed to this report.

The family members of people working with AI systems reported their loved one suffered increased insomnia and drank more alcohol after

work



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