

WHAT DOCTORS DON'T TELL YOU

Helping you make better health choices

ISSUE 29 | APR/MAY 2024 | AUSTRALIA/NZ
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ISSN 2652-161X



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W

e are a civilization of terrible teeth. I say this with some personal knowledge, because with the exception of the four front teeth on the top and bottom, every tooth in my head has cavities and every last one deep fillings (albeit white rather than mercury ones).

The state of my teeth has everything to do with the diet I was brought up with. My parents, part of the “better living through chemistry” generation in America and buoyed by the postwar optimism of the time, placed their faith in the extraordinary progress that processed food represented: freedom from the hours that my Italian grandmother had spent in front of a hot stove.

In the main, besides meat, if it didn't come in a box, my family didn't eat it—except for Sunday night, when we ate TV dinners (in aluminum foil containers). Sugar-laden cereals, frozen vegetables, even mashed potatoes came in a box. Just add water, and those precooked white flakes magically turned into some approximation of the real thing.

This regime, abetted by such delights as Coca-Cola, white bread (bologna sandwiches!) and chewing gum, helped to produce all the decay in my mouth. In fact, it's probably my one abiding regret: that I didn't know then what I know now about caring for my teeth.

But decay is not the only issue with the standard Aussie, American and British diets.

The soft diet of ultra-processing—even cooking itself—has also produced generations of maloccluded teeth, according to a father and son team of orthodontists, Dr John Mew and his son Dr Mike Mew.

These two dentists began their renegade journey by asking a simple question: why do people have such terribly misaligned



Editors

Lynne McTaggart and Bryan Hubbard

COMMENT

CHEWING THE FAT— AND MORE

and crowded teeth? At last count, half of American children will get braces and at least half of all Americans will require a wisdom tooth pulled by age 25 (I've lost two of mine), three-quarters of them by age 60.

Many of those children who get braces also get a tooth pulled in the process, as do many people whose teeth don't fit in their mouths.

This all changed in humans two centuries ago, when skulls began showing evidence of jaws that seemed too small for their teeth. So what happened to create this revolution of crooked teeth?

The simple answer is cooked food, claims the elder Dr Mew in his textbook *The Cause and Cure of Malocclusion*. Our Stone Age ancestors would have eaten



“Only a third of Americans and probably the same number of Europeans have well-aligned teeth”

Most dentists say this has simply to do with a bad genetic roll of the dice—teeth that simply grow too big for your mouth.

The fact remains that only a third of Americans and probably the same number of Europeans have well-aligned teeth.

But this wasn't always the way. Skulls from early human civilizations, such as the Paleolithic periods, invariably have perfectly aligned teeth, as do the approximately 5,000 species of animals.

uncooked food, which would have required hard grinding and chewing of raw food from a young age. This in turn would have created strong jaw muscles and larger oral cavities.

But with the advent of cooking, food got softer, chewing was reduced, babies were given pureed food and formula milk replaced much breastfeeding. Even bottle-feeding reduced the sucking a baby ordinarily has to perform to extract milk from their mother. Small wonder that jaws became

poorly developed in children.

And this isn't just speculation by the Mews. Increasing scientific studies, even with monkeys and rats, show that soft food produces a shrunken and misaligned jaw too small to house the teeth.

On the other hand, introducing hard food earlier and maintaining a diet with a good amount of raw food can improve the size and alignment of the jaw.

Blocked noses from allergies, causing mouth-breathing, also lead to jaw misalignment. All this, in turn, leads to TMJ pain and poorly developed faces, so that many of us just aren't as handsome as we were meant to be.

What's the solution? According to the Mews, and to hundreds of orthodontists who follow their practices, it's orthotropics.

Instead of forcing the teeth into place, orthotropics attempts to change the mouth posture, muscle function and balance of the lips and tongue. This in turn improves facial development and jaw alignment so the teeth naturally fall into place.

The Mews have developed some simple mouth exercises and appliances that encourage alignment and proper facial structure.

But, of course, another aspect of good dental health is the food we put into our mouths, which doesn't just create beautifully aligned teeth but also leads to a healthy life.

That Italian grandmother of mine lived to age 96 and simply went to sleep one night and never woke up. My mother, on her diet of processed food, died from cancer nearly 20 years younger than her own mother.

It's too late for my teeth, although thankfully I never needed braces—nor did our children. But there is something else that will help keep our mouths aligned even in later life: consuming raw food.

And this puts that old wives' exhortation into some sort of context. As my grandmother would likely have told us, just chew your food. **Lynne McTaggart**

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US presidential hopeful Robert F. Kennedy Jr and scientist Brian Hooker summarize the science showing the major side effects of the Covid vaccine

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The last word

The surge of measles cases is due to the natural cycle of all infectious diseases, says Bryan Hubbard. So stop blaming anti-vaxxers



Just 3 percent of doctors ranked patient self-assessments in their top three sources of evidence. Most instead ranked their own assessments as more important

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WHAT DOCTORS DON'T TELL YOU

Published under exclusive license in Australia and New Zealand by:



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ISSN 1352-1241

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EDITORIAL PANEL

What Doctors Don't Tell You is supported by some of the world's leading pioneers in nutritional, environmental and alternative medicine. Each is an authority in his or her field; many have broken new ground and inspired new practices in medicine.



Dr Damien Downing, a specialist in allergy, environment and nutrition, is current president of the British Society for Ecological Medicine, on the editorial board of *Orthomolecular Medicine News Service*, Chief Medical Advisor of cancer charity Yes to Life (www.yestolife.org.uk), and author of numerous books including *The Vitamin Cure for Allergies*.



Dr Michel Odent, a French-trained surgeon and obstetrician, is a pioneer of the natural birth movement, emphasizing home and water birth. Founder of the Primal Health Research Centre in the UK, he has written some 50 scientific papers and 11 books.



Dr Sarah Myhill has worked in the UK National Health Service and in private practice since 1981. Honorary Secretary of the British Society for Ecological Medicine for 17 years, she is a frequent lecturer and author of *Sustainable Medicine* and *Diagnosis and Treatment of Chronic Fatigue Syndrome and Myalgic Encephalitis*.



Craig Sams is the co-founder of Whole Earth Foods and founder and president of Green & Blacks Organic Chocolate, as well as director of Soil Association Certification, executive chairman of Carbon Gold Ltd., a carbon sequestration business, and a trustee of the Slow Food Trust UK. He has authored four books, including *The Little Food Book*.



Dr Harald Gaier is a UK-registered osteopath, homeopath, acupuncturist, naturopath and medical herbalist. Former director of medical research at The Hale Clinic and a committee member of the Prince of Wales' Foundation for Integrated Health, Dr Gaier has authored numerous scientific papers and *The Encyclopedia of Homeopathy*.



Dr Jonathan Wright, medical director of the Tahoma Clinic in Washington, pioneered nutritional medicine in the US. A board member of the American Preventive Medical Association and the International College of Advanced Longevity Medicine, he has published 11 books.



Janet Balaskas, who named and inspired the Active Birth Movement in the 1970s, helped revolutionize maternity practices worldwide.

Janet is the founder and director of the Active Birth Centre in North London and author of nine books including *Active Birth*, *Preparing for Birth with Yoga* and *Easy Exercises for Pregnancy*.



Sally Bunday is founder of the The Hyperactive Children's Support Group, the first organization to draw attention to the role of diet and nutrition, particularly food additives and essential fatty acid deficiencies, in childhood behavior problems. The charity has helped thousands of families in its more than 30-year history.

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Give your kids sprouts for a healthy gut

Give your kids plenty of broccoli sprouts—they'll thank you later, or at least their guts will. Eating sprouts and other cruciferous vegetables may reduce the risk of IBD (inflammatory bowel disease), colitis and Crohn's disease.

Broccoli sprouts contain sulforaphane, an anti-inflammatory metabolite that protects against the worst symptoms of gut disorders, such as weight loss and diarrhea. While broccoli is the best source among the cruciferous veggies, sprouts have up to 25 times the amount in mature broccoli.

The younger you start eating sulforaphane-containing veggies, the greater the protective effect, say researchers from the University of Maine. But it could be an effective addition for IBD sufferers of any age, they say.

Their findings have been restricted to mice studies, so similar results may not be replicated in people.

mSystems, 2023; doi:10.1128/mSystems.01189-23



How breastfeeding makes your baby smart

Breastfeeding helps a baby develop a healthy gut—and that improves brain development, too. A breastfed baby could even score higher on tests by the time they reach childhood, according to researchers from the University of Colorado at Boulder.

Mothers who can't breastfeed all the time can still help their baby if they occasionally breastfeed while formula feeding. "Your baby can still get significant benefits if you breastfeed as much as you

can," said Tanya Alderete, one of the researchers. But some formulas contain contaminants that interfere with healthy neurodevelopment, the researchers say.

They assessed the benefits of breastfeeding over formula feeding by checking the babies' poo for metabolites—small molecules found in the gut that are a byproduct of bacteria metabolizing food.

By testing fecal samples from 112 infants at one month old and again at six months old, they

were able to assess the amount of breastmilk the babies were consuming from the types of metabolites that were present.

In tests carried out two years later, the children who had more metabolites from breastmilk in their stool samples fared better on cognitive tests than those who had been mainly formula fed.

Cholesterol is one of the most significant metabolites for cognitive development, and the researchers discovered that the babies who were breastfed had more cholesterol. The fatty acid is vital for forming healthy circuits between brain cells—and up to 90 percent of the brain's volume grows in the first two years of life.

By comparison, infants who were formula-fed had higher levels of the cadaverine metabolite, a contaminant resulting from fermentation.

Npj Metabolic Health and Disease, 2023; doi:10.1038/s44324-023-00001-2

Aspirin can make it harder to get pregnant

Women who want to get pregnant should check the levels of phthalates they're exposed to—and that includes from the drugs they're taking.

Phthalates are chemicals found in household products, such as shampoo, makeup, vinyl flooring and toys, and in drugs such as aspirin. As endocrine disruptors, they interfere with our hormones—and make conception more difficult.

Researchers from the University of Massachusetts Amherst analyzed the impact of phthalates from low-dose aspirin on a group of 1,228 women who were trying to get pregnant. They found that the chemicals in the drugs were



interfering with menstrual cycles.

The women had an average of 20 phthalate metabolites in their urine before they started the trial, and the time it took to get pregnant increased as the number of phthalates they had grew during the time of the trial.

Metabolites are made when the body processes the chemicals.

"As exposure got higher, we saw more and more of an effect," said Carrie Nobles, one of the researchers. The phthalates were also causing inflammation, which can cause organ and tissue damage in the long term.

Although some phthalates have been banned in Europe, the US still allows manufacturers to use the chemicals without restriction. It's time for the US to review the practice, says Nobles.

"Maybe we want to think differently about our regulatory system and how we identify important exposures that are having an adverse effect on whether people can get pregnant and have a healthy pregnancy."

Environ Health Perspect, 2023;131(12):127013

High-dose prenatal vitamin D reduces child's asthma risk

Women should be taking high-dose vitamin D supplements when they're pregnant to reduce the chances of their child developing asthma and wheezing. Supplementing can halve the risk, especially in women with a family history of asthma and allergy, say researchers from Brigham and Women's Hospital.

They recommend pregnant women take up to 150 mcg of the vitamin every day, 50 percent more than the current recommended dose.

Around 40 percent of small children suffer from wheezing problems, and around 20 percent are diagnosed with asthma by age six. Many cases can be traced back to a vitamin D deficiency in the mother, the researchers say.

Women should start taking the supplements at high levels as soon as they know they are pregnant and continue taking daily supplements throughout the pregnancy, the researchers recommend.

They reanalyzed data from the VDAART (Vitamin D Antenatal Asthma Reduction Trial), which published its findings in 2017. The original data showed a 20 percent reduction in asthma rates, but the Brigham researchers discovered it was closer to 50 percent.

And the dose needs to be higher: the VDAART group recommended 4,400 IU (110 mcg), but the new analysis suggests the dose should be raised to 6,000 IU, or 150 mcg.

Current guidelines recommend a daily dose of no more than 100 mcg for pregnant women.

Most people living in the northern hemisphere are vitamin D deficient. The vitamin, which is mainly derived from strong sunlight, helps to boost the immune system and protects against autoimmune problems like asthma and allergies.

J Allergy Clin Immunol, 2023; doi:10.1016/j.jaci.2023.10.003

The Pill's blood clot risk almost gone after a month

The contraceptive pill triples the risk of dangerous blood clots—but most of the danger disappears in just four weeks after women stop taking it, new research has discovered.

The Pill causes blood clots in 10 out of every 10,000 women who take it, but no study had ever calculated just how long the risk remains after women discontinue its use. It's important

to know, especially for women who are about to have major surgery or are immobile for a long time, say researchers from the University Hospitals of Geneva.

They looked at the long-lasting risk of combined hormonal contraceptives, which release both estrogen and progestin, including the Pill, vaginal rings and transcutaneous patches. The

study analyzed blood samples from 66 women who had stopped using contraception.

Blood markers for clotting dropped dramatically within the first two weeks and had fallen by 85 percent after a month.

Blood, 2024; 143(1):70–8



Doctors really don't know best

Doctors don't always know best—even if they still think they do.

Too many doctors are paternalistic and don't listen to patients' concerns about their symptoms, a survey of 676 patients and 400 doctors discovered.

The patients said they felt "degraded and dehumanized," according to researchers from the University of Cambridge, who carried out the survey, and almost half weren't even asked for their opinions about what was wrong with them.

The patients were suffering from neuropsychiatric lupus (NPSLE), a disease that is very difficult to diagnose and has symptoms such as headaches, hallucinations and depression. Because of this, the patients' own descriptions of their symptoms become essential—and yet their fears and comments were invariably dismissed.

Doctors ranked the patients' own self-assessments as the least important of 13 different types of evidence used in diagnosis. Just 3 percent of the doctors ranked self-assessments in their top three sources of evidence.

Most instead ranked their own assessments as more important.

Rheumatology, 2023; doi:10.1093/rheumatology/kead685

What's good for your hair may be bad for your lungs

Be careful what you put on your hair. Oils and gels may make it shiny, but it may not be doing any favors to your lungs. Popular hair products often contain VOCs (volatile organic compounds) that quickly evaporate and can be inhaled.

The heat from styling tools that straighten or curl the hair can increase VOC levels in the atmosphere, say scientists from the American Chemical Society.

They set up a ventilated house where participants used their usual hair products and heating tools, then measured VOC levels before and after hair care.

Most of the products being used included VOCs known as cVMSs (cyclic volatile methyl siloxanes), and researchers found that the amount a person inhales per day could be as much as 20 mg after just one session.

EnvironSci Technol, 2023; 57(48): 19999–20009

IS MS ANOTHER NAME FOR B12 DEFICIENCY?

Is multiple sclerosis (MS) another name for B12 deficiency?

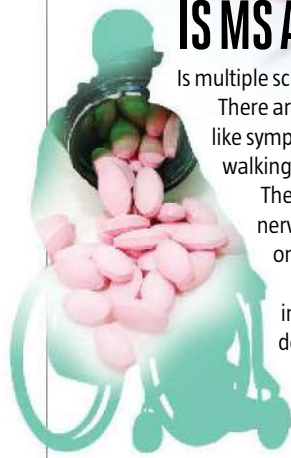
There are a lot of similarities between the two—a B12 deficiency produces MS-like symptoms, such as numbness or tingling in the hands and feet, vision loss, walking problems, slurred speech and cognitive issues such as memory loss.

The vitamin, also known as cobalamin, is essential for healthy central nervous system (CNS) functioning, while MS is characterized as an attack on the CNS.

Researchers from Stanford Burnham Prebys have discovered that cells in the brain, known as astrocytes, provide a molecular link between B12 deficiency and MS. In animal tests, the researchers found that reducing dietary B12 speeded up the progress of MS through the body.

The vitamin also reduced levels of neuroinflammation and neurodegeneration, the researchers added, which are other characteristics of MS.

Cell Reports, 2023; 42(12): 113545





Americans are snacking an extra meal every day

One of the golden rules of weight loss is to never snack—but the average American is consuming up to a quarter of their daily calorie intake from sugary treats between meals.

An average American adult is eating around 500 calories a day from unhealthy snacks alone, and that’s often more than they consume for breakfast. Snacks essentially represent another meal in terms of calorie intake.

The snacks are almost all sugar and have no nutritional value, say researchers from Ohio State University who surveyed 23,708 American adults

aged 30 and over about their eating habits over a 24-hour period. They divided the participants into four groups depending on their glucose, or blood sugar, levels.

Sugary treats are the first step on the road to chronic disease, such as type 2 diabetes—and it was noticeable that those who were already diagnosed as diabetic were following a healthier diet that restricted sugary snacks.

Now the message has to be understood by nondiabetics, says lead researcher Christopher Taylor. “Diabetes education looks like it’s working, but we might need to bump education back to people who are at risk for diabetes and even to people with normal blood glucose levels to start improving dietary behaviors before people develop chronic disease.”

PLoS Glob Public Health, 2023; 3(10): e0000802

A new wound healer—and it includes seaweed

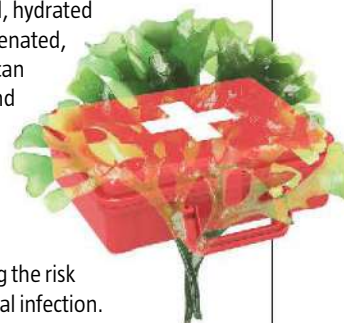
Hydrogels have become the standard for wound healing, but there’s a real problem with them. They absorb fluids from the wound while keeping it protected, hydrated and oxygenated, but they can stretch and expand the wound, causing pain and increasing the risk of bacterial infection.

Now, researchers from Tokyo University of Science have come up with a new type of hydrogel that doesn’t have the usual problems—and they’ve done this by adding a compound from seaweed to the mix.

The new gel is made up of calcium carbonate, carbonated water and alginate, a biocompatible substance that’s found in seaweed.

It has all the usual wound-healing properties, but it also has lower adhesion and swelling, the researchers discovered after they tested the formula on cell cultures and laboratory mice.

Int J Biological Macromol, 2024; 254: 127928



The antidote to spike proteins

A group of doctors has put together a treatment protocol to counter spike proteins in the mRNA Covid vaccines.

The protocol is made up of six supplements and ingredients that are easily obtainable, says Dr Paul Marik, a member of the Front Line Covid-19 Critical Care Alliance (FLCCC).

The supplements, which should be taken daily, are as follows:



Selenium 75 mcg

Nattokinase 100 mg, has been tested to dissolve spike proteins and blood clots



Black sativa extract (*Nigella sativa* seed), 500 mg, may aid cellular repair



Irish sea moss 500 mg, could help rebuild damaged tissue and muscle



Dandelion root 50 mg, may prevent spike proteins from binding to cells

Green tea extract 150 mg, helps scavenge free radicals





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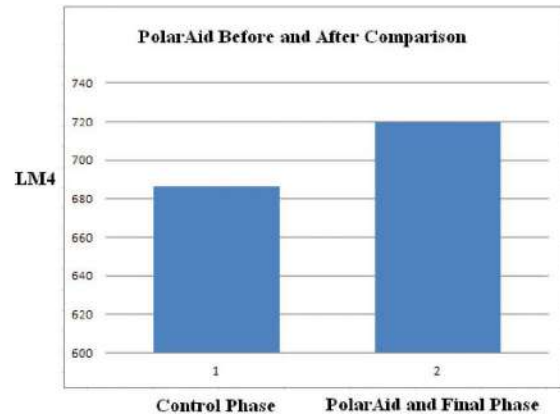
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PolarAid disc increases Life Energy

PolarAid disc increased the Life Energy readings of a rose plant when placed below the plant for a day. The improvement in Life Energy continued on after the PolarAid disc was removed. This is the same phenomena that Dr Lakhovsky was observing in his laboratory on the plants before he made humans benefit from the same technology.

Watch "Before and After: Using PolarAid on a plant" video

<https://www.youtube.com/watch?v=mUqTyM1kB2g>



As all living species can exist thanks to the scalar energy described by Nikola Tesla (1899), that is transformed in electricity in every body cells, we decided to test it on a potted plant.

We determined that a potted plant had its energy readings increased after treatment with the PolarAid device in performing experiments on a young rose plant in using the unique device based on a Orgone Field Meter of Wilhelm Reich.

During the initial control phase, readings decreased and then slowly increased over about 48 hours after watering and then remain fairly stable. When PolarAid was added below the plant, readings increased suddenly, unlike the control phase. After PolarAid was removed, readings continued to stay above average until the end of the experimental run.

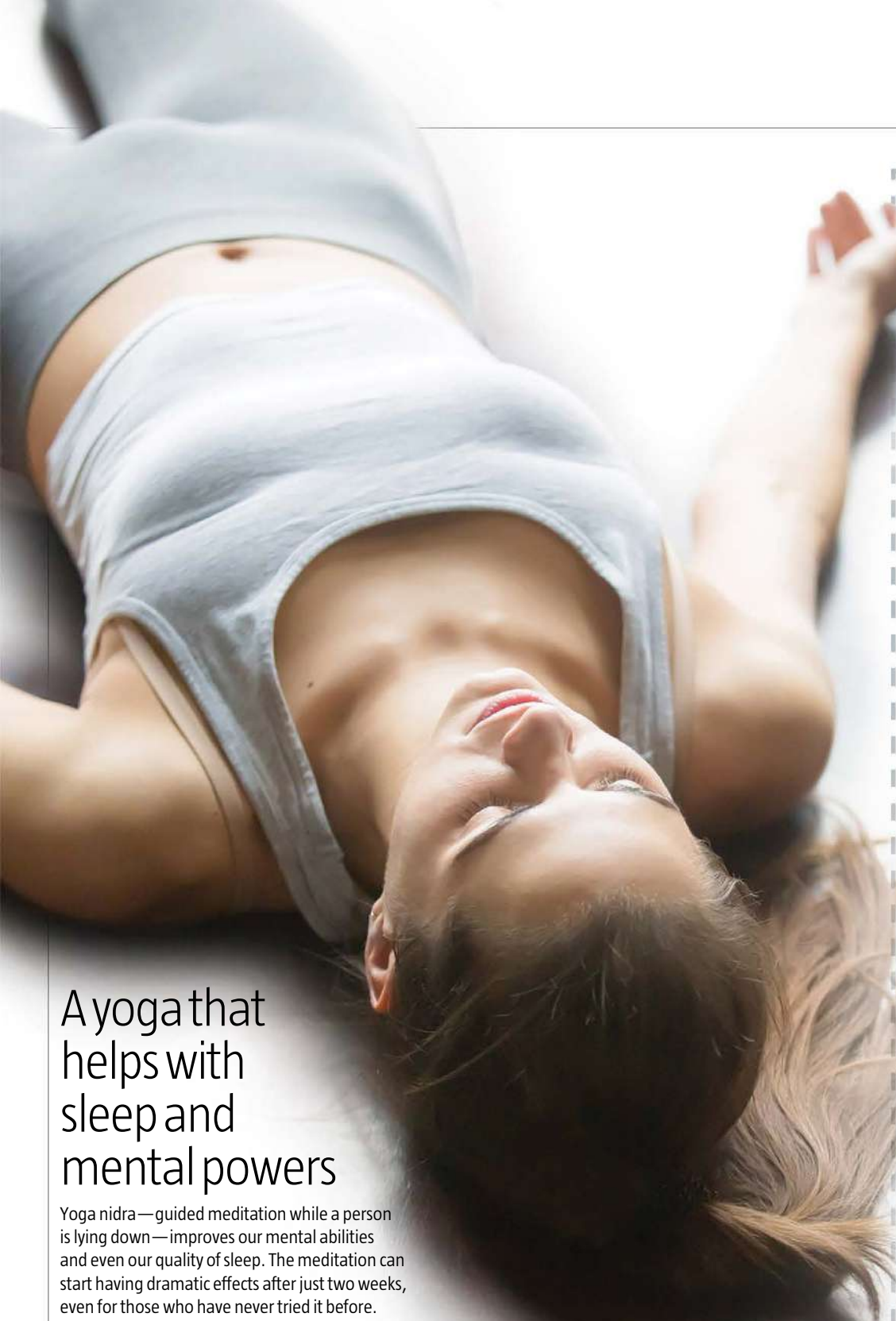
Taking the average of the control phase of the experiment and comparing it to PolarAid and final phase, it was found that PolarAid increased the average energy from 687 to 720 mV on the digital display meter. A bar graph illustrating the energy improvement using PolarAid is shown above.

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Supports and may aid muscle, joint, and spine flexibility, mobility and health; weight management and healthy metabolism; digestive and bowel health; urological health; cardiovascular health; ocular and sinus health; cerebral health; mental calm, emotional health and balanced moods. Enhance and encourage male and female sexual health. Promotes quality of sleep, relaxation, and more...Hundreds and hundreds of compelling testimonials!



A yoga that helps with sleep and mental powers

Yoga nidra—guided meditation while a person is lying down—improves our mental abilities and even our quality of sleep. The meditation can start having dramatic effects after just two weeks, even for those who have never tried it before.

A small group of volunteers had their cognitive skills measured before and after the trial, and their brain waves were measured with EEG machines while they slept.

All of them scored higher on tests of various cognitive skills, including memory and problem-solving. The participants also spent more of the night in deep sleep, say researchers from the Karuna Datta of the Armed Forces Medical College in India.

The study is one of the first to objectively measure the benefits of yoga nidra, the researchers say.

Unlike hatha yoga, which involves physical movement and postures, yoga nidra is a form of mindfulness training in which the participant lies down, as if going to sleep, while listening to a guided meditation. It's also called yoga sleep, and it creates a state of consciousness that is between waking and sleeping.

PLoSOne, 2023; 18(12): e0294678

Antibiotics increase sepsis risk

Sepsis—the life-threatening condition that happens when the immune system overreacts to an infection—has been linked to the use of antibiotics.

The drugs interfere with bacteria in the gut—the home of the immune system—and this could be affecting the body's response to bacterial infection, say researchers from the University of Manchester.

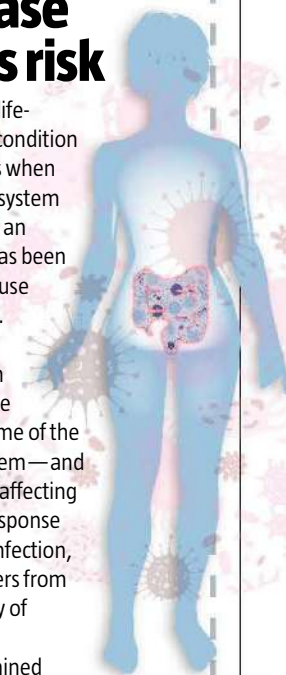
They examined data from more than 224,000 people who developed sepsis and compared it to data from 1.36 million healthy people. Although socioeconomic deprivation, learning disabilities and chronic illness were prime factors in cases, the researchers discovered that a history of antibiotic use was also significant, and the risk increased with use.

One course within the previous year raised the risk of sepsis by 70 percent, two or three courses raised it by 130 percent, and four or more courses more than tripled the risk. The risk was greater still in the first six weeks after taking the drugs.

Sepsis—also known as septicemia or blood poisoning—is often a fatal condition, with a mortality rate of around 20 percent. It occurs when the immune system overreacts to a bacterial infection and begins attacking tissues and organs.

Paradoxically, it's often treated with very high doses of antibiotics.

eClinMed, 2023;
doi: 10.1016/j.eclinm.2023.102321



CANCER NEWS

Flaxseed could reduce breast cancer risk

Add some flaxseed to your daily diet, and you could reduce your risk of breast cancer. Flaxseed is rich in lignans, compounds that help the gut communicate with mammary gland RNA and stop breast cells proliferating and migrating, processes that are needed for cancer to start and spread.

As with almost every disease, breast cancer starts in the gut microbiome, say researchers at the University of Nebraska.

They tested the effects of flaxseed on young female mice and discovered the lignans generate miRNA (microRNA) responses in the mammary gland that keep it healthy and cancer-free. The findings echo earlier research showing that flaxseed reduces the risk of breast cancer death in postmenopausal women.

Add to that the other proven benefits of flaxseed—like improved digestion and reduced heart disease risk—and it's definitely something that should be in your diet, especially if you're a woman.

Microbiol Spectr, 2023; doi:10.1128/spectrum.02290-23



Children given CT scans have a higher risk of blood cancers



Young people who have a CT (computed tomography) scan have a much greater risk of developing blood cancers later.

One scan triples the risk of myeloid and lymphoid cancers, but that was at the higher ionizing radiation dose of 100 mGy (milligray), which used to be routinely given. Today, typical CT scans emit around 8 mGy, but even this lower level raises the risk by 16 percent, which means that for every 10,000 children

scanned, two will develop one of the cancers within 12 years.

CT scans still emit more radiation than any other scanning technology, even at lower doses, and should be used sparingly, say researchers from the Barcelona Institute for Global Health.

They headed up an international research team that analyzed data from nearly a million scans of people who had at least one CT scan before age 22. From that, the researchers

estimated the radiation dose to the bone marrow, where blood cells are produced.

The researchers linked the data to cancer registries to discover those who developed blood cancer within 12 years or so.

Around a million children across Europe have a CT scan every year, and doctors need to be aware of the dangers and consider safer alternatives, the researchers say.

Nature Medicine, 2023; 29(12): 3111–19

Processed foods linked to throat and mouth cancers

In case you didn't get the memo, processed foods are bad for you—and new research has added to the bad news by discovering they might also cause throat and mouth cancers.

Eating 10 percent more processed food may increase the risk of head and neck cancers by 23 percent and esophageal cancer by 24 percent, say researchers from Bristol University.

They tracked the health and diet of more than 140,000 people for 14 years.

Their findings echo earlier research that has linked processed foods to more than 34 types of cancer.

Eur J Nutr, 2023; doi:10.1007/s00394-023-03270-1



DEMENTIA NEWS

A nanoparticle from coffee grounds can reduce Alzheimer's risk

Coffee grounds might not be garbage after you've had your breakfast cup—instead, they might help ward off neurodegenerative disorders such as Alzheimer's, Parkinson's and Huntington's diseases.

The grounds contain compounds that may pass the blood-brain barrier and protect brain cells, especially if the cells are suffering damage due to obesity, age and pesticides.

Specifically, carbon nanoparticles known as Carbon Quantum Dots can be derived from caffeic acid in coffee grounds. They combat free radicals and stop them producing amyloid protein fragments typically seen in the brains of Alzheimer's sufferers.

Once these diseases take hold, there is little that can be done, and so it's essential to catch them at the earliest

stages, say researchers from the University of Texas at El Paso.

Caffeic acids are polyphenols, antioxidants that counter free radicals, and they are unique because they can cross the blood-brain barrier.

To create Carbon Quantum Dots, the researchers heated the coffee grounds for four hours at 200°C, which changes the structure of the caffeic acid.

Environ Res, 2023; 237 (pt1): 116932

Too much "good" cholesterol raises dementia risk

You can have too much of a good thing—assuming you believe there is such a thing as good and bad cholesterol in the first place.

The "good" sort is HDL (high-density lipoprotein) cholesterol. People who have too much of it are much more likely to develop dementia in older age.

Overall, the study found these people had a 27 percent higher risk than those with lower levels, but people aged 75 and older who have high levels run a 42 percent higher risk.

Very high levels are defined as 80 mg/dL or above, while the optimum level is 40–60 mg/dL for men and 50–60 mg/dL for women.

Researchers from Monash University discovered the link between high cholesterol levels and dementia when they assessed the cognitive abilities of 18,668 people, 2,709 of whom had very high levels of HDL. Of these, 38 among the under-75s and 101 among the over-75s developed dementia.

But it's not just about levels of HDL; the more important cholesterol for brain health is LDL (low-density lipoprotein), the "bad" cholesterol that is targeted by statins. The drugs lower LDL while raising HDL levels—the perfect recipe for cognitive decline.

Lancet Reg Health West Pac, 2023; doi:10.1016/j.lanwpc.2023.100963

Cocoa supplements ward off dementia

Start taking cocoa supplements to ward off cognitive decline and dementia—especially if you're eating a poor diet.

A 500-mg cocoa extract supplement slows the loss of cognitive functions such as memory and problem-solving. However, its benefits have been seen only in those who eat an unhealthy diet.

People who eat well don't get any extra benefits from the supplements, say researchers from Mass General Brigham, who

are studying the impact of diet quality on a range of chronic health problems.

The researchers assessed the impact of the cocoa

supplements on a group of 573 older people. The participants were given the supplements for two years, and their cognitive skills were regularly assessed.

These are early results from a much bigger project the researchers are carrying out, observing 21,000 people to see the impact of cocoa supplements on a range of health problems including heart disease, stroke and cancer.

Am J Clin Nutr, 2023; doi:10.1016/j.ajcnut.2023.10.031



Is it smart to take smart drugs?

Smart drugs — also called nootropics — are designed to boost your memory and keep you focused. But do they really work, or is it just wishful thinking?

We all need a little cognitive boost sometimes, from the student who needs to get through a night's study before an exam to the older person who has the occasional senior moment and wants to sharpen their memory.

Students of old may have reached for a pot of coffee or even an amphetamine, and some still do, obtaining illegal supplies of Ritalin or Adderall to increase dopamine levels in the brain.

These drugs might improve focus, at least for long enough to get through an exam. They are also a substitute for a healthy diet.

Coffee might give us that instant boost, but eggs are good for mental focus, too. They contain B vitamins like folate, which help produce serotonin and other neurotransmitters that regulate mood.

Eggs are also full of choline, an important nutrient for memory, learning and focus. Choline is in red meats and liver, and in fatty fish such as salmon. Dark chocolate and blueberries

are good for our brain health, too.

But the idea of brain-boosting foods and supplements started to take on a scientific hue when they were given a name: nootropics, or smart drugs. The term was coined by Romanian psychologist and chemist Corneliu E. Giurgea in 1972.

Eight years earlier, he had synthesized piracetam as a compound to improve learning and memory. It's never been approved by America's drug regulator, the Food and Drug Administration (FDA), for that purpose, and it's available in the UK only with a prescription as a therapy for myoclonus, or involuntary twitching.

Piracetam has been poorly researched. The studies that do exist have tested it on acute and chronic conditions that have nothing to do with mental acuity, such as stroke, dementia, fetal distress in labor, sickle cell disease, post-stroke aphasia (difficulty understanding or expressing speech) and breath-holding.

The one study that looked at its brain-enhancing abilities concluded it didn't help 25 children with Down syndrome improve their behavior or cognition but instead made them more aggressive, agitated and irritable.¹

Get on board

These faltering steps haven't stopped the nootropic rollercoaster, and the rich and famous are catching on.

Controversial podcaster Joe Rogan endorses the Alpha BRAIN supplement, which he says he takes every day to keep him sharp and help him remember the right word in pressure moments. His endorsement has made it the world's best-selling nootropic, and its manufacturer, Onnit, claims to have sold millions of pills around the world.

Nelson Dellis, five-time US memory champion, takes the Mind Lab Pro supplement. "It makes it easy to get all the best nootropics into my daily diet," he enthuses. "The longer you take it, the better it gets. Think of it as a multivitamin for the brain."

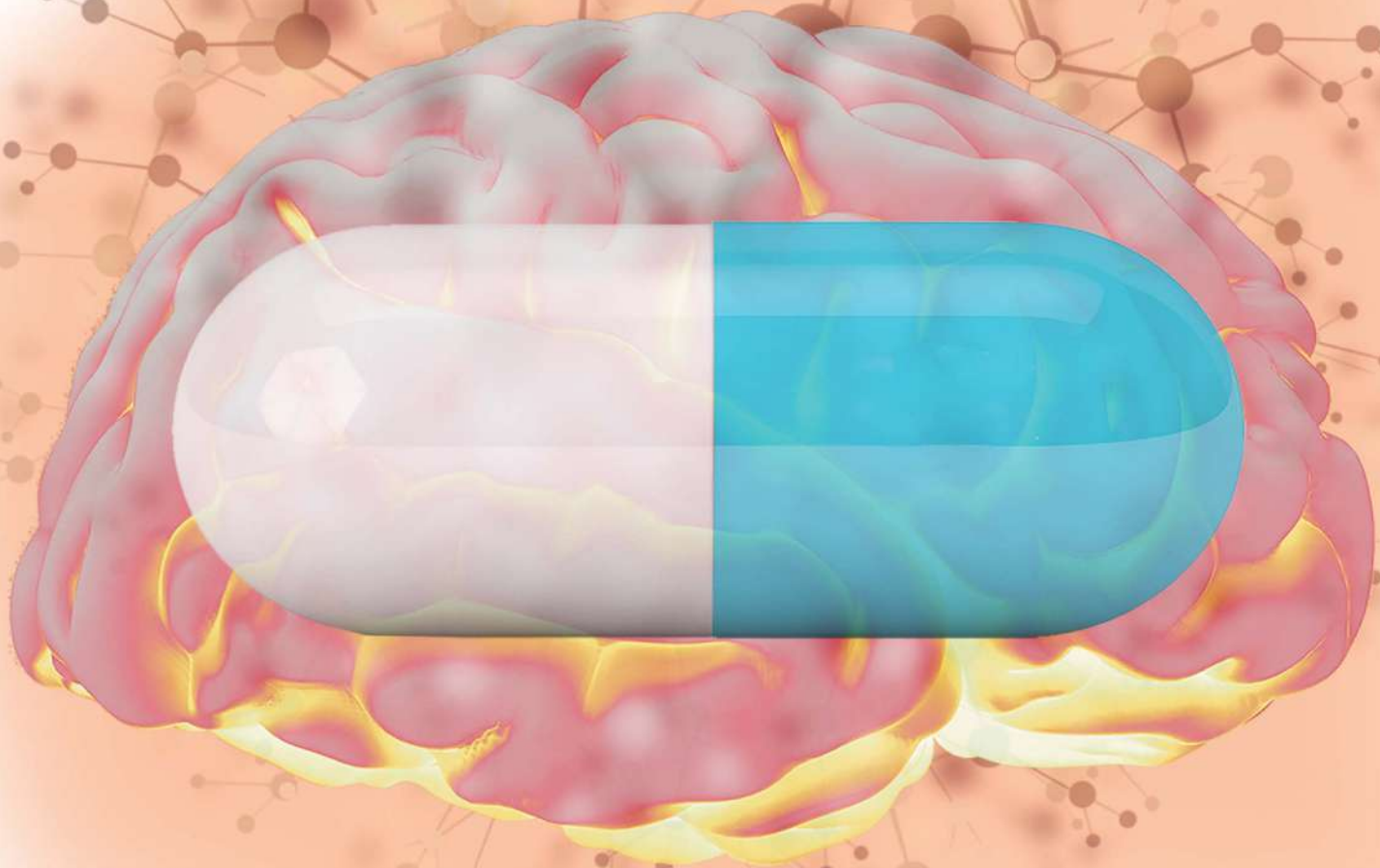
Alpha BRAIN, which costs a hefty \$80 (£63) for 90 capsules, claims to improve focus and mental processing and get you "in the zone," where creativity and efficiency seem to flow. Mind Lab Pro, which contains 11 nutrients and plant-based ingredients, makes similar claims for a similar price and promises you'll start feeling more alert just 30 minutes after taking a capsule.

As well as capsules, nootropics also come as a "smart" drink that's full of amino acids and vitamins and, unlike energy drinks, doesn't give you the jitters. But whether it's a capsule or a drink, are nootropics actually making people mentally sharper, or do users just think they are?

Just a placebo?

To find out, researchers at the University of Leeds in England carried out a double-blind placebo study of Mind Lab Pro, which was sponsored by its maker, Performance Lab.² A group of 49 healthy people, aged 20–68, were given either two Mind Lab Pro capsules or a dummy pill, which acted as the placebo, every day for a month.

In all, the researchers gave 36 people the real supplement and gave 13 the placebo. Although neither group



knew which they had been given, the supplement group recorded “significant improvements” in their scores across all memory tests.

“Our study demonstrated that there are significant benefits to memory in taking a nootropic supplement, which is especially true for immediate and delayed recall elements of memory, such as remembering names and places, or where someone has put an object, like car keys,” said researcher Andrea Utley.

Even so, those taking the dummy pill recorded an improvement in auditory memory—recalling sounds or things people said—and immediate recall, suggesting there is a degree of mind-

There are significant benefits to memory in taking a nootropic supplement, which is especially true for delayed recall elements of memory, such as remembering names and places

over-matter in nootropics.

Eight years earlier, a double-blind placebo trial of Alpha BRAIN came up with similar findings: people taking it reported “significant” improvements in verbal memory and executive function. A group of 63 people aged 18–35 were given a placebo for two weeks before switching to Alpha BRAIN or a new placebo, which they took for six weeks.

By the end of the study, which was funded by the supplement company, the Alpha BRAIN group demonstrated better verbal recall of names and apposite words and better executive functioning. Tantalizingly, the placebo group also fared better on various tests.⁴

It's a plant

Widening the net, researchers from the IMDEA Food Research Institute in Spain uncovered 256 papers from three medical databases that had researched the impact of nootropics on people's memory and mental focus.¹ There were four clear winners, including good old caffeine:



Ginkgo (*Ginkgo biloba*) is the best nootropic for improving perceptual and motor functions.

Water hyssop (*Bacopa monnieri*) is

the best for improving language, learning and memory.



Ashwagandha (*Withania somnifera*) is the most effective for calming anxiety.



Caffeine

is the best for improving attention and executive functions.



Researchers from the Czech University of Life Sciences agree that ginkgo, ashwagandha and water hyssop are effective plant-based nootropics, and they added seven more that the research showed could also improve focus and memory.²

Ginseng (*Panax ginseng*) has been shown to

improve physical and mental resilience and eliminate fatigue, and 200 mg can be taken safely every day. However, people with asthma and hypertension should avoid it.³



Asiatic pennywort

(*Centella asiatica*) is eaten in salads and curries, and it's safe to take 60–120 mg as an extract daily. It



OTHER WAYS TO STAY SMART



Puzzles and word games Regular brain workouts help keep your brain sharp. BrainHQ, which brings together brainteasers and puzzles in a smartphone app, was discussed in more than 60 scientific papers last year, including more than 30 research studies, and has slowed cognitive decline in Alzheimer's patients.

Light therapy Known as photobiomodulation, light therapy has also been shown to improve brain function. Red light and near infrared light "feed" neurons in the brain, reducing inflammation and helping brain cells repair.

In one review, researchers looked at 10 studies of photobiomodulation for Alzheimer's patients. They found it repaired damage caused by the amyloid plaques that are characteristic of the disease, such as inflammation, oxidative stress and cell death (apoptosis).⁴



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seems to relieve anxiety and, as a result, improves sleep, although these results have been seen only in animal studies.⁵

Guarana (*Paullinia cupana*) includes around 12 percent caffeine, and 75 mg can be taken as a tablet, but people who have heart problems, take certain asthma medications, or suffer from chronic headaches, diabetes, insomnia or ulcers should avoid it.



Studies have shown it has "significant" nootropic effects, including memory improvement, and may even help Alzheimer's and Parkinson's sufferers.⁶

Eleuthero (*Eleutherococcus senticosus*) reduces stress and improves memory, although these are the findings from mouse studies. In people, it has other benefits, such as improving cellular health, and has been used to detox mine workers with lead poisoning.



The recommended daily amount

is 2–3 g of dried root, but those with hypertension should avoid it.

Rhodiola (*Rhodiola rosea*) reduces stress and anxiety and improves cognition, at least according to one study that tested it on a group of students, some of whom were given a placebo. However, it didn't improve cognitive performance.⁷



Schisandra (*Schisandra chinensis*) works as an antioxidant and anti-inflammatory to protect against neurodegenerative disease and improve neurotransmitter disorders.⁸



Maca (*Lepidium meyenii*) root can improve cognitive function, motor coordination and endurance, one mouse study found, and may be "an effective functional food to slow age-related cognitive decline."⁹



There's no doubt that

nootropics can improve memory, cognition and focus, but few people see results after taking just one or two capsules. The instant hit still seems to be the preserve of caffeine.

Instead nootropics have a cumulative effect, although any health problems from long-term use have never been researched. Researchers doubt they would see any, judging by the safety of those that have been tested.

Nootropics aren't a silver bullet for cognitive issues. Instead, they should be part of a healthy lifestyle that includes exercise, a good diet low in processed food, stress reduction, social interaction and quality sleep. These will have as big an impact on your cognitive abilities as any pill that's designed to do the job.

Bryan Hubbard

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Heart disease? Then take an indigestion pill

Histamine may have more to do with cardiovascular disease than cholesterol or saturated fats—and an over-the-counter antihistamine could do you more good than a statin

As it's said about history, the theory of cardiovascular disease (CVD)—what causes it and how to treat it—is a story that's told by the winners. To demonstrate the point, let's imagine you have worrying signs of heart disease: your doctor offers you a cholesterol-lowering statin or Pepcid, an over-the-counter remedy for indigestion and heartburn. Which one do you choose?

If you reach for the statin, you've bought into the story told by the winners. The diet/heart theory maintains that eating saturated fats from dairy and red meat increases levels of LDL (low-density lipoprotein) cholesterol, characterized as the bad cholesterol that clogs arteries and causes atherosclerosis and CVD. The story goes that heart disease can be prevented, or at least controlled, by eating a low-fat diet and taking statins.

If in the extremely unlikely event you instead take the Pepcid—and who in their right mind would choose an indigestion remedy for heart disease?—you've just taken the losing side. It's a broad church that embraces many theories differing in their understanding of CVD, but they all agree that saturated fats and cholesterol have little to do with the disease.

Pioneers of the losing side include British nutritionist John Yudkin, whose research was defunded because of his claims that sugar—and not saturated

fat—was a primary cause of CVD. He clashed with Ancel Keys, the American physiologist who pushed the saturated fats theory harder than anyone else.

Then there's Theodore "Ted" Hollis, a biologist at Pennsylvania State University who in the late 1980s researched the idea that histamine was a driver of heart disease—and that's where Pepcid comes into the story.

Not just a rash

When we think about histamine, we imagine allergic reactions such as hay fever or perhaps a rash or itchiness if we eat the wrong food. But histamine produces much more than an annoying allergic response; that's just one of four types of histamine.

Histamines are messenger chemicals that the immune system releases to regulate bodily functions and to fight infections and inflammation. Two types of histamine (H1 and H2) play a big part in heart functions.

Hollis's discovery wasn't new. For over a century, scientists have known that histamine can cause arrhythmia, or irregular heartbeat, and that heart patients have more mast cells, white blood cells responsible for the inflammatory response and histamine storage, in their hearts.

So, the pieces that pointed at histamine and inflammation as drivers of CVD were all there long before LDL

cholesterol was even a twinkle in the eye of the cardiologist, but nobody had put them together.

Hollis's research was bought by a drug company that promptly buried it, but other researchers have picked up the trail, including a research team at the National Cardiovascular Center in Suita, Japan. They discovered that Pepcid (famotidine) reduces the severity of heart failure.¹

The discovery seems almost paradoxical. People hesitate to take an antihistamine because the drug is often linked to heart problems, but it's the decongestant element of the remedy that causes cardiovascular complications.


Pepcid is a "histamine H2 receptor antagonist," which means it blocks the buildup of histamine, especially H2, in the stomach—and also in the heart. Building on Hollis's discoveries, the Japanese researchers knew that damaged heart cells release histamines, specifically to H2 receptors, which regulate the heart.

The histamine that binds

The way histamine reacts depends on the receptors it binds to. For Hollis, H1 and H2 receptors were the interesting ones as they are responsible for expanding blood vessels and regulating hypotension (low blood pressure), heart rate and vascular permeability (the ease with which molecules flow through the artery walls). Although all four types of histamine receptors are in the heart, only H1 and H2 are found in heart muscle cells, which are responsible for heart contractions.

As we know when we have a severe allergic reaction—which is the histamines in overdrive—we can have too much of a good thing. Hollis surmised that it was histamine overproduction, and not LDL cholesterol, that caused plaques in the arteries, leading to atherosclerosis.

The Japanese researchers had similar suspicions. They theorized that heart patients who were taking Pepcid for indigestion would also have less severe CVD symptoms, and a trawl of the data suggested they were onto something. Heart patients who were taking Pepcid fared better than others who were taking



Pepcid is a 'histamine H2 receptor antagonist,' which means it blocks the buildup of histamine in the stomach—and also in the heart

a different type of stomach medication.

From there, they enlisted 50 heart patients who suffered from indigestion: 25 were given Pepcid, and the others were handed a different remedy that didn't block histamine activity. The results replicated the outcomes they had seen in their data trawl: the Pepcid group had milder CVD symptoms and were less likely to suffer heart failure. An independent examination by cardiologists showed there was less damage to the heart in the Pepcid group.

Other researchers have also witnessed the heart-protecting qualities of Pepcid. In one 10-year study, healthy patients were less likely to develop heart problems if they were taking an H2 blocker, such as Pepcid,² while patients with life-threatening pulmonary hypertension—when blood pressure is dangerously high in the lungs—were less likely to die if they were taking the medication.³

It's the inflammation, stupid

Heart disease has nothing to do with cholesterol and fats but everything to do with inflammation, and that was where Hollis started his research more than 40 years ago. The “winning” diet/heart theory is, in fact, the meshing of two theories: that LDL cholesterol causes atherosclerosis, or thickening of the arteries, and that LDL buildup is caused by eating a diet rich in saturated fats.

The idea that LDL cholesterol plays a part in heart disease has been mooted by scientists for more than a hundred years, but it was only in the 1980s that Ancel Keys won over the scientific community with his theory that our diets play a major role in the disease's development. The winning combination gave birth to the low-fat foods industry and statins.

But recent studies have questioned one, and sometimes both, parts of the theory. One study of 1,062 patients who had survived a heart attack discovered that they all had healthy levels of LDL cholesterol. “The average cholesterol levels in this group of individuals were quite average,” said researcher Dr Michael Miedema from the Minneapolis Heart Institute.⁴

A large-scale review of the evidence came to the same conclusion: LDL cholesterol is not linked to CVD and,

in fact, is inversely related to all-cause mortality. In other words, the less LDL cholesterol you have in your system, the more likely you are to suffer a life-threatening chronic disease.⁵

Undeserving of being demonized as the “bad cholesterol” whose levels must be reduced, LDL cholesterol is essential for healthy cognitive functioning as we get older. People whose cholesterol levels have risen since middle age are 32 percent less likely to suffer from dementia, Alzheimer’s disease and memory loss.

Researchers from Icahn School of Medicine studied 1,897 people aged 75–94 years and discovered the protective qualities of cholesterol became especially significant around age 85. Participants with the highest cholesterol levels weren’t taking statins.⁶

Angiographs of postmenopausal women with heart disease showed that the progress of atherosclerosis was slower in those whose diets were rich in saturated fats. However, those eating more carbohydrates—and polyunsaturated fats were seeing their atherosclerosis develop faster.⁷

But if you still contend that LDL cholesterol influences heart disease, a diet of saturated fats from meat and dairy products isn’t raising LDL levels. Even people who have a genetic disposition don’t see their levels rise from eating saturated fats, researchers from the University of East Finland have concluded.

They studied 1,032 middle-aged men in Finland, a third of whom had inherited the ApoE4 gene, which affects the way they process cholesterol. But although they ate a high-cholesterol diet—some were consuming around 520 mg of the fats every day—the men’s LDL levels didn’t rise.⁸

Other studies have confirmed that saturated fats don’t raise levels of LDL cholesterol and don’t contribute to coronary heart disease (CHD), ischemic stroke (caused by a blood clot



5 WAYS TO LOWER YOUR INSULIN LEVELS

- Eat a Mediterranean diet that comprises 40 percent fat

- Drink or eat 4 Tbsp of extra virgin olive oil every day



- Eat a handful of nuts every day

- Take a brisk walk for about 20 minutes every day

- Do some moderate activity for 30 minutes every day



in the brain) or even type 2 diabetes, often seen as a forerunner to heart disease.⁹

Instead, it is as Hollis, Yudkin and many others on the losing side have surmised: CVD is a disease of inflammation. A study of more than a thousand heart attack survivors found that those who reduced their levels of inflammation were up to 17 percent less likely to suffer a second attack. Usually, heart attack patients face a 20 percent risk of a second attack within five years.¹⁰

Another key is sugar: as Yudkin said all those years back, it’s sugar, and not saturated fats, that drives CVD. Ironically, many low-fat foods are processed and are high in artificial sugars, so people eating them because they think it’s helping their heart are, in fact, doing the very reverse.

If sugar is the catalyst, then insulin resistance also plays a part in CVD, as do environmental stress factors such as childhood trauma. Chronic stress prevents the body from downregulating inflammation, argues cardiologist Aseem Malhotra and his colleagues.¹¹

The Mediterranean diet is a healthy way to reduce inflammation and insulin resistance. Ironically, it was the same diet that Keys was advocating to reduce LDL cholesterol—so he was right for all the wrong reasons.

Despite the years we’ve been taking statins and eating a low-fat diet, CVD obstinately remains the West’s number one killer, but perhaps that’s because we’ve been following the winning theory of heart disease. It’s time to turn to the losers and recognize that sugars and inflammation are the real culprits and that LDL cholesterol and histamine are the body’s emergency responders.

Bryan Hubbard

5 WAYS TO LOWER YOUR HISTAMINE LEVELS

- Use essential oils, such as chamomile and lavender, in a diffuser or add a few drops to your bath



- Aim for at least seven hours of sleep every night

- Meditate or practice yoga to lower your stress levels



- Stay hydrated by drinking around eight glasses of water a day



- Do moderate exercise every day for 30 minutes



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The diabetes quick step

The speed you walk may help reduce your chances of type 2 diabetes, a new study has discovered

Eating a healthy diet that's low in processed sugars is the best way to prevent type 2 diabetes—but researchers have discovered that daily walking can also lower your risk.

Your chances of developing diabetes reduce as you increase the speed you walk, but even people who take a leisurely stroll get some protective effect, say researchers from Semnan University of Medical Sciences in Iran.

They took another look at 10 studies that had analyzed the impact of walking on diabetes risk for around half a million people in Britain, America and Japan and discovered that the pace was more important than the amount of time spent walking.

The critical speed seems to be 2 mph (3.2 km/h); even a relaxed stroll will lower your risk. In the 2–3 mph (3.2–4.8 km/h) range, you'll be reducing your diabetes risk by around 15 percent, and it will continue to fall by 9 percent for every 0.5 mph (1 km/h) increase in your walking pace.

As the average speed for someone who's over the age of 65 is 2.1 mph, that should be achievable as long as you don't have significant mobility issues.

Stepping up the pace to 3 to 4 mph drops your risk by 24 percent, and those who can walk at a fast clip of 4 mph or more reduce their risk by 39 percent. That translates into 2.24 fewer cases of diabetes per 100 people—a significant reduction of a disease that affects about 537 million people around the world.

Other studies have found that increasing the number of steps you walk daily can also help you maintain reasonable health. Although the ideal number seems to be 10,000 steps a day, the origins of this total aren't clear but are likely linked to the brand name of a pedometer that was sold in Japan.

How your walking pace reduces diabetes risk¹

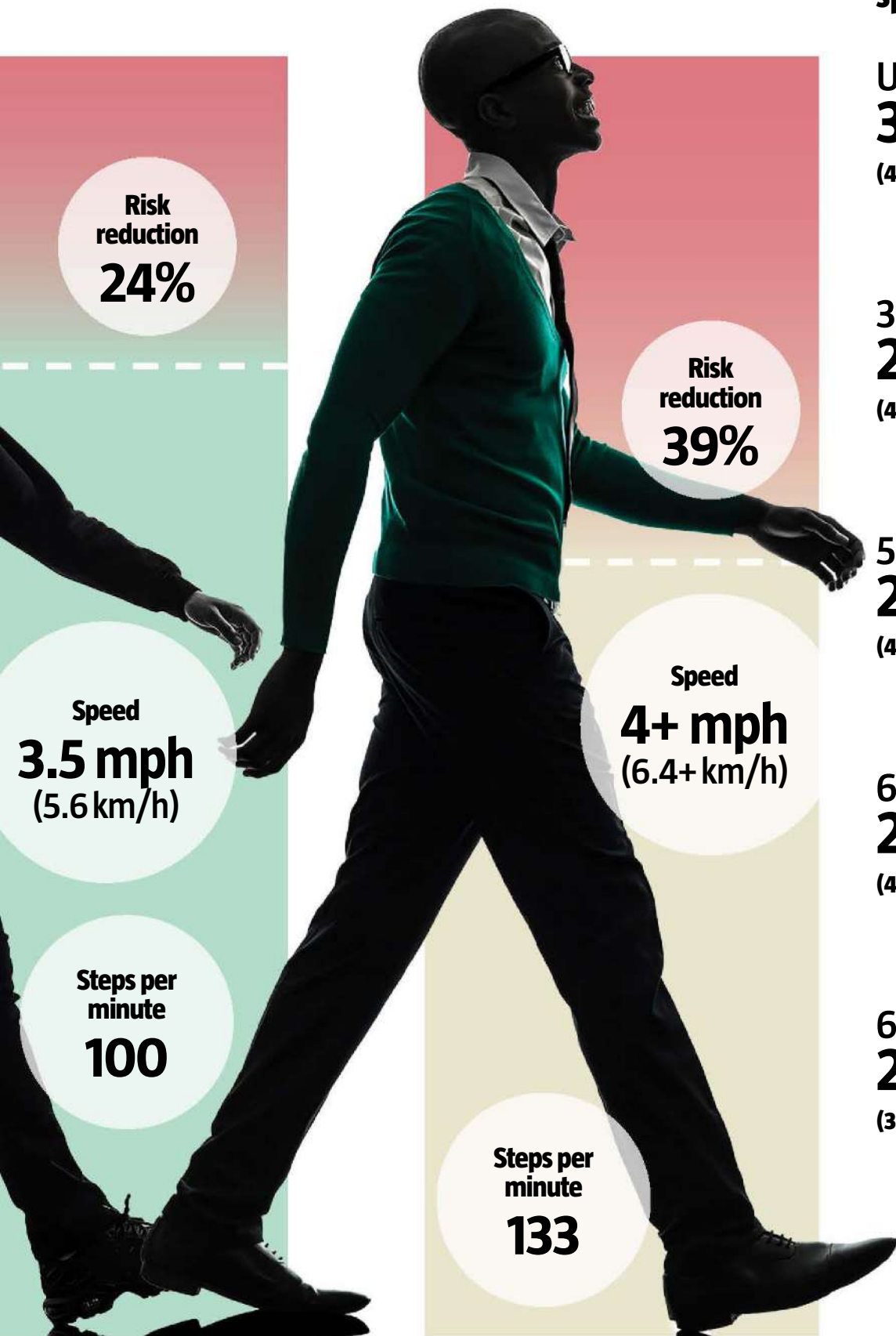
Risk reduction
15%

Speed
2.5 mph
(4 km/h)

Steps per minute
87

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Risk reduction
24%

Risk reduction
39%

Speed
3.5 mph
(5.6 km/h)

Speed
4+ mph
(6.4+ km/h)

Steps per minute
100

Steps per minute
133

Average walking speeds²¹

Under 30
3 mph
(4.82 km/h)



30–49 years
2.8 mph
(4.54 km/h)



50–59 years
2.75 mph
(4.43 km/h)



60–64 years
2.7 mph
(4.35 km/h)



65+ years
2.1 mph
(3.42 km/h)



Was Goldilocks right?

Eating a balanced diet could be the healthiest option for a longer and healthier life

Perhaps Goldilocks had a point when it comes to diet. There is a sweet spot that increases our chances of living a long and healthy life. That means you shouldn't be eating too many carbs, or too few, and not too much fat either, but—you guessed it—not too little.

There's also a twist that Goldilocks didn't anticipate: it's different for men and women. The bottom line is we shouldn't be following a trendy diet that dramatically restricts either carbs or fats—at least not for long, anyhow.

Scientists from Nagoya University in Japan studied the health and diets of 34,893 men and 46,440 women for nine years to discover any impact that an “extreme” diet might have on longevity. During the study, 2,783 of the participants died.

The researchers factored in the different qualities in the two food types—refined carbs from processed foods or from more natural sources, and saturated versus unsaturated fats—but found that men who consumed less than 40 percent of their energy from carbs, from any source, had a much higher risk of a premature death.

The very reverse was seen in women: those who ate more fat lived longer, but those who ate mainly carbs were far more likely to die prematurely.

Yes, you might be able to follow a low-fat or low-carb diet for a few years without causing too much harm. But beyond five years, you start increasing your risk of developing a fatal chronic condition such as cancer, the researchers found.

In case you think the results are peculiar to East Asia and its diets, similar results have already been seen in studies of Western populations, the researchers point out.

But there are a few problems with the study, they admit. For one, it relied on data gathered in questionnaires, and these can be extremely unreliable as people either don't remember what they ate correctly or put in answers they think researchers want to see. There could also be other non-dietary factors at play that are impacting longevity.

The man's diet

A diet of *less than*
40% carbs
increases the risk of a premature death by
59%

A diet of *over*
35% fat
increases the risk of a fatal cancer by
79%



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The woman's diet

A diet of over
**65%
carbs**
increases
the risk of a
premature
death by
71%

A **higher-fat diet**
leads to only a
**marginally
higher risk**
of premature
death, including
by cancer

THE COVID-19 VACCINE: THE TRUE FALLOUT

Brian Hooker, a bioengineer and chemist who holds a PhD from Washington University, teamed up with Robert F. Kennedy Jr to scour the science and uncover all the well-controlled studies comparing the incidence of heart problems and more between the vaccinated and unvaccinated. Here's what they discovered as adapted from their new book *Vax-Unvax*



At this writing, only 69.4 percent of the US populace is “fully vaccinated” for Covid-19 (without accounting for boosters),¹ despite billions of dollars in advertising, systematic media propaganda, incentives, coercive measures, mandates and numerous photo ops of government officials and celebrities receiving the shot.

The FDA authorized Pfizer’s BNT162b2 Covid-19 vaccine under Emergency Use Authorization (EUA) for the US starting December 10, 2020. Other Covid-19 vaccines distributed in the US under EUA include the Moderna mRNA-1273 vaccine, the Johnson & Johnson Janssen vaccine, and the Novavax Nuvaxovid and Covovax vaccines. Full FDA approval was given to Pfizer (Comirnaty) and Moderna (Spikevax) vaccines.

The Pfizer and Moderna vaccines are based on mRNA technology, Novavax vaccines are based on recombinant protein technology and the Johnson & Johnson vaccine is based on human adenovirus technology. As of May 7, 2023, the Johnson & Johnson Janssen vaccine is no longer available in the US.

In Europe, the Oxford-AstraZeneca AZD1222 vaccine is based on the modified chimpanzee adenovirus ChAdOx1; and in China, the Sinovac CoronaVac vaccine is an inactivated virus vaccine.

Fallout of the Covid vaccines

Officials have distributed Covid-19 vaccines in the US for approximately 30 months, as of this writing, and the rates of adverse events are extremely high. Medical personnel and patients have reported just over 951,000 adverse events for the vaccines (Pfizer, Moderna, Johnson & Johnson, and Novavax) in the US alone.²

In fact, in three years, Covid-19 shots have caused 97 percent of all adverse events reported to the CDC’s Vaccine Adverse Events Reporting System (VAERS) since the introduction of this program in 1986. The media is now beginning to acknowledge certain adverse events, albeit with the obligatory disclaimer regarding how “rare” vaccine injuries are.

Before the pandemic, we began searching for publications in which researchers studied the health outcomes of vaccinated versus unvaccinated populations among all the common vaccines given. We have so far identified over 100 peer-reviewed articles from open, peer-reviewed, scientific and medical literature.

In addition, many other research papers support the conclusions of these studies.³ Our book *Vax-Unvax: Let the Science Speak* is a compendium of these studies.

We also included relevant research studies published by other reputable sources. We then summarized each of the “vax vs unvax” studies and included bar graphs that illustrate the most pertinent results for each of the different vaccines and vaccine components.

Many researchers have published studies investigating links between different types of Covid-19 vaccines and serious adverse events including myocarditis (inflammation of the heart muscle), pericarditis (inflammation of the fluid sac surrounding the heart), blood-clotting disorders, shingles (a reactivation of the chickenpox virus in adulthood), hearing loss, hospitalizations and death.

In this case, we were also able to find numerous credible studies of vaccinated vs unvaccinated individuals. Here, then, is a summary of the most common side effects we found in this comprehensive list of the best studies of the Covid jab in which investigators directly compared vaccinated individuals to unvaccinated controls.

Most common adverse events

Bell’s palsy Bell’s palsy is a neurological disorder that causes paralysis or weakness on one side of the face. Facial paralysis can vary from patient to patient and can be mild or severe.

Patients typically recover some or all of their facial functions within a few weeks to six months. However, facial weakness and paralysis can be permanent.

Most often, practitioners reported the onset of facial nerve palsy three to four days following mRNA vaccination. Patients who received Pfizer’s vaccine showed the highest incidence of Bell’s palsy compared to all other vaccines reported in VAERS.⁴

In Hong Kong, Dr Eric Yuk Fai Wan, affiliated with the Centre for Safe Medication Practice and Research at



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MAKERS OF THE ORIGINAL SWISS ARMY KNIFE | ESTABLISHED 1884

the University of Hong Kong, published a study in *The Lancet Infectious Diseases* in 2022 using patient data from the Hong Kong Covid-19 Vaccine Adverse Event Online Reporting system.

Patients receiving Pfizer's vaccine had a 75 percent higher risk, and those receiving the Chinese CoronaVac mRNA vaccine were nearly two and a half times more likely to develop Bell's palsy than unvaccinated patients (see graph, right).⁵

These kinds of results also appeared in Israel. Dr Rana Shibli at Lady Davis Carmel Medical Center in Haifa, Israel, and his team retrieved data on the Pfizer Covid-19 vaccination from December 2020 through April 2021, and on the incidence of Bell's palsy, from the database of the largest healthcare provider in Israel, which included over 2.5 million vaccine recipients.⁶

They compared the number of observed cases of Bell's palsy that occurred within 21 days after the first vaccine dose and within 30 days after the second dose to expected cases, based on 2019 rates. The study, published in *The Lancet Regional Health—Europe*, concluded that the first vaccine dose was associated with a 36 percent higher risk of Bell's palsy.

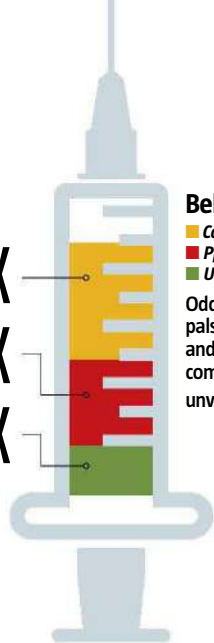
But the risk increased with age, particularly among women. Women aged 45–64 showed a 71 percent higher risk, and those aged 65 or above were two and a half times more likely to develop the palsy. There also appeared to be an increased risk with the second jab.

In a 2023 study, Dr Wan and his team at the University of Hong Kong used data from population-based electronic health records of individuals 16 years or older in Hong Kong to assess the diagnosis of Bell's palsy in hospitalized patients within 28 days of receiving the Pfizer Covid vaccine between March 2021 and July 2021.⁷

Vaccination with the Pfizer shot (first or second dose) yielded more than one and a half times the incidence of a Bell's palsy diagnosis. But the scientists also found that the odds of being diagnosed more than doubled during the first 14 days after the second dose (see graph, right).

Overall, in a study published in the *International Journal of Infectious Diseases*, Dr Kenichiro Sato and his team at the University of Tokyo found an 84 percent higher risk of Bell's palsy following the Pfizer vaccine, compared to the risk in the unvaccinated, and a 54 percent higher risk after any

2.38X
1.75X
1X



Bell's palsy

■ CoronaVac vaccine
■ Pfizer vaccine
■ Unvaccinated
Odds ratios for Bell's palsy following the Pfizer and CoronaVac vaccines compared to those for unvaccinated individuals⁵

mRNA vaccine.⁸

Heart problems Myocarditis is a severe illness indicating damage to the myocardium (heart muscle). Young adult men are at the highest risk, although women may also develop myocarditis.

Almost 20 percent of all sudden deaths in young people are due to myocarditis. The survival rate for myocarditis is 80 percent after one year and 50 percent after five years.⁹

A 2021 study by Dr Min Seo Kim at Korea

University in Seoul compared cardiac adverse events from the mRNA Covid-19 vaccine to those from flu vaccines using the World Health Organization's VigiBase for adverse events.¹⁰

Overall, individuals receiving Covid-19 mRNA vaccines showed a 12.72 times higher incidence of cardiac hypertensive crisis (sudden, dangerous rise in blood pressure) and a 7.94 times higher incidence of supraventricular tachycardia

(abnormally fast or irregular heartbeat in the upper heart chambers) than those taking the flu vaccine (see graph, left).

Other research has focused on sex or particular age groups. For instance, Dr Francisco Taz Tsun Lai

12.72X
1X



Hypertensive crisis

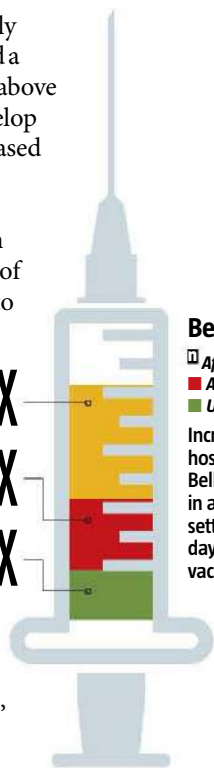
■ mRNA Covid-19 vaccine ■ Influenza vaccine
Risk of hypertensive crisis or supraventricular tachycardia among recipients of mRNA Covid-19 vaccines versus patients who received the influenza vaccine¹⁰

Supraventricular tachycardia

7.94X
1X



2.33X
1.54X
1X



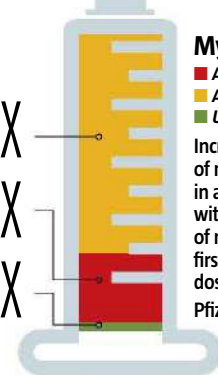
Bell's palsy

■ After 1st or 2nd dose
■ After 2nd dose
■ Unvaccinated
Increased odds of hospitalization with Bell's palsy diagnosis in an inpatient setting within 28 days of Pfizer vaccination⁷

and his team at the Hong Kong-based Centre for Safe Medication Practice and Research looked at the Pfizer shot given to adolescents aged 12–18.¹¹ They found those who had received the first dose of the Pfizer vaccine had a 9.15 times greater risk of myocarditis than the unvaccinated in that age group.

But the statistics leapt up with the second jab. Those who received the second dose had a 29.61 times greater risk of myocarditis compared to unvaccinated adolescents within 28 days of vaccination (see graph, right). After their second dose of the Pfizer vaccine, they had a 2.06 times greater

29.61X
9.15X
1X



Myocarditis

■ After 1st dose
■ After 2nd dose
■ Unvaccinated
Increased risk of myocarditis in adolescents within 28 days of receiving first and second doses of the Pfizer vaccine¹¹

Why aren't the necessary studies being conducted?

One reason regulators give to dismiss a more rigorous approach in studying the long-term health effects of any shots in the childhood and adult vaccination schedule is that vaccine adverse events are “one-in-a-million,” and thus we should stop promoting fear of vaccine injury. The government derives its one-in-a million figure by comparing the number of compensated vaccine injuries by the National Vaccine Injury Compensation Program (NVICP) to the total number of vaccines given in the US.

Unfortunately, most vaccine-injured people don't even know the NVICP exists, and even fewer get compensated. The Lazarus study, carried out by Ross Lazarus of Harvard Pilgrim Health Care, which the CDC funded and then abandoned—likely because the agency didn't like the results—stands in stark contrast to the one-in-a-million figure.

Specifically, researchers in the Lazarus study found the rate of adverse events was one in 3,823 among a population of about 375,000 individuals who received 1.4 million routine vaccines.¹

Over the three-year study period, that translated to a one in 10 chance of experiencing an adverse reaction to a vaccine, a far cry from the mythical “one-in-a-million” rhetoric touted by the pharmaceutical industry and government health agencies. The Lazarus study's findings suggest that federal officials and the

pharmaceutical industry must pay urgent attention to this astronomical rate of adverse events.

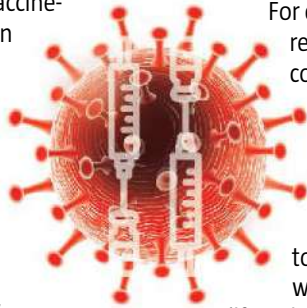
Still, both the CDC and FDA steadfastly refuse to study health outcomes in vaccinated versus unvaccinated populations.

Public health experts assert they can't feasibly do so because it would be unethical to complete a randomized, controlled trial (RCT) in which researchers withhold lifesaving vaccines from a blinded placebo control group.² Their argument is a sham. Pharmaceutical companies typically use this method during the FDA approval process to test new drugs or biologics when no comparable treatment exists.

For example, the FDA requires randomized controlled clinical studies for certain cancer treatments,³ heart medications⁴ and respiratory drugs,⁵ and no one appears to question the ethics of withholding potentially lifesaving remedies from blinded placebo control groups. It is, in fact, standard practice.

Furthermore, researchers can complete many other types of analyses besides RCTs using existing populations of vaccinated and unvaccinated children and adults. According to the Cochrane Collaboration, an international organization that examines the evidence for individual medical drugs and procedures, these analyses produce results that are equal in reliability.⁶

These include analyses that are prospective (looking at health effects in the future) or retrospective (looking at past medical data and history).



Myocarditis

- Moderna vaccine
- Pfizer vaccine
- Unvaccinated

Increased risk of myocarditis in males aged 16–24 years following the second dose of Pfizer and Moderna vaccines¹¹

13.83X

5.31X

1X

risk of sleep disturbances/ disorders compared to unvaccinated adolescents.

Norwegian research backed up these results. In a study published in *JAMA Cardiology* in 2022, Dr Øystein Karlstad and his team at the Norwegian Institute of Public Health examined more than 23 million Nordic country residents aged 12 and older.¹¹

Researchers observed the highest risk in boys and men aged 16–24. After the second Moderna mRNA vaccine dose, the rate of myocarditis was 13.83 times higher than in the corresponding unvaccinated group, and after the Pfizer mRNA vaccine, it was 5.31 times as high (see graph, above).

Britain showed the same results. Researchers from the Nuffield Department of Primary Health Care Services in Oxford examined individuals in England aged 13 and older for disease incidence before and after their Covid-19 vaccination.¹²

Men receiving the second dose of the Moderna mRNA-1273 vaccine showed the highest levels of myocarditis—almost 15 times more men developed it after the vaccine than after a Covid infection.

And in America, a 2022 study by Dr Anthony Simone at the Kaiser Permanente Los Angeles Medical Center examined all Kaiser Permanente Southern California patients who received one to three doses of mRNA Covid-19 vaccines between December 14, 2020, and February 18, 2022.¹³ It found the risk of myocarditis within seven days of the second

Myocarditis

- After 2nd dose
- After 3rd dose
- Baseline period

Increased risk of myocarditis within seven days of mRNA Covid-19 vaccination compared to a baseline period¹⁴

10.23X

6.08X

1X

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vaccine was 10.23 times higher than in the baseline period, and the risk of myocarditis within seven days of the third vaccine (booster) was 6.08 times higher than in the baseline period (see graph, bottom of page 30).

To establish the “baseline period,” the researchers examined the incidence of myocarditis among the patients one to two years before the first dose of Covid vaccine. This study showed the second and third jabs had the greatest effect: no statistically significant risk was associated with the first dose.

In Hong Kong, the focus of heart issues was with the Pfizer jab and hospitalized patients. Researchers from the University of Hong Kong looked at 160 hospitalized patients aged 12 and older in Hong Kong given the Pfizer jab from February to August 2021 with carditis (heart inflammation) and elevated troponin levels (indicating a heart attack has occurred).¹⁴ Compared with 1,533 control unvaccinated patients, the vaccine recipients had 3.57 times greater odds of carditis than unvaccinated patients.

And for male vaccine recipients, the odds were 4.68 times greater. Once again, the risk was found to be higher after the second dose of the Pfizer jab than after the first dose.

In Israel, a study of Israeli Ministry of Health data published in the *New England Journal of Medicine* found that the incidence of myocarditis within 30 days after the second dose of the Pfizer mRNA vaccine was 2.35 times higher than in unvaccinated people, and highest among boys aged 16–19 years at 8.96 cases per 10,857, or roughly one in 1,000 (see graph, right).¹⁵

The researchers determined that the rate of myocarditis in the general unvaccinated population was one in 10,857, making the incidence among adolescent boys nearly nine times higher.

Meanwhile, in Italy, researchers from the National Centre for Drug Research and Evaluation at the Istituto Superiore di Sanità in Rome tracked myocarditis and pericarditis in teenagers from age 12 and in adults up to age 39 after receiving mRNA vaccines and published their findings in *PLOS Medicine* in 2022.¹⁶

In the study, boys and men receiving the first or second dose of the Moderna mRNA vaccine had approximately a 12 times greater risk of myocarditis or pericarditis within seven days of vaccination than at any time between December 27, 2020, and September 30, 2021, other than during the 21 days after their first or second dose.

And in California, a team of scientists from Kaiser Permanente Northern California and the CDC

looked at participants from eight integrated healthcare delivery systems in the CDC’s Vaccine Safety Datalink. It found a significantly greater risk of myocarditis or pericarditis within seven days after participants received the first or second dose of the Pfizer Covid-19 vaccines than within the baseline period of

the study from December 14, 2020 to January 15, 2022, before they received a shot (see graph, left).¹⁷

Investigators showed that myocarditis or pericarditis was significantly associated with Covid-19 vaccination in eight different studies identified.¹⁸

Thrombocytopenia and thrombosis

Thrombocytopenia is a deficiency of platelets in circulating blood and can lead to spontaneous bleeding. Cerebral venous thrombosis occurs when a blood clot blocks blood flow away from the brain and can be a cause of stroke.

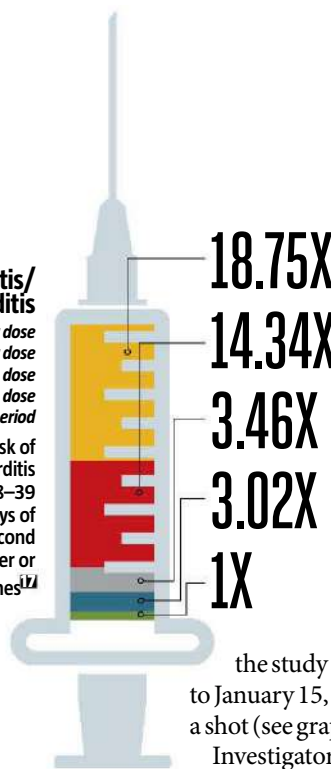
Studies have linked these illnesses with Covid-19 vaccines as well.

The prestigious journal *Nature Medicine* published a British study carried out by researchers affiliated with Victoria University of Wellington in New Zealand and the Usher Institute at the University of Edinburgh.¹⁹ It included more than 2.5 million people over age 18 in Scotland vaccinated between December 2020 and April 2021, this time with the Oxford-AstraZeneca vaccine.

That shot was associated with a 5.77 times higher risk of thrombocytopenic purpura (an autoimmune

Myocarditis/ Pericarditis

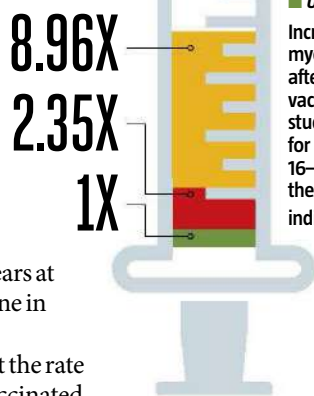
- After 1st Pfizer dose
 - After 2nd Pfizer dose
 - After 1st Moderna dose
 - After 2nd Moderna dose
 - Baseline period
- Increased risk of myocarditis or pericarditis in persons aged 18–39 years within 7 days of receiving first or second dose of Pfizer or Moderna vaccines¹⁷



Myocarditis

- Study population
- Males aged 16–19
- Unvaccinated

Increased risk of myocarditis within 30 days after second dose of Pfizer vaccine for the entire study population and for male recipients aged 16–19 years, compared to the risk in unvaccinated individuals¹⁵



Idiopathic thrombocytopenic purpura

5.77X
1X

Arterial thromboembolic events

1.22X
1X

Hemorrhagic events

1.48X
1X

- AstraZeneca vaccine
- Unvaccinated

Increased risk of thrombocytopenic, thromboembolic and hemorrhagic events following AstraZeneca Covid-19 vaccination, compared to the risk in unvaccinated people¹⁹

clotting disorder), an increased relative risk of arterial blood clots and an increased relative risk of excessive bleeding anytime in the first 27 days after the shot (see graph, below).

Nordic countries offered evidence of a similar scenario. Dr Jacob Dag Berild at the Norwegian Institute of Public Health studied the effects of three Covid vaccines (AstraZeneca, Pfizer and Moderna) in Norway, Finland and Denmark.²⁰

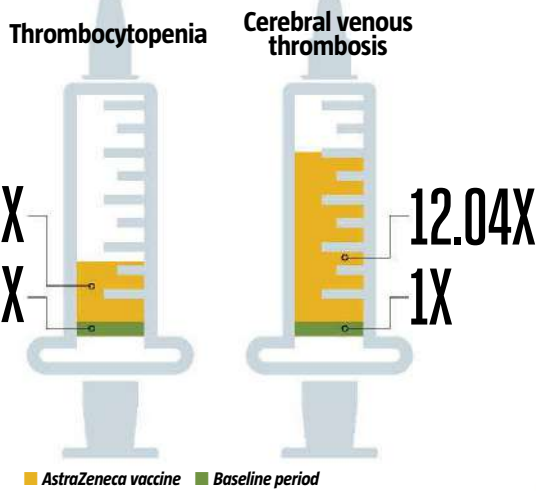
The team examined hospital registries from the three Nordic countries to measure the incidence of thrombocytopenia and cerebral venous thrombosis (blood clots in the brain) within 28 days following the three vaccines.

They observed the highest risks for patients receiving the AstraZeneca Covid-19 vaccine, with a 4.29 times higher risk of thrombocytopenia and a 12.04 times higher risk of cerebral venous thrombosis within 28 days after the shots (see graph, above).

Shingles Another side effect linked to the Covid jabs, according to the research, is shingles, a painful, sometimes serious condition resulting from the reactivation of the herpes zoster virus that causes chickenpox. Anyone who's had chickenpox or the varicella vaccine may be at risk of this reactivation when their immune system is compromised or suppressed.

Dr Wan and his research team at the University of Hong Kong examined patients who'd been hospitalized for shingles after receiving the Chinese CoronaVac or the Pfizer jab.²¹

The study, published in *The Lancet Regional Health—Western Pacific*, revealed that patients who received the Pfizer vaccine were more than five times more likely to develop shingles in the first 27 days after the first shot, while those who received CoronaVac



Increased risk of thrombocytopenia and cerebral venous thrombosis within 28 days following the AstraZeneca vaccine compared to the baseline period²⁰

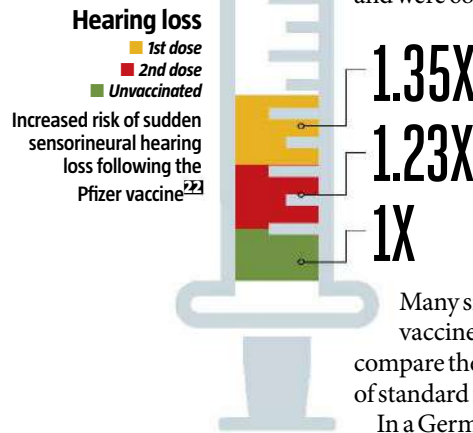
were 2.67 times more likely to contract shingles after 13 days (see graph, bottom left).

Hearing loss Besides shingles, many of those receiving the Pfizer vaccine experienced sudden loss of hearing. Patients with sudden sensorineural hearing loss can experience tinnitus. It can also lead to permanent hearing loss.

Dr Yoav Yanir from Lady Davis Carmel Medical Center in Haifa, Israel, published findings in *JAMA Otolaryngology—Head & Neck Surgery* showing that the first and second doses of the Pfizer shot resulted in 35 percent and 23 percent higher risks of sudden hearing loss respectively (see graph, left).²²

Risks were greatest, 92 percent higher, after the first dose in girls and women aged 16–44 and were 68 percent higher in women older

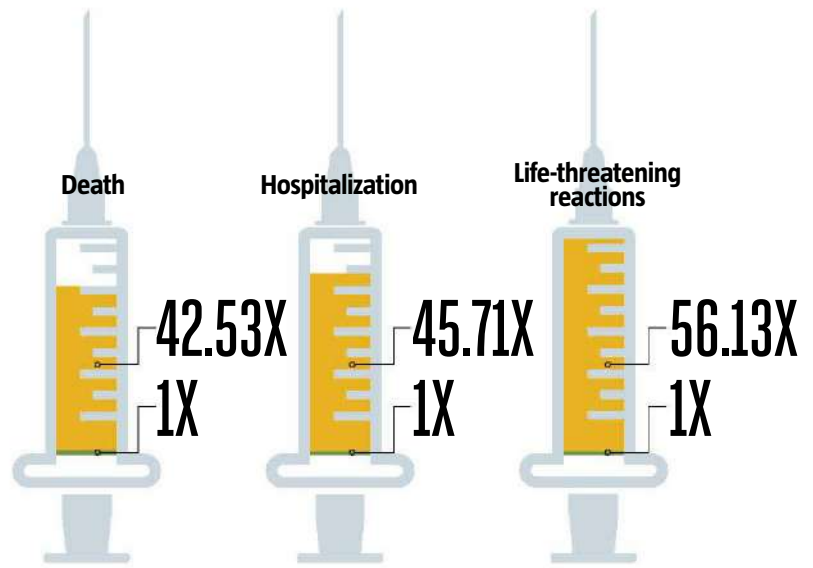
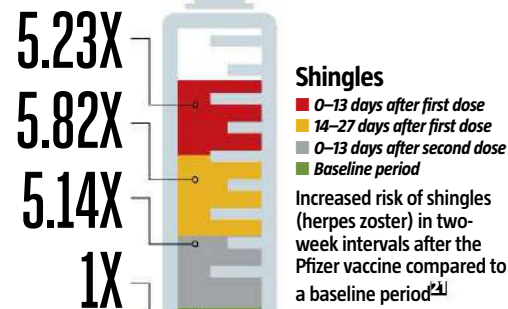
than 65. In boys and men of the same ages, the greatest risk occurred after the second dose, making them nearly two and a half times more likely to lose their hearing.



Covid-19 vaccines vs flu vaccines

Many side effects unique to the Covid vaccines are shown in bold relief when you compare the incidence of these effects to those of standard flu vaccines.

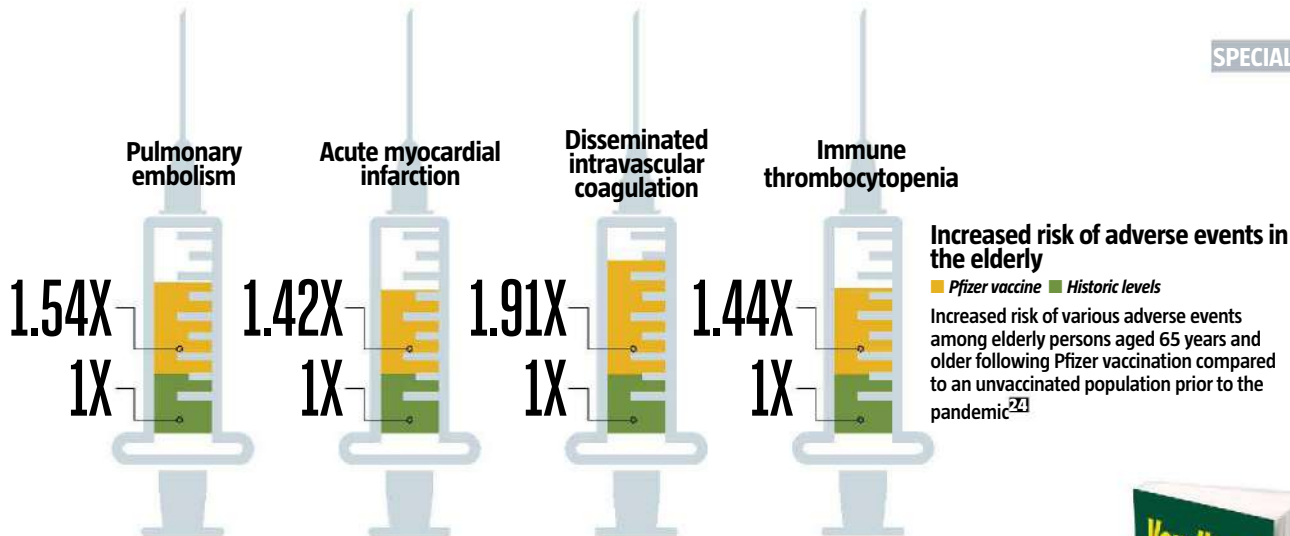
In a German study published in *Frontiers in Public Health*, Dr Diego Montano at the University of Tubingen in Germany compared adverse events reports from EudraVigilance (European Database of Suspected Adverse Drug Reactions) and VAERS for Covid-19 and flu



Increased risk of adverse events

■ Covid-19 vaccine ■ Influenza vaccine

Increased risk of adverse events from Covid-19 vaccines versus influenza vaccines based on adverse event reports to the European Database of Suspected Adverse Drug Reactions²³



vaccines.²⁵ These were then adjusted to account for the European Centre for Disease Prevention and Control (ECDC) estimates of the total number of each type of vaccine administered.

Death, hospitalization and life-threatening reaction reports per unit of Covid-19 vaccine given far eclipsed those for the influenza vaccine (see graph, bottom right, page 32). The authors also reported significant relative risks of thrombosis, coagulation and sexual organ reactions associated with Covid-19 vaccines.

Adverse events in the elderly

These adverse events and others also show up in those over age 65. An FDA-sponsored prospective study tracked US Medicaid claims data for over 30 million patients aged 65 and older from December 2020 through January 2022.²⁴

Weekly sequential testing revealed four outcomes that stood out enough to raise alarm following Pfizer vaccination compared to pre-Covid-19 vaccine historic levels: pulmonary embolism (blood clot in the lungs), with a risk 54 percent higher than before vaccination between one and 28 days after vaccination; acute heart attack, with a risk 42 percent higher; and abnormal blood clotting throughout the body, with a risk 91 percent higher (see graph, above).

Immune thrombocytopenia (low blood platelet count due to an autoimmune attack) showed a risk 44 percent higher than before vaccination for up to 42 days after vaccination.

Serious adverse events

Other studies directly compared vaccine recipients to placebo control recipients. A notable one was published in *Vaccine* by a senior editor of *The BMJ* at the University of Maryland and a scientist from the Thibodaux Regional Health System in Louisiana.

It used data from the phase 3 clinical trials for the Pfizer and Moderna vaccines.²² This time the researchers were looking for serious adverse events as follows:

- Death, life-threatening at the time of the event
- Inpatient hospitalization, or prolongation of existing hospitalization
- Persistent or significant disability/incapacity
- A congenital anomaly/birth defect

- A medically important event based on medical judgment

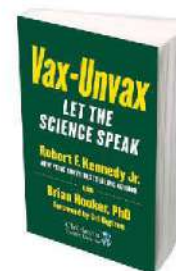
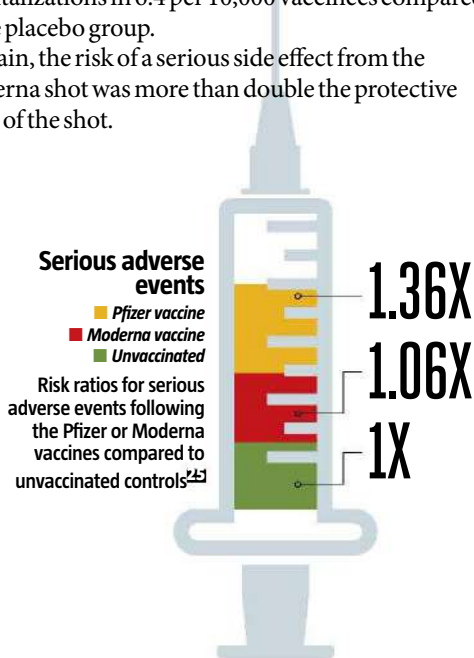
The Pfizer vaccine showed a 36 percent higher risk of serious adverse events, while those who received the Moderna jab showed a 6 percent higher risk (see graph, below). Overall, recipients of either of the mRNA vaccines had a 16 percent greater risk of serious adverse events compared to unvaccinated controls. The result was marginally statistically significant.

But other data emerged that was even more interesting. The study authors also completed a risk-benefit assessment of both vaccines. They found that the Pfizer vaccine showed an excess risk of serious adverse events of special interest of 10.1 per 10,000 vaccinees while preventing Covid-19 hospitalizations in 2.3 per 10,000 vaccinees compared to the placebo group.

In other words, you are about five times more likely to have a reaction to the Pfizer shot than you are to prevent a reaction to Covid-19 serious enough to land you in the hospital.

Likewise, the Moderna vaccine showed an excess risk of serious adverse events of special interest of 15.1 per 10,000 vaccinees while preventing Covid-19 hospitalizations in 6.4 per 10,000 vaccinees compared to the placebo group.

Again, the risk of a serious side effect from the Moderna shot was more than double the protective effect of the shot.



Adapted from *Vax-Unvax: Let the Science Speak* by Robert F. Kennedy Jr and Brian Hooker (Skyhorse Publishing, 2023)

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PLASTIC AND NOT-SO- FANTASTIC

We are drowning in plastics in every corner of our lives, causing a host of serious health issues. Cate Montana uncovers how to keep yourself safe

When historians look back, they may well end up naming our current civilization the Plasticene Era. Since the 1950s, the nations of the world have produced over 9 billion tons of plastic. Annual global plastic production is expected to reach 500 million tons by 2025.¹

At least 80 percent of plastic waste ends up buried in landfills. Over 30 billion pounds of plastic are estimated to enter Earth's oceans every year.² The rest clogs our lakes, rivers and streets, blowing around and clinging to trees and fence lines.

But it's not just the unsightly plastic bags, bottles, fishing nets, combs, disposable razors, cigarette butts, face masks and flossing picks that are problematic. Plastics do not degrade easily because they are made from petroleum, which contains propylene, a chemical that when refined into plastic creates chains of molecules called polymers. Soil and aquatic microorganisms don't recognize the bonds that hold polymers together and thus can't break them down like they do organic materials.

Plastic bags in the ocean can decompose in as little as 10–20 years. Plastic bottles in the ocean, however, can take up to 450 years to fall apart. In a landfill, bags can take as long as 1,000 years to crumble.³

But what does a plastic bag or razor “crumble” into? They may break down into microplastics, which are less than 5 mm in length and clearly visible. Or they become nanoplastics that are less than 1 millionth of a meter (0.000001 m) in size and can't even be viewed with a common microscope.

These tiny plastic particles are made up of polymers and other chemicals added in the manufacturing process. Microplastics also attract and bond to other industrial pollutants, including heavy metals and dyes.⁴

Sources of microplastics

Microplastics (MPs) are divided into two categories: primary and secondary. Primary microplastics are deliberately manufactured for use in consumer products like pharmaceuticals, cosmetics and insecticides. Secondary microplastics are created when larger plastic materials break down through recycling and waste disposal and through exposure to UV rays, rain and other weather conditions.

Micro- and nano-sized plastic particles are released into the environment during the production and

transport of plastic products, ending up in the air and in wastewater. Unfortunately, the filtration systems installed in modern wastewater treatment facilities aren't designed to filter them out of the water before it's released back into the environment.

Modern farming practices are an enormous contributor to the microplastics pollution load. For example, commercial growers often cover vast acres of the earth with plastic film to reduce the growth of weeds and grasses in orchards and around vegetable and fruit crops. The enormous plastic sheets release MPs into the groundwater.

As well, plastic irrigation pipes release MPs. The granules of industrial fertilizers are coated with microplastics to ensure a slower release of the chemicals into the soil. These plastics are also used as coloring and anti-caking agents.

Commercial sludge from waste plants, used as agricultural fertilizer, contains MPs that leach into the groundwater and go airborne on the winds. Trillions of nanoparticles of plastic are even released into the sewer system when you conscientiously use hot water to wash your plastic bags and bottles for reuse in the home.⁵

In addition to all the packaging and food containers we use, other sources of MPs in our homes are cleaning products, paints, adhesives, flooring and furniture. Even our electronic devices and electrical wiring release toxic microplastics into the air.

Surprisingly, the majority of indoor microplastic pollution comes from synthetic fabrics like polyester, nylon and acrylics used in clothing, curtains and carpeting. Those soft, cozy synthetic fleece blankets, throws and jackets are major culprits when it comes to microplastic pollution.

On average 1,174 mg of microfiber plastics are released into the water system when washing a single fleece jacket in the washing machine.⁶

Another form of primary microplastic is microbeads, tiny bits of plastic that manufacturers add to exfoliators, body washes, toothpastes and other personal cleansing products to give them their scrubbing power. Approximately 1 mcm in diameter, microbeads are far too small to see.

Studies show that using an exfoliating scrub can release 4,500–94,500 microbeads of plastic into the water with each use. Toothpaste releases approximately 4,000 microbeads every time you brush. And a lot of those microbeads end up being swallowed.⁴

50 plastic bags

In a 2021 study, researchers examined the average microplastic content of common beverages, condiments, honey, meat, seafood and vegetables. From just these sources, they estimated that people could be consuming as much as the equivalent of 50 plastic grocery bags each year.¹

The amount of microplastics found in water alone is concerning. Tap water from 159 global sources was tested, and 81 percent of the samples were found to contain microplastic particles.²

One study tested 11 globally distributed brands of bottled water purchased in nine different countries and found microplastics in 93 percent. Far more microplastics were found in bottled water than in water from the tap.³

On top of bottled water and other bottled beverages, seafood is a huge source of microplastics in the human diet. Fish, crustaceans, mollusks and other sea creatures absorb MPs from plastics dumped in the ocean—which are frequently coated in various

chemical pollutants.

These toxins accumulate in the seafood, resulting in DNA damage, reduced cellular function, depressed immune system function, cytotoxicity and other adverse effects. Ingestion of these polluted aquatic organisms inevitably results in similar symptoms and issues in humans.¹⁰

A serious health situation

Microplastics are everywhere—adhesives and glues, office supplies, auto interiors and tires, artificial leather, dyes, toys and road paints. Micro- and nanoplastics can be ingested, inhaled and absorbed through the skin.¹¹ Even in minimal doses, they are toxic to both humans and animals, damaging cell function, disrupting the immune system response, and triggering oxidative stress and genetic mutations.

MPs and nanoplastics absorb and bind to other harmful chemicals commonly used in plastic production, such as bisphenols and phthalates, dioxins, polybrominated diphenyl ethers, perfluorinated compounds, heavy metals, polychlorinated biphenyl ethers and organic contaminants.

They then carry these substances with them when they enter the body.¹² The effects of the companion chemicals are overwhelmingly negative:

Bisphenols and phthalates are known endocrine disruptors negatively affecting hormone production, thyroid function and reproductive health. As a result, they cause infertility as well as autoimmune and metabolic conditions.¹³

Dioxins are a known cause of cardiovascular disease.¹⁴

Polybrominated diphenyl ethers (PBDEs) can build up in the body and cause tumors, thyroid hormone imbalance and neurodevelopmental problems.¹⁵

Perfluorinated compounds disrupt immune system, thyroid and liver function. They cause lipid and insulin dysregulation, kidney disease and cancer.¹⁶

Heavy metals cause DNA damage and cancer. They also interfere with the natural growth and death processes of cells.¹⁷

Polychlorinated biphenyls (PCBs) accumulate in fatty tissues and are associated with liver and heart disease, type 2 diabetes, inflammatory diseases, endocrine dysfunction and possibly cancer.¹⁸

Nanoparticles of plastic can damage cellular function and activate inflammatory gene transcription.¹⁹ The abundance of microplastics ingested from seafood is believed to increase cancer risk in humans.²⁰ The particles also contribute to irritable bowel syndrome.²¹

Pre- and postnatal exposure to microplastics is a risk factor for autism spectrum disorder.²² Micro- and nanoplastic accumulation creates oxidative stress, possibly leading to brain disorders and various behavioral changes.²³

A study of the impact of microplastics on the brain found that in three weeks of exposure to

Types of microplastics

Although there are hundreds of microplastic compounds, these are the most common microplastics polluting our environment and our bodies:

Polyethylene (PE)	Polypropylene (PP)	Polyvinyl chloride (PVC)
Polyethylene terephthalate (PET)	Polystyrene (PS)	Polyurethane (PU)
Polyamide (PA)	Polyvinyl alcohol (PVA)	

Here is a brief list of some other common MP ingredients. Compare this list to the ingredients of your household products:

Acrylates copolymer	Methacrylate copolymer	Polyamide or nylon
Acrylates crosspolymer	Methacrylate crosspolymer	Polyethylene
Butylene	Methyl methacrylate copolymer	Polyethylene terephthalate
Carbomer or polyacrylic acid	Methyl methacrylate crosspolymer	Polypropylene
Dimethicone	Phthalate	Polyurethane
Ethylene		Polyvinyl
		Propylene copolymer or polypropylene
		PVP
		Styrene copolymer
		Tetrafluoroethylene
		Vinyl acetate copolymer
		VP/VA copolymer

Polyacrylamide
Polyacrylate



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microplastics through drinking water, they began accumulating in every organ, including the brain, triggering dementia-like symptoms in mice.²³

As known endocrine disruptors, microplastics interfere with hormone receptors and glands, negatively impacting the pituitary, thyroid, hypothalamus and adrenal glands as well as the testes and ovaries.²²

This endocrine-disrupting activity links micro- and nanoplastics to the current explosion of obesity in Western nations, especially in the US. Studies have labeled microplastics as “obesogens” because they are believed to destroy the body’s natural weight-control mechanisms through prenatal or early-life exposure.²⁴

Products containing microplastics

Unfortunately, MPs are in nearly everything we use and in every setting we spend our day-to-day lives in. Here are some of the worst offenders.

Home and personal care products

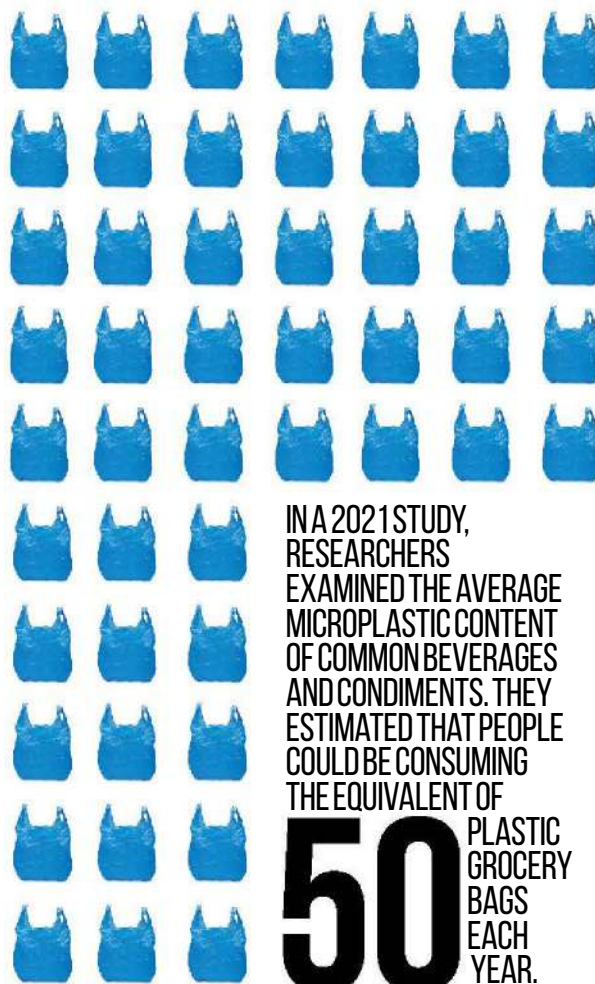
The major sources of primary microplastics (commercial products using MPs) in the home are detergents, cosmetics, personal care products, pharmaceuticals and insecticides. Although in the US the Microbead-Free Waters Act of 2015 bans the manufacture of “rinse-off cosmetics” containing microbeads, the law doesn’t begin to seriously address the issue.

The average exfoliating shower gel has as much plastic in microbead form as the plastic container it comes in. Some commercial detergent brands have been found to release 2.5 million microbeads per load of laundry. Even organic detergents have been found to contain microplastics, though in lesser quantities.²⁵

Liquid and powder dishwashing detergents also release MPs. And the longer the dishwasher cycle and the hotter the water used, the more microplastics they will release.²⁴

MPs are used as binders for chemical additives in our cosmetics, shampoos, face creams and face powders and are designed to increase waterproofing. They coat the hair and skin, giving them a soft, smooth feel.

Acrylates/C10-30 and alkyl crylate crosspolymer are synthetic polymers used as texture enhancers, emulsifiers, and film-forming and thickening agents. MPs like these are primarily found in the following



products:

- Mascara
- Lipstick and lip gloss
- Foundation
- Highlighter
- Facial powder
- Hand sanitizer
- Artificial eyelashes
- Toothbrushes
- Toothpaste
- Facial and hand cleansers
- Shaving products
- Sunscreen

A list of over 500 microplastic ingredients commonly used in personal care products can be found at beatthemicrobead.org/guide-to-microplastics.

Pharmaceuticals

In an effort to make drug delivery faster and more efficient, plastic particles and polymers are often used in many drug formulations as stabilizers and enhancers. Although there are now labeling and reporting rules for microplastics added to drugs, there is no current regulation banning their use.

Food sources

Plastic packaging is undoubtedly the worst culprit when it comes to transferring microplastics into our food supply. However, microplastics are common in commercial livestock feeds (many feed bags are plastic) and have now been found in the blood of farm animals and in milk entering the food chain and then us.

Microplastics can also penetrate the roots, leaves, fruits and even seeds of many plants and have now been found in apples, carrots, pears and lettuce, with the highest concentration in apples.²⁶ Here are the current major food sources of microplastics:

- Bottled water
- Seafood
- Sea salt
- Soy products
- Honey
- Tea

Minimize your exposure to microplastics

Aside from moving to a distant farm in Patagonia or outer Mongolia and raising all your own food by hand, the steps below are the best anyone can do to minimize exposure to toxic microplastics in their daily life.

Food

- Start your own veggie garden in your backyard.

- Use filtered tap water.
- Eliminate plastic food containers—use glass only for home use.
- Don't buy food wrapped in plastic or packaged in plastic containers.
- Never heat or microwave food in plastic.
- Buy organic fruits, veggies, meats, eggs and dairy from local farms and farmers' markets or from other farm-to-table suppliers.
- Reduce seafood consumption.
- Buy local honey.
- Avoid sea salts.
- Use loose tea instead of tea in bags. Many commercial tea bags contain plastic.
- Avoid canned foods and beverages. BPA and PVC are used in epoxy can coatings.
- Stop chewing gum. The gum base in commercial gums is a mix of various plastics including polyethylene, artificial coloring and chemical flavors.
- Buy glass-bottled milk and cream. Most "paper" cartons have a plastic coating.
- Avoid food in shelf-stable cartons. These cartons average 74 percent paper, 22 percent plastic and 4 percent aluminum.
- Avoid cheap commercial sports "supplements" and drinks. Many contain estrogenic endocrine disruptors.
- Avoid meal delivery kits that use a lot of plastic packaging (most do!).

Personal care products

- Check labels and buy organic products with simple, natural ingredients and low-impact packaging.
- Look for brands that carry the "Zero Plastic Inside" logo from the Plastic Soup Foundation.
- Use natural exfoliants like sugar or sand scrubs.
- Eliminate artificial fragrances.

Clothing, bedding, furniture

- Stop using synthetic materials.
- Buy clothing, bedding materials, furniture and decorative fabrics made of natural fibers like cotton, wool, silk, flax, hemp, bamboo, ramie, jute or abaca.
- If you buy fleece and other synthetic clothing, go high quality. It sheds fewer fibers.
- Use eco-strip delivery systems instead of laundry soaps in plastic bottles.
- Read labels and avoid detergents with plastics.
- Use a front-loading instead of top-loading washing machine. Top-loading machines are more aggressive in agitation and cause more fiber breakage.
- Wash in cold water. Hot water releases more microplastics from clothing.
- Avoid washing balls. They cause more breakage of fibers in the wash cycle.
- Try using the Guppyfriend laundry bag (en.guppyfriend.com or guppyfriend.us) or a Cora Ball (coraball.com) to capture microplastics in the wash.
- Wash clothes less often, especially synthetics.



Symptoms of microplastic toxicity

Microplastics unbalance the intestinal microbiome, which can lead to:

- | | |
|-------------------------|----------|
| Abdominal pain | IBS |
| Bloating | Nausea |
| Changes in bowel habits | Vomiting |

Endocrine disruption by MPs causes:

- | | |
|-------------------------|--------------------------|
| Metabolic disorders | Miscarriage |
| Developmental disorders | Congenital malformations |
| Infertility | |

The effects of MPs on the respiratory system may cause:

- | | |
|--|------------------------------------|
| Oxidative stress in lungs and airways | Low blood oxygen concentration |
| Coughing, sneezing and shortness of breath | Fatigue and dizziness ^d |

The effect of MPs crossing the blood-brain barrier can cause:

- Cognitive dysfunction^e
- Dementia (based on a study in mice)^e

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- Use cloth diapers. Disposables are primarily plastic.

Other things to do

- Vacuum and dust frequently.
- Avoid touching "paper" receipts in stores—most contain high levels of BPA, which is absorbed through the skin.
- Use natural fiber reusable bags for shopping.
- Eliminate plastic straws.
- Don't use plastic dishes or utensils.
- Buy an old-fashioned metal razor and change the blades yourself.
- Buy reusable mugs and water bottles made of ceramic, glass or stainless steel.
- Use matches or a refillable metal lighter instead of disposable plastic lighters.

See page 64 for more ways to reduce your exposure to microplastics.

Detoxing from microplastics

One of the most direct ways to tell if you're dealing with microplastic toxicity is by getting tested. The Mosaic Diagnostics GPL-TOX Profile (mosaicdx.com) is

a urine-based assessment that screens for 173 environmental toxins, including many plastics and the chemicals they bind to.

If your test shows your body has a high level of MPs, or if you think you might, improving your diet is the first step on the road to better health. There are also other steps you can take.

Detox diet

- Eat whole, organic foods.
- Consume lots of brassicas and cruciferous vegetables: broccoli, cabbage, kale, cauliflower, brussels sprouts, collard greens, arugula, turnips, rutabaga and radishes.
- Asparagus, pineapple, red grapes and citrus also help with detox.
- Eat lots of fermented foods, such as homemade sauerkraut, pickles, yogurt (low or no sugar), kefir, kimchi, miso, natto, tempeh, raw cheeses, kombucha and kvass.
- Eat high-fiber meals, including lots of green salads.
- Use an organic, unfiltered apple cider vinegar on your salads.
- Black tea reduces BPA toxicity. Drink loose leaf.
- Curcumin, rosemary, rooibos tea and honeybush tea support glucuronidation (the breakdown of BPA by the liver), scavenge free radicals and chelate with metal ions.
- Acai and other berries are high in antioxidants. Try lingonberries, black raspberries, elderberries, gooseberries, wild blueberries.

On the other hand, avoid consuming refined sugars and flours as well as all processed foods that support microbes feeding on simple sugars, plastics, heavy metals and other toxins.

Detox protocols

There are no studies showing that common detox protocols will work with microplastics, such as using gut-cleansing substances like bentonite clay and food-grade diatomaceous earth to pull toxins out of the gut. However, it just makes sense that a healthy intestinal cleanse will help purge the body of microplastics as well.

Far infrared saunas

Since microplastics can get into the body through the skin, they can also leave the body through the skin.



The best detox supplements

Studies examining ways to naturally remove microplastics from the body are rare. The few that are available indicate that probiotics can bind to toxins and may overcome the toxicity of polystyrene nanoplastics and microplastics in the human body. As well, the probiotic *Lactobacillus acidophilus* NCFM inhibits phthalate-caused DNA damage and cell death.¹

Antioxidants have proven to be highly effective in helping to remove toxins from the body, and some sources recommend using antioxidants when dealing with microplastics.

No dosages have been determined, so follow the standard dosages found on the product labels.

Bifidobacterium breve is a probiotic found in breastmilk. It's anti-inflammatory and improves gut health.

Lactobacillus casei is another probiotic that has strong antioxidant properties.

Calcium d-glucarate supports the liver's glucuronidation detox process, which makes insoluble substances (like microplastics)

more water-soluble so that it becomes easier for the body to remove them.

Coenzyme Q10 is an antioxidant that reverses the reproductive damage caused by BPA.

Chlorella helps remove heavy metals and other toxins, like dioxin, from the body. It may help pull microplastics that have bonded with heavy metals out of the body.

Digestive enzymes may also help. Taken between meals, they act as systemic enzymes, breaking down foreign proteins and other toxins.

Diindolylmethane (DIM) is a compound in cruciferous vegetables that helps the body metabolize estrogens and may mitigate metabolic imbalances.

Vitamins C and E have strong antioxidant properties.

Quercetin scavenges free radicals and chelates with metal ions.

EGCG is a polyphenol antioxidant that has free radical-scavenging abilities.

Resveratrol has similar scavenging potential to quercetin and EGCG.

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The heat from saunas—especially infrared saunas—expands capillaries and blood vessels, increasing blood flow and carrying toxins released by the cells out of the body as you sweat. According to functional medicine expert Dr Sarah Myhill, 50 far infrared sauna sessions will roughly cut your toxic load in half.²⁹

A fine balance

The balance of bacteria in your gut can have a big impact on your estrogen levels and your health, says Marcelle Pick. Here's how to heal your gut for long-lasting hormonal health

When I asked some of my closest friends if they could tell me what the estrobolome was, their answers sounded like they were playing a game of Balderdash.

A new amusement park ride? The puff of powder released when putting on latex gloves? A Polish bread served at Easter? A women's health condition related to low levels of certain hormones?

While some of their answers were intentionally silly, this last one wasn't too far off; the estrobolome does relate to hormones. Basically, the estrobolome is a collection of bacteria within your gut microbiome that can modulate and affect your estrogen levels.

Researchers Claudia Plottel and Martin Blaser defined the estrobolome as "the aggregate of enteric bacterial genes whose products are capable of metabolizing estrogens." In less scientific terms, that means the collection of bacteria that can convert estrogen to its active form.

I think it's important for women to understand what the estrobolome is and how it can impact their health. Most are aware of the way fluctuating hormones can make them feel.

They've experienced ups and downs around their menstrual cycle, and any perimenopausal or menopausal woman can tell you all about hot flashes, mood swings and other uncomfortable symptoms.

Not only can estrogen imbalance be behind these symptoms but it's also connected to a number of serious health conditions. And it's crucial to understand that the balance in your gut has a big impact on your estrogen levels.

Estrogen and the gut

It may seem odd, but though estrogen is produced mainly by the ovaries and adrenals, levels are regulated primarily in your gut. That means that if your gut is out of balance, levels of this important hormone may also be skewed.

Research is expanding in this area all the time. One review explored the way that the estrobolome might impact the risk of developing postmenopausal estrogen receptor-positive breast cancer. Looking at the composition and activities of the estrobolome in healthy individuals as well as in women with estrogen-driven breast cancer could lead to the development of microbiome biomarkers and interventions to

mitigate cancer risk, the authors said.¹

The estrobolome regulates circulating estrogen as well as excreted estrogen levels. Microbes produce an enzyme, beta-glucuronidase, that converts estrogens to their active forms. Active estrogen can bind to receptors and impact certain physiological processes.

If the gut is well balanced, beta-glucuronidase activity is normal. But when dysbiosis (imbalance) occurs, levels of estrogen can become too high or low, increasing the risk of estrogen-related disease.

When estrogen is metabolized by the liver, it's then sent to bile to be excreted into the gut. When the estrobolome is healthy, this estrogen is safely removed as waste. But when dysbiosis is present, estrogen can be reabsorbed into the bloodstream, causing estrogen dominance. This can lead to a wide range of health issues.

Estrogen-related disease and microbiome balance


Three types of estrogen are produced by a woman's body: estrone (E1), estradiol (E2) and estriol (E3). Each one influences different tissues and functions in the body.

E2 is the dominant form of estrogen before menopause, while E1 becomes the dominant circulating estrogen after menopause. E3 is the least potent estrogen but is dominant during pregnancy. All three of these types interact with each other, so it's important to give attention to the overall balance of each form.

Estrogen regulates many processes in the body, including reproductive function, body fat deposition, cardiovascular health, bone turnover and replication of cells. Reduction of circulating estrogen can block healthy functioning, leading to a long list of problems, like obesity, metabolic syndrome, cancer, endometriosis, endometrial hyperplasia, PCOS, cardiovascular disease, osteoporosis, infertility and poor cognitive function.

Did you realize estrogen could impact so many conditions beyond reproduction? Many women don't.

Research has shown that imbalances in the gut can increase the risk or exacerbate symptoms of these conditions. Patients



Though estrogen is produced mainly by the ovaries and adrenal glands, levels are regulated primarily in your gut. If your gut is out of balance, levels of this important hormone may also be skewed

with obesity,² cardiovascular disease³ and osteoporosis⁴ have all shown a high prevalence of gut dysbiosis.

When circulating estrogen declines, osteoclastic activity rises, resulting in bone resorption and decreased bone strength. In one study, giving certain bacteria to mice that have undergone ovariectomies has been shown to improve bone formation and reduce bone resorption.⁵ Other studies have shown similar positive effects with the introduction of specific bacteria.

Estrogen can also change the bacterial makeup in both the urinary tract and vagina, causing infections. As estrogen decreases, so too can *Lactobacilli* since estrogen stimulates growth of this valuable bacteria.

Lactobacilli have several protective roles in women's health, including maintaining the proper acidic environment and preventing the adhesion of undesirable bacteria.

Over the past two decades, research into the relationship between the gut microbiome and breast cancer has grown significantly.⁶ This research has demonstrated the key role of the gut microbiome in regulating estrogen.

Diversity in the gut is a critical element of overall health, including breast health. Research has shown that the microbiota is significantly different in patients with breast cancer as compared to those in control groups, including being much less diverse.

How everything is connected

The significant connection between hormonal health and the gut is an example of how just about everything in your body can be connected to what's going on in your gut—and the same goes with your hormones.

For example, a research review published in July 2022 zeroed in on the connections between estrogen, gut health and skin health.⁴ And while at first glance these areas might all seem separate, it makes perfect sense that they're intertwined.

If the gut microbiome influences estrogen production (and estrogen influences the gut microbiome), and if both our hormones and our gut health affect our skin, then we should be looking at these things all together.

Do you have dysbiosis?

These are some signs and symptoms of an imbalanced gut microbiome:

Bloating and gas

Diarrhea

Constipation

Changes in weight

Sensitivity to certain foods

Skin irritation

Fatigue

Hormonal imbalances

Autoimmune conditions



REFERENCE

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The causes of dysbiosis

The signs of dysbiosis are clear (see box, above), but the symptoms can be caused by other conditions as well. Testing can help definitively determine the balance of bacteria in the body. Still, if you're experiencing symptoms, taking steps to heal your gut won't hurt you—and it just might help.

While there can be a number of root causes of dysbiosis, some have consistently been found to negatively impact the bacterial makeup of the gut.

Antibiotics and hormonal contraceptives change both the gut microbiota and estrogen levels. Chronic infection can also lead to dysbiosis, so it's a delicate balancing act of addressing those conditions with antibiotics when necessary but not too often.

Diet has a significant effect on gut microbiota as well. A diet high in carbohydrates and processed foods can leave you more susceptible to dysbiosis

due to nutrient deficiencies.

Consumption of phytoestrogens in food has been found to change the gut microbiota and increase the risk of estrogen-related diseases. Food allergies can also cause dysbiosis (and dysbiosis can cause food sensitivities, so it can be confusing to unravel).

Alcohol consumption, genetics, weight, age and environmental toxins can all alter the composition of the gut microbiome and lead to dysbiosis.

Stress can also lead to dysbiosis. It may be real or perceived, physical or emotional, and it affects everyone.

It's when stress becomes chronic that problems develop. Most people are familiar with physical reactions to stress (such as nausea before public speaking) but don't realize that constant exposure to these reactions changes the balance of your gut.

How to heal your gut

Now that you know how important a healthy gut is to estrogen balance, which is in turn vital to good health, what can you do to maintain the right balance?

Gut balance relies on a healthy lifestyle. From dietary choices to exercise, from stress reduction to targeted supplementation, we have control over so many factors that can reduce imbalances in the gut.

Here are some quick tips to help you make healthy choices for yourself (and your gut).

Improve your diet. Make good food choices at least 80 percent of the time. A dessert every now and then is fine, but the more you avoid sugar, processed foods and anything else that may cause digestive distress (gluten and dairy are two common culprits), the better. A balanced diet that includes healthy fat, sufficient protein and complex carbohydrates is key.

Increase your intake of fermented foods. Sauerkraut, kimchi, kombucha and other probiotic foods can help boost diversity and rebalance gut flora.

Eat more prebiotic foods, too, which will encourage the growth of

beneficial bacteria. Some great options are asparagus, garlic, onions, leeks, Jerusalem artichokes and bananas. High-fiber plant-based foods, such as nuts, seeds, legumes and vegetables, also support a healthy gut.

Cruciferous vegetables like broccoli, cabbage and cauliflower help regulate the “good” bacteria and support healthy elimination of excess hormones, including estrogen. Just be sure to cook them first since they can be behind thyroid imbalances when consumed raw.

Reduce stress. Don't let emotional issues fester. Address upset, both old and new, and release it so your body can let go, too. Try meditation or mindful practices to soothe your central nervous system.



Find joy. The best way to relieve stress is to do something you love every single day. When you do, you don't allow that stress to build up in your system.

Dancing, reading, writing in your journal, playing an instrument, playing a game with family or friends, running, gardening—the options are limited only by your imagination!

Get quality sleep. Resting well keeps cortisol levels balanced and reduces stress on your body. A lot of work happens within your body as you sleep, so making sure you have an adequate amount of rest is vital to your health.

Reduce toxin exposure.

Examine the labels of your beauty and cleaning products, and use all-natural products whenever you can.

Avoid exposure to heavy metals and plastics.

Eliminate the use of plastics for food and drink, particularly when heated (for more details, see

WDDTY February 2024). Eat organic food whenever you can to reduce your exposure to pesticides.

Limit alcohol consumption. Alcohol changes the composition of the microbiome and increases gut permeability (leaky gut).

Keep moving. Exercise is great stress relief, and physical activity helps balance circulating levels of estrogen. It's important, however, to keep activity levels appropriate. Too much (or too vigorous) exercise can cause your body undue stress.

Try supplements. Nutritional deficiencies can contribute to poor digestion and hormone imbalances. It's best to get tested to work out your individual needs, but here are some supplements that may help to fill in the nutritional gaps and balance your microbiome and your hormone levels:

A high-quality multivitamin A good option is my Multi Essentials+ (available from marcellepick.com along with my other supplements).

Suggested dosage: Follow label instructions

Vitamin D Exposure to sunshine is the best way to get vitamin D, but most of us don't get enough.

Suggested dosage: 2,000 IU/day

Omega-3s These essential fatty acids are lacking in the standard Western diet. A fish oil supplement providing DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid), such as my EPA/DHA Support supplement, is a good choice.

Suggested dosage: 720–1,440 mg/day EPA, 480–960 mg/day DHA

A probiotic As I mentioned above,

Lactobacilli are crucial for restoring proper balance to your gut.

Bifidobacteria are another important probiotic. Look for a supplement that contains both, such as my Biotic Support.

Suggested dosage: Follow label instructions

DIM (diindolylmethane)

This metabolite of indole-3-carbinol, found in cruciferous vegetables like broccoli, cabbage and kale, can help regulate estrogen levels and fight estrogen-dependent cancers.^[3]

Suggested dosage: 100–200 mg/day



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Marcella Pick (marcellepick.com), ob-gyn nurse practitioner, is passionate about transforming the way women experience healthcare through an integrative approach. She cofounded the world-renowned Women to Women Clinic in 1983 with the vision not only to treat illness but also to support her patients in proactively making healthier choices to prevent disease. She has successfully treated thousands of individuals through her unique approach to wellness.

A close-up photograph of a faucet dripping water into a sink. The sink is filled with numerous rolls of white fabric, likely towels or linens, each with a green border. The water is captured mid-drip, creating a dynamic focal point. The lighting is bright, highlighting the textures of the fabric and the clarity of the water.

DEEP WATER

Gerald Pollack, PhD, started out life as an electrical engineer. Then he ran across the work of Gilbert Ling, a Chinese-born American cell physiologist and biochemist who dedicated his life to advancing our understanding of the mechanics of the human cell. In the process he opened the door to studies of the structure of the living waters comprising 60 to 70 percent of the human body and more than 99 percent of our body's molecules.

After switching fields and doing years of research into the nature of water,

Pollack, now a professor of bioengineering at the University of Washington in Seattle (pollacklab.org), discovered something new: a highly structured fourth phase of water that appeared when regular water was placed in contact with extremely hydrophilic objects (objects that easily absorb water), such as Nafion—an electrically neutral synthetic polymer.

Using nuclear magnetic resonance imaging (NMR), infrared and birefringence imaging (basically using polarized x-rays) and other types of measurements, Pollack and his lab assistants have discovered an alternating lattice-type array of hexagonal sheets of oxygen and hydrogen atoms, similar to a liquid crystal.

Neither liquid, gas nor solid, this fourth phase of water is formally named exclusion-zone water, aka EZ water. It's so named because when water comes into contact with a hydrophilic (water-absorbing) gel or other hydrophilic surface, it immediately excludes minerals, plastic microspheres, protons and any other solutes, propelling them away from the interfacing surface of the gel (see box, page 41).¹

Experiments using “falling ball viscometry” have proven this exclusion zone has a viscous, almost gel-like consistency that extends to distances up to several hundred micrometers.

Structured water and cells

What does this discovery have to do with human health and well-being? For starters, it completely reframes science's view of the nature of cellular and interstitial water in the human body. Most of this water is in close contact with various hydrophilic surfaces, such as the proteins in every living cell and in cell membranes themselves.

Cell membranes are made up of phospholipids—complex molecules consisting of hydrophilic phosphate-and-alcohol “heads” attached to two fatty acid chain “tails.” Examples are phosphatidylcholine and phosphatidylserine.

The appearance of EZ water next to cell membranes suggests that our bodies create and store alkaline EZ water all the time. In vitro research has shown that it enhances normal plant and animal cell functions while suppressing malignant

cells.²

The connection might also answer the question of why certain waters—like the Saratoga Mineral Springs in Florida, the famous spring at Lourdes, France, and the Ojo Caliente Mineral Springs near Santa Fe, New Mexico—are so healing, at least according to the many people who bathe in them.

These springs are embedded in limestone or granite, which are hydrophilic. They run through silica or quartz sand, both of which are hydrophilic. Then, when they bubble to the surface, they are soaked in sunlight and bombarded with protons, UV rays and infrared energies—all of which Pollack has discovered stimulate the production of exclusion zones in water.

Perhaps one of the most telling statements about structured water and health comes from Dr Carly Nuday, senior researcher and director of Water Inc., a nonprofit dedicated to the development of water science.

“When we realize that aging and disease are, in fact, byproducts or symptoms of the loss of structure in our cellular fluids, and not the causative effect, we arrive at a more effective approach to treatment that is based on the actual mechanics of our biology.

“Aging does not cause de-structured bio waters,” she says. “De-structured bio waters rather cause aging.”

Among all the claims about “good” and “bad” commercial water, initial evidence suggests that some types of water can be structured to be far healthier than the rest. Cate Montana and Lynne McTaggart investigate

A healing story

Veda Austin (waterinno.com) is the author of *The Secret Intelligence of Water: Macroscopic Evidence of Water Responding to Human Consciousness* (Lifestyle Entrepreneurs Press, 2021). She also has the dubious distinction of having

survived one of the worst auto accidents in New Zealand.

Over the 20 years following the accident, Austin endured eight surgeries, mostly bowel resections. She did not recover well from the last operation.

Afterward, her doctors told her that she had a “shower of blood clots” in her lungs and that she would never heal properly, would never have children and would have to be on the prescription drug warfarin to handle the clots for the rest of her life.

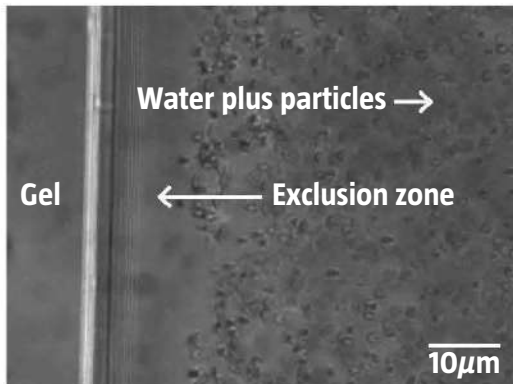
Fortunately, a friend who was also a medical doctor told her (strictly off the record) that if she could find a natural source of alkaline water (not manmade ionized alkaline water), it could help stabilize her body. And fortunately, she also owned and ran a wellness clinic.

A client told her about a New Zealand gentleman who had a private aquifer with water at a pH of 9.9 coming out of the ground—water that seemed to be having some real health benefits for people.

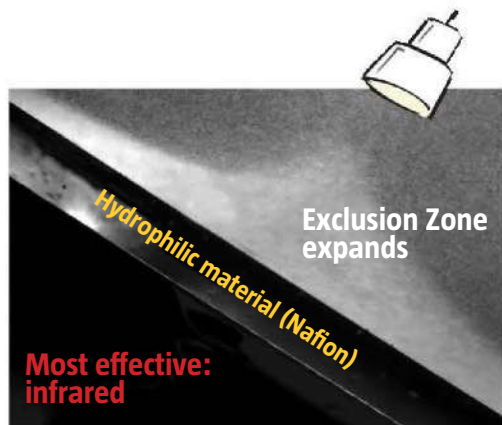
“I went to him, told him my story, and he gave me a month's worth of water to drink,” says Austin. “I drank a liter in the morning and again later in the evening, giving it an hour on each side of food.

“On day three, I noticed an improvement in bowel

EZ water under a microscope



In this image, the EZ is approximately 40 micrometers wide. Under certain conditions, such as when a light source is added, particularly infrared light, an exclusion zone can extend much farther.



Adding a light source causes the EZ to expand (see the lighter area; the darker area at top right is water with particles). Infrared light causes the EZ to expand more than other types of light Pollack tested.

Images: Gerald Pollack

motions. On day 10, I realized I was detoxing: all these bumps containing slivers of glass from the accident 20 years previous started coming out of my body.”

As her health continued to markedly improve, she started to recommend the spring water to her wellness clients. One gentleman with stage 4 cancer used it for a 22-day water fast, and when he went to the hospital after ward for tests, he had no cancer in his body.

“The doctors called it a spontaneous healing,” she remembers. “He had been doing other treatments, such as emotional release techniques. But the only thing he put into his body for those three weeks was the alkaline spring water. And everything had improved.”

Inspired by her own and others’ healing experiences, Austin began investigating the nature of water, studying the writings of Austrian naturalist Viktor Schauberger, German IBM researcher turned crystal healer Marcel Vogel, German engineer and water researcher Theodor Schwenk, and Austrian architect and occultist Rudolf Steiner. Impressed with the work of Masaru Emoto on the crystalline nature of water, she began investigating its structure herself.

Today, with some 40,000 crystallography studies of various types of water under her belt (and three children later!), Austin is considered an authority on the subject of water structure.

“I’ve seen that signature patterns of water are very real,” she says. “You can identify the type of water based on its patterns.”

After discovering hexagonal patterns in natural spring

Creating structured water

Healthy drinking water is a necessity. It’s also an enormous commercial cash cow. It’s really difficult to determine which (usually expensive) water improvement devices really work and which are dubious at best.

“There are companies that advertise that they sell structured water or fourth-phase water, and I’ve yet to see the demonstrated evidence to be convinced that’s what they’re producing,” says Gerald Pollack. “I need to see evidence, not just hand-waving.”

Pollack says one way he measures for the presence of structure is by using an ultraviolet-visible spectrophotometer. “If you put UV-visible light into whatever substance you want to examine, and you scan over the wavelengths and find that that there’s an absorption at the wavelength of 270 nanometers, that indicates water structure,” he says. “And the bigger the absorption peak, the larger the concentration of EZ water.

“That’s the standard we use. So, if you’re in a store or shopping online, try to find out real scientific evidence like that for the efficacy of the particular product. And if you can’t find it, don’t buy it.”

According to Veda Austin, devices that use magnets are usually quite effective. “Time and time again, I’ve seen that magnets can actually make a dramatic difference in the water structure,” she says. “There are vortex-creating devices that use magnets stacked on top of one another that require no power.

“Just pour the water through the device. The slower you go, the more spiraling effect is created, and that really brings water back to the living principles, to its original principles.”

She says Natural Action Technology makes effective vortexing units for creating structured water. She also recommends a UK company called Plant Surge that creates a magnet attachment for hoses to water plants.

“It’s not pretty or anything, but boy, does it work. It works for my plants, but I’ve also been able to jerry-rig it onto my sink tap, and I’ve got it on my shower, and I’ve found it really does make a structural difference.”



A charged battery in water

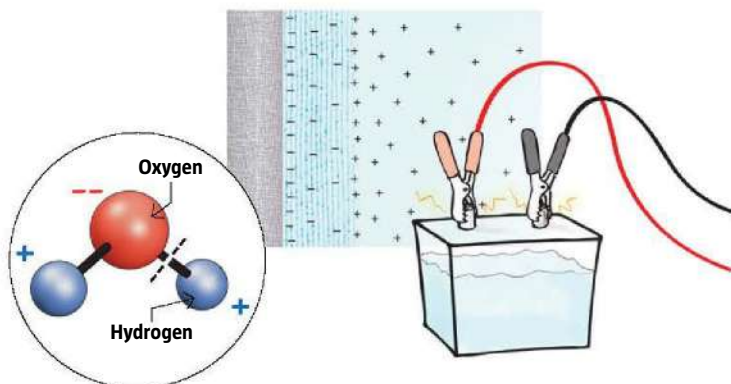
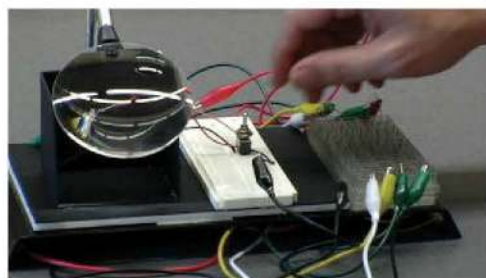
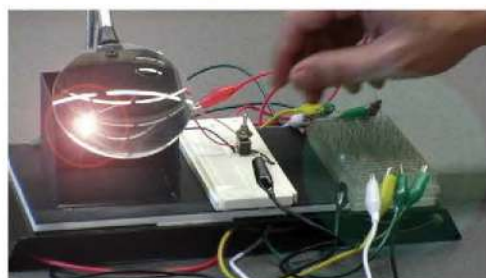


Image: Gerald Pollack



In the lab, Pollack has hooked up multiple cells of water with a hydrophilic Nafion tube inserted into each one, creating a negative EZ and a positive bulk water zone, then used that water to light an LED light bulb.



water, she was led to Dr Gerald Pollack's work on structured water and realized that when it comes to the healing properties of water, "structure is more important than pH."

Over the years, replicating experiments hundreds of times on each water sample has given Austin a baseline understanding of the structures that different types of water reveal when undergoing the freezing process.

"You'll see that spring water freshly frozen within an hour and a half of being removed from the spring forms large hexagonal patterns. That is what I call the water signature pattern of health. Rainwater forms a spanning pattern with a slight curve to it.

"In filtered water, you'll see lots of compacted lines. And tap water has a lot of disorder made up of little lines and dots."

When it comes to the quality of machine-made alkaline water, such as the highly popular Kangen water versus natural alkaline water sourced from springs, Austin's research is clear. "What I've seen from these machines is not a signature pattern of health. It's constricted and totally different from the signature patterns produced by healthy alkaline spring water," she says.

Questions

At the moment, the discovery of a structured fourth phase of water raises far more questions than we have answers for. At the molecular level, are endogenous cellular waters and natural alkaline spring waters both structurally the same as artificially created EZ water?

"The structure is likely to be the same," says Pollack. "We presume it's the same because, well, nature works in simple ways. If there's a kind of structured water, there probably aren't a dozen types of structure, but probably one."

Does that mean alkaline water is automatically EZ water? No. Pollack believes natural spring and endogenous cellular waters contain "some EZ"—but that's as far as it goes.

Are these waters truly healing? "The only way to really know whether that is indeed the case is to do a lot of clinical studies," says Pollack.

"For example, take people who have a liver pathology or something, and give half of them ordinary tap water to drink and the other half structured water, and then find out after a year or so who has done better. We need to do that with a wide variety of pathologies. Only then will we really know for sure what's good for us and what's not good."

Is structured water stable? So far, the answers are anecdotal and indicate that, yes, EZ water is stable and has a shelf life of at least several months—unless something happens to disrupt its order, such as radiation, 5G signals, rough handling and movement. Again, more studies need to be conducted.

Can EZ water be the answer to the search for a new source of clean energy? Potentially, yes. When water molecules come into contact with a hydrophilic surface, Pollack has discovered, one of the hydrogen/oxygen bonds breaks, leaving positively charged hydrogen atoms and bonded hydrogen/oxygen molecules that have a net negative charge.

The positive hydrogen atoms are pushed out of the exclusion zone, leaving an overall negative charge, while a bulk water zone with the excess hydrogen atoms develops a net positive charge, essentially creating a battery-type situation whose energy can be effectively harnessed (see box, left).

Structured (EZ) water is alkaline. Alkaline water has a pH level that measures above neutral (greater than 7), higher than regular tap water and bottled waters. Is machine-made alkaline water structured?

"There's not enough data to conclude this is the case," says Pollack. "But if I had to guess, I'd say yes."

So far, very few clinical studies have been conducted on the consumption of structured water. One 2021 study shows that animals drinking structured water for one month had an increased rate of growth, reduced oxidative stress, improved blood sugar and lipid profiles, increased tissue conductivity and improved fertility.⁴¹

The lack of research means that, for the time being, since structured water is alkaline and alkaline water is most likely at least partially structured, according to Pollack, clinical results of alkaline water studies in general are a possible indicator of the kinds of results we will get from further studies.

What the studies show

Studies of alkaline water show that it promotes longer lifespan in mice.⁴² In humans, blood viscosity decreases with the

consumption of high-pH water.⁵

Postmenopausal women who drank alkaline water have been shown to have smaller waists, better metabolic function, longer sleep and a stronger handgrip.⁶ And athletes who drank low mineralized alkaline water after high-intensity interval exercise (HIIT) showed improved hydration rates.⁷

However, pH alone isn't necessarily the measure of alkaline water's effectiveness. Some studies suggest that alkaline water must also contain the alkaline minerals calcium, potassium, magnesium, iron and manganese, present in alkalizing foods, to be effective.

For example, heavy consumption of foods containing these minerals increases bone mineral density and muscle mass and boosts immune system function. Alkaline mineral water reduces coronary heart disease, other cardiovascular issues and cancer. It also promotes detox and results in lower overall mortality rates.⁸

Forget pH

Interestingly, Pollack's research into structured water has led him to understand that it's not the pH of the water that's providing the health benefits at all. It's the net negative electrical charge and all the free electrons circulating in alkaline water and EZ water.

"If you have a low pH, you've got a lot of positive charge," says Pollack. "If you have neutral pH, you have no net charge, and if you have high pH, you have net negative charge."

"People will argue that it's impossible for a liquid to have net charge. But we found in our studies that it is absolutely possible. The bottom line is, if you're dealing with pH, what you're really talking about is whether the liquid has net charge in it or doesn't have that charge. That's all."

Why is electrical charge important? According to Pollack, alkaline or structured (EZ) water doesn't migrate through the body and get into your cells. What happens is the negative charge of EZ water immediately disperses—electrons naturally flow wherever the body has less negative charge, or higher voltage (see page 60).

"Electrons flow almost immediately. Then, when they reach their target sites, which may contain bulk water, they immediately convert the bulk water to EZ water. I think that's how it works. It's simply the electrons that do it."

Basically, if Pollack is correct, consumption of EZ water is similar to the "earthing" process—going barefoot on the earth to pick up free electrons that then combine with unpaired electrons (free radicals) in the body, mitigating conditions such as chronic inflammation caused by free radicals.

This insight aligns with alkaline water's proven oxidation-reduction potential—meaning it has strong antioxidant properties. Alkaline water's abundant free electrons hook up with free radicals, effectively taking them out of circulation.

According to Pollack, magnetic fields also create exclusion zones and thus the presence of EZ water. And certainly studies show that consuming magnetized water improves blood quality, semen quality and antioxidant status in animals.⁹

What is structured water?

When applied to water, "structure" refers to the position in three-dimensional space and the molecular arrangements of individual water molecules of H₂O, which cluster together like endlessly varied reassemblies of Lego. These clusters remain stable for anywhere from a part of a second to several weeks.

It was Plato's belief that water should be represented as an icosahedron, or 20-sided shape, and 2,500 years later, a few frontier scientists finally began to agree after discovering that clusters of these molecules aren't uniform in any given sample of water.

Hot samples have a different Lego shape than cold samples, for instance; some water contains molecular clusters of up to several hundred molecules apiece. It's been discovered that small clusters can cluster even further, creating up to 280-molecule symmetrical clusters and interlinking with other clusters to form an intricate subatomic mosaic.

The idea that structure in water can change makes sense when you consider that water molecules are always moving, like a person constantly lifting hand weights in a gym in a variety of directions.

Imagine the single oxygen atom present in every water molecule as your head and the two hydrogen atoms as your arms. The vibrational directions resemble your lifting the hand weights and moving them rhythmically away from your body in front or to the side, or even in a scissor movement above your head, with your arms moving alternately or at the same time.

Lynne McTaggart

ALKALINE WATER'S
ABUNDANT FREE
ELECTRONS
HOOK UP WITH
FREE RADICALS,
EFFECTIVELY
TAKING THEM OUT
OF CIRCULATION



More questions

But some issues surround alkaline water and, by extension, EZ water. For one thing, water with a high pH completely lacks hydrogen ions (it has hydroxide ions instead), and hydrogen is important for health and healing.

While a hydrogen atom is electrically neutral and contains a single proton and a single electron bound to the nucleus, sometimes the electron gets dislodged and a hydrogen ion results. This happens in water in what's called "self-ionization."

Water, of course, has the ability to dissolve many different kinds of substances, including ionized substances. Hard water, for example, contains a high concentration of calcium and magnesium ions.

Water with a pH of 1 (extremely acidic) has a hydrogen ion concentration of 0.1000 moles per liter. In comparison, water with a neutral or alkaline pH has a hydrogen ion concentration of 0.0000.

A mouse study of the healing effects of alkaline water showed that alkalinity alone has little impact until extra hydrogen (H_2) is dissolved into it.¹⁰ In Japan, where alkalized water is considered a health product, a major study supporting its popularity showed stools were more normal in test subjects with gastrointestinal issues with the consumption of alkaline water when it contained hydrogen.¹¹

The absence of hydrogen ions in alkaline and EZ water also possibly restricts the water's electrical conductivity, although the degree to which electrical conductivity is affected is poorly understood because there are other ions in alkaline water that may well take up the slack.

Make your own EZ water

While you may or may not be able to find a device that creates EZ water for drinking, your body makes its own EZ water. And Pollack has uncovered evidence that what you consume can influence how much it makes.

In one in vitro study, he found that holy basil, probiotics, turmeric, coconut water and the pain relievers aspirin and Tylenol (paracetamol) increased the amount of EZ water. However, at higher doses, they all began to decrease it again.

Conversely, the common pesticide glyphosate only decreased the amount of EZ water. These findings suggest "substances that promote or diminish health do so in relation to the amount of EZ water formation they cause," say the researchers.¹²

It's no surprise that, yet again, a balanced, nutritionally dense, chemical-free diet and sparing use of pharmaceuticals are key to good health.

A word of caution

One health concern with consuming large amounts of alkaline and EZ water is that it might alter gastrointestinal pH, which could affect your blood pH, increasing the possibility of metabolic alkalosis. In this condition, the body becomes overly alkaline, creating symptoms such as diarrhea, vomiting, confusion, heart arrhythmia, seizures and coma.

How water molecules change their clusters

The late Rustum Roy, a materials scientist at Pennsylvania State University and arguably one of the world's experts on water, including structured water, said that the "glue" making these water molecules momentarily adhere to one another is not simply the bonds between the hydrogen atoms. It has to do with a wide range of very weak bonds that exist between the different Lego shapes.

These are known as van der Waals bonds, so named after Dutch physicist Diderik van der Waals, who discovered that forces of attraction and repulsion operate between atoms and molecules because of the way that electrical charge is distributed, a property that allows certain gases to turn into liquids.

"It is this range of very weak bonds that could account for the remarkable ease of changing the structure of water, which in turn could help explain the half dozen well-known anomalies in its properties," Roy said. "In its subtler form, such weak bonds would also allow for the changes of structure caused by electric and magnetic fields and by radiation of all kinds, including possibly so-called subtle energies"—like thoughts.

The idea that water molecules get structured is by no means universally agreed upon, but as Roy argued convincingly, it is structure, not composition, that largely controls the properties of a substance, and if structure is changed, it can completely change the substance without any change of composition.

A perfect example of this is diamond and graphite. They share identical composition, yet diamond is one of the hardest substances on earth, and graphite one of the softest. Their difference is entirely dependent on which and how many molecules decide to bond.

Lynne McTaggart

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The cold-water cure

Naturopathic doctor and post-traumatic stress specialist Heather Herington reveals how cold-water therapy can help heal the mind

Hydrotherapy—the use of water to treat symptoms—is perhaps the simplest therapy of all. But it’s a powerful tool for mental health, especially for

treating post-traumatic stress (PTS), adverse childhood experiences (ACEs) and associated problems.

Although bathing in hot mineral springs can feel fabulous, it’s cold water that brings big benefits. Cold water, after the initial plunge or application, has a calming effect and opposes the heat and inflammation generated in the body by anxiety and mental anguish.

Even if you simply put a cloth dipped in cold water on your face or take a swim in a cold swimming pool, you can reap the rewards of this physiological magic.

Hydrotherapy then and now

Almost all cultures have used hydrotherapy (or hydropathy, as it was known in the 1800s) instead of pills to settle a rattled nervous system. In England, there were writings of illnesses cured by cold water as early as 1773.¹

Now, in the 21st century, medical research confirms specific benefits of cold water therapy for those who suffer from PTS and other mental health conditions.

Hydrotherapy can relieve anxiety and depression² and help regulate the neuroendocrine response,³ or the nervous system’s reaction to stress. For example, it can reduce the “stress hormone” cortisol⁴ and manipulate neurotransmitters like norepinephrine.⁵

Thanks to the naturopathic profession and to proponents like Wim Hof, the Dutch extreme athlete noted for his ability to withstand low temperatures, the cold-water cure is seeing a surge in popularity today.

The good kind of stress

According to one study, a lack of physiological stress can interfere with well-being as it leaves the body underchallenged. A brief change in body temperature, caused by a cold shower or cold swim, for example, can affect the body and mind profoundly, even counteracting depression.⁶

“Hormetic stress,” as it’s known—short, intermittent bursts of a certain stressor—is the sweet spot where stress is ideal, waking you up but not blasting you out of your seat.

Immersion in cold water is one way to do this.

Even if applied only to the face, it engages the bloodstream to amplify the transportation of oxygen and other nutrients to cells, specifically those in the endocrine system or neural pathways that are so important in calming the mind and emotions.⁷

Basically, you want the cold to constrict blood vessels enough for norepinephrine to be triggered and then afterward for vessels to expand, enabling the calming effect of the neurotransmitters GABA and serotonin while improving circulation and optimizing the lymph system.

Cold water constricts blood vessels and increases blood flow, triggering

A brief change in body temperature can affect the body and mind profoundly

cellular mechanisms and signaling pathways that

- fight inflammation and oxidative stress
- make new mitochondria (mitochondrial biogenesis)
- repair DNA and cellular damage
- increase detoxification and/or autophagy cellular responses that optimize metabolism, sleep and ultimately resilience while reducing inflammation, blood pressure, muscle soreness and chronic pain

These are all positive benefits for someone suffering from PTS.

Diving deeper

Hydrotherapy works by changing temperature and pressure in the body. These changes are sensed by nerve endings in the skin and muscles and result in neural “reflex effects” that are controlled by the brain and spinal cord.

The most important of these effects are vasodilation and vasoconstriction, which respectively relax or tense the blood vessels. This physical change causes changes in the rate of blood flow and then in any metabolic functions related to blood flow. The changes can happen systemically (whole body) or locally (in one area of the body).

Cold water and ice cause the body to try to conserve heat. Blood vessels constrict, decreasing the amount of blood that flows through them. Blood flow is then diverted from the extremities (less essential) to the core of the body and its organs (more essential to the body as a whole).

The pores of the skin close, sweat glands shut down and muscles tense, yet certain organs, like the adrenal glands, become more active. This can be useful for short periods of time.

Hormonally, cold water triggers the sympathetic nervous system’s production of norepinephrine, a neurotransmitter that helps us focus and regulates our energy levels. Then, by way of the frontal vagus nerve and GABA, the parasympathetic nervous system conversely helps us relax. Our blood vessels dilate, boosting circulation, driving nutrients into cells and flushing out toxins.

This is all helpful for those with PTS, who commonly have anxiety and trouble sleeping and concentrating.

Effects on mood

Cold water causes norepinephrine to be released into the bloodstream and the locus coeruleus region of the brain, which regulates crucial functions such as attention and wakefulness.⁸

Norepinephrine helps regulate mood, including in those who have depression and anxiety. It decreases brain inflammation, countering inflammatory molecules that encourage anxiety and depression by keeping nerve cells from releasing serotonin.⁹

There are also cold shock proteins called RBM3 that, as a neuroprotective activated by cold,¹⁰ may have benefit in severe anxiety as well.

The heart rate slows quickly when the face meets cold water. The trigeminal facial nerves (the fifth cranial nerves) relay the information to the brain, which harnesses the vagus nerve (the tenth cranial nerve), causing the slow heart rate and peripheral vasoconstriction. This has a calming effect.

Temperature is paramount. The colder it is, the faster the reaction, and anything over 70°F (21°C) has no effect. Vasoconstriction away from the arms and legs is more gradual, allowing the most vital organs—the brain, heart and



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lungs—to maintain dominance.

Cold water treatments

Always make sure to be well hydrated when undertaking any cold water treatment, and if you choose full immersion, make sure you do so safely. Research any risks first, especially if you're swimming in open water.

Caution: If you try full immersion outdoors in the winter, it's best to work your way up to it. Start with partial immersion to lower your risk of suffering hypothermia or heart problems.

Full immersion Full immersion in lakes, rivers, oceans or a cold swimming pool, or drenching with buckets of ice, is what works best to boost your immune system and parasympathetic nervous system and firm up your capillaries.

Wim Hof recommends five minutes at a water temperature of 59°F (15°C) or less. If it's colder, say 35°F (2°C), make it three minutes. If you can manage it, don't dry off. Put your clothes back on and let your body dry itself.

For a contrast plunge, sit in an infrared or other sauna for five to 15 minutes before going into the cold water for three minutes. Work up to 10 minutes or more depending on how your body copes.

Partial immersion If full immersion isn't for you, here are some alternatives to try:

- 1 Stand in cold water up to your ankles; splash water up your legs for 20 seconds.
- 2 Immerse up to your thighs and splash water up to your belly button and face for 20 seconds.
- 3 Immerse up to your neck or all the way in. Twist and turn for 20 seconds.

Another alternative to full immersion is a simple hot-and-cold alternating shower. It can work wonders not just to boost the circulation and immune system but also to calm the mind.

- 1 Alternate three times between hot and cold, or between warm and cool if you're feeling weak. Take three times as long in the cold water.
- 2 Then change to 90 seconds hot and 30 seconds cold or to 30 seconds hot and 10 seconds cold. Always finish with cold.
- 3 Again, if you can manage it, don't dry off. Put your clothes back on and let your body dry itself.

Face dipping Another simple option is to dip your face in cold water for up to five



Signs and symptoms of PTS

It's my belief that psychological trauma is a natural response to an adverse event, whether experienced or witnessed. So I have shortened the term PTSD (post-traumatic stress disorder) to PTS, dropping the D and siding with military vets who feel ostracized by calling a natural response a disorder.

Lingering psychological trauma often goes unnoticed or is not spoken about with a clinician. For this reason, unexplained psychological and physiological symptoms become key to digging further to the root cause.

There are so many symptoms and signs—even diseases and conditions—that may have their basis in PTS and in ACEs (adverse childhood experiences). Here are some common ones I've noted in my three decades of clinical experience.

- Adrenal fatigue and exhaustion
- Agitation, anger issues
- Any unresolving physical symptoms, such as laryngitis or vaginitis
- Autoimmune disorders, cancers, fibromyalgia
- Eating disorders
- Emotional distress, such as anxiety (often unexplained), depression, aggression, rage, behavioral disorders
- Fragmented thoughts, feelings of dissociation
- Frequent urination
- Gastrointestinal disturbances
- Headaches
- Increased heart rate, such as in Graves' disease
- Insomnia, nightmares
- Memory and concentration problems
- Psychotic episodes
- Psychological numbing
- Severe anxiety to the point of suicide
- Sexual dysfunction: intimacy reluctance or sex addiction
- Skin disorders

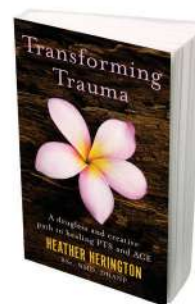
minutes, two to three times a week. The cold water sends a profusion of electrical impulses to the brain, which boosts alertness and energy and triggers calm.

Wet sheet and wet socks Both of these treatments allow the body to settle, coax the immune system by amplifying white blood cells if needed, and call forward the parts of the brain and body that calm an agitated state.

For the wet sheet treatment, you'll need a cotton sheet, a bucket of ice water, a wool blanket and someone to help you.

- 1 Soak a cotton (preferably organic) sheet in a bucket of ice water and squeeze out as much water as possible before spreading it over your bed onto a thick wool blanket. Put something waterproof under the blanket to protect the mattress.
- 2 Quickly lie down on the wet sheet and get your helper to wrap the sheet tightly around you, leaving just your head out. Then get them to wrap the wool blanket around you.
- 3 Lie in the blankets until your body warmth has dried the sheet. People often fall asleep, even for the entire night, if they do this before bed.

You can also do the wet socks treatment using organic cotton and heavy wool socks instead of a sheet and blanket: Put the cotton socks in ice-cold water, followed by the wool socks. First put on the cotton socks, then the wool. Then lie back and enjoy your body heating the socks till they're dry.



Adapted from *Transforming Trauma: A Drugless and Creative Path to Healing PTS and ACE* (Hammersmith Health Books, 2022)

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Reset your health

To feel youthful and blissful and to defy age and disease, you must fix issues at the earliest sign of wear and tear—before they become a bigger problem. This 28-day reset will help you achieve that goal.

I developed it based on my personal experience and the knowledge I've gained in treating thousands of patients. It's based

on the ancient process of panchakarma, an Ayurvedic detoxification ritual.

If your body can reset and realign, it will work more efficiently to get rid of the toxins built up over the years. Once they have been removed, you can start with a clean slate and nourish your body with nutrient-rich food, as well as with herbs to help it rebuild and rejuvenate.

Some of you might not suffer from any symptoms or diseases, so you may feel that you don't need to reset. But it's harder to fix things once they're broken. This regimen will help you maintain your good health.

On the other hand, if you suffer from chronic fatigue, brain fog, gastrointestinal issues, inflammation in the body, hormone imbalance or other chronic diseases that affect your quality of life, you can jump-start your health journey now.

For almost every new patient I see, regardless of the reason for their consultation, this is the regimen I recommend. After the 28-day reset, their body has unlocked its inner intelligence so that any further diet or lifestyle changes I recommend will be far more effective.

I recommend the 28-day reset annually or semi-annually, but you can use it any time you want to breathe vitality back into your body. That said, follow these guidelines for optimal timing, and always consult with your physician before making any significant changes to your diet or lifestyle, even for a short period of time.

- Start the reset when you feel well, not during an acute illness or while you're recovering from an illness.
- According to Ayurveda, the best time to do any cleansing or detox ritual is in the fall or spring.
- For menstruating women, start the 28-day reset right after your period ends.
- Avoid detoxification while you're pregnant or breastfeeding.
- If you're thinking of getting pregnant soon, do the reset at least six months prior to trying to conceive.

Phase 1: Preparation

The first step in jump-starting your health journey, which lasts a week, is to actually do less. The more you slow down and make your health your singular focus, the better your results.

In Eastern philosophy, doing less, simplifying the diet, becoming more mindful and paying closer attention to the state of your body are of great importance. This philosophy allows you to prioritize the elimination of toxins before starting work

on repair and regeneration.

Too often, people try to do it all at once. They change their diet dramatically and start taking bags full of supplements, hoping to reverse the damage done over the years. This 180-degree shift asks their body to work doubly hard to process too many supplements while also processing nutrients and toxins.

Instead, during the reset, your body can finally focus on healing, releasing toxins and reducing inflammation while it stops playing Whack-a-Mole with unpredictable mealtimes, bedtimes and stress levels. By simplifying your diet and lifestyle during this time, you support the natural processes ingrained in your DNA to help you repair and rejuvenate.

Diet

The primary rationale behind the phase 1 diet (see box, page 53) is to give your digestive system a break. Foods such as wheat, dairy and animal products use up most of your digestive fire. The harder a food is to digest and process, the more likely it is to trigger inflammation.

Ingredients like high-fructose corn syrup and hydrogenated fats significantly overwhelm the body's detox machinery and cause inflammation. A simple rule of thumb is to eat foods that don't come in a box or contain more than one ingredient.

This ingredient should be something our ancestors would have recognized. During the 28 days, it's important to be even more vigilant than usual.

There's ample research behind how eating a whole-food, plant-based diet is good for our overall health. It promotes the growth of good bacteria in the colon, reduces inflammation, and can even help prevent colon cancer.¹

Mindful eating

As well as focusing on what you eat, pay attention to how and when you eat. Follow these guidelines for the entire 28-day reset:

- Consume two to three meals per day, separated by at least three hours. Avoid snacking. Make lunch your biggest meal, with a lighter dinner that you eat earlier than usual.
- Be mindful of your portion sizes. After a meal, your stomach should contain one-third solid food and one-third liquid. The other one-third should be left empty.
- A soup bowl holds around 10 ounces of liquid. Your stomach size is three times that. Hence, it makes sense to eat about two soup bowls' worth of food and leave another bowl's worth of space for the gastric juices to do their magic.
- Slow down, chew your food well and avoid looking at screens while you eat.
- Drink plenty of warm water throughout the day, mostly between meals.
- To help stimulate digestion, drink one cup of ginger tea with meals and one cup of cumin, coriander and fennel tea (CCF tea) after meals.

Lifestyle

During the entire 28 days, continue your daily activities, such

Integrative physician
Dr Chiti Parikh shares
her ancient recipe
for staying young,
increasing vitality
and preventing
diseases for years
to come



Engage in deep breathing, long walks or time in nature

as work or school and household chores. But put anything outside of these necessities on hold as much as possible. This is not the right time to start a new project, run a marathon, take a trip or socialize too much. Instead, you should use it as an opportunity to look inward and learn more about yourself.

Keep time on social media and in front of the television to a minimum. Instead, read uplifting books, listen to soothing music and write in your journal. These are great ways to supercharge your battery.

If you have a meditation practice, dedicate more time to it than you normally would. Even if you've never meditated before, engage in deep breathing, long walks or time in nature.

Continue regular exercise but avoid long, strenuous workouts. Instead, try more mindful movements like yoga, Pilates or tai chi.

The ideal time for exercise is in the morning. In the evening, you can take a walk or engage in a gentle yoga nidra practice, a form of guided meditation that involves lying on your back, which enhances relaxation and improves sleep (see page 17).

Adequate sleep should be one of your top priorities. Most of the metabolic activity pertaining to detox, repair and rejuvenation occurs while we sleep. Try your best to get at least eight hours of restful, uninterrupted sleep every night.

Phase 1 diet

FOOD TYPE	FOODS TO AVOID	REASONS	EAT THIS INSTEAD
Gluten	Wheat, barley, rye, couscous, spelt, farro, Kamut	<ul style="list-style-type: none"> • Hard to digest • Gluten sensitivity and intolerance are common 	Gluten-free grains such as oats, rice, quinoa, millet, buckwheat, amaranth
Dairy	Milk, yogurt, cheese, butter Exception: ghee	<ul style="list-style-type: none"> • Hard to digest • Often contains hormones 	Almond milk, oat milk, coconut milk, coconut yogurt, ghee
Animal products	Meat, seafood	<ul style="list-style-type: none"> • Take too long to digest and process • Affect the gut microbiome • Contain hormones and antibiotics 	Lentils, beans, tofu, edamame, honey
Processed foods	Potato chips, candy, soda, packaged desserts	<ul style="list-style-type: none"> • No nutritional value • Increase inflammation and insulin levels • Contain preservatives and artificial colors 	Fruits (fresh or dried), small number of nuts or nut butters
Alcohol, caffeine, drugs	Beer, wine, hard liquor, coffee, illicit drugs, marijuana	<ul style="list-style-type: none"> • Alcohol and drugs affect the liver, which is your main detox organ • Caffeine affects your adrenal glands 	Non-caffeinated herbal teas, ginger, mint, jasmine, chamomile, CCF tea (see "Mindful eating," page 51)

Oral care

Ayurveda places significant emphasis on oral care, which is believed to be intimately connected to our gut health. This isn't surprising, since our oral cavity houses the second largest microbiome after our gut.

Any imbalance in the oral microbiome will perturb the gut as well. In fact, imbalances in the oral microbiome have been linked with rheumatoid arthritis, pancreatic cancer, diabetes and heart disease.²¹

Ayurveda recommends two simple steps to ensure a healthy oral microbiome: oil pulling and tongue scraping. These habits are important to continue all the time, not just during your reset.

Oil pulling is believed to help with gingivitis, dry mouth, plaque buildup and bad breath. It can also help with teeth whitening and improve the strength of our jaw muscles, and we know from studies that it can reduce plaque and bacteria in the mouth.²²

It involves swishing a quarter teaspoon of coconut, sesame or sunflower oil in the mouth for several minutes, although coconut oil is the most popular choice due to its antimicrobial, antifungal and anti-inflammatory properties.

Once your mouth becomes full of saliva mixed with the oil, spit it out. Then brush and floss as normal. Start with two minutes of swishing, then increase the time as you can tolerate it.

Taking good care of your tongue with daily tongue scraping is also vital. We need to keep it clean so that it doesn't house bad bacteria.

In Eastern medicine, the tongue is an important aspect of disease prevention, diagnosis and treatment. A normal tongue is pink with a clear or whitish coating, and it should have no teeth marks on the edges and no major discoloration.

You can buy a metal tongue scraper at most drugstores these days. I suggest scraping it three or four times after you perform oil pulling, and then floss and brush your teeth.

It takes just a few seconds, but your oral microbiome will thank you. Even your dentist will be happy, because studies have shown that tongue scraping reduces plaque buildup.²³

Herbal therapy

As part of the reset, I prescribe certain Ayurvedic herbal combinations to my patients to facilitate the detoxification process, such as triphala. A combination of amalaka or amla (*Emblia officinalis*), bibhitaki (*Terminalia bellirica*) and haritaki (*Terminalia chebula*), triphala is widely available online.

These herbs have been used for thousands of years to optimize gut health. Recent studies have demonstrated that triphala, along with manjistha (*Rubia cordifolia*), another Ayurvedic herb, can alter our microbiome²⁴ in a way that optimizes the ratio of

good and bad bacteria in the gut.

Additional herbal combinations I suggest to my patients include herbs that detox the gut, liver, kidneys and blood. The following are two commercial formulas I commonly recommend:

Banyan Botanicals Total Body Cleanse

- Amalaki fruit (*Emblca officinalis*)
- Bhumyamalaki herb (*Phyllanthus* spp.)
- Kalmegh herb (*Andrographis paniculata*)
- Haritaki fruit (*Terminalia chebula*)
- Manjistha root (*Rubia cordifolia*)
- Punarnava root (*Boerhavia diffusa*)
- Pippali fruit (*Piper longum*)
- Gingerroot (*Zingiber officinale*)
- Fennel seed (*Foeniculum vulgare*)

Banyan Botanicals Blood Cleanse

- Manjistha root (*Rubia cordifolia*)
- Neem leaf (*Azadirachta indica*)
- Turmeric root (*Curcuma longa*)
- Guduchi stem (*Tinospora cordifolia*)
- Burdock root (*Arctium lappa*)

These are available in the US from banyanbotanicals.com and in the UK from ayurvedicherbsdirect.com. But you can also look for these herbs as individual preparations (and follow the label instructions).

Suggested dosages

Triphala: two to four tablets or ½ to 1 teaspoon of triphala powder in a cup of hot water at bedtime; titrate the dose as needed so that you are having one to three bowel movements a day during the preparation phase

Banyan Botanicals Total Body Cleanse: two tablets in the morning

Banyan Botanicals Blood Cleanse: two tablets in the morning

Caution: These herbs should not be taken by women who are menstruating, pregnant or breastfeeding.

Always consult your doctor before adding any herbs or supplements to your regimen.

Phase 2: Detoxification

During this week-long step, you will further simplify your diet and lifestyle. Instead of spending a lot of energy to break down food, your body can now focus on removing toxins that are a product of improper digestion—the root cause of all diseases.

With a mono-diet, prolonged intermittent fasting and detoxifying herbs, you can further enhance the cleansing process.

Diet

In Phase 2, you'll dial back to two meals per day. For each of these, you will stick to one protein, one grain and one fat. This mono-diet will make it easy for your body to digest the meal, ideally within four hours. The less energy your body spends on digestion, the more it can focus on detoxification.

It's natural to feel hungry part of the time since you're skipping one meal a day. You can satisfy your hunger and aid the detox process by drinking plenty of warm water and herbal teas.

Instead of breakfast, you can have 16 ounces of ginger tea with lemon and honey. Also, avoid other categories of food that can be hard to digest, because during the detox phase, your digestion will be weaker (see Phase 2 diet, below).

Don't worry—there are plenty of healthy, delicious foods you can enjoy while you detox. One of my go-to meals during detox is *kichari* (see box, page 55), an Indian porridge made with rice, split mung beans,

Phase 2 diet

FOOD TYPE	ADDITIONAL FOODS TO AVOID	REASONS	EAT THIS INSTEAD
Nightshades	Potatoes, peppers, eggplant, tomatoes	<ul style="list-style-type: none"> • Increase inflammation 	Zucchini (courgette), sweet potato, pumpkin, carrots, asparagus, cooked spinach, peas
FODMAPs	Garlic, onions, mushrooms	<ul style="list-style-type: none"> • Cause indigestion, bloating 	Same as above
Leftovers	Any food more than 24 hours after cooking	<ul style="list-style-type: none"> • Less nutritional value • More gas and bloating • Affect the gut microbiome 	Food cooked less than 24 hours ago; make two servings for the day
Cold foods	Iced beverages, frozen foods	<ul style="list-style-type: none"> • Diminish digestive fire • Cause indigestion and acid reflux 	Warm foods, such as soups and stews
Beans	Chickpeas and beans such as kidney, white, black, pinto, lima, adzuki	<ul style="list-style-type: none"> • Hard to digest • Cause gas and bloating 	Mung beans, lentils (green, black, orange)
Grains	Quinoa, sorghum, amaranth, buckwheat, teff, corn	<ul style="list-style-type: none"> • Hard to digest • Some grains, such as quinoa, contain toxic saponins 	Rice, oats

Khichari Recipe

Serves 2

Ingredients

- ½ cup basmati rice
- ½ cup split yellow mung beans
- 1 Tbsp ghee/clarified butter or coconut oil (vegan)
- 1 bay leaf (optional)
- 2 to 3 whole cloves or ¾ tsp ground cloves
- 1 small cinnamon stick or ¾ tsp ground cinnamon
- ½ tsp cumin seeds or ground cumin
- ½ tsp ground turmeric
- Salt and pepper to taste
- Vegetables, such as peas, carrots, pumpkin or zucchini/courgette (optional)
- Fresh cilantro for garnish (optional)

Method

- 1 Soak the rice and mung beans overnight to make them easy to digest. Rinse them well before cooking.
- 2 In a 6-quart saucepan, heat the ghee on high. Add the spices and sauté for 1 minute.
- 3 Add the rice, mung beans, and vegetables. Sauté for 2 more minutes.
- 4 Add 6 cups of water and bring the mixture to a boil.
- 5 Reduce the flame to low/medium and cover, stirring occasionally to avoid burning or sticking. Cook for 30 minutes or until the rice and mung beans are well cooked.
- 6 Remove the bay leaf. Garnish with fresh cilantro, if desired. Serve hot.

ghee and spices. With the right amount of protein, carbs and fat, it's a balanced meal in and of itself.

Here are some other meal ideas you can enjoy for either lunch or dinner:

- Fried rice with edamame
- Red lentil coconut curry with pumpkin
- Mung bean soup with zucchini and dill
- Rice noodles with steamed broccoli
- Carrot ginger soup

Lifestyle

During Phase 2, a lot of your energy will go toward detoxification, so again, don't overdo it with exercise. Stick to gentle walking and stretching.

Instead of breaking a sweat through working out, use infrared saunas, steam baths, a heating pad or just a good old hot shower. Avoid extreme temperatures, however, and know your limits. Make sure you hydrate well before and after any sauna sessions.

Herbal therapy

During Phase 2, it's time to kick it up a notch with herbs as your ally to flush out toxins. Increase the dose of herbs from Phase 1 and add the following herbs to give you a deeper gut detox.

- Banyan Botanicals Total Body Cleanse: 2 tablets after breakfast and 1 tablet after dinner
- Banyan Botanicals Blood Cleanse: 2 tablets after breakfast and 1 tablet after dinner
- Triphala: 2 tablets before bedtime
- Haritaki: 2 tablets before bedtime

Haritaki (widely available online) is one of the three herbs found in triphala, and it is known for its gut-cleansing effect. Hence, during this phase we take more haritaki, in addition to what is found in triphala, for additional gut detoxification.

While taking these herbs, you may have more bowel movements than usual. They may also be looser and vary in color and smell. What comes out of your body tells you a lot about what's happening inside.

What you're purging are toxins from all the undigested foods that have accumulated over time. They are finally being mobilized so that you can get rid of them instead of allowing them to take root in your body and lead to diseases.

Phase 3: Reintroduction

After the detox phase, instead of rushing back to your usual diet and lifestyle, it's important to take it one step at a time. Over the next week, slowly add back more foods and activity.

Be gentle, mindful and intentional as you get back to your daily routine.

Diet

The first thing to reintroduce is breakfast. Start with fresh fruit or green juice for two days, and then add grains.

Here are some seasonal recommendations for easy-to-digest breakfasts that are perfect during the reintroduction phase.

Summer/spring

- Bowl of seasonal fresh fruits
- Fresh-pressed juice with celery, cucumber, apple and ginger, served at room temperature
- Overnight oats with chia seeds, dried apricots and honey, served at room temperature

Winter/fall

- Hot water with ginger, lemon, cinnamon and honey
- Congee (a form of savory rice porridge)
- Steel-cut oatmeal with coconut sugar, cinnamon and raisins; add extra water to give the oatmeal a soupy consistency, and avoid adding nuts since they can be a bit heavy to digest

Besides adding breakfast back into your diet, also reintroduce grains, vegetables and legumes that you eliminated during the detox. Add foods in order of how easy they are to process as listed in the table below.

Continue to avoid cold foods and beverages while minimizing leftovers. You can now eat foods within 48 hours of cooking them instead of 24 hours.

As you add foods back into your diet, you may notice that some cause digestive discomfort. You may also experience other symptoms, such as brain fog, joint pain and sluggishness with certain foods.

If you identify such triggers, you should avoid the foods that might have led to them for another week as you continue to add more agreeable foods. This type of elimination diet helps identify hidden triggers of inflammation in the body.

Lifestyle

Slowly increase your activity level with slightly more strenuous workouts. Always listen to your body, however, and see how you feel. There's no need to push yourself beyond what's comfortable. Within a few days, some people can get back to their usual diet and activity level, while others take a bit longer.

Phase 3 diet: Order of food introduction

1	Nightshades	Potatoes, peppers, eggplant, tomatoes
2	FODMAPs	Garlic, onions, mushrooms
3	Beans	Chickpeas and beans, such as kidney, white, black, pinto, lima, adzuki or other beans you avoided
4	Grains	Quinoa, sorghum, amaranth, buckwheat, teff, corn or other grains you avoided

Always listen to your body and see how you feel

Herbs

It's time to ease off the detox herbs as you shift gears from detox to rejuvenation. You can stop the Banyan Botanicals Total Body Cleanse, Total Blood Cleanse and haritaki at this point. Continue taking two tablets of triphala before bedtime.

Phase 4: Rejuvenation

Once the toxins have been mobilized and eliminated, you're presented with a clean slate. You have the opportunity to consciously decide what you want to put back into your body. The addition of herbs and supplements will enhance the rejuvenation process because they'll be far more effective post-detox.

This phase starts after 21 days and continues for three to six months. These are some of the benefits you may notice in this time:

- Stronger immune system
- Decrease in inflammation
- More acute senses: hearing, taste, vision, touch and smell
- Improved concentration and memory
- Lower stress and anxiety
- Boost in energy and libido
- Improved muscle recovery time, less joint stiffness
- More regular and complete bowel movements
- Improved skin complexion
- Stronger, faster-growing hair and nails

Since the rejuvenation phase continues for months in the background, it's helpful to include certain "positive" energy foods in your diet, which can enhance the revitalization process. These include nuts, seeds, sprouted legumes and grains, fresh fruits and vegetables, and certain spices.

For the next week, however, your diet, lifestyle and daily routine will be the same as in Phase 1. The central part of rejuvenation is adding certain herbs to enhance the process so that you can achieve even better results.

In Ayurveda, all the rejuvenating herbs are combined into a delicious jam called chyavanprash. It contains more than 30 different herbs and spices that work seamlessly together. These herbs are far more effective when taken after a detox.

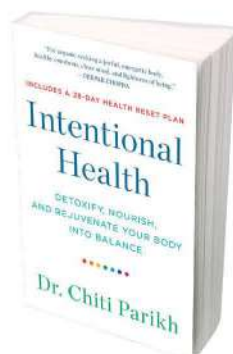
I favor Banyan Botanicals Chyavanprash (also available at banyanbotanicals.com or ayurvedicherbsdirect.com), but chyavanprash products from other brands are widely available online.

For the next week, take 1 teaspoon of chyavanprash twice a day with meals. After that, take 1 teaspoon once a day for the next three months.

You will also continue taking two tablets of triphala at bedtime for the next three months. This is something I suggest most of my patients take for a lifetime!

Once you've completed the reset, take a moment to reflect on your journey. You have purged not only physical but also emotional toxins that you were harboring for a long time.

Now you have a powerful tool in your toolbox to bring your body back into balance.



Adapted from *Intentional Health: Detoxify, Nourish and Rejuvenate Your Body into Balance* (Hay House, 2024, \$17.99/£14.99)

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HEALING CANCER

Danger! Low voltage

Making sure our cells are properly “charged” may be the key to eradicating diseases like cancer and ensuring optimal wellness, says Dr Leigh Erin Connealy

It's been said that conventional medicine is but a chapter in a book, while integrative medicine is the entire novel. And nothing could be more accurate when it comes to voltage and frequency medicine. In fact, most conventional physicians leave that chapter out of the book entirely.

Human beings are electrical creatures by nature. Several processes in the body depend on electrical charges (see page 38). The nervous system, for example, uses electrical currents to send messages throughout the body and brain, resulting in movement, thoughts and feelings. The heart relies on electrical currents that tell this vital organ when to pump at the proper time. Even our cell membranes generate electrical currents.

But what happens when the actual voltage of an individual cell drops? And what exactly does that mean?

Voltage is simply the measure of the negatively charged electrons in our cells. If you use the analogy of a car battery being drained, it's easy to see how a depleted power source eventually leads to a car that won't start. And the same goes for our bodies. If our cells are not adequately “charged” with the correct number of electrons, optimal health just isn't possible.

Low voltage = poor health

Simply put, healthy, properly functioning cells have a high voltage (more electrons), and unhealthy cells have a low voltage. A typical cell requires roughly -20 to -25 millivolts (mV) to work properly.

If that voltage drops (becomes more positive), the cell membrane thickens, hindering normal cellular function. Oxygen and nutrients can't get in, and cellular waste can't get out. This altered cellular function results in inflammation, triggering a landslide of other issues.

Almost all chronic illnesses—including cancer—have low voltage at the core because these diseases occur when our cells aren't functioning at their peak. Cancer occurs when voltage falls to +30 mV, which is the same as a pH change from the normal 7.35 (slightly alkaline) to below 6.5 (acidic).¹

Voltage loss can present in the form of various symptoms, from poor immunity and infections like colds, flu and Lyme disease to headaches and migraines to more severe conditions, such as cardiovascular disease.

If we don't work to replenish our cellular batteries, disease and illness can take root.

On the other hand, powering up our cells and generating new, healthy ones can have profound healing effects.

Voltage 101

A world-renowned authority on the role voltage plays in health is Dr Jerry Tennant, a scholar, physician, author and founder of the Tennant Institute for Integrative Medicine in Texas (tennantinstitute.com). Dr Tennant wrote the book on the topic. Literally.

Healing Is Voltage (CreateSpace, 2010) and his other similarly named works highlight Dr Tennant's frustrations with the limitations of conventional

medicine during his own health battles and explain how he concluded that voltage was the answer for all aspects of well-being.

In my recent interview with Dr Tennant,² he explains how the body is like a portable electronic device. “Like all portable electronic devices, you need to have a battery system,” he says. “The human body has several battery systems, the largest of which is our muscles. Our muscles are piezoelectric.

“What does that funny word mean? If you squeeze something and it emits electrons, that's called piezoelectric electricity. So, every time you move your muscles, they're generating electrons. Fortunately, our muscles are also rechargeable batteries, so they store that voltage,” he explains.

Dr Tennant goes on to reveal how our muscles are stacked on top of each other in a particular order, essentially forming a battery pack. “These battery packs are surrounded by a common sheath called fascia,” says Tennant.

“The muscles are the batteries, and the fascia is the body's wiring system. Every organ in the body has its own battery pack that provides the -25 mV cells needed to run properly. When cells get injured, damaged or worn out, they have to have twice that voltage (-50 mV) to make new cells to repair things.


“It's known in battery technology that if you drain a rechargeable battery to zero, it will flip its polarity. And if you put a rechargeable battery upside down in a battery charger, it won't take a charge.

“And this is exactly what happens in all chronic diseases. You have flipped the polarity upside down in that organ's power supply, so it no longer has the -25 mV to run correctly or the -50 mV to repair itself.”

Low voltage and disease

At my clinics in California, we have an entire department dedicated to frequency medicine. It's headed by Danielle Palmer, a certified nuclear medicine technologist who trained with Dr Tennant at his clinic in Texas and studied under some of the other pioneers of frequency medicine, neurologist Dr Alexander Revenko and chiropractor Dr Carolyn McMakin.

As Danielle explains, when cells are not adequately charged, over time

A woman with long blonde hair, wearing a white, flowing dress, is depicted floating in a field of large pink flowers. She is surrounded by vibrant, glowing blue and yellow lightning bolts that appear to emanate from her body and the flowers. The background is a soft, hazy mix of pink and blue, with a bokeh effect of light spots. The overall mood is ethereal and powerful.

“Almost all chronic illnesses—including cancer—have low voltage at the core because these diseases occur when our cells aren’t functioning at their peak”

disease can take hold.

“In the body, when an organ or structure loses power, the oxygen level drops,” she says. “The decrease in oxygen triggers fungus, mold and parasites to ‘turn on’ and essentially start to turn us into dirt [in the same way that all organic matter decays].

“The problem is that the rest of the body is still alive. According to Dr Tennant’s research, cancer is never present on a fully charged and functional circuit. Fungus, mold, parasites, inflammation, disease and even cancer are all byproducts of a lack of voltage.”

How to charge your cells

So, if the root of all disease is low voltage, where do we get that “charge” that replenishes our cellular batteries? The answer is simple: from electrons.

These negatively charged particles are part of the trillions of miniscule atoms that make up our cells, and they can be generated in several ways.

Movement/exercise

As Dr Tennant notes, one of the best ways to naturally boost your voltage is through movement and exercise. If you think of our intricate muscle systems like giant battery charging stations, it’s easy to see how more movement equals more electron generation and subsequent increased voltage.

Grounding/earthing

The earth is an excellent electron donor. Putting your bare feet in the grass or sand is great for “recharging.” Walking barefoot outside regularly and standing or sleeping on a grounding mat (see page 64) are easy ways to generate electrons and help boost your voltage.

Food and beverages

Even the foods and drinks we consume can positively or negatively affect voltage. Most people—regardless of health status—benefit from a modified ketogenic diet.

Eat real foods and focus on getting plenty of lean organic protein, leafy greens, cruciferous vegetables, low-glycemic fruits and healthy fats. Eliminate simple sugars and decrease your carbohydrate intake, opting for small portions of complex carbs like

“
The earth is an
excellent
electron donor.
Putting your
bare feet
in the grass
or sand is
great for
recharging



sweet potatoes, quinoa and oats. The healthier you eat, the better your chance of keeping positively “charged.”

Remove metals and add minerals

Another vital facet of voltage medicine is ensuring the body is not hindered by a buildup of toxic heavy metals or a lack of essential minerals. These elements can disrupt the body’s “charge” if an imbalance exists.

The easiest way to test this is with the Oligoscan. One of the latest and most advanced diagnostic tools we use at the Cancer Center for Healing and the Center for New Medicine, this innovative medical device quickly—and painlessly—detects heavy metal toxicity and mineral deficiencies using spectroscopy-certified technology.

Ridding the body of harmful metals and restoring proper mineral balance is another step in the right direction for boosting voltage. (See my column in *WDDTY* February 2024 for more about getting rid of heavy metals.)

Voltage-boosting therapies

Electron stealers—things in our environment that rob us of electrons and decrease our voltage (see box, page 63)—are everywhere, and we must make choices daily that will help us keep our batteries charged.

Exercise, grounding and fueling our bodies with proper nutrition are a great start, but to really “flip the switch” and

determine which areas of the body need charging up, there are several innovative and powerful detection and treatment modalities. Here are some we use regularly at my clinics.

The MEAD 100 system

Within minutes, the MEAD (Meridian Energy Analysis Device) can measure the body’s voltage and detect which “circuits” need to be repolarized or repaired. Again, normal cells have a voltage of around -25 mV, but for healing to occur, that voltage needs to be amped up to -50 mV. That’s where targeted therapies come in.

Tennant Biomodulator Pro

Created after more than 20 years of research by Dr Tennant, this microcurrent biofeedback device works alongside the MEAD system to send healing frequencies into the body, stimulating cellular repair and healing. Dr Chase Faldmo, DC, of the Tennant Institute likens the Biomodulator to a jumper cable for those rechargeable battery packs in our bodies.

However, the Biomodulator is even more effective because while the healing frequencies are being delivered to the body, it measures how well they work and can tweak and tailor them to each individual to promote optimal healing. Using the Tennant BioTransducer, another cutting-edge PEMF device, prior to other modalities makes them even more effective.

BioCharger

This treatment replicates the energy sources found in nature—pulsed electromagnetic frequency (PEMF), light, frequencies/harmonics and high voltage. Exposure to these energies in short, measured sessions boosts voltage, helps cells function properly and promotes healing and repair at the cellular level.

SCENAR

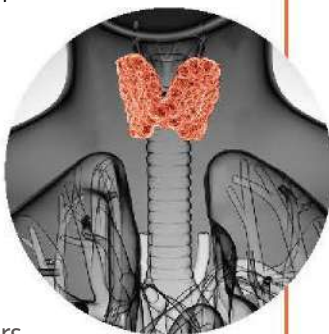
Developed by Dr Alexander Revenko and two other Russian scientists in the late 1970s, the SCENAR device (Self-Controlled Energy Neuro-Adaptive Regulator, scenar.com.ru), pronounced *skee-nar*, has revolutionized frequency medicine. While it is an electron donor, what makes it especially effective is its

Common electron stealers

Just as there are multiple ways to “charge” our bodies, the environment we live in, the stressors and procedures we endure over time, and the items we consume can all rob us of electrons and decrease voltage.

We live in a world full of “electron stealers,” and Dr Tennant’s research has uncovered the five significant reasons that polarity flips and cells lose voltage.

1 Thyroid hormone (T3) T3 controls the voltage of every cell membrane in the body as well as the total number of mitochondria, which is the common pathway for voltage.



2 Scars and tattoos Scars from surgeries or injuries literally slice across the “circuits” or wiring systems (aka the fascia) in our bodies, cutting off the power supply. Even if the battery packs are all charged up, the electrons can’t go anywhere because of faulty wiring. Tattoos can also be problematic.



3 Dental implants The body’s circuits are formed early (in the embryonic state), and some run through specific teeth. If there is damage or decay in the bone around a tooth, it’s like corrosion in a string of lights that shorts out the circuit.



4 Emotions Emotions are stored in the body in a field that can block electrons. Negative feelings, trauma and the like can lower a circuit’s voltage. This is yet another way our emotions can make us sick.



5 Toxins Pesticides, electromagnetic energy fields (EMFs), radiation and other toxins can lower voltage as well.



signaling power.

“SCENAR speaks the exact same language as the nervous system,” says Palmer. “Every millisecond, it sends out an impulse, reads what the body sends back and then adjusts itself intelligently to guide the body back to ‘normal.’”

“SCENAR creates a cascade of

neurochemical mediation throughout the C-fibers of the nervous system, the foundation of every system in the body. Where the Biomodulator repolarizes and recharges the body, SCENAR reprograms the ‘software’ of our bodies.”

In other words, the device has a kind of electrical conversation with your central nervous system. It listens to the nervous system’s signals, then tells it to create proteins and other substances that stimulate the natural healing process.

BEMER

A specialized PEMF device, the BEMER (Bio Electro-Magnetic Energy Regulator, bemergroup.com) delivers a patented signal that reactivates motion in the smallest and most numerous blood vessels, increasing blood flow and immune system function. We use the BEMER with other therapies because it builds the foundation for healing and oxygen uptake in the tissues.

Making sure our cells are properly “charged” may be the key to eradicating disease and ensuring optimal wellness. Daily recharging and therapies known to boost health at the cellular level can change how we approach health, longevity and vitality.

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Leigh Erin Connealy, MD, is the medical director of the Cancer Center for Healing and the Center for New Medicine in Irvine, California. Dr Connealy’s multidisciplinary treatment protocols, team of healthcare professionals, and holistic approach to health and healing have made the Centers the largest integrative/functional medicine clinic in North America, visited by more than 70,000 patients worldwide.

Author of *The Cancer Revolution* and *Be Perfectly Healthy* and a sought-after speaker who has appeared on numerous TV and radio shows, webinars and podcasts, Dr Connealy has been named one of the Top Functional & Integrative Doctors in the US.



The good news about the HPV vaccine was actually bad news

I'm sorry, I'll read that again

Bryan Hubbard

What's not to like about the HPV vaccine? Not only does it protect women against cervical cancer, at least according to the package insert, but it also reduces the risk of a preterm birth.

Researchers from New Zealand made the discovery when they analyzed the records of 35,646 births to first-time mothers. The women who had the vaccine were less likely to have a premature or still birth or to suffer from preeclampsia; overall, the HPV (human papillomavirus) jab reduced the risk of complications by around 27 percent.¹

This was marvelous news for a vaccine that parents have been reticent to give to their preteen daughters since its launch around 17 years ago. Tales of appalling reactions—including neurological problems and sudden death—have kept families away from the jab, and the take-up has rarely risen above 60 percent of the targeted population of girls (and, more recently, boys) aged 11 and 12.

Keen to see a wider acceptance of the HPV jab, organizations were quick to broadcast the good news about safer births. The Cancer Council from New South Wales in Australia breathlessly announced on its website, “As well as preventing cervical cancer, these findings show the vaccine might also play a significant role in reducing the rates of adverse pregnancy outcomes and improving the quality of life for many women and children around the world.”

The paper has also been cited numerous times by other researchers and has become the warp and weft of the HPV vaccine research landscape.

The only fly in the ointment is that it isn't true. Worse, the very reverse is the case: the vaccine increases the risk of preterm birth. The researchers had inverted the data

sets, and so a negative became a positive, suggesting the vaccine might even increase the risk of preterm birth.

And that's not all. When the researchers approached the medical journal *Vaccine* about this little difficulty, one of them, Beverley Lawton of the Victoria University of Wellington in New Zealand, revealed for the first time that she had financial ties to CSL, a pharmaceutical company that owns the rights to the HPV vaccine in Australia and New Zealand. The company had paid her “educational and conference grants.”

The editors of the journal weren't impressed. “It is of serious concern to the Editor-in-Chief that the conflict-of-interest statement was only added to the paper by the authors after acceptance and was not made visible to the editor or reviewers prior to acceptance,” the editorial board thundered next to the giant retraction stamp that filled the page.

What had gone wrong? The error was picked up by a reader, and when the

researchers took another look at their analysis, they discovered the data sets had been inverted—not by them, they said, but by an unnamed “inexperienced person,” apparently.

When the researchers asked to see the raw data sets again, the source—the New Zealand government's health department—refused to release them, explained senior researcher Noelyn Hung of the University of Otago Dunedin School of Medicine.

“It has been a wholly frustrating and embarrassing process that I never ever want to go through again,” she said.

But the story of the HPV vaccine has been tainted with rumors of medical fraud ever since it was approved for use in 2007 in the US. Even the studies that did see the light of day paint a worrying picture, including a major study that discovered it quadrupled the death rate in a group of 2,881 women who received it, compared to a similar number who were given a placebo.²

American law firm Miller & Zois, which represents families harmed by the Gardasil HPV vaccine, has reported a doubling in class action suits against the manufacturer, Merck, since the beginning of the year.

The vaccine is touted to protect against a cancer that declined by 50 percent from the 1970s to the early 2000s, before the HPV vaccine was introduced. The trend continues with a 25 percent fall in cases since 1990. Today, cervical cancer makes up less than 1 percent of new cancer cases every year.

When parents weigh the risks of the vaccine against the chances of their daughters developing cervical cancer, it's no wonder they're refusing it. That's not “anti-vax”; it's just common sense.



Two major studies discovered the HPV vaccine tripled the death rate in a group of 2,881 women given the jab, compared to a similar number given a placebo

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Anti-vaxxers shouldn't be blamed for the latest epidemic

Why measles is back

Bryan Hubbard

Infectious diseases are like economic cycles. They ebb and flow over time, and our health guardians take the credit when they seem to vanish, just as politicians take the plaudits, and our votes, when there's an economic boom.

The World Health Organization (WHO) likes to feed into this false narrative by awarding "elimination status" badges to nations that appear to have beaten a virus. In 2000, the WHO gave the US a badge for having eliminated measles, and the UK won one in 2017, and again in 2021 for good measure. To win the award, a nation must demonstrate that there were no cases the previous year.

Measles is back. The UK has declared a national emergency, and so has almost every nation around the world. It's all because children aren't vaccinated, according to our health guardians.

There's been a drop from the magical 95 percent vaccine coverage rate necessary to stop a virus in its tracks, and in some areas of the UK, the MMR take-up rate is down to 85 percent. Around 3.4 million children in the UK are unvaccinated, NHS England reports.

The blame game has started. Slap bang in the crosshairs are those pesky anti-vaxxers who have sown the seeds of doubt about vaccines through their misinformation and conspiracy theories. The *London Times* has ranted that the latest measles outbreak was caused by "disease disinformation" from anti-vaxxers who have waged "irresponsible and immoral campaigns."

More moderate voices have blamed the outbreak on Covid-19 and on the shift in focus from measles management and other childhood viruses. For example, America's Centers for Disease Control and Prevention (CDC) notes that the administration of 61 million MMR vaccine doses was canceled from 2020 to 2022 as doctors became almost impossible to see and a visit to a clinic

required military precision.

The argument has a satisfying cause-and-effect symmetry: fewer children were vaccinated, ergo there were more cases. But there are underlying issues at play too; for one, the biggest US measles outbreak happened in 2019—when Covid was still a twinkle in the eye of a Wuhan researcher and vaccine status was close to the 95 percent coverage.

That year, 1,300 cases were reported, and the CDC blamed it on the fact that "people were traveling." But don't people travel every year, even in those years when there aren't any measles cases?

Instead, it points to the wave theory: whatever we do, epidemics can recur and viruses that were thought to be eliminated pop up again. Certainly their virulence can be curbed through good hygiene and sanitation and a healthy diet and vitamins (measles is essentially a disease of vitamin A deficiency) that support a strong immune response, but ebb and flow they surely will.

There's also the idea of vaccine fatigue. People have vaccine burnout from the relentless campaign to get everyone

vaccinated against Covid and, having done so, to then line up for a second jab, and then a booster just to be sure. And while you're about it, have that seasonal flu jab as well.

But there's one other factor that is euphemistically called "vaccine hesitancy." The vaccine propaganda during the Covid outbreak worked for a while, but people started noticing they had been lied to. Not only didn't the vaccine stop people catching the virus, it also didn't prevent them from infecting other people who may have been more vulnerable.

Besides that, the vaccines were not quite as safe as health guardians had assured us they would be. The CDC knew the mRNA vaccines from Pfizer-BioNTech and Moderna raised the risk of myocarditis, or heart inflammation, in 2021—just months after the vaccines had been rolled out—but sat on the data because it didn't want to cause a national panic, the *Epoch Times* has reported.

That decision is "not only inexcusable, it's malpractice," said Ron Johnson, a Republican member of the US Senate's Homeland Security subcommittee.¹

Provisional figures released by the UK's MHRA Adverse Event reporting service illustrate the consequences of failing to alert the public. By the end of last year, there had been 1.66 million reactions to one of the Covid vaccines in the UK, of which 75 percent were "serious," suggesting they were life-threatening or life-altering. There were also 2,633 deaths.

So, perhaps vaccine misinformation is to blame for the decline in the MMR vaccination rate after all. But it's not coming from the anti-vaxxers; it's from our governments.



The CDC knew the mRNA vaccines from Pfizer-BioNTech and Moderna raised the risk of myocarditis, or heart inflammation, in 2021—just months after the vaccines had been rolled out—but sat on the data

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