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Zinio"



Editors Lynne McTaggart and Bryan Hubbard

COMMENT

AIR AND WATER

every one atom of oxygen—yet is liquid at normal temperatures and pressures.

It's taken several renegade scientists to advance our understanding of the power of water and why it would explain the strange process of homeopathy.

Two late Italian physicists at the Milan Institute for Nuclear Physics, Giuliano Preparata and his colleague Emilio Del Giudice, demonstrated that water has an amazing property: when closely packed together, its molecules exhibit a collective behavior, forming what the physicists termed "coherent domains," like a late Luc Montagnier, the Nobel laureate and codiscoverer of HIV, have confirmed Preparata and Del Giudice's findings: certain electronic resonance signals create permanent changes in the various properties of water.

In one dramatic experiment, Montagnier demonstrated that a virtually identical copy of a DNA fragment in one test tube could be "teleported" via electromagnetic signals to a second test tube containing nothing but pure water. As Montagnier noted, "High dilutions of something are not nothing. They are water structures which mimic the



"Water can act like a tape recorder, retaining and carrying information whether the original molecule it came from is still there or not"

powerful laser light.

These clusters of water molecules tend to become "informed" in the presence of other molecules, polarizing around any charged molecule and storing and carrying its frequency so that it may be read at a distance.

As Russian scientists have observed, water has the capacity to retain a memory of applied electromagnetic fields for hours, even days. Other Italian scientists from Sapienza University of Rome and the Second University of Naples, and more recently the original molecules."

This suggests that water can act like a tape recorder, retaining and carrying information whether the original molecule it came from is still there or not. Physicist Kunio Yasue of the Research Institute for Informatics and Science, Notre Dame Seishin University in Okayama, Japan, also found that water molecules have the ability to organize discordant energy into coherent photons—a process known as "superradiance."

So vital may water be to the transmission of energy and

information that, as the late French biologist Jacques Benveniste demonstrated, molecular signals cannot be transmitted within the body except through the medium of water.

Benveniste found that water seems to "memorize" the unique signature frequencies of molecules. In his studies, when water was exposed to a chemical, then diluted to the point that none of the original molecules remained, the water sample could still be used in place of the chemical to trigger a reaction.

In one study, he took a test tube of blood plasma and added water exposed to the "sound" of heparin—an anticoagulant drug, meaning it prevents blood from clotting—transmitted via its digitized signature electromagnetic frequency. This signature frequency worked as though the molecules of heparin itself were there: in its presence, blood was more reluctant than usual to coagulate.

This means that water, as the natural medium of all cells, may be acting as the essential carrier of a molecule's signature frequency in all biological processes. The Italian scientists also confirmed that water molecules organize themselves into a pattern on which wave information can be imprinted. Water appears to not only send the signal but also amplify it.

Besides the power of informed water, there are also breakthrough treatments with another one of the earth's most abundant substances. Our cover story focuses on new evidence that very high doses of oxygen, delivered through hyperbaric chambers, are healing or vastly improving cases of Alzheimer's, dementia and stroke.

Think of it: great new advancements for our health and the health of the food we depend on can be sorted simply through novel uses of substances in nature already in plentiful supply.

It's more evidence that most of what we need to heal ourselves and our world is already here, right in front of us.

amilla Sherr has an extraordinarily green thumb. When her mother's apple tree became infested with moths, she and her husband Jeremy prescribed a treatment that not only removed the moths and their caterpillars but also resulted in the tree producing its first season of edible, delicious fruit.

Their treatment didn't include nasty pyrethrin-containing chemicals. In fact, there were no chemicals at all. Camilla is not a plant doctor but a renowned homeopath, and her treatment of her mother's apple tree consisted of a single remedy: Lac Caninum.

This is not as farfetched as it seems. A few good studies show that homeopathy can help plants, even those that start life as seeds planted in toxic soil laced with aluminum (see page 46).

Although both Sherrs treat humans and teach homeopaths (at the Dynamis School for Advanced Homeopathic Studies), lately Camilla has focused on what is termed agrihomeopathy, treating pest or environmental problems in soil and plants, after working with a Tanzanian farmer to convert his farm to organic a decade ago.

Skeptics would say Camilla is working with nothing more than water and a good deal of wishful thinking. After all, homeopathic treatments are diluted with water to the point where there is nothing of the original substance left. But that's because these critics don't really understand the miracle substance that is water.

Water is a chemical anarchist that behaves like no other liquid in nature, displaying no fewer than 72 physical, material and thermodynamic anomalies, with many more apparently still to be unmasked. It is among the most mysterious of substances because it is a compound formed from two gases—two atoms of hydrogen for

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Dr Leigh Erin Connealy looks at the link between root canals and cancer and how you can aim for better dental health

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Severe hair loss and hypothyroidism in a teen likely resulted from the HPV vaccine, Dr Jenny Goodman found

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Thelastword

The UK Medical Practitioners Tribunal has revoked Dr Sarah Myhill's license because she practices real medicine, says Bryan Hubbard; Big Pharma has enlisted influencers to do its marketing now, notes Bryan Hubbard, but should we let them? The brain starts to rewire itself through the consumption of chips and [sweets]. It subconsciously learns to prefer rewarding food. Through these changes in the brain, we will unconsciously always prefer the foods that contain a lot of fat and sugar Page 9

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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 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.



l did it your way

I was diagnosed with terminal multiple myeloma and even lymphoma ... 13 years ago! But I had no chemo, no radiation, no marrow replacement. I used allnatural, real remedies at every level of my being.

It's still lurking because I am naughty enough not to follow protocols to the *n*th degree, so I am living with a "stable" condition, monitored every three months.

But I've never felt healthier, and my biological age is 16 years younger than my almost 77-yearold body. And I'm in charge of my own body.

What's the secret? Attitude! Information!

And your magazine provides or confirms information. Thank you so much. LNesbit, via email

Where the sun don't shine

I read Dr Connealy's article every month and really enjoy her encouraging tone and helpful tips. This month, I read her advice about sun exposure online and found it's basically the same as in conventional medicine: get a little sun every day but wear sunscreen and go inside during peak hours. But I've begun to question this.

We hear endless warnings about the great harms of UVA and UVB rays, but these also come with benefits that we don't hear nearly as much about. There's evidence that sun exposure offers protective effects against cancer, beyond mere vitamin D production.

A review by Juzeniene and Moan in *Dermatoendocrinology* (2012; 4(2): 109–117) points to some of these. Besides the well-known harmful effects, UVA exposure activates an enzyme that protects against oxidative stress and tissue injury, and UVB exposure stimulates production of solar elastosis, which protects against basal cell carcinoma. "Chronic UV exposure reduces and/or delays the development of melanoma" and makes us feel happier, among other perks, according to the study.

To me, the balance looks a lot like what we see in most healthy foods. We love to sort foods under "good" or "bad" labels, but even the ones with the greatest positive health effects also have effects that are somewhat grim. Take olive oil heart-healthy, full of antioxidants, anti-inflammatory, right? It's also got far more advanced glycation end products than a bowl of Kellogg's Frosties (J Am Diet Assoc, 2010; doi: 10.1016/j. jada.2010.03.018).

66 We hear endless warnings about the great harms of UVA and UVB rays, but these also come with benefits that we don't hear nearly as much about 99



UVB is what we need to make vitamin D, a key to just about every aspect of our health, and it's more available during peak sun hours. Considering that even pasty white people like me can acclimate our skin to more sun, and that people living closer to the equator and working outdoors have much less skin cancer, I think the usual advice needs a bit of a rethink. Not to say we should be in the sun constantly (or live on Kellogg's Frosties), just that more balance might be wise. **G Simon, via email**

Thanks for ... everything

You've ruined my life. It will never be what it was again. I used to eat whatever I wanted. And I enjoyed it thoroughly. I used to bake a pan of brownies and eat it all myself within three days. It was so scrumptious, and I wasn't gaining weight, so what did it matter?

I was the kind of person who looked down on "health nuts." The kind who rolled my eyes whenever I saw a product label with California's Proposition 65 warning about carcinogens. After all, that label was on everything, and if everything causes cancer, what can we do about any of it? Who wants to live a life of fear and restriction?

When any problems arose, I did whatever the doctors told me to. When my baby had acid reflux, I gave him Prilosec. When my kids had fevers, I gave them Tylenol. Fed them lots of cereal and juice. Gave them baths every single night. Kept up with the vaccination schedule. My kids seemed pretty healthy.

When I had a blood clot in my calf after giving birth for the third time, I took the muscle relaxers they prescribed even though I was breastfeeding. And I tried to believe them when they said I just had an injury, not DVT. When I was ready to stop having kids and went for a tubal ligation, I let them choose the method and throw in a uterine ablation, too.

I used the prescription fluoride toothpaste. Cooked with canola oil. Took hormonal birth control. It was all so easy.

But now I can't go grocery shopping just anywhere. I can't spray the weeds in my yard. I can't just trust what a doctor says. I can't use name-brand stuff to clean my house and my body. I have to look carefully at everything I use and consume. It takes tons of time and effort.

The old me is gone, and the effortless life she lived is gone. Some say ignorance is bliss, but even the old me wasn't keen on burying her head in the sand.

Thank you. **T Gerry, via email**

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UPFRON Eat a cup of blueberries to burn more fat

Blueberries are a super fruit—but they become extrasuper when you exercise.

Eating a cup of blueberries every day—or 25 g of the freeze-dried variety—helps your body burn fat faster when you exercise.

The berries are high in anthocyanins, which reduce oxidative stress—when free radicals and antioxidants get out of kilter—and encourage fat burning. Anthocyanins are antioxidants that give the fruit its bluish color.

Researchers from the California Polytechnic State University gave 11 male cyclists 25 g of freeze-dried wild blueberries, which contain around 375 g of anthocyanins, for two weeks before monitoring their rates of fat oxidation, or "fat burning," while they did moderate cycling exercises for 40 minutes. They had also carried out the same exercises after avoiding all anthocyaninrich foods for two weeks.

After eating the berries, the cyclists' fatburning levels increased by 31 percent—but the increase peaked at 43 percent after 30 minutes of cycling. Nutrients, 2023; 15(6): 1339

Make nuts and seeds your snack for a healthier heart

Making nuts and seeds your go-to snack of the day may make your heart healthier.

Eating a handful every day likely lowers your risk of cardiovascular disease (CVD) by 20–25 percent, say researchers at the University of Oslo.

A 30 g (1 oz) serving every day seems to be the minimum amount needed to have a positive effect on your heart. People who ate that amount every day had a 19 percent lower risk of heart disease and a 23 percent lower risk of death from heart disease than those who didn't eat nuts or seeds. Those eating 50 g (1.7 oz) also saw levels of LDL "bad" cholesterol drop.

The researchers trawled through 42 studies that had monitored the heart health of 1.89 million participants and measured the amount of nuts and seeds they ate.

The foods are rich in polyunsaturated fatty acids (PUFAs), micronutrients such as vitamin E, dietary fiber, polyphenols, flavonoids and phytosterols. FoodNutrRes, 2023; doi:10.29219/fmr.v67.8961

HEALTH FACT

People with gum disease are **43%** more likely to be diagnosed with esophageal cancer and **52%** more likely to develop stomach cancer



Sweets rewire the brain

Why do you keep reaching for sweets and processed foods when you know they're bad for you?

Foods and drinks that are high in sugars and fats change your brain, and it "learns" to expect them, researchers at the Max Planck Institute for Metabolism Research in Cologne have discovered. The brain begins craving sugar to stimulate the dopamine response, the chemical that's linked to feelings of motivation and reward. "The brain starts to rewire itself through the consumption of chips and [sweets]. It subconsciously learns to prefer rewarding food. Through these changes in the brain, we will unconsciously always prefer the foods that contain a lot of fat and sugar," said Marc Tittgemeyer, one of the researchers.

His research team tested the theory on two groups: one was given a pudding that was high in sugars and fats every day for eight weeks, and the other was given a pudding with less fat and sugar.

The brains of those given the pudding high in fats and sugars had changed by the end of the trial, and the difference between the two groups was significant. One problem is that those given the sweet pudding may well continue to want to eat sugary foods afterward. "New connections are made in the brain, and they don't dissolve so quickly. After all, the whole point of learning is that once you learn something, you don't forget it so quickly," Tittgemeyer said.

The one piece of good news is that we can train our brains to want less sugary and fatty foods — just by cutting down on them. If we modify our diet, the brain will adapt and expect less of these foods. CellMetab, 2023; 35(4): 571–84

S. Co

MitoQ supplements reverse HIV organ damage

The dietary supplement MitoQ can reverse damage to internal organs that's caused by HIV (human immunodeficiency virus) and the antiretroviral therapy (ART) used to manage it.

> The supplement restores the healthy function of the mitochondria, the cell structures that regulate immune cells in organs such as the brain, heart, liver and kidneys. HIV triggers chronic inflammation and immune dysfunction that can damage the organs, and antiretroviral therapy seems to accelerate

Researchers from the University of California at Los Angeles (UCLA) tested the supplement on laboratory mice that had been infected with HIV and then treated with ART. After 90 days, those given MitoQ had less organ damage than those that weren't given the supplement. JInfectDis, 2023; doi: 10.1093/infdis/jiad044

the process.

Staying optimistic keeps you young

Staying optimistic and cheerful can help keep you fit and mentally sharp into old age. Researchers from the University of Connecticut have discovered that people who suffer from depression as they get older also age faster. Their biological age is older than their actual age, and they tend to have worse heart health.

Depression also raises the chances of high blood pressure (hypertension), high cholesterol and chronic health problems, the researchers say.

They measured the health of 426 people diagnosed with late-life depression by taking samples of blood to check levels of proteins that reflect biological aging. The proteins, which are produced by aging cells, cause inflammation in the body. NatMentHealth, 2023; 1(3): 200

Med diet protects against prostate cancer

The Mediterranean Diet — with its emphasis on green leafy vegetables, fruits, whole grains, olive oil and fish — can protect against prostate cancer and Alzheimer's disease, two new studies have found.

The diet can reduce the risk of prostate cancer and speed up recovery after prostate therapies that include radiation, say researchers from the University of South Australia.

It protects against the disease; sufferers are more typically low in lutein, lycopene, alphacarotene and selenium, and they have higher levels of iron, sulfur and calcium in their blood than those who don't have the cancer.

Foods rich in lycopene and selenium also aid recovery after radiation therapy—and these foods are found in the Mediterranean diet, including tomatoes, melons, papayas, grapes, peaches and cranberries, and selenium-rich foods include white meat, eggs, fish and nuts.

Men with low levels of vitamin E might also be more likely to develop the cancer, the researchers say. Vitamin E is found in plant oils, nuts, seeds, fruits and vegetables.

In a separate study, researchers from the University of Chicago discovered that people who eat the diet also have fewer amyloid plaques and tau tangles in their brain, which have been linked to Alzheimer's disease.

The researchers found that people who eat green leafy vegetables at least six times a week had fewer amyloid plaques and had brains that were four years younger than their actual age.

They monitored the diets and brain health of 581 people with an average age of 91 at death who had donated their brains for research after they died. Just before death, 39 percent had been diagnosed with dementia, and upon examination after death, 66 percent met the criteria for Alzheimer's.

Studying the diet sheet that the participants had completed when they joined the study group, the researchers found that those who stuck most closely to the Mediterranean diet eating green leafy vegetables at least seven times a week—had brains that were almost 19 years younger than those of people who didn't follow the diet at all and instead ate more sweets and fried foods. Cancers, 2022; 15(1):77

Neurology, 2023; 10.1212/WNL.0000000000207176

Lonely? Then go to a football game

It can be a bit of a dilemma. To offset the harmful effects of loneliness, we're encouraged to join social groups, such as the local drama society, but for the socially awkward and introverts, there's another way we can be around others—going to a sporting event. Being in the crowd at any sporting occasion increases "life satisfaction" and lowers feelings of loneliness, two subjective markers of general well-being and health.

The boost to our sense of well-being at a game or event is as great as that from having a job, say researchers from Anglia Ruskin University. They monitored 7,249 people who had signed up to the Taking Part survey.

The events ranged from local school sports to Premier League football matches. Attending any sporting event "provides many opportunities for social interaction and this helps to forge group identity and belonging, which in turn mitigates loneliness and boosts levels of wellbeing," said Helen Keyes, one of the researchers. Front Public Health, 2023; doi:10.3389/ foubh.2022,989706

US has highest death rates despite spending the most on medical care

Despite spending more on medicine than any other country, America has the highest death rates across all age groups, a recent study found.

The higher rates also meant the US had more excess deaths — the rate of deaths above the expected average — and experienced a higher death rate during the Covid-19 outbreak than any other wealthy nation, say researchers from the University of California at Los Angeles (UCLA). Their calculations accounted for the countries' different population sizes.

They looked at mortality rates in the US, England, France, Germany, Italy and Spain from 2017 to 2021. During that period, the annual number of excess deaths in the US nearly doubled — and 45 percent were due to factors other than Covid. In 2021, 25 percent of all excess deaths in the US were attributed to Covid, which is just 223,000 of the 892,000 excess deaths that year.

The figures underline the US's failing health policies, which do not take into account social, economic and psychological dimensions of health, including a weak social security net, inadequate healthcare access, and poor lifestyles including bad diets and lack of exercise, say the researchers. PLOSONE, 2023;18(3): e0283153



No, being obese doesn't protect your heart

The "obesity paradox"—which suggests that people who are overweight have greater protection against serious heart problems has finally been put to rest.

The paradox comes about because the BMI (body mass index) score routinely used to assess obesity is inexact and misses key features, such as the length of time someone has been obese and their muscle mass.

A better predictor of heart disease is a comparison of waist measurement to height, say researchers from the University of Glasgow. This ratio, simple waist circumference and waist-tohip measurements were all more accurate ways of predicting heart disease and survival.

The researchers took a fresh look at data from 1,832 women and 6,567 men worldwide who had suffered heart failure and whose BMI, waist and body measurements had been recorded by doctors at the time.

Just looking at the BMI measure showed people with scores of 25 kg/m² or above — defined as overweight while a score greater than 30 is classified as obese — seemed to survive their heart attacks.

But this obesity paradox disappeared when other measures were applied instead. Using the waist-to-height ratio, the researchers saw that the risk of death and hospitalization increased with the amount of body fat the patient had.

People with the most body fat had a 39 percent higher risk of needing hospital care for heart failure than those with the lowest body fat. "We knew [the obesity paradox] could not be correct and that obesity must be bad rather than good," said John McMurray, one of the researchers. EurHeartJ,2023;44(13):1136–53

Too little sleep is bad for the arteries

Your risk of developing peripheral artery disease (PAD) — when blood flow in the legs gets restricted — increases dramatically if you regularly get less than five hours of sleep.

Poor sleepers increase their risk by up to 74 percent compared to those who regularly sleep for seven or eight hours every day. Conversely, regularly sleeping well protects against developing PAD, say researchers from the Karolinska Institute in Stockholm.

Insufficient sleep is an unrecognized cause of PAD, which affects some 200 million people around the world. Untreated, it increases the risk of heart attack and stroke.

The researchers analyzed the sleeping habits and health of around 650,000 people, looking for the risk factors for PAD. Poor sleep emerged as the single biggest factor, but, paradoxically, sleeping longer than eight hours also increased the risk, although by a more modest 24 percent.

Although sleeping a long time or napping during the day was linked to a higher risk of PAD, the researchers said no direct causal link could be established, suggesting other factors could be at play. Eur Heart JOpen, 2023; 3(2): oead008

> POOR SLEEPERS INCREASE THEIR RISK OF PERIPHERAL ARTERY DISEASE BY UP TO

BY UP TO 74% COMPARED TO THOSE WHO REGULARLY SLEEP FOR SEVEN OR EIGHT HOURS EVERY DAY. SLEEPING LONGER

THAN EIGHT HOURS INCREASES THE RISK BY **24**0/₁₀

Upping your magnesium lowers your dementia risk

Upping your daily dose of magnesium could reduce your risk of dementia as you get older.

People who consume more than 550 mg of magnesium every day have a brain age that's around one year younger by the time they reach age 55, compared with someone taking the recommended dose of 350 mg.

The sooner you start taking higher doses of magnesium, the better it is for your brain health, say researchers from the Australian National University. The mineral has neuroprotective effects such as combating cognitive decline—that can be seen in people who are in their forties and even younger.

The researchers tested the effects of magnesium on a group of around 6,000 people aged 40 to 73 who were taking more than 550 mg a day. The higher amounts were linked to larger brain volumes and fewer lesions, which are linked to better cognitive function and a lower risk of dementia. The effect was stronger in women than in men.

As well as in supplements, magnesium is in nuts, leafy green vegetables like spinach, and seeds.

It's a simple solution to a problem that is the world's seventh major killer, and to which medicine has no answers. "People of all ages should be paying closer attention to their magnesium intake," said Khawlah Alateeq, one of the researchers.

Eur J Nutr, 2023; doi: 10.1007/s00394-023-03123-x

Antibiotics cause serious side effects to "hundreds of thousands" every year

We all know that antibiotics are being over-prescribed, heralding the age of the superbug — but in the meantime, they're causing serious side effects in hundreds of thousands of people every year.

Around one in 300 patients prescribed an antibiotic suffers side effects that are so bad they need medical care. "It may not seem like a lot, but when you look at this problem on a population health level, we're talking about hundreds of thousands of adverse events serious enough that these patients need additional care," said Harris Carmichael, a researcher from Intermountain Health in Salt Lake City.

Carmichael and his research team estimate that enough antibiotics are prescribed in the US every year to cover 80 percent of the population. They examined 51 million reports from patients with upper respiratory infections, a condition for which antibiotics are wrongly prescribed in roughly half of cases. Those given an antibiotic were up to a third more likely to suffer

a serious adverse reaction including a deadly diarrheal infection—than those given other drugs. Jint Med, 2022; 293(4): 470–80

Add milk to your coffee to supercharge your immune system

Coffee seems to be good for us — and adding milk to the brew makes it an even healthier drink.

The combination gives the drink anti-inflammatory properties that help boost our immune cells, and especially our white blood cells that fight bacterial and viral infections.

It's down to simple chemistry, say researchers from the University of Copenhagen. Coffee beans are rich in polyphenols, antioxidants that reduce oxidative stress, and milk is full of proteins. Putting them together makes immune cells twice as effective at fighting inflammation.

In animal studies, the researchers were surprised to see just how quickly the polyphenols and proteins in white coffee reacted to each other. They reckon they would see similar effects in any drink or meal that combines polyphenols and proteins, such as a meat dish with vegetables, or a smoothie drink that includes milk or yogurt. There could also be something else going on.

People don't easily absorb polyphenols, but adding protein to the mix seems to improve their uptake.

Polyphenols are found in fruits and vegetables, tea, coffee, red wine and beer—and adding a little protein could supercharge them. JAgricFood Chem, 2023; 71(5):2344–55 Food Chem, 2023; 403: 134406

New form of omega-3 protects against blindness

A form of omega-3 can protect against the most common causes of blindness.

Commercially available DHA omega-3 fish oils are great for every part of the body except the eyes. They can't travel from the bloodstream into the retina.

Scientists at the University of Illinois have developed a new form of omega-3, which they call lysophosphatidylcholine DHA (LPC-DHA), that delivers DHA (docosahexaenoic acid) to the eyes and protects them from blindness caused by health conditions such as AMD (agerelated macular degeneration), diabetes and Alzheimer's.

DHA is concentrated in the retina, where it helps maintain photoreceptors, the cells that convert light into signals that are sent to the brain. But diseases such as AMD reduce DHA levels to such an extent that it can result in blindness.

The LPC-DHA supplements bypass the intestinal and blood-retinal barriers to reach the retina, as the researchers discovered when they tested the formula on laboratory mice. After six months, the mice fed the new formula had a 96 percent improvement in retinal DHA compared to those given the standard DHA supplements.

The mice were given doses equivalent to 250–500 mg of omega-3 fatty acids every day. Human trials are needed to determine the safety and effectiveness of LPC-DHA in humans.

Anne Frances Johnson, "New Form of Omega-3 Could Prevent Visual Decline with Alzheimer's Disease," March 27, 2023, ASBMB.org

OMEGA

JPFRONT

Get active to reduce your dementia risk

No matter what your age is, start exercising, even a little—it is one of the best safeguards against dementia. People who have remained active throughout their adult life are the least likely to develop dementia in later years, but even those who take up light exercise after they retire will reduce their risk of cognitive decline.

Researchers from University College London tracked the health and activity levels of 1,417 participants in the British Birth Cohort who were born in 1946. Those who were active throughout their lives, from the ages of 36 to 69, were the least likely to develop dementia, even after the researchers had stripped out other risk factors of poor education, cardiovascular disease and mental health.

But if that ship has sailed, don't worry. The researchers said that taking up exercise, such as walking or cycling, later in life had a positive impact on cognitive ability as well.

"Being physically active at any time in adulthood, and to any extent, is linked with a higher later-life cognitive state," said Sarah-Naomi James, one of the researchers. Even regular physical activity you do only once a month makes a difference.

J Neurol Neurosurg Psychiatry, 2023; doi: 10.1136/jnnp-2022-329955

Take a vitamin D supplement to reduce your dementia risk

Taking a vitamin D supplement every day could reduce your risk of dementia.

The nutrient changes the brain in a way that seems to protect it from

> cognitive decline—and the effect is greater in women and in those who don't carry the APOEe4 gene, which seems to increase the risk of developing Alzheimer's and dementia.

In a new study of 12,388 people with an average age of

71, researchers at the University of

Exeter found that 4,637 (37 percent) of them were taking a daily vitamin D supplement. In the 10 years of the study, 2,696 participants developed dementia, but the rate was 40 percent lower among those who were taking the supplements.

The vitamin also gave people more years that were free of dementia, the researchers found.

"We know that vitamin D has some effects in the brain that could have implications for reducing dementia," said Zahinoor Ismail, one of the researchers.

Sunshine is the major source of the vitamin, although we process it less efficiently as we get older. Dietary sources include oily fish, liver and eggs. AlzheimersDement, 2023; 15(1): e12404

Mistletoe does combat even late-stage cancers

Alternative medicine has known it for ages, and now conventional medicine agrees — mistletoe can combat cancer.

Mistletoe extract, known as Helixor M, has either slowed or stopped the spread of cancer in 21 patients with advanced and treatment-resistant cancers. Researchers from the Johns Hopkins Kimmel Cancer Center gave the patients 600 mg of mistletoe extract three times a week

intravenously. After 15 weeks of treatment, the cancers had stabilized in five patients, and tumors decreased in size in three other patients and remained stable for up to five months after treatment had stopped. All the patients reported an overall improvement in quality of life, and the only side-effects were fatique, nausea and chills.

Mistletoe has active ingredients that kill tumor cells and stimulate an immune response. Although it has not been evaluated in

clinical trials, it has been used by complementary therapists in association with chemotherapy in Europe, the researchers say. The US's drug regulator, the Food and Drug Administration, has not approved mistletoe as a cancer therapy.

The trials are still in Phase I, and the researchers are planning to move on to Phase II trials, which will combine mistletoe with chemotherapy. Cancer Res Commun, 2023; 3(2): 338-46

> Alzheimer's, say scientists at the University of Colorado Anschutz Medical Campus.

Is fructose driving Alzheimer's disease?

Fructose — the sugar in fruit—could be driving Alzheimer's disease. The sugar is also produced when we eat high-fat, sugary and salty processed foods, and it reduces blood flow to the brain and increases inflammation, a process that can lead to

An abundance of fructose creates tau and amyloid beta proteins, the same buildup seen n Alzheimer's patients. High fructose levels have also been seen in patients' brains. It's all to do with evolution and our ancient brain that still has foraging instincts, the scientists suggest. When we had to scavenge for food, fructose played an important role by shutting down areas of the brain that were a distraction to the hunter-gatherer. But in our age of relative abundance, fructose is always in our system, and this causes our brain to shrink, or atrophy.

Am J Clin Nutr. 2023: 117(3): 455-66

Walk 11 minutes a day, and you'll still live longer

Taking a brisk walk every day for just 11 minutes lowers your risk of cancer, stroke and heart disease.

It's just half the level of recommended daily activity, but it's enough to help you live a longer, disease-free life, say researchers at the University of Cambridge.

Those 11 minutes of walking lower your chances of an early death by 23 percent, they estimate after reviewing 196 studies involving more than 30 million people.

According to health agencies such as the UK's National Health Service, we're supposed to do 150 minutes of moderate activity a week, or roughly 21 minutes a day. Few of us achieve that, but the good news is we may not includes activities like brisk walking, have to.

"If you are someone who finds the idea of 150 minutes of moderate-intensity physical activity a week is a bit daunting, then our

findings should be good news," said Soren Brage, one of the researchers. Health benefits from doing more than 150 minutes of exercise a week also start to get marginal.

Finding 11 minutes a day for a walk reduces your chances of cardiovascular disease by 17 percent, and cancer by 7 percent, although the risk reduced by up to 26 percent for head and neck, myeloid leukemia, myeloma and gastric cancers.

If everyone followed the 150-minutes guideline, one in six early deaths would be prevented. But doing half that level would still prevent one in 10 deaths.

Moderate-intensity exercise dancing, riding a bike, playing tennis and hiking.

Br J Sports Med, 2023; bisports-2022-105669

Robin Williams' dementia starts with three bacteria in the gut

Dementia with Lewy bodies—the version that afflicted Hollywood comedian Robin Williams—could soon be a disease of the past.

Researchers have identified three gut bacteria that cause it—and the discovery opens the door to better diagnosis and treatment.

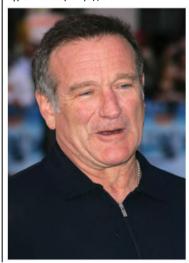
Although dementia with Lewy bodies (DLB) is linked to abnormal deposits of a protein in the brain, it all starts in the gut, researchers at Nagoya University in Japan have discovered. They have identified three gut bacteria that start the process — greater numbers of *Collinsella* and *Ruminococcus* and fewer *Bifidobacterium*—and a similar bacterial grouping is linked to Parkinson's disease patients, many of whom develop DLB within a year.

Two of these bacteria carry an enzyme that controls inflammation in a region of the brain known as the substantia nigra, which produces dopamine, a neurotransmitter that regulates movement.

Typical symptoms of DLB, one of the most common types of dementia, include confusion, memory loss, impaired movement, REM sleep disorder and visual hallucinations.

Williams was so severely distressed by the symptoms that he took his own life in 2014.

Npj Parkinsons Dis, 2022; 8(1): art. 169



Childhood abuse passes down the generations

Effects of abuse and trauma in childhood can pass down to the next generation.

Women who were abused as children are more likely to have a child with asthma, ADHD (attentiondeficit/hyperactive disorder), depression or autism, new research has found.

Researchers from the Institute of Medical Psychology in Berlin tracked the health of 4,300 American mothers and their children. The mothers revealed any abuse — physical, emotional or sexual — that they had experienced growing up, and their children had a higher risk of health problems.

Asthma, ADHD and autism were more common, and so were depression and anxiety disorders, classified as "internalizing disorders." Daughters were also more likely to be obese.

The researchers aren't sure what biological mechanism allows trauma to pass through generations, but the fact that the problem experienced by the mother isn't being replicated in the child suggests it has nothing to do with genetics. Lancet Public Health, 2023; 8(3):e226–7



NOT GETTING THE MEMO: HOW CANCER STARTS

Cancer is typically seen as a disease that is more likely to affect the elderly—and now scientists have figured out why.

Cancerous cells don't get the memo to die, and they somehow bypass inflammatory

processes that would usually kill them off.

But how do they do it? Researchers at the Salk Institute have discovered that cancer is a complicated process that involves three things: chromosomes known as telomeres; mitochondria, the cell's "powerhouse"; and inflammation.

Usually these are studied separately, but the Salk researchers looked at them together and found the genesis of cancer.

As we age, the ends of our telomeres shorten, and then

they start communicating with mitochondria. This kick-starts a complex series of signaling pathways and an inflammatory response, destroying cells that could otherwise become cancerous. multistep process that requires many alterations and changes throughout the cell," said Joe Nassour, one of the researchers. The research marks several firsts: the Salk team is the first



But some cells avoid death by inflammation—known to biologists as "crisis"—and start the process of cancer, the researchers discovered. "Cancer formation is not a simple process. It is a to recognize that telomeres communicate with mitochondria, and they have also delineated how cancer starts.

Understanding how to stop cancer cells from avoiding inflammation could help scientists take the first step toward a better therapy and inspire ways

to prevent the disease in the first place, but the discoveries also affect the aging process and could eventually extend life expectancy. Nature, 2023; 614: 767–73

Three cups of coffee is the sweetspotfor your heart

There's a sweet spot when it comes to drinking coffee—certainly as far as the health of your heart is concerned.

Drinking three cups a day lowers your systolic blood pressure—the one that measures your cardiovascular system when your heart beats—by as much as 9.7 mmHg. Two cups a day lowers it by 5.2 mmHg compared to non-coffee drinkers.

Drink more than that and the benefits starts to decline again, say researchers at the Sant'Orsola-Malpighi University Hospital in Bologna, Italy, They tracked the coffee-drinking habits of 1,503 participants in the Brisighella Heart Study.

Earlier studies had shown that drinking an average of 3.5 cups a day had a



Eat a little less every day and live longer

Eating a little less every day could help you live a longer life.

Cutting your daily calorie intake by as much as 25 percent could reduce your risk of dying prematurely by as much as 15 percent—about the same impact as giving up smoking, say researchers at Columbia University Mailman School of Public Health.

They put 110 people on a calorie-restricted diet for two years and compared three metabolic measurements, known as the epigenetic clocks, with those of an equal-sized group that continued to eat their usual diet.

Calorie restriction slowed the aging processes by around 3 percent, which translates into a 10 to 15 percent reduction in overall mortality risk. In particular, it reduces the risk of chronic diseases such as heart problems, stroke, disability and dementia, said Calen Ryan, one of the researchers.

Calorie-reduction could be achieved through intermittent fasting or eating in a time-restricted period, or just by eating a little less at mealtimes and not snacking.

Nature Aging, 2023; doi: 10.1038/s43587-022-00357-y

Cognitive decline? No idea why

Despite years of research, science still doesn't really know why we suffer cognitive decline—such as losing our memory or

being unable to solve simple problems—as we get older.

The usual suspects of obesity, smoking and sedentary living account for less than 6 percent of cases of cognitive decline in people aged between 54 and 85, say researchers at Ohio State University. And factors such as socioeconomic status, education level and race explain just 38 percent of the difference in cognitive functioning in people who were tested at 54 years old.

"There's still a lot we don't know about why coanitive functionina varies so much between older adults," said Hui Zheng, one of the researchers.

They analyzed data from 7.068 participants who were born between 1931 and 1941. After assessing the participants' cognitive function at age 54, the researchers noted any decline until they reached the age of 85.

The level of education was the single biggest predictor of

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cognitive decline, explaining around 25 percent of the difference between people. It was followed by race, household income, parental education, occupation and depression.

But chronic disease, healthy habits, childhood conditions, gender, marital status and religious faith—often put forward as major influences were responsible for just 5 percent of the differences as the group got older.

And cognitive decline shouldn't be confused with dementia and Alzheimer's: together, these two forms of decline account for just 41 percent of cases.

> Instead, non-dementia cognitive decline seems to be very common in older peopleand we still don't understand why. PLOS ONE, 2023; 18(2): e0281139

Ginger gives the immune system a quick boost

Ginger kick-starts our immune system — and now scientists have seen how it does it.

The reason we can taste ginger involves the same biological mechanisms that alert the immune system. TRPV1 receptors on nerve cells on our tongue and mouth respond to ginger and chili—and the same receptors are found in white blood cells, our immune system's infection fighters.

In laboratory tests, researchers at the Leibniz Institute for Food Systems Biology in Munich discovered that even small amounts of ginger put the blood cells on alert, and they became 30 percent more responsive to a bacterial infection.

Ginger tea will start having an effect within 30 minutes to an hour. Although ginger supplements had a quicker and stronger effect, the researchers have demonstrated that even small amounts can get our immune response working more efficiently—and drinking some ginger tea could be enough. MolNutrFoodRes, 2023; 67(4): 2200434

Red, purple and blue keep us healthy

Think red, purple and blue if you want to stay in tip-top health. Those are the colors of the fruits and vegetables that are best for our gut and suppress inflammation — and they keep type 2 diabetes at bay. Purple potatoes and sweet potatoes, radishes, red cabbage, purple carrots, mulberries and blue bilberries all contain anthocyanins,

compounds that give them their color—and give us health. The anthocyanins strengthen the intestinal barrier, maintain the gut microbiome, suppress inflammation and modulate glucose metabolism, which governs the risk of type 2 diabetes, say researchers from Finland's University of Turku. JAgricFood Chem, 2023; 71(2):1002–17

Psyllium may protect the gut from IBD and Crohn's

Psyllium, a type of fiber derived from the *Plantago* plant, can protect the gut from inflammation, such as in IBD (inflammatory bowel disease).

Psyllium fiber activates bile acid that dampens inflammation in the gut, a common characteristic of IBD, say researchers from Georgia State University. They tested different types of fiber on laboratory mice. While other sources of insoluble

fiber, such as from oats, nuts and legumes, can benefit gut health, only psyllium showed the ability to improve symptoms of metabolic syndrome and colitis in the study.

Psyllium is available as powders, granules or capsules, or whole psyllium husks.

Cell Mol Gastroenterol Hepatol, 2023; doi: 10.1016/j.jcmgh.2023.02.007



Longterm insomnia is a killer

Around 8 percent of premature deaths are linked to long-term insomnia.

Even though the deaths may be attributed to known life-threatening conditions, such as heart disease, poor sleep patterns could be the underlying cause, say researchers at Beth Israel Deaconess Medical Center in Boston, US.

The quality of the sleep also matters, they concluded, after studying the health and sleeping habits of 172,321 people with an average age of 50 for more than four years. In that time, 8,681 participants died.

Those who had all five healthy sleep patterns—sleeping for seven or eight hours, having difficulty getting to sleep on no more than two nights a week, having trouble staying asleep for no more than two nights a week, not using sleep medication and feeling well rested aftersleep five days a week—are much more likely to live longer.

Those who had all five qualities were 30 percept less likely to die prematurely, 21 percent less likely to die from heart disease, 19 percent less likely to die from cancer and 40 percent less likely to die from any other cause, compared to someone who had none or only one of the sleep qualities.

Men who scored on all five sleep qualities had a life expectancy of nearly five years longer than men who scored zero or one. Women had a longer life expectancy by about two and a half years. American College of Cardiology, "Cetting Good Sleep Could Add Years to Your Life," Feb 23, 2023, acc.org THOSE WHO ENJOYED ALL FIVE HEALTHY SLEEP PATTERNS WERE: **30%** LESSLIKELY TO DIE

PRFMATURFLY

DISEASE

19% LESSLIKELY TO DIE FROM CANCER



COVID-19 NEWS

Long Covid could be down to a poor lifestyle

A healthy lifestyle dramatically reduces your risk of developing long Covid.

More than a third of all cases would never have happened if the sufferers had adopted a series of healthy lifestyle habits before they had the infection, say researchers from Harvard TH Chan School of Public Health.

People who live healthily halve their chances of suffering from long Covid, which affects between 20 and 40 percent of people who tested positive, and up to 70 percent who had emergency hospital care.

The researchers tracked the pre-Covid lifestyle habits of 32,249 women enrolled in the Nurses' Health Study; 1,981 of them later reported a Covid infection and, of these, 871 suffered from post-Covid-19 condition (PCC), or long Covid.

But those with five out of six healthy lifestyle habits were 49 percent less likely to have had long Covid compared to those who didn't adopt any of them, the researchers said. The factors — which have been recognized as key to preventing inflammation — are:

- having a BMI (body mass index) of between 18.5 and 24.9 (calculated by dividing your weight in kilograms by your height in meters squared)
- not smoking
- doing at least 150 minutes of moderate to vig**orous** exercise a week
- drinking moderately, up to one glass of wine a day
- eating a healthy diet (fresh vegetables and fruit, no processed food)
- sleeping between seven and nine hours a night Overall, 36 percent of long Covid cases would never have happened if people had followed five of the six habits, the researchers calculated. JAMA Inter Med, 2023; 183(3):232–41



Healthcare workers on alert after a 1,700% leap in reactions to the Covid vaccines

Healthcare workers in Florida have been ordered to reveal the risks from Covid-19 vaccines after reports of adverse reactions leapt by 1,700 percent in the state in 2021.

Life-threatening reactions increased by more than 4,400 percent among Florida residents who reported to the nation's Vaccine Adverse Event Reporting System (VAERS).

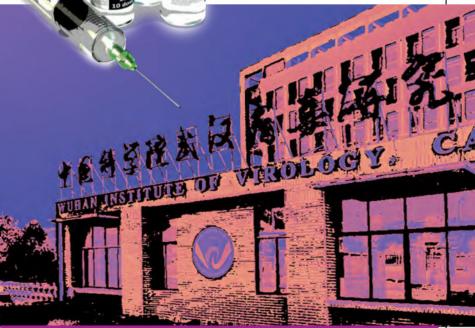
In 2020, the year before the Covid-19 vaccines were launched, there were 2,466 reports of reactions to a vaccine — but in 2021, the year the Covid vaccines were rolled out, there were 41,473 reported reactions.

The state's health agency is confident the reactions are almost exclusively the result of the Covid jabs, and especially the mRNA vaccines. There was no similar increase in 2009 when the H1N1 vaccines were introduced; in that year, just 1,358 cases in Florida were reported to VAERS.

The state surgeon general, Dr Joseph A. Ladapo, says the increase in reported reactions has been mirrored in studies of the safety of the Covid-19 vaccinations. Serious adverse events including coagulation disorders, acute cardiac injuries and encephalitis — were estimated to happen in one out of every 550 people vaccinated, one study found.

"To support transparency, the State of Florida reminds healthcare workers to accurately communicate the risks and benefits of all clinical interventions to their patients, including those associated with the Covid-19 vaccine as additional risks continue to be identified and disclosed to the public," a recent state health alert announced.

Florida Dept of Health, "Health Alert on mRNA Covid-19 Vaccine Safety," Feb 15, 2023, floridahealth.gov



Covid probably leaked from Wuhan lab, says US intelligence

The Covid-19 virus did most likely leak from a lab in Wuhan, China, US intelligence agencies have concluded.

The US Department of Energy and FBI have pronounced that a lab leak was probably responsible for the epidemic that killed nearly 7 million people worldwide.

The CIA remains undecided about the origin of the viral spread, while four other agencies still hold to the theory that the epidemic was the result of natural transmission.

Michael R. Gordon and Warren P. Strobel, "Lab Leak Most Likely Origin of Covid-19 Pandemic, Energy Department Now Says," Feb 26, 2023, wsj.com

COVID-19 NEWS

Covid vaccines should never have been fast-tracked



The Covid-19 vaccines were rushed out, avoiding standard safety trials along the way but the low mortality rate of the virus never warranted jeopardizing public health, one of the architects of the UK's Covid response stated in private WhatsApp posts. Prof. Sir Chris Whitty,

England's chief medical officer, told government ministers that any virus that had a mortality rate of 1 percent would need a "very safe" vaccine that underwent full clinical trials. "For a disease with a low mortality, a vaccine has to be very safe so the safety studies can't be shortcut," he posted in the government's Vaccine Response WhatsApp group.

The Covid-19 mortality rate is around 0.4 percent, the US Centers for Disease Control said in 2020—although a little higher in vulnerable groups—and yet the vaccines were fast-tracked and safety trials were bypassed. Although health agencies have refused to release safety data, vaccine reporting systems, such as the US's VAERS, have been logging adverse events that are up to 1,700 percent higher than normal.

Sir Chris's views were never stated publicly but were revealed in a cache of WhatsApp posts that the then health secretary Matt Hancock had passed to investigative journalist Isabel Oakeshott to help her ghostwrite his Covid memoirs.

Lockdown Files Team, "Covid Not Deadly Enough to Fast-Track Vaccines, Chris Whitty Advised Ministers," March 7, 2023, telegraph.co.uk

Don't get the Covid jab if you have a heart problem

If you have a heart condition, don't have an mRNA Covid jab, a new study has concluded. The vaccine may cause long-lasting damage to the heart if you already suffer from myocarditis, or inflammation of the heart muscle, researchers from the University of Toronto have found.

Others may suffer from typical symptoms of heart problems, such as shortness of breath, palpitations and chest pains, even though myocarditis isn't diagnosed.

But most people who don't have myocarditis before having the vaccine shouldn't suffer from myocarditis-like symptoms after

. having it, they said.

Although it's possible that the mRNA jabs cause myocarditis, the risk is very low, the researchers add.

They monitored the heart health of 54 people for a median of 72 days after an mRNA Covid jab. Of these, 17 had myocarditis symptoms and had preexisting heart problems, another 17 had symptoms but hadn't been diagnosed with myocarditis, and 20 didn't display any symptoms of heart problems. Radio(CardiothoracImaging, 2023; 5(2): e220247

Young women more likely to die from heart problems after AstraZeneca jab

Young women are more than three times more likely to die from heart problems after being given just one dose of the AstraZeneca Covid vaccine.

New statistics from the UK's Office for National Statistics (ONS) reveal the devastating effects of the jab on young women aged 12 to 29. Researchers found that cardiac deaths in the group spiraled three and a half times within the 12 weeks following vaccination. The jab caused sudden cardiac arrest, heart disease and myocarditis, or inflammation of the heart. Young men didn't seem to be affected in the same way, the ONS researchers reported.

In terms of actual numbers, the vaccine was responsible for the deaths of six young women per 100,000 vaccinations. Overall, it caused 59 adverse reactions, including death, out of the 18 million doses given. The AstraZeneca vaccine was the last to be introduced in the UK. Pfizer's mRNA alternative was recommended for under-30s after the heart risk was discovered.

Vahé Nafilyan, who led the research, said young people with underlying health problems would have been prioritized, and so similar reactions may not have been seen in a healthier population. NatCommun, 2023; 14: art. 1541

News Focus

What's your poison?

Around 70,000 people are claiming their cancer was caused by the heartburn remedy Zantac, which contained high levels of NDMA, a powerful carcinogen

A powerful cancer-causing compound has been discovered in 10 prescription drugs. More than 70,000 people who believe they developed cancer while taking one of the drugs the heartburn remedy Zantac—have filed lawsuits in US courts.

The compounds are nitrosamines, identified in the 1970s as the most potent carcinogens yet discovered. They have been found in batches of some of the world's most prescribed drugs, including the antihypertensives Avapro (irbesartan) and Cozaar (losartan), the antidiabetic medication Glucophage (metformin), and the stop-smoking aid Chantix (varenicline).

Nitrosamines were detected in batches of the antihypertensive Diovan (valsartan) in 2018, and a year later, the same online pharmacy discovered high levels of NDMA (N-nitrosodimethylamine), a form of nitrosamine, in every batch of Zantac (ranitidine) it tested. It alerted the US's drug regulator, the Food and Drug Administration (FDA), which banned the drug in 2020.

Even before the ban was imposed, around 12 countries had already pulled Zantac from stores, and GSK had stopped manufacturing it.

It was quite a fall for a drug that in the 1980s had been the world's best-seller, achieving more than \$1 billion in sales every year. The ban was extended to any drug that had ranitidine as its active ingredient, and there have also been 250 voluntary nitrosamine-related recalls since then.

Prove it

Ranitidine is linked to at least 10 cancers, and people who have lodged lawsuits

have reported developing cancers of the bladder, esophagus, liver, pancreas and stomach. Many of the cases are from army veterans who developed cancer after taking Zantac, which was routinely handed out to US armed forces.

Pharmaceutical analysts at Morgan Stanley, the investment bank, say that drug manufacturers could face judgments totaling up to \$45 million if the drugs can be proven to be the cause of the cancers.

Thus far, things aren't looking good for the plaintiffs. Last December, the district court for Southern Florida dismissed thousands of claims because "there is no widespread acceptance in the scientific community of an observable statistically significant association between ranitidine and cancer." In response to the ruling, a GSK spokesperson said the company was pleased that "unreliable and litigationdriven science did not enter the federal courtroom."

Other bellwether cases are being heard in courts across America this year, and these will help claimants and their lawyers assess the likelihood of a successful outcome and the settlement figure, if any. One plaintiff settled his

Levels of nitrosamines found in recalled batches of Zantac were four times the safe limit—so high that they could cause cancer in one in every 3,000 users claim before trial after accepting a payout of \$500,000.

Lawyers are appealing the Florida judgment because NDMA is a recognized carcinogen and the amounts discovered in the Zantac samples were far above safe levels. The FDA revealed that the ranitidine tablets they tested contained four times the allowable limit of NDMA.

Although nitrosamines are found in drinking water and processed meats, just one person per 100,000 develops cancer after eating or drinking them at safe levels over a long time—but levels found in recalled batches of Zantac were so high that they could cause cancer in one in every 3,000 users. Under a milligram of it causes cells in mice to mutate, and 2 g kills a person in a couple of days.

There's also the possibility that other pharmaceuticals contain nitrosamines that haven't been detected. It's suspected the contaminants are getting into the drugs during the manufacturing process—which suggests any drug being made in plants with low quality controls could become contaminated.

Breakdown

But in the case of Zantac, its active ingredient ranitidine breaks down into NDMA while it's on the pharmacy shelf or exposed to heat, and it can transform into the carcinogen when it reaches the stomach. This instability was detected when Glaxo—as it was then known, but today trades as GSK—was developing the compound in the 1970s.

According to papers it has submitted to the courts as part of the discovery process, "Glaxo had been warned by its own scientists and independent researchers about the potential dangers," say researchers with *Bloomberg Businessweek*, who were given access to the court papers.

"Over the years, the company also backed flawed research designed to minimize concerns and chose not to routinely transport and store the medication in ways that could have eased the problem. Glaxo sold a drug that might harm people, tried to discount evidence of that and never gave anyone the slightest warning."

The profit motive may have had a part to play. Glaxo had its sights fixed

ALL ABOUT NITROSAMINES

It's hard to avoid nitrosamines. Around 300 of the organic chemicals have been identified, and they can be found in vegetables, water and dairy products. They are also created when meats are grilled, cured or processed. Around 30 of them have been classified as carcinogenic, although the dose and exposure determine whether someone gets cancer from consuming them.

NDMA (N-nitrosodimethylamine), which has been found in Zantac, is a nitrosamine that was classified as a carcinogen in 1956 and was thought to raise the risk of liver cancer. In laboratory tests, it caused cancer in every type of animal that was given doses. It was also an ingredient in rocket fuel, although it is now actively used only in medical tests. on Tagamet, Smith Kline & French's heartburn remedy, which was the world's best-selling drug at the time. Its researchers quickly developed ranitidine, and the FDA was just as speedy in approving it in 1983.

In 1986, Tagamet became the first drug in history to achieve billiondollar sales-yet just a year later, it was overtaken by Zantac. The drug generated half of Glaxo's revenues for years and was its most profitable product. It dominated the heartburn and ulcer remedies market with a 53 percent share.

According to court papers, Glaxo ignored inconvenient naysayers about the possible hazards of ranitidine. In 1969, US government cancer researcher William Lijinsky had discovered that nitrosamines can form in the stomach, especially if nitrite chemicals from cured and grilled meats, beer and coffee-foods that are common causes of heartburn and acid reflux-were also present.

His early observations were ignored, although a report published two years before Zantac was granted approval found that ranitidine could form a cancer-causing compound in the stomach. Italian researcher Silvio De Flora discovered that ranitidine led to "toxic and mutagenic effects" if it was mixed with nitrite and gastric fluid.

Another scientist, Richard Tanner, found that ranitidine formed a carcinogen-later known as NDMAwhen it was mixed with nitrite. He made this discovery a year before Zantac was approved, but he was an employee of Smith Kline & French, Glaxo's bitter rivals in the heartburn remedy market, and so his findings were discounted as a display of commercial partiality.^E

Though Tanner's study was published, Glaxo kept it from regulators. Its own researchers also noticed that ranitidine was an unstable substance that changed when exposed to heat or humidity, and NDMA started to form. Again, this observation was kept from regulators.

Change the color

After Zantac was approved, problems continued to pop up. It was getting harder to hide ranitidine's instability from pharmacies, which began to report that the pills were changing color when

NITROSAMINE DRUGS

Ten pharmaceuticals have been banned or had batches recalled due to levels of nitrosamines. Since the problem was recognized in 2018, drug companies have recalled more than 250 batches of their drugs. Zantac (ranitidine) The FDA banned the popular drug in 2020 after amounts of the nitrosamine NDMA four times above safe levels were found in tested batches. Sanofi's heartburn remedy, Zantac 360, has not been banned because its active ingredient is famotidine.

Avapro (irbesartan) Batches of the antihypertensive were recalled in 2021 after high levels of the nitrosamine N-nitrosoirbesartan were found. The supplier, Lupin Pharmaceuticals, announced that it had stopped marketing the drug.

Cozaar (losartan) Batches of the antihypertensive



Glaxo sold a drug that might harm people, tried to discount evidence of that and never gave anyone the slightest warning

they were on the shelf. Glaxo's solution was to change the pill's original color so that any discoloration was harder to detect.

Glaxo was keen to keep a lid on any alarms as it was going through the process of producing a milder version that could be sold over the counter

were recalled in 2018. The source was traced back to a manufacturing plant. Glucophage (metformin) The FDA detected high levels

of NDMA in batches of the antidiabetic remedy in 2020, and batches made by several manufacturers were recalled. Tazac (nizatidine) The ulcer remedy was plaqued by recalls in 2020. Three lots were taken off shelves across the US, and the oral version was removed a few months later. All the batches contained NDMA. Accupril (quinapril) Five batches of the anti-

hypertensive were recalled in 2022 after levels of N-nitrosoquinapril were discovered. **Rifadin (rifampin)** The FDA discovered nitrosamine impurities in several lots of the antibiotic in 2020.

Januvia (sitagliptin) Batches of the antidiabetic medication showed traces of the nitrosamine NTTP (nitrosoSTG-19) in tests carried out in 2022. Levels were above safe limits, but the FDA allowed Merck to continue supplying the drug.

Merck has said it has upped quality controls at its manufacturing plants to ensure it meets FDA requirements.

Diovan (valsartan) This antihypertensive drug started the nitrosamine saga in 2018 when high levels of NDMA were discovered in some batches of it. Since then, the FDA has ordered dozens of recalls of the drug.

The problem has been traced back to an active ingredient that is manufactured in China. Chantix (varenicline)

Shipments of the smoking cessation remedy were stopped in 2021 after testing discovered unacceptable levels of the nitrosamine N-nitroso-varenicline.

(OTC) without a prescription. The FDA duly complied, and the drug was granted its OTC license in 1996.

Health agencies around the world have recognized that nitrosaminesand NDMA in particular-cause cancer, although the poison is in the dose and exposure. Although the amounts of NDMA in Zantac samples have been way above safe levels, the 70,000 who believe they got cancer because they wanted something to ease their indigestion will have to prove a direct causal link to Zantac to win the dav.

GSK has set aside \$40 million to fight the cases-but not a cent to settle damages, which gives an indication of the way the wind is blowing. **Bryan Hubbard**

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News Focus

Overweight the killer in plain sight

The BMI measure has given us the obesity paradox — being overweight or even slightly obese protects us against an early death. But iron out the anomalies, and the true impact of extra weight is revealed

ave that last piece of pizza. You know you want to, and anyway, medical science tells us it might even be good for you. People who are a little overweight—pleasantly plump, perhaps—have the greatest protection against a range of chronic health problems and could even live longer, we've been told.

It's known as the obesity paradox. According to BMI (body-mass index) measures, obesity is defined as any score over 30. But those who are merely overweight—with a BMI of 25 to 29.9 are at the lowest risk of an early death, so it seems as if that little bit of fat around the middle helps you live longer. In a U-shape of risk, the overweight enjoy the same protection as the slim, who have a BMI score of 18.5 to 24.9.

Even stranger, people classified as underweight with a BMI of 18.5 or lower are at the highest risk, like the morbidly obese with a score of 35 or higher, of an early death. And young people with a low BMI of 18.5 to 24.9 are more likely to suffer arterial stiffness, a precursor of cardiovascular disease.^[]

"Obesity alone may confer a survival benefit independent of age, medical care or therapy... perhaps the definition of obesity needs to be revisited," said researchers at the Naval Medical Center in San Diego.²

Its science

BMI doesn't take into account different body compositions or the length of time someone has been at their current BMI score It's hard to argue with the science that uses the BMI score, the go-to measure for predicting health and longevity. While doctors used to rely on simple weight and height calculations to judge body fat, they now use the more precise BMI score, which is arrived at by dividing weight in kilograms by height in meters squared.

It doesn't directly measure body fat, but it provides a reasonable guide, says America's Centers for Disease Control and Prevention (CDC).

This is all great news for the 30 percent of American adults who are overweight and who are already tucking into an average of three fast-food feasts every week. Even the 42 percent of Americans who are obese don't seem to have too much to worry about, with their weight problems increasing their risk of premature death by a marginal 3 percent. Only the morbidly obese need to start cutting back on the carbs.

Putting that into numbers, the World Health Organization (WHO) estimates that obesity and excess weight are directly responsible for 2.8 million deaths a year around the world. Sounds like a lot, but with the world's population tipping 8 billion, that's just 0.035 percent of people dying from weight-related health problems every year.

Makes sense?

None of this makes sense on a fast-food planet where the primary exercise is video gaming and the overweight and obese outnumber the slim.

It certainly didn't make sense to Ryan Masters, an associate professor of sociology at the University of Colorado at Boulder. "I've been suspicious of the claims of the obesity paradox," he said, and so he decided to find out what's really going on.

He suspected the BMI score was at the heart of the paradox. BMI doesn't take into account different body compositions—it doesn't recognize the muscle mass of sportspeople or weight-lifters, for instance—nor does it consider the length of time someone has been at their current BMI score.

It also takes a Western view of body types. The Inuit people of Greenland have long torsos and short legs, which means they weigh more for their height than white people, on whom BMI

NEWS FOCU

"Excess weight raises the risk of premature death by 22% to

91%. Obesity, largely from fast foods, is directly responsible for 10.7 million deaths around the world every year" measures are based. It puts most of them in the BMI's obese category-and yet disease is a rarity in this people who tend to be physically active and are still hunter-gatherers.

Masters re-analyzed data that captured the BMI scores and health of more than 17,000 Americans who had participated in the National Health and Nutrition Examination Study (NHANES) between 1988 and 2015, during which time 4,468 of them died.

Around 20 percent of the participants who were healthy according to their BMI score had been overweight or obese the previous decade. Conversely, 37 percent of the participants had only recently become overweight or obese, so they didn't have any health problems and were not more likely to die prematurely.

Health and BMI levels "are not like a light switch," Masters said, and the real impact of obesity on a person's health can take many years to materialize.

The killer is revealed

When these anomalies are ironed out, the true extent of obesity's damage is revealed. Being overweight or obese is responsible for 16 percent of all deaths every year, making it at least five times more deadly than the WHO's current estimates suggest.

Excess weight and obesity raise the risk of premature death by anything from 22 percent to 91 percent, Masters calculates. If he's right, obesity is directly responsible for 10.7 million deaths around the world every year, a sorry legacy of fast foods.

The U-shaped paradox disappears and instead a straight upward-moving line emerges, with the lightest at the lowest risk and the heaviest at the greatest risk of early death. The supposedly protective effect of being a little overweight also vanishes.

"Existing studies have likely underestimated the mortality consequences of living in a country where cheap, unhealthy food has grown increasingly accessible, and sedentary lifestyles have become the norm," he said.

Perhaps it's premature to throw out the BMI measure, but its deficiencies need to be recognized, and more

THE RIGHT TYPE OF FAT

When it comes to body fat, there's fat and there's fat. We all know about the calorie-storing white fat that seems to accumulate around our stomach and thighs, but biologists have recently discovered the body is also made up of another fat, and it's completely missed by the BMI measure.

Brown adipose tissue (BAT), or brown fat, burns fat and helps maintain a healthy body temperature. Babies have plenty of brown fat, and it keeps them alive when they're born, but biologists had assumed we lose it as we grow older.

In fact, we retain brown fat, although some of us have

TOM OR THE WHALE: WHO'S OBESE?

Who's obese of these two: Charlie, the tragic hero of the movie The Whale, or Hollywood action man Tom Cruise? The answer is that both are, at least according to their BMI scores. Charlie, weighing in at 600 lb (272 kg), has a BMI score of 77, and Tom's BMI is 31.5—his muscular frame weighs 201 lb (91 kg) and stands 5 feet 7 inches tall (169 cm).



more of it than others. In one study, the fat was detected by PET (positron emission tomography) scans in just 10 percent of people—however, those with detectable amounts had half the rate of type 2 diabetes, plus lower blood pressure, congestive heart failure and coronary artery disease.¹

Having detectable amounts of BAT helps protect you against obesity—and even if you are overweight, the fat reduces your risk profile for heart and metabolic diseases to that of someone with a healthy weight.



It seems that BAT—which tends to accumulate around the neck and shouldersburns calories to maintain body temperature.

We may be able to transform white fat to brown, at least according to some early theories, by exposing ourselves to extreme cold. Easier ways could be by adding more BAT-inducing foods and drinks to our diet, such as green tea, resveratrol, curcumin and grape extract.²

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direct measures of body fat-such as bioelectrical impedance, which uses electrical currents-need to be considered.

Even simpler measures, such as waist size, are better indicators of disease risk. One study found that a waist size of 40 inches in men and 35 inches in women is a much stronger predictor of heart dysfunction. In other words, the classic apple shape suggests a higher risk than a pear shape, where fat accumulates around the hips, and it's a far more accurate predictor than BMI, say researchers at the Intermountain Medical Center Heart Institute.⁵

One thing's for sure: being overweight or even slightly obese is no longer a free pass. They are both killers, despite what the BMI researchers might be telling vou.

. Bryan Hubbard

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16 health hacks for every generation



Engage at dinnertimes

We used to call them tips, but today they're hacks: simple things to help make you healthy. Here are a few from WDDTY for you to consider

Make it a house rule that nobody at the table uses their phones. Instead, you have to talk to each other. A tough one, but give it a go.

Generation Z isn't interested in health advice or tips—they're into health hacks. There are even conferences and exhibitions devoted to health hacks, which are essentially simple things you can bring into your everyday life to improve your health.

One of the first hacks was the idea of putting butter in your morning coffee. Like butter itself, the idea spread—although it's not something WDDTY hastried.

But if that doesn't sound quite like your cup of coffee either, there are plenty of other simple hacks vou can try instead.

Supplement

There are some vital nutrients your body needs, including vitamins C and D, magnesium, omega-3 and zinc. You need others, of course, but these are essential for maintaining good health. Don't take the RDA (recommended daily allowance); it's hopelessly inadequate. As a rough rule of thumb, you should be taking 10 times the RDA every day.

Think of walking more instead of driving or taking the bus. And when you are confronted by a flight of stairs, don't reach for the elevator call button—walk up the stairs.

Sleep

Make sleep a priority. Getting seven hours of sleep at night is vital to maintain good health. Have a calming cup of herbal tea a couple of hours before retiring, turn off all mobile devices an hour before going to bed and make sure the bedroom is dark. Reading a book in bed before turning off the lights can also help make you mellow.

Stand on one leg

Sounds a little strange, but it strengthens your core muscles and abs.

Start the day with berries

Add blackberries and strawberries to your breakfast. They help improve mental functioning, something to take seriously as we get older.

Drink

Make sure you're drinking enough liquids every day. The optimum is anything from 2 to 4 L (and some studies suggest 6 L). But since that includes all liquids—such as those from vegetables and fruits—you'll be surprised at how much you're consuming.

Green tea

Drink four or five cups of green tea every day. It's full of polyphenols and anti-inflammatory compounds that keep your immune system in good shape.

Appreciate things

Scientists are only starting to understand the mind-body connection and how a positive disposition does wonders for the immune system. So, start appreciating things around you, from your family and your home to nature.

Fasting

Try fasting once or twice a week. It can be done in many ways, but here are two: restrict the hours when you eat, allowing 12 to 14 hours between meals. As that includes the time you're sleeping, it isn't so hard to do. Alternatively, restrict the amount you eat on a fasting day to just 700 calories or so.

Think cinnamon

Sprinkle a little cinnamon on your morning eggs, porridge or smoothie to help maintain energy through the day.

Breathe

Sounds obvious, but breathing properly is important for body and mind. Find time every day for short sessions of deep breathing, when you take deep gulps of air and hold them in your lungs for a few seconds before releasing slowly.

Veg out

VERY PICTURE...

Eat the "power veg" every day, including mushrooms, broccoli and brussels sprouts. Adding lemon to drinks also helps boost your vitamin C intake.

Think of your gut

Everything starts in the gut, so you need to feed it the right things. Include kefir, miso soup or fermented vegetables such as kimchi and sauerkraut in your daily diet.

And a few **don'ts** (sorry):

- Don't eat anything processed.
- Don't snack between meals (and if you need some between-meals fuel, make them healthy snacks such as a handful of nuts).
- **Don't** stress about things you can't change.
- **Don't** sit around all day staring at a screen.
- **Don't** hide from the sun—you need at least 15 minutes every day in the summer months.

Don't sit after eating

Try to walk around, or at least stand up, after you've just eaten. This is especially important after lunch, when you can feel tired and want to nap—not great if you're about to have a meeting with the boss.



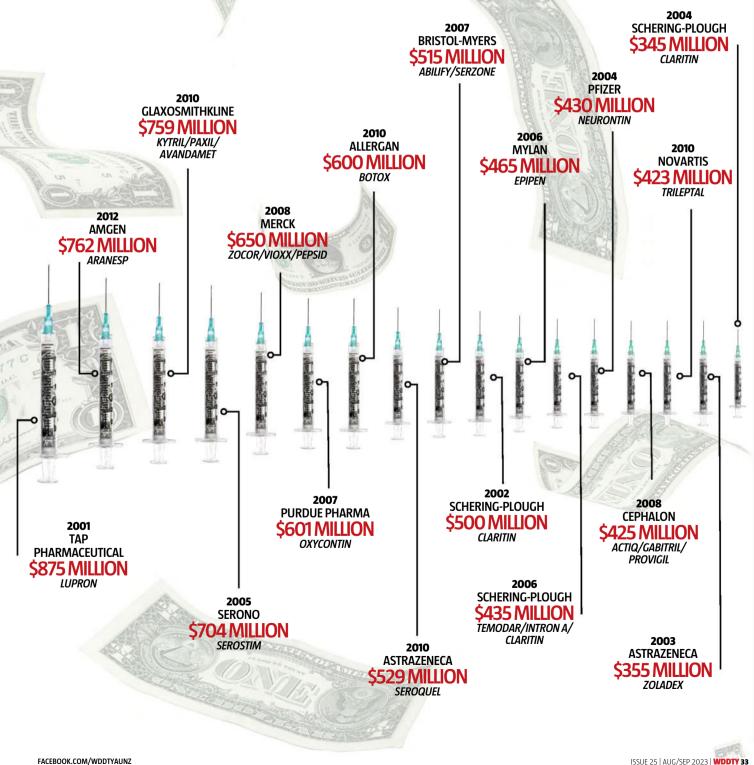
It dwarfs other pharmaceutical settlements. Before this one, the highest settlement had been GlaxoSmithKline's payout of \$3 billion for its anti-diabetes drug Avandia, which was effectively taken off the market in 2010 after it was found to cause heart problems.

But the biggest culprit is Pfizer-yes, the company that brought you the mRNA Covid vaccine—which has been fined 90

times since the turn of the century, paying out a total of \$10.27 billion. It has been fined 20 times for making false claims about its products, and another 26 times for despoiling the environment.

Close behind is GlaxoSmithKline, which has paid out nearly \$10 billion. It has on several occasions been called out by whistleblowers, who revealed to regulators that it was hiding safety data about Avandia and encouraging physicians to prescribe its Paxil and Wellbutrin antidepressants for off-label use.

Not to be outdone, Merck & Co. was sued by 50,000 victims—or their surviving families-of its painkiller Vioxx, which caused strokes and heart attacks, details the company kept tucked away in a filing cabinet. It paid out \$650 million before withdrawing the drug in 2004.



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BRAN BRAN BRAN

Hyperbaric oxygen is being used to treat a host of brain conditions, from stroke to cognitive impairment. Celeste McGovern investigates eren Trebelsi, a 46-year-old mother of two and CEO of an international cosmetics company, was on a flight from South Africa to Israel two years ago when she began to feel unwell.

By the time the plane landed, she was "really not well." Her husband rushed her straight to the hospital, where she was admitted for an ischemic stroke in the right

side of her brain.

The left side of her body was paralyzed, and after she underwent a three-hour surgery, the prognosis was not good, she recalls. "They weren't optimistic. They thought it didn't look good at all."

In the months following her stroke, the paralysis in her arm and leg became less concerning than the changes she noticed in her mental function. "It was almost like my mind was playing ping-pong. I was feeling so stupid all the time," she says. "Filling a form on the internet was such a struggle."

Keren wondered how she could ever go back to work and function. "I was like, oh my gosh, how will I ever be able to cope in life? It was very, very scary."

Fortunately, she happens to know Shai Efrati, a professor at the Sackler School of Medicine at Tel Aviv University (TAU). Efrati is a leading researcher in the field of raising oxygen concentration in patients with brain damage. He's also a founding director of the Sagol Center for Hyperbaric Medicine and Research, which treats up to 200 patients with hyperbaric oxygen each day. He got Keren into hyperbaric oxygen therapy.

The healing power of oxygen

Hyperbaric oxygen therapy—or HBOT—is exposure to pure oxygen in a pressurized chamber. It differs from the oxygen delivered through a mask in a hospital, for example, because the pressure forces more oxygen to be dissolved in the blood plasma and diffused into tissues throughout the body.

"If you've ever been on a commercial airplane, you've been in a hyperbaric chamber," explains Edward Fogarty, a radiologist from North Dakota who has published papers on HBOT for brain damage. The difference is that with HBOT, you are breathing 100 percent oxygen.

The increased air pressure in the chamber leads to improved cellular oxygen delivery, which is why HBOT so effectively treats carbon monoxide poisoning, for example.

The higher pressure of oxygen also compresses bubbles. HBOT has been used for decades to treat conditions in which dangerous gas bubbles develop in people, such as decompression sickness, or "the bends," when deep-sea divers ascend too quickly and develop potentially fatal nitrogen gas bubbles in their tissue.

In the past decade, however, a tidal wave of research has shown that oxygen, which affects both oxidative and antioxidant systems in the body, ignites cascades of antiinflammatory reactions, triggering proliferation of stem cells and a host of growth factors that catalyze the healing process. $^{I\!I}$

Among its many actions, HBOT stimulates the growth of new blood vessels, or angiogenesis. It promotes brainderived neurotrophic factor (BDNF), which is like Miracle Gro for new nerve cells in the brain. BDNF increases brain metabolism, improves the blood-brain barrier's permeability and charges production of glutathione, the body's super-antioxidant.² It even improves insulin sensitivity.^E

HBOT has also been shown to lengthen telomeres, structures on the ends of each chromosome that offer a measure of cellular aging. In other words, it slows the aging of our cells.^[2]

"It's almost like driving a Ferrari on the road to recovery, versus driving your old beaten-up car," says Keren. "My physiotherapist couldn't believe how fast I was improving. It got to a point where one day, I just could walk, with a walker, but I was standing, and I could walk." Now, she walks 4 kilometers every day.

Some changes were completely unexpected. She had been told, for example, that she would never be able to feel sensation in her left hand again, but after her hyperbaric oxygen therapy, she was doing dishes one day when she felt the dishes slipping from her hands and the sensation began to return. Soon she was able to type.

More importantly for Keren, however, was the return of her cognitive abilities. "I used to really like doing puzzles, like crosswords and Sudoku . . . this was something I used to do in my free time, and I just couldn't do it anymore.

"One day, probably halfway through my treatment, I sat down in the chamber, I put on my oxygen mask, and, wow, I could do it! I finished. I was so proud of myself."

The effort likely paid off in long-term benefits beyond just boosted cognitive function. Since having a stroke significantly raises the risk of dementia, including Alzheimer's, the oxygen therapy may have averted serious cognitive decline down the road.⁵

Niche, not mainstream (yet)

Many larger hospitals are equipped with hyperbaric oxygen chambers, which are used exclusively for 13 specific conditions approved by the US Food and Drug Administration. These include the bends, crush injuries, severe anemia, severe burns, radiation damage from cancer treatment, gangrene and sudden hearing loss. Stroke and many other brain conditions are not on the list.

Most recently, the FDA added non-healing diabetic ulcers to its HBOT indications.⁽³⁾ However, the use of oxygen to heal wounds goes back decades, showing that as many as threequarters of persistent deep infections resolve with it.

A study published in April this year examined a total of 774 diabetic wounds treated by HBOT. Of those, 472 (61 percent) completely healed, 177 (22.9 percent) partially

How safe is hyperbaric oxygen therapy?

While there are many different types of HBOT chambers, the principle is the same: the person breathes oxygen in a mask while sitting or lying in a pressurized chamber. The pressure ranges from "mild"—just above sea level, which is 1 atmosphere absolute (ata)—to 2.0 or 2.5 ata and should never exceed 3.0 ata.

"Soft" chambers typically reach a pressure of only 1.3 ata, and these are most common in private clinics and homes. They can be rented or purchased in the US and don't require extensive training to use. Hospitals and many clinics use "hard" chambers that provide pressure of 2.0 to 2.5 ata.

The number of "dives" that a patient is advised to take varies based on their condition, from one or two for an acute problem to 40 to 60 sessions for a chronic condition. Sessions usually last one to two hours, often with periodic breaks of breathing room air rather than oxygen.

The most common side effect of hyperbaric oxygen treatment is middle ear barotrauma—also known as "airplane ear" because it often occurs while flying in an airplane. It can range from a feeling of fullness or pressure in the ear to muffled hearing but is usually tolerable and resolves within minutes to a few days after HBOT.

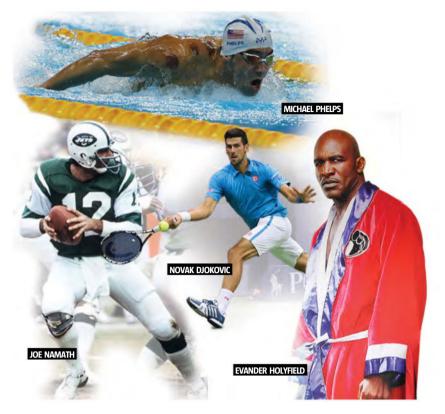
Other complications include headache, claustrophobia, reversible myopia (nearsightedness) and, very rarely, seizure. Most of those complications are mild and reversible when the treatment is stopped.

Cataract formation has been described as an extremely rare side effect, most often occurring with a high number of dives, usually more than 150 sessions.¹

At lower pressures in "soft chambers" and with dives lasting under an hour, side effects are substantially reduced, but many of the studies on brain conditions are conducted at higher pressures of 2.0 to 2.5 ata.

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healed, 41 (5.3 percent) deteriorated, and about 10 percent went on to be amputated.¹²

In the United Kingdom, about 60,000 people have diabetic foot ulcers, and the National Health Service amputated 27,465 affected lower limbs and toes between 2015 and 2018.^B Nevertheless, health authorities still say they are waiting on more evidence before they approve oxygen therapy.

That, unfortunately, is the stance of most of mainstream medicine regarding HBOT. Since oxygen can't be patented, oxygen therapy doesn't have the sponsorship of pharmaceutical companies, and it's given only a glance in medical school. Hospital hyperbaric chambers are reserved mostly for rare conditions like the bends and as a sort of last-ditch effort for only the most "treatment-resistant" wounds.

In the medical literature, however, emerging evidence is stacking up for HBOT's ability to treat a wide range of conditions—from aiding in stroke and heart attack recovery and restoring brain function in children who survived near-drowning accidents to reversing cognitive decline, including even diagnosed Alzheimer's disease. In animals, HBOT has aided in recovery following spinal cord injury.^E

Recent studies point to HBOT's use in treating Covid-19, including lingering long Covid aftereffects of the virus's lethal spike protein, as well as fibromyalgia and even childhood trauma.

The long practice of using hyperbaric oxygen to treat addictions and damage from drug and alcohol abuse, in the United Kingdom in particular thanks to hyperbaric pioneer Dr Philip James, has new research to support it.⁽¹⁾ Dr James, emeritus professor of medicine at the University of Dundee in Liverpool, has studied and promoted HBOT for decades and is a PROFESSIONAL ATHLETES HAVE SUNG THE PRAISES OF HYPERBARIC OXYGEN. TENNIS CHAMPION **NOVAK DJOKOVIC** EVEN BROUGHT HIS CHAMBER TO THE US OPEN IN 2019 world-renowned expert on the treatment.

In the US, dozens of companies sell hyperbaric chambers for personal use in homes or in private practice. But north of their border, Health Canada so strictly regulates the machines that this is nearly impossible, and there are fewer chambers across Canada than in the state of Florida.

In private practices, HBOT is used to treat a variety of conditions that hospitals neglect: wounds, cerebral palsy, multiple sclerosis, blast injuries in veterans, concussions and post-traumatic stress disorder.

Athletic associations like the NFL have hyperbaric oxygen chambers for post-workout recovery, and many players own their own home HBOT chambers. Tennis champion Novak Djokovic even brought his chamber to the US Open in 2019.

Former football superstar Joe Namath swore that HBOT saved his brain after multiple hits to the head in the game over the years, and swimming champ Michael Phelps and boxer Evander Holyfield have sung the praises of hyperbaric oxygen, too.

Opening minds

While ESPN sports network dismissed Namath's "dubious" HBOT oxygen therapy and his recovery as a placebo effect, one of the hottest emerging fields is its use in the treatment of stroke, traumatic brain injury, cognitive impairment and neurodegenerative diseases, which are all entangled.

Tel Aviv University's Dr Shai Efrati views many of these conditions as "biological wounds"—the difference being that you can't see a brain wound with the naked eye. Advanced scanning techniques, including SPECT (single-photon emission computed tomography) and perfusion MRI (magnetic resonance imaging), which shows blood flow to the brain, easily make areas of tissue damage visible in brains that look normal on ordinary MRI scans.

Just as there are areas of dead, necrotic tissue surrounded by living, active wound tissue in diabetic ulcers, so there are dark areas of no activity in the brain, which are necrotized and can't be revived. Nevertheless, they are surrounded by living tissue that has the potential to rejuvenate.

To heal flesh wounds, such as diabetic ulcers, the area needs to be flooded with oxygen so that stem cells can move in, and new blood vessels will grow and perfuse the area. So too with brain wounds.

In one of his landmark studies a decade ago, Dr Efrati and his colleagues, including Professor Eshel Ben-Jacob of the Tel Aviv University School of Physics and Astronomy and the Sagol School of Neuroscience, recruited post-stroke patients whose condition was no longer improving to undergo HBOT.

Seventy-four participants ranging from six to 36 months post-stroke were split into two groups. The first treatment group received forty 90-minute sessions of HBOT five days a week from the beginning of the study, and the second received no treatment for two months, then received a two-month period of the therapy.

Scans showed increased brain activity after the HBOT treatment compared to after control periods. What's more, patients reported improvements including reversal of paralysis, increased sensation and improved speaking ability—demonstrating that even years after a stroke, new neurons can grow and brain injury can be ameliorated.^Ш

The changes that HBOT induces in the brain can dramatically impact a person's life. Cindy Parsons started receiving HBOT therapy at the Aviv Clinic—a recently opened Florida satellite of Dr Efrati's clinic in Israel—four years after she had a stroke and was finally able to improve her speech, comb her own hair and drive a golf cart.

The Israeli researchers confirmed their findings with another study in 2015 of 91 patients who had either ischemic or hemorrhagic strokes three to 180 months before HBOT therapy. The patients showed significant improvements in all memory measures after the treatment, which correlated with improved brain metabolism on images.¹²¹

Since then, a growing number of studies and case reports have documented healing of brain injuries and cognitive disorders using HBOT. One case report was published by leading American HBOT doctor Paul Harch of Louisiana State University School of Medicine and radiologist Edward Fogarty of the University of North Dakota in 2018. A 58-yearold woman diagnosed with rapidly progressing Alzheimer's disease was treated with hyperbaric oxygen for 50 minutes per day, five days a week, for eight weeks.

Before-and-after brain imaging using fluorodeoxyglucose (18FDG) positron emission tomography (PET) scans clearly showed increases of up to 38 percent in brain metabolism in select parts and all of her brain. These changes appeared in tandem with her improved ability to complete cognitive and physical tasks plus a better mood and quality of life.

The paper noted that this was the "first reported case" of HBOT improving Alzheimer's disease documented by PET scans, suggesting "an effect on global pathology in AD."

The Israeli researchers keep bringing more data to the picture. After demonstrating recoveries from traumatic brain injury similar to that following stroke,^{**L**} they published another critical study in 2020 led by Dr Amir Hadanny, this time looking at cognitive decline.

"The occlusion of small blood vessels, similar to the occlusions which may develop in the pipes of an 'aging' home, is a dominant element in the human aging process," said Dr Efrati. "We found that HBOT induced a significant increase in brain blood flow, AFTER BRAIN IMAGING CLEARLY SHOWED INCREASES OF UP TO **380/0** INBRAIN METABOLISM

BEFORE-AND

Why oxygen heals neurodegenerative diseases

Research in the past decade points to a dearth of oxygen supply in some diseases that predisposes individuals to neurodegeneration afterward.¹¹So, hypoxia—or lack of oxygen—from injury, stroke or renal disease, for example, seems to play a major role in neurodegenerative disorders including Alzheimer's, Parkinson's, Huntington's and amyotrophic lateral sclerosis (ALS). Consequently, restoring oxygen has become an obvious potential target for therapy.²¹

Lack of blood flow in the brain leads to hypoxia, which has been observed in the early stages of Alzheimer's and correlates to a downhill slide, including accumulation of betaamyloid and degeneration of neurons.^B

Similarly, in Parkinson's, hypoxic brain injury enhances alpha-synuclein aggregation, a signature of the disease. And hypoxia creates and drives ALS as well. Occupations linked to low oxygen conditions, like being a firefighter, double the risk of developing ALS.

Another factor affecting the development of dementia and age-related cognitive decline is impaired microcirculation of blood in the brain, which has been associated with vascular cognitive decline. It makes sense that restoring blood flow, via flooding the system with oxygen, might help.²¹

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which correlated with cognitive improvement, confirming our theory."坦

Chinese researchers confirmed these findings with their own 2020 study of Alzheimer's patients given just 20 days of "mild" (low pressure—see box, page 30) HBOT for under one hour per day.

Compared to controls, hyperbaric oxygen treatment significantly improved cognition in Alzheimer's patients at one-month follow-up—to a level much greater than that of the current leading drug, donepezil. However, the effect wore off.

In patients with mild cognitive impairment, however, enhanced cognitive function following HBOT lasted longer. Memory and cognitive scores were significantly improved at one-month and sixmonth follow-ups.

Images also showed improvement of glucose metabolism in brain regions associated with language

function and memory. Glucose metabolism seemed to improve more in cognitively impaired patients than in AD patients, leading the researchers to conclude that "hyperbaric oxygen treatment might be a preventive strategy by blocking the conversion of [mild cognitive impairment] to [Alzheimer's]."

Proven effectiveness

Besides stroke and dementia, hyperbaric oxygen has also been used successfully to treat the following conditions.

Parkinson's In one case report, a 45-year-old diagnosed with Parkinson's, with significant tremors, suicidal depression, insomnia and severe weight loss receiving treatment for one month enjoyed a great reduction in tremors, regained 10 kg (22 lb) and returned to eight or 10 hours a night of sleep. His depression and anxiety scores were nearly halved as well.¹²

Fibromyalgia Although many doctors still dismiss fibromyalgia—pain in certain parts of the body—as psychosomatic, advanced imaging has revealed that fibromyalgia originates from damaged areas in the brain that control sensitization.

Dr Efrati's mother, who had a wracking case of fibromyalgia and was unable to lift her grandbabies, has now recovered thanks to HBOT.

A follow-up study published earlier this year looked at 58 adults with fibromyalgia for more than a year with a triggering event of traumatic brain injury.

"Dramatic," Dr Efrati says of the result. "Two out of five patients in the hyperbaric treatment group showed such a significant improvement that they no longer met the criteria for fibromyalgia. In the drug treatment group, this did not happen to any patient."

What's more, the average improvement in the pain threshold tests was 12 times better in the hyperbaric group than in a control group given medication. "And in terms of quality-of-life indicators, as reported by the patients, we saw significant improvements in all the indicators among the patients who received hyperbaric treatment," says Dr Efrati.^[13]

Although in this study the brain injury was caused by direct physical injury from an accident or blast wave, in a previous study the Tel Aviv University researchers showed that HBOT could help fibromyalgia patients with a history of childhood sexual abuse. They noted that any severe mental stress—especially if it causes dissociation from memories—can lead to brain injury that is similar to physical injury.^[E]

Long Covid Several studies point to the benefits of HBOT for treating Covid-19, and it has also been studied for treating long Covid—the lingering effects of the disease that have been linked to a list of neurological diseases.²⁰ A clinical trial is currently underway at the Karolinska University Hospital in Sweden to further explore the value of HBOT for long Covid.²¹



The "breathing" microbiome

The gut has long been considered an anoxic environment where only anaerobic bacteria flourish. However, that dogma is being reconsidered now that research has demonstrated that mice exposed to HBOT for nine days experienced a fivefold increase of tissue oxygenation and a shift in gut microbes observed in fecal samples with the growth of aerobic proteobacteria and actinobacteria.

It's not known how these changes might affect the body, but actinobacteria are pivotal players in maintaining gut homeostasis, so theoretically, HBOT may affect the microbiome beneficially.

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See page 58 for two companies offering hyperbaric oxygen therapy with discounts for WDDTY subscribers.

Antidepressant blues

SSRIs impair the brain's reward learning system, new research finds. Celeste McGovern looks at safe ways to get off antidepressants and alternative treatments

sychiatry is in crisis.

Among the problems plaguing the profession are soaring mental health statistics, patient recovery rates that have flatlined for decades, and a growing stack of evidence that the primary tools of the trade—psychoactive drugs including super-selling antidepressants—don't work so well and are linked to an expanding litany of de affacts that are increasingly hard to

damaging side-effects that are increasingly hard to ignore.

Depression remains the number one cause of disability in the United States, as it is across the Western world. Younger adults and adolescents are most affected, and increasingly at younger ages; suicide is now the second leading cause of death for youths aged 10 to 19.¹⁰ Mental illness is the leading cause of disability in children, outpacing physical disabilities like cerebral palsy or Down syndrome. A staggering 2.7 million American children ages 3–17 received a depression diagnosis in 2016–2019.²⁰

By far the biggest consumers of antidepressants are women, however. More than 17 percent of American women had taken antidepressants in the past month in 2015–2018, according to the CDC, and for women over the age of 60, that number rose to nearly one in four (24.3 percent).^E

Doctors used to prescribe antidepressants for people with rare "melancholia" back in the 1960s and '70s, but the old drugs, like tricyclics, had grim side-effects and their use was limited.

In the late '80s, a new line of antidepressants called SSRIs (selective serotonin reuptake inhibitors) was approved by the US Food and Drug Administration. SSRIs block the reuptake of the chemical messenger serotonin into neurons and thereby are believed to make more serotonin available to improve transmission of

messages between neurons.² The first of the SSRIs,

Prozac, was rolled out as a new "magic bullet" for "mood disorders," and prescriptions for antidepressant drugs climbed year on year until now one in six Americans is taking an antidepressant and one quarter of those people have been taking the drugs for a decade or more.^{El}

With Prozac's mass success, Pfizer launched its own antidepressant Zoloft in 1992 and was the first to begin claiming in public advertising—without a shred of data to support the theory—that its drugs were correcting a "chemical imbalance in the brain."

Pharma told marketing, who told psychiatrists

and general practitioners, who told patients who were sad or despondent they must have a deficiency of serotonin, a neurotransmitter that is crucial to maintaining a sense of wellbeing. They presented it like a deficiency of thyroid hormone, as correctible with antidepressants as diabetes is with insulin.

Never mind that there was no data for the "chemical imbalance" theory. For the past three decades, that chemical imbalance mantra was sold to consumers through television and magazine mass marketing as prescriptions soared. Only in the past few years, now that the theory has been repeatedly debunked, has the chemical imbalance campaign abated, though some doctors still cling to it.

Depression quiz marketing

In February, STAT News published an investigative piece revealing that another staple of the mental health system—a nine-item questionnaire used to diagnose depression called the PHQ-9—was never based on any science, or even on clinical experience. Instead, it was the brainchild of one of Pfizer's marketing gurus, part of a campaign to increase Zoloft use.

"It wouldn't have happened if it wasn't for me," Howard Kroplick, now 73 years old, said of the test that is used extensively around the globe to try to pick out depression in patients, whether they complain of it or not. The assessment has been cited in more than 11,000 research papers.⁵

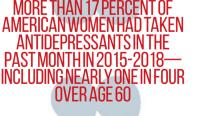
With such successful marketing, from the mid-1990s on, the umbrella for depression began to widen until it covered the "mildly depressed" and those merely trying to boost their job performance or use the drugs as "personality enhancers." At the same time, Freudian psychoanalysis was in a free fall out of fashion, and those who might have been given "talk therapy" were instead given pills.^[5]

While an imbalance of neurotransmitters has been scientifically ruled out as the underlying cause of depression, it does appear to be the effect of

> antidepressant treatment with SSRIs. As Robert Whitaker wrote in his groundbreaking book *Anatomy of an Epidemic* (Crown, 2011), "Once a person is put on a psychiatric medication, which, in one manner or another, throws a wrench into the usual mechanics of a neuronal pathway, his or her brain begins to function ... abnormally."

Impaired reward system

Abnormal function from antidepressants was confirmed most recently in a study conducted by University of Cambridge and University of Copenhagen researchers. They looked at the effects of an SSRI antidepressant (escitalopram) on a group of 66 healthy volunteers.



SPECIAL REPORT

One of the well-documented side-effects of SSRIs, reported by 40–60 percent of users, is emotional "blunting," or feeling deadened to pleasure.

For the experiment, the group was split in two—32 volunteers were given escitalopram (Lexapro or Cipralex), and the other 34 were given a placebo for at least 21 days. Both groups completed a series of questionnaires and tests assessing cognitive functions including learning, inhibition, executive function, reinforcement behavior and decision-making.

In the short time frame of the study, the researchers reported no effects on most cognitive functions, including attention and memory. However, the major new finding was that after "treatment," the drug group scored significantly lower on "reinforcement sensitivity," a measure of learning from feedback on our actions in the environment.

To assess this function, study volunteers were shown two stimuli, A and B. If they chose A, they would receive a reward four out of five times. But if they chose B, they got the reward only one out of five times. Participants were not told this rule but had to learn it on their own. During the experiment, the rewards for A and B would switch, and participants would need to recognize the change and adjust their decisions accordingly.

Volunteers taking the antidepressants were much less likely to base their decisions on the positive and negative feedback than volunteers on the placebo, suggesting the drug affected their ability to detect rewards—or success.

The study also confirmed another common sideeffect of antidepressants: those on the drugs reported having trouble reaching orgasm during sex.

"Emotional blunting is a common side effect of SSRI antidepressants," said Barbara Sahakian, a psychiatry professor at the University of Cambridge and one of the study's authors. "In a way, this may be in part how they work—they take away some of the emotional pain that people who experience depression feel, but, unfortunately, it seems that they also take away some of the enjoyment. From our study, we can now see that this is because they become less sensitive to rewards, which provide important feedback."²

And without this key cognitive function, wouldn't the drugs lead to a greater sense of failure and pessimism?

Reward recognition is only one of a litany of side-effects of antidepressants that have taken the mental health profession a long time to acknowledge, however. Sexual dysfunction is high on the list as well. So are feeling agitated or anxious, sweating profusely and feeling nauseated. Ironically, suicide and suicidal ideation also make the list.

Suicide side-effect

In 2004, the US FDA issued a black-box warning on all antidepressants after placebo-controlled trials found they increased the risk of suicidal thoughts and behaviors among children and adolescents. These



How to tell the difference between drug withdrawal and depression

Withdrawal and depression have a lot of shared symptoms, and many doctors don't distinguish between the two. These are some strategies to differentiate withdrawal from relapse:

- Identify whether you are experiencing physical symptoms of withdrawal that are not likely characteristics of depression, such as sensory disturbances, muscle pain or nausea.
- Think about when symptoms began. Withdrawal typically begins within days of stopping antidepressants (except in the case of fluoxetine, which has a longer half-life), whereas relapse into depression takes weeks to months.
- Does reintroducing the drug rapidly reduce the intensity of the symptoms? If so, it is more likely withdrawal syndrome than depression or anxiety relapse since these usually take weeks to improve with antidepressants.



Zinc taste test

Dr James Greenblatt has found over decades of integrative psychiatry practice that the most reliable way to test zinc levels is a simple taste test, based on the premise that taste is reliant on having adequate zinc levels in the body.

Do not eat, drink or smoke for at least an hour before the test so that no competing tastes will interfere with the results.

Bring an unflavored 1 percent zinc sulfate solution to room temperature for at least two hours before using it to test. Take a sip (5 to 10 mL) of the solution and hold or swirl it in the mouth for 10 seconds before spitting or swallowing.

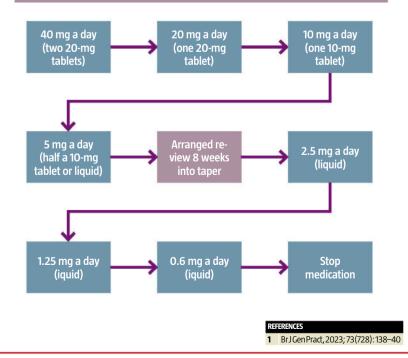
- **1** If there is no taste or it tastes like plain water, this indicates significant zinc deficiency that will likely benefit from zinc supplements.
- 2 If you detect no immediate taste but notice a "dry" or "metallic," "bicarbonate" or "furry" taste within the 10 seconds, you may have moderate deficiency.
- **3** If you note an immediate slight metallic taste that increases over the 10-second period, this usually indicates adequate levels of zinc.
- **4** An immediate, strong metallic taste that may linger usually indicates adequate zinc levels in the body.

For people in groups 1 and 2, Dr Greenblatt recommends supplementing 30 mg of zinc up to three times a day, not exceeding 90 mg/day in total. For those in groups 3 and 4, a multivitamin containing at least 15 mg of zinc is enough to maintain sufficient levels.

How to taper off

The researchers from Brighton and Sussex Medical School suggest the following approach to gradually stop taking SSRIs.

A 35-year-old male presented to his GP wishing to stop his antidepressant. He had taken 40 mg citalopram for 18 months. The GP agreed on a tapering plan consisting of 50 percent reductions to the previous dose every 4 weeks.



side-effects were most noticeable within the first nine days after starting the drugs.²³

A 2016 review of 13 drug trials published in the *Journal of the Royal Society of Medicine* explored suicidality among adults taking antidepressants. It was even more damning.

"We found that antidepressants double the risk of suicidality and violence, and it is particularly interesting that the volunteers in the studies we reviewed were healthy adults with no signs of a mental disorder," said the researchers. Evidence pointed to the drugs making healthy people suicidal.

What's more, the researchers warned, "There can be little doubt that we underestimated the harms of antidepressants." They blamed drug manufacturers for underreporting serious harms by "simply omitting them from the reports, by calling them something else or by committing scientific misconduct."

They pointed to the case of a healthy 19-year-old student who volunteered in an Eli Lilly trial of its antidepressant duloxetine to help pay her college tuition and later hanged herself in a laboratory run by the company.

"It turned out that missing in the FDA's files was any record of the college student and at least four other volunteers known to have committed suicide, and Lilly admitted that it had never made public at least two of those deaths," according to the paper.^E

Recently, some psychiatrists have called for the FDA to delete its Black Box suicide warning from antidepressants, complaining that it steers people away from the drugs, but a 2020 review of the science said the warning is "firmly rooted in solid data."

Withdrawal syndrome

Another side-effect of antidepressants is "withdrawal syndrome." Mainstream medicine denied for decades that the drugs are addictive, but thousands of patients describing their debilitating withdrawal symptoms in online forums have forced professional discussion of the dependence problem.

A new article published March 2023 in the *British Journal of General Practice* advises doctors that more than half of patients who stop taking SSRI antidepressants will experience severe and longlasting withdrawal symptoms, including suicidality.

According to researchers from the Brighton and Sussex Medical School, "Psychological symptoms include irritability, anxiety, low mood, sleep disturbance, suicidal ideation, and hallucinations.

"Physical manifestations include dizziness, flu-like illness, palpitations, headaches, muscle pain and tremors, sweating, gastrointestinal symptoms (nausea, diarrhea), and sensory disturbances ('electric shocks,' 'brain zaps')."

This litany of other "distressing" adverse effects includes some symptoms that make it hard to tell SSRI antidepressant withdrawal from a relapse into depression itself (see box, page 28).

Tapering SSRIs

Getting off SSRIs is not straightforward, either. Decreases to smaller doses cause larger changes to neurotransmission, so traditional linear dose reductions (for example, reducing sertraline by 50-mg increments) can cause increasingly large (or hyperbolic) changes and more severe symptoms, according to the Brighton and Sussex researchers: "This explains why some patients may tolerate the early stages of their taper but towards the end, at lower doses, they experience withdrawal symptoms."

Instead, as recommended by the National Institute for Health and Care Excellence (NICE) and the Royal College of Psychiatrists, they advise a "proportionate taper" to reduce symptoms. In this method, a proportion of the previous dose (say, 25 percent) is cut in succession (see box, page 29), using liquid dosing where necessary.

"To prevent withdrawal symptoms, tapering should take place over a long period of time, spanning months, or even years. SSRIs with shorter half-lives, such as paroxetine and venlafaxine, require a longer taper."

Alternative solutions

While more light is being shone on the troubles with antidepressants, what to do to get out of the black hole? If a chemical imbalance is not at the heart of depression, what is? And if antidepressant drugs don't help in the long run, what does?

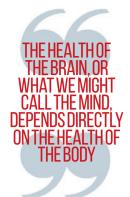
Among disillusioned practitioners, there has been a pendulum shift recently back to psychoanalysis, with renewed acceptance of at least some Freudian ideas of repression and unconscious guilt. A growing number of therapists are also addressing childhood trauma that people may unconsciously repeat in different experiences until they confront it and slay it.

Even these practitioners recognize the physiological aspects of depression, however. Grief, sadness, guilt, remorse and disappointment create changes in our physiology, which can create a negative feedback loop in our thinking.

In 2015, Canadian researchers used positron emission tomography (PET) to scan the brains of 20 patients with depression and compare them to 20 healthy control participants. They paid special attention to the activation of microglial cells that play a critical role in the immune system's inflammatory responses.

They discovered significant inflammation in the brains of people with depression, which was most severe among participants with the most severe depression. People who were diagnosed with clinical depression had about 30 percent more inflammation in their brains than the healthy controls did.^[2]

Since then, many studies have confirmed the role of inflammation in mental health. Addressing issues related to inflammation is the forte of integrative



psychiatrists like James Greenblatt.

"I am not interested in pinpointing the blame for your depression on your past, your parents or on you," says Greenblatt, an assistant clinical professor of psychiatry at Tufts University School of Medicine and Dartmouth College Geisel School of Medicine and author of *Integrative Medicine for Depression: A Breakthrough Treatment Plan That Eliminates Depression Naturally* (Friesen Press, 2019). "The health of the brain, or what we might call the mind, depends directly on the health of the body."

To that end, Greenblatt takes a functional medicine approach to mental illness, and on his Psychiatry Redefined education platform, he trains other practitioners to do the same. He looks at the individuals' markers of inflammation and sources that could be fueling an inflammatory fire, from amino acid or vitamin deficiencies to hormone

imbalances to microbial infections or imbalances.

> Here are a few of the more common deficiencies that can cause depression and ways to correct them. While supplements are helpful, many of these can be remedied with food sources. Thyroid and other hormones

Though depression and anxiety are well-documented side-effects of low thyroid hormone, depressed people rarely have their thyroid hormone levels checked, though Dr Greenblatt believes this should be a

fundamental first step.

Thyroid tests should measure basal body temperature, serum levels of thyroid-stimulating hormone (TSH), and free T3 and T4 levels. Thyroid hormone should be supplemented in its natural form rather than with synthetic hormones, in an amount based on the test results.

Dehydroepiandrosterone (DHEA) is a hormone produced by the adrenal glands that wanes after midlife. A 2005 double-blind, placebo-controlled, crossover study published in the *Archives of General Psychiatry* tested six weeks of DHEA therapy, 90 mg per day for three weeks and 450 mg per day for three

weeks, against six weeks of placebo and reported a 50 percent reduction in depression scores in the treatment group and improved sexual function.

It concluded that DHEA is "an effective treatment for midlife-onset major and minor depression."^{IEJ} Zinc Zinc is abundant in the central nervous system and critical to hundreds of enzymatic reactions that fuel a wide range of functions, from DNA synthesis and digestion to immune system function. A 2013 review of 17 studies found lower levels of zinc in depressed people than in those without depression.^[L]

When Dr Greenblatt saw a 28-year-old patient named Gabi for the first time, she had a 14-year history of depression and was taking three different antidepressant medications to improve it.

Gabi had white spots on her fingernails, one sign of low zinc. Blood testing showed a very low reading for alkaline phosphatase, a liver enzyme that needs zinc

for its production, and in a taste test (see box, page 29), liquid zinc tasted like water to her, indicating Gabi was deficient in the mineral.

Within a year after Dr Greenblatt had her begin taking supplemental zinc, she was off all antidepressants and depression free.

Daily dosage: Up to 40 mg per day for adults, or a dosage based on the results of a taste test. Magnesium Deficiencies of magnesium have been linked to nervous ness, anxiety, insomnia and depression. Some case reports have described individuals taking

125–300 mg of magnesium as magnesium glycinate and magnesium taurinate with meals three times a day and at bedtime and showing rapid recovery from major depression.

A 2017 review of magnesium's role in neurological disorders similarly found that participants consuming just 248 mg of magnesium chloride per day for six weeks showed marked improvements on depression scores compared to those receiving no treatment. The effects could be seen within two weeks.¹⁰ Daily dosage: For adults, up to 600 mg of elemental magnesium from magnesium chloride, glycinate or taurinate. If you experience diarrhea, low blood pressure or irregular heartbeat, you may be taking too much. Magnesium glutamate and aspartate are not recommended as they can worsen depression and other neurological symptoms.

B vitamins Vitamins B1 (thiamine), B3 (niacin), B6 (pyridoxine),

B9 (folate) and B12 (cobalamin) are essential for neuronal function, and deficiencies have been linked to depression in multiple

studies.

Thiamine

B1: Thiamine is essential for glucose uptake in the brain, and too little of it can lead to mood disorders and fatigue. A landmark 2013 study tested 1,587 Chinese adults between 50 and 70 years old and found that 28.2 percent were deficient in thiamine.

More importantly, the researchers found that lower concentrations of thiamine were associated with higher odds of having depressive symptoms,

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independent of other potential risk factors for depression. An earlier British study had found that 46 percent of nursing home residents aged 67–92 had low thiamine levels, compared with only 13 percent of participants aged 19–37.^[E]



B9: Folate is critical in brain development, and deficiency in the vitamin has been linked to depression since the 1960s. In one trial, about 68

percent of patients on antidepressants given supplemental doses of L-methylfolate saw their depression improve in three months, and an astounding 45.7 percent achieved full remission from depression within 95 days.^[E]

B12: According to one study, older women who had vitamin B12 deficiency were about twice as likely to be severely depressed as nondeficient older women.²⁰

Other studies found people, especially vegetarians, who developed mental health issues including depression had low vitamin B12 readings. However, the studies also found they rapidly recovered when they supplemented

the vitamin.²¹

Daily dosage: Thiamine, 0.33 mg for every 1,000 calories in food each day, up to 300 mg per day. Folate, 3 to 15 mg of L-methylfolate per day. Vitamin B12, up to 1 mg as methyl cobalamin and adenosylcobalamin.

Pyrroles Pyrroles are metabolites that are normally excreted in urine. A urine Kryptopyrrole test may reveal high levels of the compounds, which bind to vitamin B6 and zinc, depleting them faster and preventing their use in the brain.

The resulting deficiency can lead to symptoms including anxiety, mood swings, severe inner tension, depression and psychosis. Daily dosage: Aurine test result of >15 mcg/dL can be treated with 100 to 400 mg per day of vitamin B6 (as pyridoxyl-5-phosphate) and 25 to 100 mg per day of zinc as zinc picolinate. Running A 2020 review of 116 studies looked

at the association between running and mental health. It concluded that "running has important positive implications for mental health, particularly for depression and anxiety disorders."²²

"Runner's high," often described as fueled by a rush of endorphins, is more likely fueled by the release of endocannabinoids into the bloodstream triggered by high-intensity and endurance running, according to recent research. Endocannabinoids are moodboosting neuromodulators that produce short-term effects including reduced anxiety and feelings of calm.¹²¹

Blooming healthy

Anyone can keep their plants and garden in tip-top health with homeopathy, says homeopath Camilla Sherr

omeopathy can bring amazing results not just for humans and animals but for plants too. When my mother's ornamental apple tree became infested with ermine moth, my husband, Jeremy, a homeopath like me, prescribed the remedy Lac Caninum (Lac-C) for the tree, based on its symptoms. Caterpillars had appeared in clumps and secreted a sticky white weblike substance over the tree's

Four days after my mother tried the remedy, there was not one caterpillar left on the tree. When the apples next came into season, for the first time, they were sweet and juicy. It turns out it wasn't an ornamental apple tree after all; it had just been underperforming.

Agrihomeopathy, or agrohomeopathy as some call it, is the

use of homeopathy to treat soil and plants. It's a nontoxic way to overcome pests, disease and environmental stresses like drought, frost and heat, and it promotes healthy soil, seedling growth, flowering and fruiting.

An intriguing Brazilian study shows the efficacy of the homeopathic principle of "like cures like" on poisoned seeds. In Brazil, there's a problem with high levels of aluminum in the soil, which is known to impair a plant's ability to absorb water and nutrients. The study's goal was to see how homeopathic preparations (Alumina and Calcarea Carbonica) affected seeds that were exposed to toxic levels of aluminum.

All of the test samples containing homeopathic preparations outperformed the control group, but seeds treated with the homeopathic potency of Alumina stood out most. Compared to the control sample, they showed about 20 times the root growth.^µ

branches.

Given in highly diluted potencies, a substance can overcome its own potential toxic effect.

A common way to reduce soil toxicity is to apply large amounts of fertilizer, which is costly and problematic for large areas of land. This study shows that agrihomeopathy offers in expensive and simple ways to solve complex environmental problems.

Soil: the foundation of plant health

Like humans, plants need a balanced diet that's rich in vitamins and minerals to stay healthy, and much of that comes from the soil. Balanced soil greatly improves a plant's immunity to diseases.

When I started working with a Tanzanian farmer some 10 years ago to help him convert a coffee farm from chemical to organic agricultural methods, the first thing I had him do was a soil test. This allowed me to identify any nutrient deficiencies and prescribe the right homeopathic remedies. One month later, another soil test showed we'd achieved perfectly balanced soil.

Soil tests are important as they are inexpensive and take away a lot of the guesswork. Soils can have deficiencies that are specific to regions. For example, boron is notoriously scarce in Kilimanjaro, where I live.

Farmers in this region are currently in dire straits because they can no longer afford commercial fertilizers. Prices have quadrupled in recent years, so agrihomeopathy is a welcome solution. And unlike commercial fertilizers, it doesn't create more problems due to chemical runoff into waterways.

Ultimately, healthy soil means healthy food and healthy people. The foundation of our health is our food, yet we have depleted soils. Agrihomeopathy is an inexpensive way to strengthen our plants so they can pass on to us the full spectrum of nutrients for ongoing good health.

In fact, Dr Harold Foster, a medical geographer at the University of Victoria in Canada, found that AIDS was epidemic in most sub-Saharan African nations, except Senegal. In his book *What Really Causes Aids* (Trafford, 2002; free ebook at alternativehealth. co.nz), Foster noted Senegalese soil had the highest levels of selenium in Africa. He concluded that the lack of selenium in other countries' food-producing soils helped AIDS spread on the continent. Selenium is essential for immune function and response.

I believe agrihomeopathy is a simple way for everyone in the world to have access to nutritious food.

Think like a gardener

Even if you're not a farmer, agrihomeopathy can be beneficial on a personal level in your own home. And the best thing is you can get started with limited knowledge, and still have success. Think like a gardener, and you'll be on the right track.

You can use the plant "buddy" system, like companion planting, to

Ultimately, healthy soil means healthy food and healthy people. The foundation of our health is ourfood, yet we have depleted soils

great effect. Ocimum basilicum (basil), in its homeopathic form, acts as a constitutional remedy to tomatoes. It strengthens the plant, and some claim it also makes the tomatoes taste sweeter.

On the flip side, if you have an aphid infestation on your roses, spray the homeopathic remedy Coccinella—it's made from the aphid's natural enemy, the ladybird (or ladybug in the US). It's a simple bio-pest control method without the need to find live ladybirds.

This is also a solution for commercial gardeners. Instead of purchasing expensive supplies of ladybirds from a bio-pest company—and possibly causing other issues by upsetting the harmony of the environment—growers can spray the aphids with Coccinella.

The beauty of homeopathy is that there's no need for a diagnosis. Instead, homeopathy works with the symptoms. Plant diagnosis is difficult as many

Camilla's guide to using homeopathy for plants

Applying remedies to plants or soil is generally easy, but there are a few things to consider:

The rule of thumb Add two drops (or globuli) to 1 L of water—rainwater preferably. Tap water is fine, but no sterilized water.

Do not use a watering can Once you

use a container for a remedy, it is very hard to clean the remedy out of it. If possible, keep a spray bottle or water bottle exclusively for that remedy. If this isn't possible, the container needs to be thoroughly washed in hot water and then allowed to fully dry between remedies.

Always wear rubber

or latex gloves Protect your skin when handling remedies, or you could end up getting a dose as well as the plant.

With homeopathy, less is

more One to two sprays on a plant surface are sufficient.

Be aware of the wind Spray

downwind to use it to your advantage for large areas and let it carry to plants downwind.

It doesn't matter what part of the

plant receives the dose In general, water the roots. For aphids on roses or other insects, spray the leaves and flowers, but it wouldn't hurt to water the remedy into the roots as well.

Plants don't like alcohol Don't apply alcohol-based remedies straight onto a plant.

Homeopathic remedies work alongside pharmaceutical medications It's not a case of one or the other.

When it comes to potencies, use what you have on hand

Agrihomeopathy is an emerging field, so trial and error are part of the journey. Keep notes to remember what you've learned along the way.

ALTERNATIVES

bacterial, fungal, viral or mineral deficiency issues can appear similar, which is true for humans as well.

Because plants can't communicate with us verbally or expressively in a way we can understand (animals are easier to assess because you can get a sense of their personality), you need to become a master observer. Examine the plant and translate what you see into symptoms. Then choose a remedy that covers the overall picture of the plant. See my guide on page 37 for a few key points to consider and the table below for a list of common plant problems and their homeopathic solutions.

I encourage everyone to learn more about agrihomeopathy and try it out in their gardens or on potted plants. You'll be amazed at what you can achieve with even just a little bit of knowledge. **Reporting by Connie Woolston** Because plants can't communicate with us in a way we can understand, you need to become a master observer

Your plant first aid kit

Here are some common plant problems and the homeopathic remedy I would use to counter them. Unless otherwise specified, use low potencies (6c–12c) to treat the soil and higher potencies (30c, 200c) to treat an acute case, such as an insect infestation.

Plant problem	Remedy
Aphids	Cimicifuga Sulfur at the end of the growing season to prevent infestation the following year
Cabbage fly	Azadirachta Indica
Spider mites	Theridion
Snails	Helix Tosta
Brown, dry leaf tips and edges	Kali Nitricum
Deficient soil	Use remedies that correspond to nutrient deficiencies determined by a soil test or my Balanced Soil product, available at rootsandwingshomeopathy.ie
Drought	Silica, Dulcamara
Waterlogging	Natrum Sulphuricum
Frost	Aconite
Heat injury	Sol, Cantharis
Injuries caused by transplanting or repotting	Arnica
General injury	Arnica, Aconite, Calendula
Root rot	Thuja

Top tips for growing healthy plants

Water your garden with Calendula 30c at the beginning of spring. It will heal any damage that has occurred over the winter and protect your plants from fungal, viral and bacterial infections.

Give Silica 30c to your seedlings. They will grow into healthy, strong plants.

For root stimulation, soak seeds in Arnica, Phosphorus or Silica.

Find out more

• If you would like to learn more, you can purchase Camilla's webinar series Homoeopathy for Plants and Garden. The first session is free so you can test out whether agrihomeopathy is for you.

Visit the following page to register for the webinar: https://www.eventbrite.co.uk/e/ agri-homoeopathy-with-camillasherr-tickets-620142933207

• To purchase one of Camilla's Agrihomeopathy Kits, visit rootsandwingshomeopathy.ie. These kits are designed to take the guesswork out of agrihomeopathy. They use a blend of remedies to support soil health, encourage plant growth and provide protection through extreme weather.



Camilla Sherr, FSHom, PCH, is the co-founder and director of Homeopathy for Health in Africa (HHA), an NGO that treats HIV/AIDS and offers low-cost homeopathic healthcare in Tanzania, East Africa. She is an international

lecturer and teacher at the Dynamis School for Advanced Homoeopathic Studies. In 2016, Camilla was awarded a Fellow of the Society of Homoeopaths (FSHom) in the UK. She has been the president of the Finnish Society of Homoeopaths since 2020.

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Stress Ease Adrenal Support

Helps relieve stress

60 Tablets

The golden formula to help relieve stress



Life's golden formula

IF SYMPTOMS PERSIST CONSULT YOUR HEALTHCARE PRACTITIONER. ALWAYS READ THE LABEL. USE ONLY AS DIRECTED.

Foods to fight infertility

Packing your diet with plant foods may help you beat endometriosis and infertility, says dietitian Lisa Simon ust before my 30th birthday, when I was studying to become a dietitian, I suddenly experienced excruciating pain low down in my abdomen. I struggled to even stand up straight, let alone walk. It lasted for a few days, and then I was able to resume some sort of normal activity.

My doctor put it down to IBS, but when it happened again a few weeks later, I sought private help, and I was told it was likely endometriosis. I ended up having a laparoscopy, during which endometrial tissue was removed. But it grew back a few years later and I had a repeat procedure.

My husband and I had no problems conceiving our first child when I was 27. But after two years of trying for another baby several years later, we were diagnosed with unexplained infertility, although endometriosis may have played a part.

We decided to go the IVF route, mainly due to our ages, and I searched for any information that would help to optimize our chances of a successful outcome. One line kept jumping out at me: a plant-based diet can help to optimize fertility.

Although I was skeptical at first, after reading through many studies showing the likely negative effects of animal products on fertility, and the fertility-optimizing effects of plant foods, I chose to eliminate meat, fish and eggs from my diet. Dairy remained as our first round of IVF was successful, but when my breastfed baby was diagnosed with cow's milk protein allergy (CMPA) at 6 weeks, I made the final leap and eliminated dairy completely.

Within three months of going fully plantbased, I saw my menstrual cycle return after being absent for years and my cystic acne disappear. In addition, I have rarely experienced any endometriosis pain over the past four years.

My experience, along with the ever-mounting evidence base, made me feel strongly about helping others optimize their chances of conceiving with a plant-based diet. If you, like many of my clients, are struggling with endometriosis or infertility in general, here's a guide to plant foods that may help.

Animal foods and endometriosis

Endometriosis is when cells similar to those that line a woman's uterus, which grow and bleed with each menstrual cycle, are found elsewhere in the body, most commonly the pelvic cavity. Unlike those in the womb, which are shed as a woman's monthly period, these cells have nowhere to go and so become inflamed, leading to pelvic pain, bowel and bladder symptoms, painful and/or heavy periods, painful sex and infertility.

Oxidative stress seems to be one factor in the development of endometriosis as it may cause an inflammatory response in the peritoneal fluid.¹⁰This fluid

is made in the abdominal cavity to act as a lubricant and covers most of the organs in that space.

We know that heme iron in animal foods acts as a source of oxidative stress, so minimizing or eliminating this from your diet makes sense to reduce the risk of this inflammatory response.

Standard Western diets high in animal foods and processed meat, in particular ham, beef and other kinds of red meat, are associated with a significantly higher risk of developing endometriosis.¹² Poultry has also been shown to increase the risk but not as significantly as red meat.

Dairy has not been consistently shown to increase the risk and has actually been shown in a recent review to reduce the risk of developing endometriosis for women regularly consuming cheese and high-fat dairy. Butter, on the other hand, may increase the risk.^{EI}

One explanation may be the vitamin D and calcium content in dairy. Vitamin D has been shown to regulate immune function, and as women with endometriosis display immune changes, it may be beneficial.

Women with higher blood levels of vitamin D have a 24 percent lower risk of endometriosis than those with the lowest, and adequate calcium and vitamin D intakes from dairy are also linked to a lower risk.⁴¹ If you want to avoid dairy, you can easily meet your calcium and vitamin D requirements without it. Foods such as leafy green vegetables, nuts and seeds are good alternatives.

The power of plants

Whole plant foods are high in fiber, which plays a key role in optimizing fertility, especially in hormonedriven conditions like endometriosis. Fiber binds with excess hormones, like estrogen, to remove them from your body. The insulin-lowering effects of fiber are also significant because higher levels of insulin increase estrogen and endometrial cell production.

Fertility-friendly sources of fiber include fruit, vegetables, beans, nuts, seeds, whole grains such as brown rice, barley and wholemeal couscous, and pseudo grains such as quinoa and buckwheat.

Fruit is associated with a reduced risk of endometriosis, particularly citrus fruit, and this may be due to its content of beta-cryptoxanthin and vitamin C.^E Both are potent antioxidants that can help to neutralize the damage caused by oxidative stress.

Data from the Nurses Health Study II, which looked at over 18,000 women without a history of infertility as they attempted to become pregnant over an eightyear period, show that vitamin C from food and supplements combined, or from supplements alone, does not have the same association, so there may be a threshold to the beneficial effects of vitamin C.

High intakes of cruciferous vegetables are associated with an increased risk of endometriosis,¹² but this could be because many of them are high in certain carbohydrates, known as FODMAPs, that can

What does plant-based really mean?

The phrase *plant-based diet* can have several meanings. It can imply that you still include animal products but in lower quantities so that your diet is based on plant foods. It can also mean you have eliminated all animal products and consume a diet based purely on plants.

Most studies examining plantbased diets have looked at plantpredominant diets, meaning small amounts of animal products are still consumed. The most studied diet in these terms is the Mediterranean diet, which emphasizes a variety of fruit and vegetables, beans, whole grains, nuts, seeds, olive oil and fish, with lower amounts of meat and dairy.

It would be wrong to say the evidence is clear that following a whole-food, plant-based diet will give greater benefits in terms of fertility compared to following a plant-predominant diet. This is important for those trying to conceive who want to make big improvements to their diet but do not necessarily want to remove every animal product.

Any positive change will give some degree of benefit, and if that means still including some non-processed meat, fish, eggs or dairy but building the majority of meals around plants, that is okay.

"The basic rule is to 'eat the rainbow,' which means to include as many different colored fruits and vegetables in your diet as you can" exacerbate symptoms of IBS. These symptoms can be difficult to differentiate from chronic abdominal pain caused by endometriosis.

Cruciferous vegetables include cauliflower, broccoli, cabbage and brussels sprouts. They are packed with fiber, phytonutrients, vitamins and minerals that are known to reduce the risk of many chronic conditions as well as helping to optimize fertility. So rather than avoiding them, if you notice eating them makes you feel bloated, causes wind or means you are urgently dashing to the loo, try including them initially in small quantities, then increase your portion sizes until you find a level you can tolerate.

Phytonutrients for fertility

Phytonutrients, health-giving compounds in plants, are particularly beneficial for fertility. Their antioxidant, anti-inflammatory actions make them essential to protect sperm and egg quality, and they promote an optimal internal environment for conception.

The basic rule is to "eat the rainbow," which means include as many different colored fruits and vegetables in your diet as you can. This way you will be consuming a wide range of phytonutrients, all of which have slightly different or mutual benefits to the body. By eating in-season varieties, you will be eating even more concentrated quantities of these compounds because they are much fresher and have higher nutritional value. "A Mediterranean diet rich in monounsaturated fatty acids is associated with almost a 70 percent lower risk of ovulatory infertility"

Polyphenols and where to find them

POLYPHENOL GROUP	TOP SOURCES	
Anthocyanins	Black elderberries, black currants, blueberries, red berries, apples, cherries, red onions, eggplant, red lettuce	
Flavanols	Cocoa and dark chocolate, nuts, coffee, black tea	
Flavonols	Onions, cranberries, berries, tea	
Phenolic acids	Herbs and spices, wild blueberries, plums, aubergines/eggplants, carrots, cocoa, tea, coffee	
Stilbenes and flavanones	Grape <mark>s, wine, citrus</mark> fruit	
Isoflavones	Soy products, such as tofu, tempeh and edamame beans	

The most common types of phytonutrients are polyphenols. Aim for a minimum of 30 different plant foods a week, and you'll get all you need (see the box above for the top sources).

The best fats for fertility

There are two types of unsaturated fat: monounsaturated fatty acids (MUFAs) and polyunsaturated fatty acids (PUFAs). Individually or together, they have been shown to have positive effects on fertility. For women, MUFAs seem to be more important than PUFAs. Diets higher in MUFAs have been associated with higher fertility rates, and consuming foods rich in this type of fat in place of saturated and trans fats may help to improve fertility.

In fact, it has been shown that a Mediterranean diet rich in MUFAs is associated with almost a 70 percent lower risk of ovulatory infertility, or inability to regularly release a properly developed egg, when compared with diets high in trans fats.[©]Such a diet is also associated with up to a 90 percent lower risk of preterm delivery.^µ

The richest sources of MUFAs are olives, olive oil, avocados and most nuts (walnuts and pine nuts are the exception).

What about protein?

Data from the Nurses Health Study II shows that higher intakes of animal protein are associated with higher rates of ovulatory infertility.¹² Having just one extra daily portion of animal protein, in particular poultry and red meat, significantly increased the risk, but replacing this with plant protein significantly reduced it.

One reason might be the beneficial effects of plant protein in lowering insulin resistance, the authors explained, but the presence of the amino acid arginine may also have something to do with it. Arginine is involved in the production of nitric oxide in the body, which is vital for good blood flow to the male and female reproductive organs.

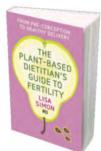
Meat is also a vector for exposure to hormones and antibiotics, with the exception of organic versions, and a major source of advanced glycation end products, or AGEs, which are linked to fertility problems in men.³³

As I recommend eliminating or at least reducing meat to the couples I work with, the most common question I am asked is, "But where will I get enough protein?"

As long as you are eating a varied diet containing whole grains, legumes, lentils, chickpeas, vegetables, fruit, nuts and seeds, and importantly, meeting your energy needs, you will also be meeting your protein needs.

Fit for the future

Nutrition is, of course, only one piece of the puzzle, and many lifestyle factors can affect fertility. But I believe that by laying these foundations, you can help to improve not only your own health but that of your unborn child.

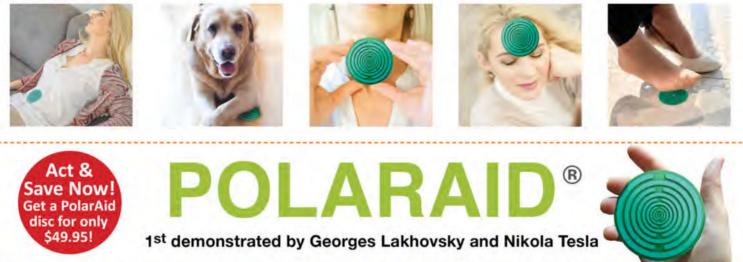


Adapted from *The Plant-Based Dietitian's Guide to Fertility* by Lisa Simon, RD (Hammersmith Health Books, 2023)

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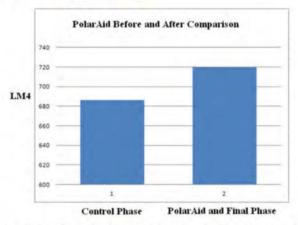
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PolarAid disc increases Life Energy

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 Lakhowsky 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!

FAMILY HEALTH

Fluoride and chlorine, added to many water supplies, turn out to be a killer combo for your thyroid. Cate Montana investigates



hen Bill Osmunson was in dental school back in the 1970s, fluoridation of water and the use of topical fluoride on patients' teeth were heavily promoted.

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CONDITIONS

"There was only one instructor who had reservations," says Osmunson. "He said one of the reasons people developed goiters in some places was because people were not getting enough iodine, but also because they were getting too much fluoride, which also affects the thyroid."

In the face of vast medical and public approval of water fluoridation, Osmunson dismissed the information, going on to establish a dental office in Canada and eventually moving his practice to the state of Washington (smilesofbellevue.com).

Because city water was fluoridated, but not the water

in outlying areas, he decided to make a game of trying to guess where a new patient lived based solely on looking in their mouth and the number of dental caries (aka cavities) they had. "About 90 percent of the time, I was correct when I said that the patients with the least amount of decay came from urban areas where the water was fluoridated," he says.

"I was so convinced that fluoride had benefits, I gave my children prescription fluoride, because our local water supply didn't have it. Fortunately, my wife was slack on giving it to them, and she almost never did."

It took Osmunson years to get beyond his medical conditioning.

After all, his own informal in-office surveys were telling him fluoride worked great, and fluoridation was (and is) a simple and immensely profitable procedure for any dentist's office. At that time, he says, fluoride treatments cost him approximately \$10,000 a year and brought in about \$250,000 worth of revenue annually.

Inconspicuous injury

The tipping point came when he was walking down the hallway at his office one day and saw a basketful of crushed toothpaste samples. Curious, he picked up a sample and read the label. "It was a real shock," he says. "The label read, 'Use a pea-sized amount of toothpaste. If more is used, contact the Poison Control Center."

Osmunson started researching and discovered that fluoride was indeed a toxic poison. Studies were proving that it had neurotoxic effects on both children and adults and that it accumulated in the body's cells, especially the bones and the pineal gland, contributing to everything from insomnia to inflammation, cognitive disorders and lower IQs.

He learned that his in-office surveys, along with the surveys conducted by the American Dental Association, municipal water boards, the EPA, the CDC and the FDA, were skewed. "When I looked at my patients and thought they were benefiting from fluoride, I was wrong," he said. "I was not looking at fluoride. I was looking at socioeconomics. The people in town made more money than people out in the country. They had more healthcare access. They could afford to take better care of their teeth. Of course they had fewer dental caries."

The CDC staunchly defends its position that fluoride is "safe and effective," but, as Osmunson points out, it's not examining the most important variable: socioeconomics. "They're not looking at the statistics pointing to the fact that long before fluoridation was introduced into public water systems, there was already a drastic reduction in dental caries

> in urban populations because of improved health and living conditions."

Dangerous doses

Despite the casual addition of various forms of fluoride to public drinking water throughout the United States, Canada, Australia, New Zealand and Ireland, fluoride itself is actually a medication prescribed as a liquid, gel and chewable tablet intended to prevent tooth decay by strengthening the teeth and getting rid of cavityforming bacteria. It is the dosage the number of milligrams of fluoride in the product—that determines whether it can be purchased over the counter or by prescription only.

According to the US-based Fluoride Action Network, for which Osmunson is now a spokesperson, over 95 percent of all toothpastes in the country contain fluoride. The amount of toothpaste doctors recommend for daily use is no larger than a small pea. But who puts a small dab of toothpaste on their toothbrush?

TV commercials slather enormous blobs of toothpaste on a toothbrush in close-up shots. And yet a modest strip of toothpaste covering the bristles of a child's small toothbrush is estimated to contain 0.75 to 1.5 mg of fluoride—which already exceeds the amount in most prescription fluoride supplements, 0.25 to 1.0 mg per dose. It also exceeds the recommended dosage from the National Institutes of Health (NIH) in the US, a maximum of 1 mg fluoride for children age eight and under, and most likely exceeds the maximum recommended dosage of 2 mg for children up to age 13.^µ

The different forms of fluoride

Calcium fluoride is frequently found in water from natural sources such as streams, springs and wells. It is the least toxic form of fluoride because the calcium and magnesium molecules naturally found in water bond with the fluoride, resulting in an inert substance.

But fluoride additives used to fluoridate drinking water in the United States are fluorosilicic acid, sodium fluorosilicate, and sodium fluoride.¹¹ Fluorosilicic acid, which is a byproduct of phosphate fertilizer production, is most commonly used because it is the cheapest.

Fluorosilicic acid is a colorless

"fuming" liquid with a strong smell, and it

is corrosive to metals and body tissue. According to the CAMEO database of hazardous materials, when dissolved in water, fluorosilicic acid releases heat and corrosive fumes, which, if inhaled, can severely damage mucous membranes.²¹ When ingested in liquid form, it can cause severe burns of both the mouth and the stomach. Fluorosilicic acid dissolves iron and aluminum, which is probably why many municipal water supply systems still using iron pipes have corrosion issues. **Sodium fluoride** is a colorless crystalline or white powder labeled as a toxic, corrosive poison that is used as an insecticide. It is also used to manufacture cleaning compounds. Ingestion may cause abdominal pain, diarrhea, vomiting, thirst, disturbed color vision, convulsions, collapse and acute toxic nephritis.^{El}

Sodium fluorosilicate is a fine, white, odorless powder that is corrosive to both living tissue and glass. It is toxic when inhaled, ingested or touched. It is used as a rodenticide (rat poison). Contact with skin causes rashes, burning and ulcers.

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Because we are encouraged to brush twice a day

with massive amounts of toothpaste, multiply this dosage by two. As a result, the average child—and adult—using fluoridated toothpaste is likely ingesting 3 to 4 mg of fluoride a day, which is up to the recommended daily amount for men.

Fluoridated drinking water (including foods and beverages prepared using municipal drinking water) is thought to account for about 60 percent of the fluoride people ingest. But the amount of fluoride people absorb is steadily increasing as more and more fluoridated dental products, such as mouth rinses, gels and varnishes, hit the market.

People also absorb fluoride from mechanically deboned meat, teas, pesticide residues on food crops, and pharmaceutical medications such as antihistamines, antacids, antidepressants, anti-anxiety medications, steroids and appetite suppressants.²

The US Environmental Protection Agency advises public water suppliers to notify the public if fluoride levels reach higher than 2 mg/L, and it permits levels in public drinking water of up to 4 mg/L. If a child or adult consumes the recommended daily amount of water—eight glasses at 8 oz each—they may well be absorbing up to 8 mg of additional fluoride a day from water alone.

Add to that another 3 to 4 mg of fluoride from toothpaste, plus additional fluoride from mouth rinses, floss, medications and foods, and it's not unreasonable to see that most men, women and children are being dosed with 12 to 15 mg of fluoride every day—an amount vastly over the allowable dosages for prescription fluoride medications.

Serious side effects

Children who get too much fluoride while their teeth are forming can develop a condition called dental fluorosis, a staining and pitting of the teeth. But this is just the tip of the iceberg.

According to the NIH, swallowing "large amounts of fluoride from dental products or dietary supplements" can cause a wide range of health issues: stomach and abdominal pain, nausea, vomiting, diarrhea, joint pain, stiffness, nerve problems, muscle loss, and possibly even death.^{El}

Acute reactions are not rare. "In the past, I had patients vomit in the parking lot because they swallowed the fluoride in a treatment," says Osmunson. "Unfortunately, it made them sick. Fortunately, they vomited it up rather than keeping it in their bodies."

Besides causing acute reactions, fluoride can cause long-term health problems. It has been linked to the onset of Alzheimer's disease.⁴¹ Ever-increasing numbers of studies also show that fluoride is a neurotoxin that lowers IQ in children.⁴² One study shows that children living in high-fluoride areas, where fluorosis is prevalent, are five times more likely to develop a low IQ than children living in non-

Mitigating your consumption of fluoride and chlorine

Though fluoride and chlorine (see page 45) enter the body from many sources, we can take steps to lower our exposure, including filtering the water we use, avoiding certain products and eating organic foods.

Filter your drinking water

"The best thing to do is to filter the water in your home and carry your own water with you at all times so you don't have to drink tap water in restaurants, et cetera," says Dr Kristin Neumann. "Of course, the best water to drink is fresh water from the mountains." Unfortunately, unless you go to the source, fresh water from the mountains is almost impossible to obtain. And although bottled waters advertised as natural spring water are free of fluoride and chlorine, many bottled waters, because they are simply filtered tap water, still contain traces of both. If you can't get bottled spring water, go with brands labeled as distilled water or water that has been purified via reverse osmosis.

Beware standard countertop filter models using an activated carbon filter such as Brita and PUR filter pitchers. These are ineffective against fluorides. Most do a better job with chlorine, but activated charcoal is usually only about 95 percent effective against chlorine.

The following are some other key steps you can take.

Filter your bathing water

Buy an under-the-counter model or have a whole-house filtration system installed so you won't have fluoride and chlorine in your shower and bath water.

Get a water quality report from your water provider to find out what's in the water, and in what amounts, so you know what level of filtration system you need.

Be sure to research any filtration system before purchasing or installing it.

Avoid all products that contain fluoride

This includes toothpastes, gels, mouthwashes, rinses and many medications. Avoid fluoride treatments at the dentist. There are many natural dental products on the market that make a point of not including fluoride. Buy those.

Eat organic

Many fertilizers and pesticides contain fluorides that stick to the foods you eat. Eating organic is the best way to avoid this kind of contamination.

Also avoid processed foods that likely contain both fluorides and chlorine byproducts. One example is "mechanically separated" meats, especially chicken, because the process ends up getting bone particles in the meat that contain fluoride.

Cut out (or reduce) coffee and black teas

Coffee and tea plants pull fluoride from the soil and deliver it to you.

Never use Teflon-coated cookware

Teflon contains and releases fluoride in the cooking process.



fluoridated areas.

"It's unbelievable," says Osmunson. "The official story cited by a lot of water boards and health organizations is that for every dollar spent on fluoridation, people, on average, save \$38 in dental care treatments a year. But nobody's talking about the millions, the billions of dollars of damage that we're doing.

"Just from an IQ perspective, if you look at the science, anything above about 0.2 ppm [parts per million] of fluoride in water—which is very common—is lowering IQ in fetuses and infants who are drinking that water by about three to five IQ points. Statistically, that adds up to about a \$500 loss in income per year for every point of lowered IQ for the rest of someone's life."

At levels of less than 0.5 mg/L, fluoride in drinking water also negatively impacts the thyroid and our production of hormones T3 and T4, which regulate metabolism and energy production in the body.

In addition, it affects the level of thyroid-stimulating hormone (TSH), which tells the thyroid to produce hormones in the first place.²⁴

"Practically every cell of the body is affected by fluoride, including the endocrine system," says Osmunson. "Back in the 19th century, there were reports by doctors that hyperactivity could be taken care of by giving a child fluoride. And if it didn't work immediately, to simply up the dose. Of course, it worked because fluoride affects the thyroid, negatively affecting our metabolism and our energy levels."

Fluoride exposure has been linked to hypothyroidism in pregnant women, possibly disrupting fetal development.⁸ It has also been found to create

Recommended daily fluoride dosages

The National Institutes of Health (NIH) in the US recommends the ingestion of various amounts of fluoride, in doses no greater than the following:

Infants 0–6 months: 0.01 mg Infants 7–12 months: 0.5 mg Children 1–3 years: 0.7 mg Children 4–8 years: 1 mg Children 9–13 years: 2 mg Teens 14–18 years: 3 mg Adult men: 4 mg Adult women: 3 mg Pregnant/breastfeeding women: 3 mg

calcification of the pineal gland in the brain—an endocrine gland that regulates biosynthesis (the production of biochemicals throughout the body), including the production of the hormone melatonin.^{EI} Melatonin, of course, is responsible for regulating the wake/sleep cycle.

In addition, fluoride has been linked to cancer. Young boys who drink fluoridated water are five times more likely to develop bone cancer.^[10]

And then there's chlorine

As if all the health issues created by fluoride weren't enough, there are also serious issues to consider regarding another commonplace addition to surface waters supplying urban and suburban public drinking water: chlorine.

Without a doubt, the injection of chlorine into



The poison called chlorine

Chlorine is a greenish-yellow gas with a strong, irritating odor used to bleach wood pulp and make other chemical compounds. It is so toxic, it may be fatal if inhaled. Skin contact can cause blisters and burns. Inhalation can cause chronic lung conditions, including bleeding.

Symptoms of acute exposure include tachycardia (rapid heart rate), hypertension (high blood pressure) followed by hypotension (low blood pressure), and cardiovascular collapse. Dizziness, anxiety, nausea and vomiting are other symptoms of exposure.¹

To remove it from the body, try sweating it out in a dry sauna and take vitamin C, which neutralizes chlorine and chloramines. Chlorine kills bacteria in the gut, so taking a daily probiotic is vital.

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water supplies has assisted in reducing the number of illnesses and deaths related to infectious waterborne diseases the world over since the practice was first introduced in the early 20th century. However, there are healthier, more efficient and cheaper ways to treat drinking water than adding chlorine.

Dr Kristin Neumann, founder of the organization MyMicrobiome (mymicrobiome.info) in Bamberg, Germany, says chlorine is no longer used in many German water systems. Instead, municipalities there use high levels of filtration and bacteria to purify their water

of toxins.

"Chlorinated water has an effect when we study it in the lab," she says. "The difficulty is separating it out from other things and determining that one influencing factor impacting the microbiome. But just thinking logically, chlorine must have an effect—and not a positive one."

Water chlorination can lead to the formation of "disinfection byproducts," including trihalomethanes (THMs), a group of four chemicals that includes chloroform. Used as industrial solvents, THMs are associated with an increased risk of death from cancer as well as from other causes.^{III}

THMs also negatively alter thyroid function^{IE} and heighten both allergic sensitivities^{IE} and asthma risk in young people.^{IE} These mutagenic chlorination byproducts are associated with higher risks of breast, esophageal, rectal and bladder cancers in women^{IE} as well as the risk of malignant melanomas.^{IE}

Because chloroform is an off-gas released from heating chlorinated water, simply taking a hot shower can be risky.^{III} Chlorine interacts with lipid contaminants in the water, creating free radicals that cause cell death (apoptosis) and contribute to atherosclerosis.^{III} One study discovered that pregnant women drinking five or more glasses of tap water containing over 75 parts per billion (ppb) of THMs per day had a nearly 10 percent risk of spontaneous abortion.^{IIII} Swimmers run the risk of developing chlorine rashes^{IIII} and other skin and eye irritations, as well as skin cancers.^{IIII}

For those looking at the research, the question naturally arises, "How can people—how can doctors—go along with and even recommend these dangerous water treatment methodologies?" Osmunson is quick with his answer.

"Nobody ever taught us in school that as doctors we can't accept things on blind faith, that we have to challenge and test everything that we're told, to have an open mind and make sure that what we're doing is correct and make sure that the science behind what we're doing hasn't moved on. We need to be humble about what we do, because a lot of what we do is just plain wrong."

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Getting fluoride out of the body

Once fluoride is ingested, most of it is stored in four main regions of the body: the teeth, bones, brain and pineal gland. The highest concentration is found in the bones and shows up as a condition termed skeletal fluorosis. Not much research has been done, but some studies show that methionine (an essential amino acid), combined with vitamin E, may prevent the accumulation of fluoride in the skeletal system.

Taurine is another supplement that seems to help because it enhances thyroid gland function. Choline, a nutrient similar to vitamin B, helps mitigate fluorosis by supporting energy production and brain function, both of which fluoride suppresses. Pomegranate juice protects against fluorideinduced liver damage in rats. No dosages have been determined for any of these supplements at this time.¹

The following are other ways to detox from fluoride:

Do a liver cleanse.

Eat liver-cleansing foods such as avocados, garlic, leeks and onions. Apples are great too. Artichokes stimulate your liver to produce bile.

Turmeric is believed to protect against the neurodegenerative effects of fluoride.

Iodine and lecithin are believed to remove fluoride from the body.

> Studies show that the presence of selenium reduces

the accumulation of fluoride in plants.² It just might help humans.

Calcium and magnesium deficiencies have been related to fluoride absorption. Supplementing with calcium and magnesium may help.

Dry saunas are good for sweating out any number of toxins.



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BREAKING THENOLD

Mold can be the covert culprit behind a shockingly wide range of health problems. Cate Montana looks at how it gets into the body and how we can get it out





eventually drove her to see an orthopedist, who gave her a steroid shot and sent her home.

But she didn't realize her body was stressed from long-term toxic mold exposure, and the steroid shot put her immune system over the edge.

"I woke up that night and my leg felt like it was on fire, with pressure like I'd never experienced," Mitzi says. "I couldn't breathe, and every hour I could breathe less and less. As the days passed, I had no energy and I became acutely aware of chemical odors and the smell of mold in my mother's home. To top it all off, I started my period and bled for 30 days. I'd never had anything like that happen before."

She finally dragged herself to a general practitioner, who didn't have a clue what was going on. "I got back out to the car after my appointment and told my

mother, 'I've gotta get out of here. I'm gonna die here.'' Thus, Mitzi launched into a world where about 47 percent of US houses have mold issues, and 85 percent of commercial office buildings are estimated to have had water damage, mold, and other indoor air quality issues.⁰

For a year, she lived with an uncle whose house was clean of mold. But as a performing artist who traveled to do her shows, she found that staying in hotels and going to meetings in conference rooms with no proper air filtration were problematic.

Intense chemical sensitivity made it impossible to enter most stores and restaurants, and she was unable to ride in a car going over 35 mph because her weakened lungs were so affected by the pressure. On the road, she often ended up sleeping and eating in her car. Meanwhile, none of the doctors she went to could help.

"You get a lot of strange symptoms in patients with mold-related issues," says Dr Dean Mitchell, allergy specialist, immunologist and founder of Mitchell Medical Group in New York City (mitchellmedicalgroup.com). "Sometimes they're sensitive to light or Wi-Fi. A lot of them get headaches and fatigue and brain fog for no apparent reason. A lot of their symptoms are strange and non-specific. It's only when you start to see a lot of these patients that you begin to put together what they're complaining about."

Once mold is determined to be the likely culprit, healing the toxic environment is the first necessary step. However, as Mitzi and many other sufferers have discovered, when it comes to mold, escape is not such an easy option.

After opening a wellness center in Portland, Oregon, acupuncturist and functional diagnostic nutrition practitioner Bridgit Danner (bridgitdanner.com) developed an environmental illness due to toxic mold in her home. After numerous attempts at remodeling and remediation, the only cure turned out to be moving a thousand miles away to the Arizona desert.

You get a lot of strange symptoms in patients with mold-related issues . . . headaches and fatigue and brain fog for no apparent reason

GU syndrome

One of the earliest recorded treatment protocols for mycotoxin exposure originated in China some 3,000 years ago. People suffering from Gu syndrome (roughly meaning "hidden worms that putrefy and degenerate") characteristically resisted all logical treatment and were often considered beset by demons.

"Gu syndrome, generally and simply speaking, is a chronic reaction to some type of infection," says Eric Grey, LAc, MA, of Watershed Wellness in Astoria, Oregon (watershedwellnessastoria. com). "Lyme is the classic, but parasites like *Giardia*, bacteria like *Salmonella* and *Shigella*, and funguses such as *Aspergillus* can all be causes as well (or a combination thereof).

"In patients who are susceptible, typically those with other chronic illnesses or who are very weak or under great stress at the time of the infection, even if they clear the infection on lab tests, their body continues to act as though the infection is taking place. From a biomedical point of view, this may be viewed as a kind of autoimmune reaction, or may just be seen as the effects of the initial infection."

According to Grey, the treatment in Chinese herbalism usually involves complex formulas that contain, at minimum, very pungent, aromatic herbs, qi and blood-building herbs (essentially herbs that help to strengthen immune, digestive and circulatory function), and herbs that have a direct effect on viruses, bacteria, molds and other infective agents.

Confusingly, the actual digestive, neuromuscular and mental symptoms cannot be treated in traditional ways. For example, mycotoxin-related diarrhea must be approached differently from diarrhea stemming from other causes. Especially important is the rotation of herbs, never treating the Gu condition for more than six to eight weeks with any one set of remedies.

Heiner Fruehauf (classicalchinese medicine.org), a Traditional Chinese Medicine practitioner and the acknowledged Western leader in treating patients suffering from Gu syndrome, says patients need to undergo treatment for one and a half to five years.

Because Gu presents most often as a chronic flu-like feeling and an "aversion to wind," the mainstay herbal category for treating Gu is a combination of herbs that "release the surface and kill the snakes" (*shashe fabiao*).

Most Gu formulas contain herbs from this category, such as those listed below. However, there are no standard herbal remedies for Gu because every patient is different and requires a specialized formula.

Bohe (Herba menthae) clears brain fog and relieves sore throat

Baizhi (Radix angelicae) strengthens the lungs, stomach and large intestine; clears the nasal passages; and alleviates pain

Chaihu (Radix bupleuri) mitigates heat and fever and soothes the liver and spleen

Gaoben (*Rhizoma radix ligustici*) strengthens the lungs and alleviates pain, headache and pain in joints

Jinyinhua (Flos lonicerae japonicae) is anti-inflammatory, antiviral and antipyretic (reduces heat and fever)

Liangiao (Fructus forsythiae) is anti-inflammatory and antiviral and helps to mitigate liver problems, neurodegeneration and oxidative stress

Zisuye (Follium perillae frutescentis) strengthens the lungs, stomach and large intestine

Juhua (Flos chrysanthemi morifolii) clears heat from the lungs as well as cough, fever and headache Mold spores can be difficult to completely eliminate. For example, just one invisible spore from *Stachybotrys chartarum*, or black mold, can start an entire mold colony flourishing.

Once resettled, Danner continued to develop protocols to help herself and others recover from mold toxins. She says it can take years to get the toxins out of the body, even if the patient is no longer being exposed to mold.

Mold and fungus

There are over 200,000 species of fungi on this planet mushrooms, molds, yeasts, lichens and truffles whose job it is to break down bio-based organisms, returning their nutrients to the soil. Some molds are highly beneficial, such as the *Penicillium* mold from which we derive the antibiotic penicillin.

However, many molds found in the *Aspergillus*, *Fusarium*, *Stachybotrys* and, interestingly, *Penicillium* species are highly toxic, releasing dangerous biotoxins and mycotoxins (toxic metabolic waste products) into the air that can be inhaled or land on the skin and damage other living beings.

Of about 100,000 different mold species, 80 are considered harmful. These molds may range from allergenic (causing mild irritations) to pathogenic (causing infections) or toxigenic (dangerously toxic to all living beings).

A system-wide issue

Mold spores produce gases very similar to volatile organic compounds. "They get into the bloodstream and circulate into the gastrointestinal tract," says Mitchell. "The liver tries to detox your body by dumping toxins in the bile. But mold is kind of like a magnet. It's sticky and it sticks to the bile and then gets dumped back into the intestines and recirculates back to the liver."

Mycotoxins impact all systems in the body, affecting multiple organs, including the lungs, musculoskeletal system, and central and peripheral nervous systems.²

Aside from respiratory issues like rhinitis and asthma, one of the best-known side-effects of mold exposure is chronic inflammatory response syndrome (CIRS) caused by biotoxins triggering excessive production of cytokines that explode through the body, prompting the immune system to attack its own tissues (cytokines are small proteins vital for cell signaling). CIRS symptoms run the gamut, including anything from fatigue and headaches to excessive thirst, hormonal imbalances, abdominal issues, disorientation, joint pain and cognitive problems.

Mycotoxins negatively affect mast cells in the body, the cells that are part of our connective tissues and work with our immune system. The result is hypersensitivity diseases (allergies), chronic sinusitis, bronchitis, cough and neurological issues such as headaches, nausea and brain fog.¹³These biotoxins may also trigger rheumatoid arthritis,⁴⁴and studies show



Testing for mycotoxins

There are two types of mold testing: biological and environmental.

Biological tests

Biological testing can find out whether mycotoxins are in your body. For example, a licensed acupuncturist or a physician can order urinary mycotoxin screening panels.

Bridgit Danner, LAc, offers test ordering on her website, avoiding the often high costs of initial consultations and lab panels ordered through a doctor's office. Biological tests include urine testing; functional blood testing, which looks at inflammatory markers; an organic acid test that assesses fungal metabolites (organic molecules given off by fungus); and markers for

yeasts and bacteria. But testing can be tricky and is best done under the auspices of a health professional. Danner mainly uses the MycoTOX Profile by Great Plains Laboratory, combined with the organic acid test (OAT) and the GPL-TOX test for non-metal toxins.

Mold panels usually test for the most common mycotoxins:

- aflatoxins B1, B2, G1, G2
- gliotoxin
- isosatratoxin F
- ochratoxins, including ochratoxin A
- roridins A, E, H and L-2
- satratoxins G and H
- trichothecenes
- verrucarins A and J

Environmental tests

DIY in-home tests on the market can help detect and identify spores in the air or on various surfaces in your home.

If you find mold, hire a professional abatement company to do moisture tests and air sampling to find the source and then take appropriate action.

Mitigation

 Thoroughly clean and dry out your home within 24–48 hours after any flooding or leaks. If mold gets a foothold in or under walls, ceiling and/ or wall insulation, windowsills, tile, sinks, carpeting, upholstery, etc., airborne mold spores will spread throughout the house, forming new colonies.
 Fix leaks immediately. Keep humidity levels between 30 and 50 percent using air conditioning, a dehumidifier or both.

- Don't carpet bathrooms, kitchens or basements.
- Use HEPA air filters and clean and replace them on the recommended schedule.
- Use exhaust fans in the kitchen, bathrooms and clothes dryer.
- Check HVAC systems often and clean filter boxes and air intakes.

 You can remove mold from hard surfaces with soap and water or by using 1 cup of bleach mixed into 1 gallon of water. Do not mix bleach with ammonia, vinegar or other cleaners as toxic fumes will result.
 Surface mold removal

does not eliminate mold. Get to the sources. If needed, hire a professional mold remediation company to do the job. they negatively impact the pulmonary system as well.⁹

Studies have also linked toxic mold exposure to multiple sclerosis.¹³ Some other general symptoms are hair loss, insulin resistance, insomnia, chemical sensitivity, emotional shifts and behavioral changes, inexplicable weight gain or loss, chronic pain, brain fog, a hangover feeling in the morning even if you haven't drank any alcohol, and depression.

The brain connection

One reason symptoms are so varied is that they so heavily involve the brain. Studies show that many mycotoxins cross the blood-brain barrier, such as gliotoxin, a mycotoxin secreted by *Aspergillus fumigatus*.⁴

Exposure to molds found in water-damaged buildings can cause neurological and neuropsychiatric symptoms; disorders of movement, balance and coordination; delirium; dementia; and various pain syndromes.^E Exposure to mycotoxins is now thought to be a contributor to neurodevelopmental conditions such as autism spectrum disorder.^E

The study "How Mycotoxins Can Impact Your Brain," published in the *International Journal of Molecular Science* in 2011, revealed that certain mycotoxins directly impair neurological function by interfering with and destroying neurons.^[D]

Jill Carnahan (jillcarnahan.com), a functional physician in Louisville, Colorado, who specializes in mold-related illness, cites the following four major mycotoxins known to create neurotoxic effects.

T-2 toxin is a byproduct of the *Fusarium* fungus species, and contact comes mainly from cereal crops. It kills brain cells in both fetal and adult brains.

T-2 also suppresses glutathione S-transferases (proteins that have the capacity to combine glutathione with organic chemicals) that help metabolize drugs and support detoxification. It negatively impacts the function and production of mitochondria (organelles in the cells that produce ATP—the energy source driving cell functions).

Sources: Corn, wheat, barley and rice

General symptoms: Weakness, dizziness, and loss of body control and coordination

Symptoms from touch: Burning feeling, dermal blistering and skin necrosis

Ingestion: Nausea, vomiting, bloody diarrhea, anorexia and death

Inhalation: Itching, sneezing, wheezing, coughing and blood-tinged saliva

Ocular entry: Eye pain, redness, tears and blurred vision

Macrocyclic trichothecenes are produced by various species of Fusarium, Myrothecium, Trichoderma/ Podostroma, Trichothecium, Cephalosporium, Verticimonosporium and Stachybotrys. These spores work by inhibiting protein synthesis and binding to proteins and other macromolecules throughout the body, causing neuron death and inflammation in the nasal and respiratory systems. They impede immune system function and affect the pulmonary system, too.

Source: Grows in damp areas in buildings in materials that contain cellulose, such as wood trim, windowsills, wallboard, wood paneling, ceiling tiles and cardboard Symptoms: Weakness, respiratory issues, ataxia (loss of control over bodily movements, low blood pressure, bleeding disorders and death

Fumonisin B1 (FB1) is produced by several species of *Fusarium* molds. A prolifically common mycotoxin, fumonisin B1 causes degeneration of neurons in the cerebral cortex and disrupts ceramide synthesis, the formation of a signaling molecule that regulates the development and death of neurons.

It also disrupts fatty acids in the cell membranes of nervous system and brain tissues. It increases lipid oxidation while inhibiting protein synthesis and causes DNA fragmentation and apoptosis (cell death).

Source: Found mostly in cereal grains, especially corn Symptoms: Lethargy, pressure in the head, lack of appetite, convulsions, liver damage and death

Ochratoxin A (OTA) is released from different Aspergillus and Penicillium species. It damages the DNA, lipids and proteins in the body. It also depletes striatal dopamine, a neurotransmitter released from the forebrain, and is responsible for causing cell death in the hippocampus and other parts of the brain. Striatal dopamine regulates systemic glucose metabolism, strongly regulates our sense and use of time, and appropriate behavior and learning in response to sensory cues.

ÔTA causes oxidative stress, degrades mitochondrial function and inhibits protein synthesis. It is immunotoxic, neurotoxic, teratogenic (damages fetuses) and genotoxic (damages DNA) and has a very long half-life, accumulating in the food chain and in the body.

Sources: Cereals, wine, beer, grapes, chocolate, coffee, pork, poultry and dairy Symptoms: Chronic fatigue, respiratory problems, kidney problems, fungal skin rashes, night sweats, dizziness, hair loss, conjunctivitis and hallucinations; linked to Parkinson's and Alzheimer's

Mycotoxins, the gut and the brain

Mycotoxins strongly impact gut microbiota composition, negatively affecting intestinal health by eliminating healthy bacteria and thus increasing gut pathogens. They can reduce the number of beneficial *Lactobacilli* and *Bifidobacteria* in the gut and impair the intestinal production of short-chain fatty acids.^{III}

Because the gut and the brain are linked,¹² mold's toxic impact on them both has serious implications

Get out of the moldy environment and get tested. In the meantime, take the following steps.

Diet

An anti-inflammatory, organic diet is your best bet when dealing with mold toxins. Avoid:

Seeds and nuts

• Alcohol, especially beer and wine

Cheese

Coffee

Chocolate

- Sugar and sugary products
- Sugary drinks
- High-glycemic fruits and dried fruits
- All grains
- Processed foods
- Fermented foods

Detox

11

"The body very quickly gets into a very wicked entero-hepatic circulation cycle," adds Mitchell, "which is why binders are so necessary to get rid of the toxins." Binders are ingested substances that grab toxins stuck onto the mucosal lining of the GI tract and escort them out, helping to detoxify the body.

Binders that pull out toxins from bile include activated charcoal or bamboo, bentonite clay, chlorella, zeolite and pectin. Take one to three times per day on an empty stomach and an hour or two before or after taking medications. Take only as much binder as you can handle without side effects, even if it's just 1/4 capsule every other day.

- Drink plenty of pure water.
- Exercise and sweat toxins out.
- Infrared sauna, starting with 10–15 minutes at a temperature you can tolerate and building up to 30 minutes or more. Stay hydrated. Always shower after a sauna to wash away toxins.
- Dry brushing increases circulation to the skin. Use a natural-bristle brush and brush from your extremities toward the heart using long, firm strokes.

Coffee enemas increase
 glutathione production
 for detoxification.

Coffee also contains a compound

called

theophylline,

which can aid respiration. Use a light roast organic caffeinated coffee and filtered water.
A castor oil pack over the liver and/or gut is a

great detoxifier. Rub organic castor oil on the skin, then cover with a warm, damp towel and place a hot water bottle or heating pad over the area for 45 minutes.

• Epsom salt baths detoxify the body. Stay in the bath for at least 30 minutes.

Danner's top detox techniques

- Sauna: 10–45 minutes, 3–7 times per week
- Coffee enema: As tolerated, 1-3 times per week
- Epsom salt bath: 3–7 times per week
- Dry brushing: Daily upon waking

that researchers have yet to begin to explore. But it doesn't take much to see that mycotoxins impairing these functions would short-circuit the gut-brain signaling system, degrading the body's ability to detect and correct toxin overloads when they occur. And because both the brain and the gut have system-wide influences on every aspect of human biochemistry, it's no wonder that mold-related symptoms are so many and varied, hard to pinpoint and difficult to treat.

A cumulative thing

Inhaling spores and eating food that has mold spores in it are the most obvious ways people are affected by mold. (Commercial cereal grains are especially subject to mold during storage.) But we can also be exposed through skin contact. Often rashes and other skin issues arise after exposure.^[E]

So, with all of these varied symptoms, how can you know for sure if you're dealing with a mold toxicity issue? "It's difficult," says Danner. "But if you're having chronic symptoms that, despite all of your efforts, are not going away, and if you've been trying and trying, going from this diet to that diet, cutting out gluten and doing supplementation and cold plunges and going to bed early, and doing all these things and nothing is working, I would say look at environmental forces."

And it's not just current exposure that needs to be considered. Although extremely difficult to measure, mycotoxin exposure is a cumulative thing.^[L] If a patient's mycotoxin tests come back positive, the first thing Danner asks them to do is contemplate their symptoms' timeline and work backwards.

"We don't always put it together," she says. "But when you think back, suddenly you start remembering that dank basement apartment in college where you felt so sick. It takes a minute to realize where the start is."

Mitzi, who has been working with Danner and other alternative therapists for several years, is sure that her earliest mold exposure started in her family home. She's also made it clear that she'll continue to do whatever it takes to manage her sensitivity move, burn her clothes, do coffee enemas, steer away from grains, eat organic—whatever.

"Thanks to toxic load reduction and strengthening my immune system, following an anti-inflammatory diet, taking chlorella, eating foods rich in iodine and iron, getting lots of fresh air, exercise and sweating, and some emotional work, I can now enter moldy buildings and not feel like my body is being ravaged," she says.

"I have parts of myself back and am now living a normal life."

If you're having chronic symptoms that, despite all of your efforts, are not going away, look at environmental forces

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Supplements

Vitamin D3 with K2 Boosts immune system Suggested daily dose: 45 mcg vitamin K2 for every 1,000 IU vitamin D3 once a day

Vitamin C Boosts immune system Suggested daily dose: 100 mg per day

Liposomal glutathione The master antioxidant of the body

Suggested daily dose: 1 capsule (100 mg) twice a day with food

Prebiotic Feeds friendly bacteria and increases microbial diversity

Suggested daily dose: 2.5–10 g or more per day

Probiotics Support healthy digestion, brain health and neurotransmitter production Suggested daily dose: 5–10 billion CFU perday

Chlorella High in nutrients and antioxidants Suggested daily dose: 1–6 g per day

Magnesium Detoxes, aids sleep and hormone balance, increases energy, stabilizes mood Suggested daily dose: 250 mg perday

Omega 3 fatty acids Reduces inflammation Suggested daily dose: 500–1,000 mg per day

DAO enzyme formulas Contain diamine oxidase

and help cells break down excess histamine Suggested daily dose: 540 mcg per day

Quercetin Blocks the release of histamine from mast cells

Suggested daily dose: 500 mg per day

Electrolytes Aid hydration, pH balance and nerve and muscle function

Suggested daily dose: 1 or more servings per day

CoQ10 Antioxidant, boosts cellular energy Suggested daily dose: 1 serving (200 mg), once or twice a day

THE EXERCISE EXPERT Not just a phase

Is your workout working against your hormones? Debra Atkinson explains why and how to exercise with your hormonal cycle for the best results

Exercise is a pillar of good health. We all know that. But for women, there's a lack of information about how hormones can mess with your desire and ability to exercise—and what you can do about it.

A recent study found that 86 percent of exercising women experience tiredness, fatigue and/or other menstrual symptoms that boost their chances of skipping exercise or a sporting event.¹

Only 39 percent of all exercise science and sports medicine research features girls and women.¹² However, we typically go through an average of seven phases of hormone changes. One of them occurs monthly in a 28-day (on average) cycle, and others, like pregnancy and pre- and postnatal changes, may never occur or may happen multiple times.

Without considering the effects of hormones on exercise, there's no way to support optimal performance or reduce the risk of injury. Hormones can mean you use more fat for fuel at certain times, are more prone to injury at others and are primed for strength gains during certain windows.

Working with your cycle

During a normal menstrual cycle, estrogen and progesterone take turns driving the process of maturing and releasing an egg and preparing the uterus for possible pregnancy. Estrogen rises in the first half of the cycle, peaks at ovulation, then falls in the second half as progesterone rises. Progesterone is released by the rupturing of the egg follicle during ovulation.

Testosterone, too, is secreted in

"surges" around the time of ovulation, perhaps as Mother Nature's way to increase our interest in sex, and again before menses. If there is no pregnancy, you have a period and the whole cycle begins again.

Let's explore each phase and how you can exercise in tune with your hormones. Women's experiences vary a great deal, so honor your own energy. That alone can improve your exercise results.

Menstruation/early follicular phase

Fatigue is a key symptom for many women during the bleed, which is the beginning of the follicular phase, and for the first few days afterward. Estrogen and progesterone are both at their lowest point just before your period.

If this is true for you, go for walks or do a restorative yoga session instead of more vigorous exercise. Gentler exercise is a proven method of relieving cramps and menstrual symptoms.^BIf you're prone to pushing yourself hard through days you're not feeling it and you find your fitness level doesn't benefit, try backing off instead.

By around day 7, gradually rising estrogen levels will kick in. This is a good time to return to a regular strength training and HIIT routine if that's what you're used to. HIIT (high-intensity interval training) consists of short, intense bursts of exercise alternated with short rests.

If you like to work out and find it hard to take time off, your period can be a good time to do more functional workouts that involve unilateral (singlelimbed) exercises. This allows you to reach muscle fatigue at lighter loads, which is less likely to tax your adrenal system while it's already dealing with menstruation. If pushing through tough workouts leaves you more exhausted, frame your period as an active recovery time that enables harder work when it's over.

Mid- and late follicular phase

As estrogen rises from the start of your period and progesterone remains low, you have a window when you may more easily make strength gains. Generally, within a week of their period starting, women feel able to do more volume and recover faster. This may be the most powerful you feel during the month.

Even though you may be able to tolerate more exercise, don't skip recovery (it's when fitness happens, after all). Try adding more weight, sets or repetitions rather than upping the frequency, which will forfeit the recovery needed to reap the rewards.

Continue to limit high-impact exercise and any that involves a rapid change of direction. Your rigid tendons (as a result of high estrogen) support strength gains since they afford the ability to lift heavier, but estrogen also causes laxity of ligaments along with reduced neuromuscular control,²¹ leading to easy injury. So, while you can do HIIT, focus on bicycling, swimming or elliptical training rather than multidirectional or high-impact options.

You could also still be tired at this time in your cycle. Whatever you're feeling, honor it with an appropriate training and recovery response.

Ovulation and the luteal phase

Ovulation occurs in the middle of the follicular and luteal phases. According to women's hormone expert Dr Jolene Brighton, it's a one-day event with still-peaking estrogen levels, when progesterone is cued to start rising.

The luteal phase is the last two weeks of your cycle, when many women begin to feel more tired or less motivated to exercise. As progesterone rises, because of its anti-estrogenic effects,⁵ performance is lower than usual. It's when estrogen is high in comparison

The state of women's exercise science

Science is still relying on women's diaries or apps to collect information. Women often report feeling their strongest and most energetic during days 7–14. This may have to do with better insulin sensitivity during this phase than in the luteal phase. The female body is primed to burn fat and gain muscle during this time.

A 2021 study showed no physiological evidence to support training timed relative to the menstrual cycle.¹ In other words, there's not enough data to show whether it works because data hasn't been collected consistently or in large enough amounts. But there is enough evidence to show a need to conduct more research.

Still, by understanding the known metabolic changes that occur with hormone fluctuations (as relayed in this article), a woman can better adjust her workouts and use energy fluctuations to her exercise advantage.

1 Sports Med, 2020; 50(10): 1813-27

to progesterone in the cycle that performance increases. So, there is a dramatic difference for some women in the strength and energy they have in the first two weeks of their cycle compared to the last two weeks.

Many women also begin to have cravings related to premenstrual syndrome (PMS). Each woman is different, and you may feel good right up until the few days before your period or even be unfazed by it. Some of the changes may be related to the greater blood glucose instability and insulin resistance that occur with lower estrogen levels.

Continue to exercise, but reduce the intensity or the duration if your usual high-intensity workouts leave you exhausted. You can also focus more on endurance and lower-intensity exercise like walking, yoga or Pilates.

To alleviate fatigue and cravings, try increasing your caloric intake. It may seem

counterintuitive to women who are reducing their regular exercise to increase fuel, but metabolism is also a bit higher during this time.^[3]The body will respond well to both lowerintensity exercise when you feel the need and an increase in high-quality proteins, vegetables and resistant starches (sweet potatoes, beans,

Phasing your exercise

Here's a quick overview of hormones and their influence on exercise. Considering each woman's experience is unique, it may not be a perfect fit, but cycling periods of challenging exercise and more recovery-based exercise will likely bring big benefits.

PHASE	LENGTH	DETAILS	EXERCISE
Period	3–7 days	Low estrogen and low progesterone	During, energy is often at least briefly lower, a good time to do more functional (less stressful) workouts; as energy increases, return to more traditional strength and HIIT workouts
Follicular	14 days, starting with period	Progressively rising estrogen and low progesterone	Heavy strength training and HIIT but with minimal rapid directional changes or stress to ligaments, walking
Ovulation	1 day mid-cycle	Peak estrogen	Fleeting, so you may or may not catch this, optimal for strength and intensity
Luteal	Days 16–28	High estrogen and, by mid- luteal, high progesterone, then both fall	If energy wanes, taper off the heavy strength training toward end of phase, shift toward recovery activity like yoga, walking

legumes, brown rice).

Each woman responds uniquely. Some do best with intermittent fasting (a reasonable reduction in the daily hours during which you eat) during this time to benefit blood glucose levels. However, others do best increasing food intake to control cravings, boost energy and improve mood.¹¹

What about testosterone?

The focus of the menstrual cycle is on estrogen and progesterone. Testosterone, however, has a role in exercise endocrinology that can't be forgotten.

It is well known for its anabolic effects on muscle.

So when your testosterone level is high, you may feel a little stronger and benefit a little more from those workouts. Testosterone is also secreted in "surges" around the time of ovulation.

What about post-menopause?

The concept of periodization, this cyclical method of planning exercise, doesn't apply only to women who have a period, or even only to women. It's been a longtime tool of strength and conditioning coaches and personal trainers, used to produce optimal benefits with reduced injury risk.

Four-week postmenopause cycling

Week 1: Functional strength (unilateral, multidirectional) Week 2: Strength with power (moderately heavy with speed on lift) Week 3: Hypertrophy (heavy with fewer repetitions) Week 4: Endurance (lighter with higher repetitions) To get the benefits of exercise, we must exert ourselves beyond the level of daily activities of life. For that extra exertion to be beneficial and not damaging, we must consciously plan our exercise and make time for adequate rest.

Both male and female athletes benefit from exercise periodization, for men minus the actual period, of course. Cycles of periodization exist within weeks, months and the year.^E

For postmenopausal women, lower estrogen levels mean adequate intensity is needed more than ever to offset menopausal symptoms and increase muscle, bone and brain health. The best partner of adequate intensity is adequate recovery. So, cycling times of work with times of recovery is key to optimizing fitness. See the box at the bottom of this page for an example of post-menopause exercise cycling.

Cycling your exercise doesn't have to be complex, but it shouldn't be done by accident. Exercising with just a little more thought can give you the optimal energy and physical results you want and deserve. Period.

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She's a sought-after speaker for reframing aging and teaching how to do it, and her TEDx talk is "Everything Women in Menopause Learned about Exercise May Be a Lie." She's a best-selling author and a frequent contributor at featured news outlets, and she serves on the education advisory board for Medfit.org.



Kitchen cupboard remedies

From cough- and cold-soothing syrups to anti-itch body creams, nutritional health coach Lizzie King shares a collection of her tried-and-tested natural remedies to help combat the rigors of modern living

ur world is glittering with natural ingredients. Botanicals have been used for millennia as remedies without damaging side effects for us or our planet, but in recent times they have been overlooked in favor of commercial, convenient and synthetic products, and so the health of our ecosystem and its biodiversity have been impacted.

Originally created for me and my family to thrive in optimal health, these are the ways I've found that we can enlist the natural world to help—a holistic approach from the inside out and the outside in. From tonics that aid sleep to balms for anxiety, from syrups for avoiding seasonal lurgies or coping with a sick bug to fizzing bath bombs, from edible face masks to lickable kitchen sprays, they have proven their efficacy time and time again through my lovely community on my blog *Lizzie Loves Healthy*. They benefit our whole selves with health for now and futureproofing for us all.

This is a compendium of my findings. I hope you fall in love with making them, eating them, healing from them and giving them to others.



Adapted from Restore: Ancient Remedies from the Modern Kitchen by Lizzie King (Welbeck Publishing, 2023)

ELDERBERRY SYRUP

Elderberries were my firstever foray into plucking ingredients from the hedgerows to bubble up for my family's health. The elderberry has always been prized for its antiviral and antimicrobial properties so much so that there was a global shortage recently.

I had been pouring the sticky elderberry derivative into my children for years when I realized I could make a better version at home with more fresh antioxidants. The dark color of the *Sambucus nigra*, providing precious anthocyanins, is where all the antiviral properties lie.

This eventually led to my Be Well remedy, but this purple goodness is where it all started. Spoon it out in winter and notice how the cough and cold season just doesn't hit you in the same way.

Makes about 1 L

Ingredients

150 g (5 oz or 1 cup) elderberries, rinsed (or 2 elderberry and echinacea tea bags—I love Pukka brand) 2.5 cm (1 in.) gingerroot, peeled and thinly sliced 1 tsp ground cinnamon Pinch of ground cloves Zest and juice of ½ orange 750 mL (25 fl oz or 3 cups) boiling water Juice of ½ lemon 90 g (3¼ oz or ¼ cup) raw honey

Method

- Put the elderberries (or the teabags) in a small saucepan and add the ginger, cinnamon, cloves and orange zest.
- 2 Pour over the water, then place over a low heat and simmer gently for 20–30 minutes, until reduced to roughly half the volume.
- 3 Leave to cool slightly, then stir in the orange and lemon juices and the honey.
- Strain and pour into a glass jar or bottle.

Storage: Store in the jar in the refrigerator for up to 3 months.

Dose: 2 teaspoons per child per day for children aged one to two; 1 tablespoon per child per day for children over two; 1 tablespoon three or four times a day for adults.

Note: Honey is not suitable for children under one year.



MAGNESIUM HEADACHE TONIC

Tension headaches and migraines are one of the most common reasons for visiting the doctor, and I see the debilitation they can cause.

While the simplest respite can be found in a large glass of water, there are longer-term lifestyle tweaks that might help individuals—for example, reducing stress levels and caffeine intake.

Magnesium has been shown to alleviate the tension and constriction that can cause headaches, and this magnesiumrich drink is designed to bring relief. **Makes about 2 cups**

Ingredients

Juice of 2 grapefruits 1 handful of spinach leaves (frozen works too) 2 Tbsp pumpkin seeds Handful of ice cubes

Method

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- Blend all ingredients together in a high-speed blender for 2–3 minutes.
- 2 Drink immediately.
- Storage: Make fresh as required.
- Dose: Use daily as needed.

Tip: Migraine relief can be found by creating a stronger magnesium tonic. Gently mix 2 tablespoons of magnesium citrate with warm water, being careful that the mixture does not fizz out of the glass. Drink immediately and rest.

HAY FEVER SUNSHINE SMOOTHIE

The natural antihistamine action of bromelain and quercetin in pineapple work so well together here with the citrus vitamin C and the extra power from the reishi mushroom, which reduces antibody response and works to ease the sniffling, eye watering and itching of allergy season.

Makesabout 540 g (20 floz)

Ingredients

210 g (7½ oz or 1 cup) peeled and chopped pineapple (core included) 1 frozen banana

- Juice of 1 orange
- 1 tsp reishi mushroom powder

250 mL (9 fl oz or a generous 1 cup) milk of choice

Method

- Blend together all the ingredients in a powerful food processor until evenly blended.
- **2** Pour into a glass and serve immediately.
- 3 Alternatively, freeze in large ice-cube trays, then pop them into freezer bags (they'll take up less room) for whenever you need them. You can even serve them as popsicles when the summer heat is all too much.

Storage: Freeze for up to 3 months.

Dose: Use as needed.

EARACHE VINEGAR REMEDY

As a child, I spent many hours in the ENT department at the hospital and rode through many an antibiotic cycle as a result. My son took on my ear infection propensity, but I attempted to steer us away from endless antibiotics when I could. I found these ear drops, used at the very first signs, were often effective at quelling the onset.

Makes 2 fl oz

Ingredients

- 2 Tbsp apple cider vinegar
- 2 Tbsp cooled boiled water

Method

- **1** Mix the two liquids together in a clean cup.
- 2 With the person lying on their side with the affected ear facing up, soak a cotton ball in the liquid, place it in the ear and leave to sit for 5 minutes.
- Remove the cotton and let any residual liquid drain out. Pat dry with a towel.

Storage: Make fresh as required.

Dose: Use a couple of times a day as needed.

CHARCOAL SICK BUG TONIC

Used in Chinese and Ayurvedic medicine for thousands of years because of its powerful ability to draw toxins and chemicals out of the body, charcoal has been used to treat accidental poisoning in the West for a long time, too.

When I first mixed this up, I was hoping for a miracle, and I got one: a bout of nausea, vomiting and diarrhea stopped in its tracks. The tonic is now part of my Be Settled range of remedies; we often get asked to send it out by Uber for emergencies.

Method

Makes about 300 mL (10½ floz or 1¼ cups)

Ingredients

1 tsp mint leaves 300 mL (10½ fl oz or 1¼ cups) boiling water

1 tsp activated charcoal (use the capsules and pull apart)

- Put the mint leaves in a mug and pour over the boiling water.
- 2 Leave to cool, then strain out the leaves and stir in the activated charcoal. Sip slowly as needed.

Storage: Make fresh as required.

Dose: Use no more than once a day.

Note: It can bind to regular medication, like the contraceptive pill, and other nutrients, so daily use is not advised.



COLD RECOVERY TURMERIC, GINGER AND LEMON INFUSION

This tonic can be kept in the freezer in ice-cube trays so that when you need it, you can just add one to hot water and go, with none of the prep. Turmeric is an intense, orange-colored root that Ayurveda has prized for its powerful healing properties for centuries. Recent studies have confirmed its cancer-protective and antiviral properties.

Along with ginger, vitamin C-rich citrus and throat-soothing honey, this is a fiercely combative combination that helps me through coughs, colds and flu.

Makes 6–13 doses

Ingredients

7.5 cm (3 in.) turmeric root, peeled 7.5 cm (3 in.) ginger root, peeled 1 lemon, peeled 1 orange, peeled Hot water Raw honey to taste Grind of black pepper

Method

- In a juicer, juice together the turmeric, ginger, lemon and orange to yield about 200 mL (7 fl oz or a scant 1 cup) of juice.
- 2 To use it immediately, put 1–2 tablespoons of the juice in a cup and add an equal amount of hot water, stirring in honey to taste and adding a grind of pepper.
- 3 To save it for later, pour the juice into ice-cube trays and freeze, then pop the cubes into a freezer bag (it'll take up less space). Each cube equals one dose. To administer a dose, thaw and add the water, honey and pepper.

Storage: Freeze for up to 12 months.

Dose: Repeat two to four times a day as needed.

Note: Honey is not suitable for children under one year.

ECZEMA HAND AND BODY CREAM

Rough, red hands caused by harsh soaps or raw eczema patches can be hard to combat without resorting to brutal, skin-thinning hydrocortisone treatments. Oats are an emollient and also soothe any itching. For the porridge lovers, it's an extra joy that breakfast can be one of the healing ingredients.

Makes about 400 g (14 oz)

Ingredients

200 g (7 oz or a scant 1½ cups) oatmeal

2 Tbsp olive oil

200 mL (7 fl oz or a scant 1 cup) coconut oil

5 drops rosemary essential oil (or 1 sprig of rosemary, finely chopped)

Method

- Put the oats (and rosemary, if using fresh) into a powerful blender and grind to a powder.
- **2** Add the olive oil and coconut oil and pulse until warmed up and thinning.
- **3** Add the rosemary oil and blend until combined.
- Pour into a jar with a lid and let it cool until solid. Use on any dry skin, eczema or itchy patches.

Storage: Stays fresh for 3–6 months.

Dose: Use as required.

TUMMY-ACHE-SOOTHING RICE SOCK

A sock full of rice is one of the simplest ideas I came across while researching ways to relieve tummy pains. It creates a damp heat rather than a dry one and so is also really effective for muscular aches, with a useful shape for necks, lower backs and knees.

Makes 1 reusable sock

Ingredients

1 large thermal sock 1 kg (36 oz or 5 cups) uncooked white rice

Method

- Place the sock inside a vase or jug and fold the top over the edges of it. Pour in rice until the sock is threequarters full.
- 2 Tie the sock to close, or sew shut if you prefer.
- 3 Heat the oven to 160°C (320°F/ gas 3). Place the sock in a large casserole dish on the top shelf of the oven, with a second dish full of water below to increase the humidity and prevent burning. Heat for 20–30 minutes, checking occasionally on the sock

temperature. It should be warm to the touch but not too hot to handle.

4 Curl up with the warm sock on your tummy to relieve aches and pains.

Storage: Keep in a dry place for up to 3 months.

Dose: Use as required.

Tip: This doubles as an ice pack; simply place it in the freezer.

THEECODOCTOR Of pesticides and PMS

Detoxing from a hormone-disrupting herbicide, along with getting the right nutrition, was the answer to a patient's debilitating PMS, says Dr Jenny Goodman

elena, 33, had been suffering from premenstrual syndrome (PMS) for several years. From about mid-cycle (day 14 or 15), she would begin to get sore, swollen breasts, and would feel tearful, irritable and anxious.

By day 27 or 28, just before her period began, these symptoms had become so bad that she couldn't go to work. She snapped and yelled at her partner constantly and even felt suicidal. She recovered a day or two after her period started, but within a fortnight, the whole nightmare would begin again.

To get to the bottom of things, I went through Helena's diet diary with her. She needed to eat much more fruit and veg and some whole grains, pulses and nuts, none of which she usually ate at all. She also needed to greatly reduce her intake of sugar and refined carbohydrates.

Helena said she would try to cut out the sweet stuff, but that it would be impossible in the last few days of her cycle, when the sugar cravings were completely overwhelming.

I addressed this by prescribing plenty of protein and good fats, along with small, frequent meals in the run-up to her period. The goal was to prevent the hypoglycemia (low blood sugar), which was making her feel so desperate for sugar at this time of the month.

When I saw her a few weeks later, after she'd made the dietary changes, Helena reported that her symptoms had been a little milder, maybe 20 percent improved. In particular, the frequent small meals in the last few days of the cycle had reduced her sugar cravings noticeably. But this wasn't enough.

Supplements for PMS

I started Helena on several nutritional supplements that are crucial to maintaining a healthy menstrual cycle and effective for treating PMS: Magnesium is a muscle relaxant, relaxing the smooth muscle of the womb as well as the skeletal muscles, and it also improves mental clarity. Most importantly, it assists with sugar balance in the blood to reduce hypoglycemia, which is an important and often unrecognized component of PMS. Vitamin B6 (pyridoxine) is well known to help with PMS, but it's vital to give it along with all the other B vitamins, so I prescribed a B complex. The B vitamins work together to improve blood sugar balance and mental energy.

What's more, B6 is one of the vitamins on which it is possible to overdose high doses give some people unpleasant tingling and other neurological symptoms—but this tends not to happen if you combine it with all the other B vitamins in a B complex. **Vitamin E** is essential for everything to do with the reproductive system—it helps with fertility and the menopause as well as with PMS. I found Helena a form of vitamin E that contains all the naturally occurring components of the vitamin (alpha, beta, gamma and delta tocopherol, and alpha, beta, gamma and delta tocotrienol), as opposed to the usual commercial formulations that contain only synthetic alpha tocopherol.

Like the B vitamins, vitamin E is really a complex, with all eight components assisting each other. Cytoplan (cytoplan. co.uk) and Life Extension (lifeextension. com; lifeextensioneurope.co.uk) offer such a formulation.

Evening primrose oil is an omega-6 oil that makes a big difference in PMS symptoms quickly. Initially I gave Helena a double dose to take daily, but after a couple of months, we were able to restrict it to the second half of her menstrual cycle, balancing it by giving omega-3s (fish oil) from day 1 to day 14.

It is better to give omega-3 and omega-6 separately, to increase the utilization of both, and I have found that omega-3 given in the second half of the cycle can actually make PMS worse.

I also asked Helena to increase her intake of foods rich in vitamin E and good omega-6 oils: avocados, nuts, seeds and eggs.

The missing piece of the puzzle

Within four or five months, Helena pronounced her symptoms 50 percent improved; she was no longer suicidal at the end of the cycle, she didn't need to take time off work, and her relationship was improving. But she was still suffering. There was some other factor that I hadn't nailed.

I added the herb agnus castus to her regimen and, because she had grown up on a (nonorganic) farm, tested her for pesticide residues in her system.

Oh, my. Helena had sky-high levels of glyphosate, a toxic weed-killer that is a known endocrine (hormone) disruptor. It's found in the herbicide Roundup, which her father sprayed on his crops as she was growing up.

Glyphosate has paradoxical effects: it has been shown to be estrogenic in some cases, increasing estrogen's effects, and sometimes anti-estrogenic, preventing the conversion of testosterone to estrogen. In Helena's case, it was clearly the former action that predominated.

Another strange thing about glyphosate and some other toxic

Helena had sky-high levels of glyphosate, a toxic weed-killer that is a known endocrine disruptor

endocrine-disrupting compounds is that there is not a straight-line relationship between dose and effect; lower doses have been shown in some laboratory animals to have even worse effects than high doses (see Dr Stephanie Seneff's book *Toxic Legacy*, Chelsea Green Publishing, 2021).

We had to get it out of her system and stop any more going in. This meant that when she went home to visit, she had to make sure no spraying would happen. She also had to eat strictly organic.

Helena was fine with this; she went home and signed up for an organic vegetable box subscription and took it from there. The detox regime, however, was more challenging.

I asked Helena to take a glutathione supplement daily to help her liver's detox enzymes get to work on removing the glyphosate. I also gave her very-high-dose vitamin C and recommended Epsom salt baths (which also help with PMS directly because they contain magnesium) four nights a week. I added regular saunas and occasional colonic hydrotherapy to her regimen, and, most importantly, I asked her to make fresh, organic vegetable juice most mornings.

Helena was willing but busy, and she was able to follow my plan only about half as often as I would have liked. Nevertheless, it worked—it just worked slower than it would have if she had been able to devote a lot of time to it.

It took a year (rather than the six months I'd expect) for the detox to be complete. I retested Helena and the glyphosate was gone. She was happy and said her PMS symptoms were now 95 percent gone as well.

Helena also told me she would talk to her dad about converting the farm to organic. Let's hope he listened!

> Dr Jenny Goodman has specialized in Nutritional and Environmental Medicine for the last 20 years. An experienced speaker and author of *Staying Alive in Toxic Times: A Seasonal Guide to Lifelong Health* (Yellow Kite, 2020), she has a particular interest in pre-conception care and work with children.

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THE ECO DOCTOR

The needle and the damage done

Getting to the root cause of a young patient's hair loss, headaches and fatigue helped get her health back on track, says Dr Jenny Goodman

ola, age 14, came to see me distressed about her hair loss. She had lost some 40 percent of her hair over the preceding year. She was also suffering from severe, debilitating headaches and had been seen in the pediatric migraine clinic at her local hospital. Even the strongest migraine-specific painkillers didn't help much, and Lola had taken a great deal of time off school, needing to lie down in a darkened room for days on end.

For the hair loss, Lola had been referred to the pediatric dermatology clinic, where the doctors correctly—suspected autoimmunity. They referred her to the Pediatric Rheumatology department, where the doctors initially said she had the autoimmune disease SLE (systemic lupus erythematosus, also known as lupus), but after repeating their blood tests, they decided that she didn't. Lola was then referred to the Pediatric Endocrinology department to have her thyroid checked, as she was also suffering from extreme fatigue, and her periods had become irregular.

The endocrinologist diagnosed Hashimoto's disease, which is an underactive thyroid due to autoimmunity. In other words, Lola's immune system was producing antibodies that were attacking her own thyroid gland. The resultant lack of thyroid hormone was making her exhausted and contributing to the hair loss.

The endocrinologist prescribed levothyroxine, a synthetic form of the main hormone that the thyroid gland should produce, and told Lola she would need to take it indefinitely. When Lola's mom asked what had caused Lola's body to produce antibodies against its own thyroid gland, the consultant said it was his job to treat, not to inquire why.

When I first saw Lola, she was already taking 50 micrograms of levothyroxine daily, but her hair had not grown back and her headaches had not abated. For the first few months on levothyroxine, the fatigue had not improved either. However, Lola's mother had switched her to a gluten-free diet. Although this didn't help with the headaches or the hair loss, it made a big difference in the fatigue; Lola said she was far less exhausted than she had been a few months previously. Removing gluten from the diet

does seem to help improve many autoimmune conditions, even if excess gluten is not the root cause. Many people produce antibodies against gluten, and there is far more gluten in modern, hybrid wheat than there was in the bread our great-grandparents ate. That's probably why wheat sensitivity and gluten allergy are far more common than they were just two generations ago.

Jab effects

Lola had been totally well before having the human papillomavirus (HPV) vaccine at age 13. Her only preexisting medical condition was Ehlers-Danlos syndrome type III, another name for hypermobility syndrome.

Ehlers-Danlos had been diagnosed because she kept rolling her ankles and spraining the ligaments. But she had been fit and healthy, and the hypermobility had not interfered with her life after she had been granted permission to wear sturdy athletic footwear to school instead of flimsy shoes.

As Lola and her mother told me Lola's story, its relationship to the HPV vaccination became apparent. Lola had felt ill and strange after the injection, but not ill enough to be sent home from school. That evening, however, she had developed a high fever, and the following morning she had a nasty cough.

She was in bed with the cough and fever for a few days and appeared to recover partially but kept going hot and cold. In particular, her face grew hot and red, but her hands were cold and clammy. This was still going on when I saw her a year later.

It was over the ensuing weeks that Lola had developed migraines and fatigue and had noticed her hair falling out in handfuls. She also found it increasingly difficult to stand up for any length of time; she would feel faint and have to sit down urgently. When she lay down at night, her heart would start racing.

Eventually, postural orthostatic tachycardia syndrome (POTS) was added to Lola's growing list of diagnoses. This is a malfunction of the autonomic nervous system, which controls functions like blood pressure, heart rate and sweating. Lola's hot face and Over the ensuing weeks, Lola had developed migraines and fatigue and had noticed her hair falling out in handfuls



cold hands were part of this autonomic dysfunction.

POTS is more common in people with hypermobility syndrome, but Lola had not had it before the HPV jab. In all the young women I have seen with a POTS diagnosis, it has developed after one or more vaccinations, almost always the HPV shot.

My supplement and detox plan

My action plan for Lola was to supplement the nutrients she was lacking and detoxify her body from the vaccine.

Lola's blood tests showed slightly low levels of many nutrients needed for strong hair growth: zinc, iron, biotin, iodine and vitamin B12. Supplementing with these nutrients slowed and eventually stopped the galloping hair loss, but sadly the hair that was already lost did not grow back.

Still, as Lola's iodine levels normalized, two things happened. First, her periods, which had been very erratic, regularized. Second, her endocrinologist was able to reduce her levothyroxine dose from 50 to 25 micrograms daily. Eventually she was able to come off the synthetic thyroid hormone altogether, as her thyroid gland slowly, over some years, recovered.

Lola's blood tests also showed very high levels of aluminum, a toxic metal found in the vaccine. Getting this out of her body was a slow process; it took over a year to get the level down to a quarter of its initial level through a combination of simple detox measures such as organic vegetable juicing and saunas.

Initially these had to be far infrared saunas, but as Lola became stronger, she became able to tolerate ordinary saunas for about five minutes at a time. It took somewhat longer to get her aluminum levels down to zero, but as we did so, the fatigue gradually went away.

In addition to these detox modalities, the supplement that has been most important for detoxing aluminum has been silica. Silica, or silicon dioxide, in its soluble form silicic acid, helps remove aluminum from the body.

Besides silica itself, I gave Lola some horsetail, an herb that naturally absorbs lots of silica from the soil (assuming the soil has not been too depleted by intensive farming). Interestingly, horsetail is in lots of preparations for assisting hair regrowth. Lastly, some brands of spring water are naturally high in silica, and these helped Lola too. To learn more, check out the pioneering work of Professor Chris Exley.

I alerted Lola and her mom to other possible sources of aluminum in her environment so Lola could avoid them. Apart from vaccines, the main sources of this hazardous, neurotoxic substance are aluminum pots and pans (if you cook acidic foods in them, the food absorbs some of the aluminum), aluminum foil, drink cans, takeaway containers, some cosmetics, and underarm deodorants and antiperspirants.

Lola is now back at school. She is not totally healthy—not quite as well as she was before the jab. But she is so much better than she was when I first saw her.

And she definitely will not be having the second dose of the HPV jab, her mother told me.



Dr Jenny Goodman has specialized in Nutritional and Environmental Medicine for the last 20 years. An experienced speaker and author of *Staying Alive in Toxic Times: A Seasonal Guide to Lifelong Health* (Yellow Kite, 2020), she has a particular interest in pre-conception care and work with children.

HEALINGCANCER

Root causes

Dental problems and unhealthy gums may lead to cancer and other whole-body issues, says Dr Leigh Erin Connealy. Here's how to keep your gums and health in the pink

Dentists have long recommended brushing and flossing daily to prevent tooth decay. But there may be an even more pressing reason to clean up your oral health: it may help prevent the development of certain cancers.

Researchers at Harvard's T. H. Chan School of Public Health reviewed two extensive studies of more than 150,000 men and women. Following up after 22–28 years, they found those who had gum disease were 43 percent more likely to be diagnosed with esophageal cancer and 52 percent more likely to develop stomach cancer.¹

More studies are needed to confirm the link between gum disease and cancer, but it certainly makes sense. The mouth is the start of the gastrointestinal (GI) tract, and oral health issues can trickle down into other areas if left untreated.

For instance, if you have old dental amalgam fillings, chances are they contain mercury. Many integrative doctors and biological dentists believe this dangerous metal may be released in tiny particles each time you chew or brush your teeth. The minuscule particles can leach into your brain and other areas of the body and wreak havoc.

The following are examples of common, yet often overlooked, health issues associated with mercury exposure: • Neurological problems

- Headaches
- Memory loss
- Depression
- Fatigue
- Muscle weakness
- Tremors

Dental infections caused by root canals, jaw diseases, wisdom tooth extractions or other procedures can also cause problems. These pockets of infection, sometimes referred to as focal or foci infections, typically don't show up on lab tests. Still, they produce toxins that can result in increased inflammation and potential cancer risk.

According to the American Cancer Society, "Some infections can cause long-term inflammation in a part of the body. This can lead to changes in the affected cells and in nearby immune cells, which can eventually lead to cancer."²

Root canals: the root of the problem?

The American Association of Endodontists reports 15 million root canals are done annually—around 41,000 per day^[5] But these procedures can cause far more harm than good if done incorrectly. Typically, the dentist or endodontist takes out the central nerve, removes the surrounding pulp from the tooth, and seals the gap between the crown of the tooth and the roots in the jaw with an inert substance.

While the goal of a root canal procedure is to remove the excess bacteria that reside in the area surrounding the filling, without extreme care and skilled training, they may not get all of that bacteria. And that "leftover" bacteria can release toxins into the bloodstream that can travel throughout the body, causing cancer and other systemic problems.

In his groundbreaking book *Root Canal Cover-Up* (Bion, 1994), George Meinig, DDS, examines the centuryold, landmark work of Westin Price. Price demonstrated how infections in the mouth stemming from root canals wreaked havoc that spread to other parts of the body.

Over the years, root canals have been linked to metabolic disorders, increased inflammation, low birth weight and heart disease. In fact, one study published in the *Journal of Dental Research* showed that people with untreated dental infections were almost three times more likely to have cardiovascular problems.⁴¹

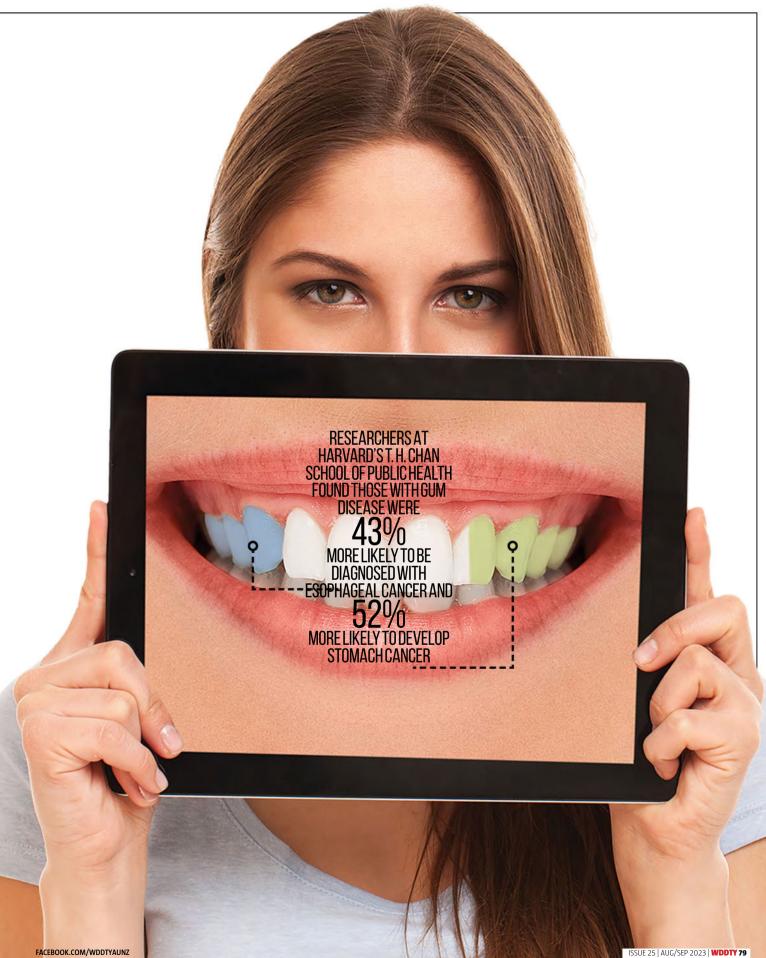
Holistic solutions

Fortunately, you can prevent and attack oral infections both at the dentist and at home to improve the health of your mouth and body. You can also aim for a healthier diet and lifestyle to prevent or beat cancer.

Find a biological/holistic dentist

The best way to address these oral issues before they become a problem is to consult a biological dentist. Biological dentists, also called holistic or natural dentists, view oral health as connected to overall health and work in harmony with your body. They use only minimally invasive procedures and nontoxic, biocompatible materials. Highly skilled and trained in the safe removal of dental amalgams and other holistic dental practices, they are excellent allies in your quest for optimal oral health.

Remember, the removal of amalgam fillings must be done by a trained professional to ensure the procedure is both effective and safe. And if you must undergo a root canal, strongly consider seeing a biological dentist who is skilled in this procedure.





Five important questions to ask your dentist

Finding the right dental practitioner can be daunting. But if you're armed with the right questions to ask, it can be a breeze. Request answers to the questions below to pair up with a dentist who checks all the boxes.

1) Do you use amalgam fillings?

Even though it is widely accepted that these mercury-containing fillings are laden with problems, some offices continue to use amalgams. If the answer to this guestion is yes, find a different office.

2) Will you ask about diet and other health-related information?

Much like integrative medicine looks at the whole person, a good holistic dentist will want to know all about your health and lifestyle habits. Do you smoke? Are you physically active? Do you eat a healthful diet and maintain an optimal weight? Are you currently taking medications or supplements? They need these answers to treat you properly and safely.

3) Do you use fluoride treatments?

According to Dr Griffin Cole, DDS, NMD, MIAOMT (smilehavendentalcenter.com), fluoride treatments are unnecessary and dangerous. "It is very difficult to completely avoid fluoride in dentistry as most of the resin materials (composite, sealant, glass ionomers) contain small amounts of it. Fortunately, some materials do not contain it at all, and these are the options that most biologic dentists employ," he says.¹

4) Do you do root canals?

If your dentist or endodontist is using typical treatment protocols for root canals, they will not be able to remove all the bacteria and nasty "bugs" inside the tooth. Dr Cole has good news for us, though.

He notes, "There are quite a few studies completed, or in the process, that show when the dentist uses the Fotona Lightwalker PIPS or SWEEPS laser protocol, along with oxygen-ozone therapy (or the ultrasonic GentleWave technology), you can indeed get the entire tooth clean, thereby creating a more biologically sound result."

Talk to your office about which methods they employ and choose accordingly.

5) Do you test for biocompatibility of the materials you use?

Anytime you place foreign materials in the body, there's a chance of systemic issues. Dental materials are no exception.

Fortunately, a simple test like the Clifford Biocompatibility Assay Test can be used to determine which materials will work for each patient. Most biological dentists offer this type of testing, but you can ask for it in any office.

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To find a practitioner near you, visit the International Academy of Oral Medicine and Toxicology website, iaomt.org, or the International Academy of Biological Dentistry and Medicine website, iabdm.org. See the box at left for the key questions to ask your dentist.

Try three simple home remedies

Between regular dental visits, you can safely and naturally improve or al health and stave off potential problems with these easy home methods. Tongue scraping Removing bacteria and dead skin cells from your tongue using a unique tool—aptly named a tongue scraper—is an easy and cost-effective way to improve oral health. In addition to getting rid of potentially harmful bacteria, scraping your tongue twice a day may help to get rid

of bad breath. You can find various tongue scrapers online or in health food stores. Use as directed.

Oil pulling The ancient Ayurvedic practice of oil pulling is thought to detoxify and purify the entire body. Swishing a high-quality oil such as coconut or sesame oil around in the mouth for 15 minutes every day pulls toxins out of the body, improves oral hygiene and gum health, and may help prevent cavities.

An article published in the *Journal* of *Traditional and Complementary Medicine* found that oil pulling was observed to "bring improvement in oral hygiene when practiced correctly and regularly."¹⁵The study's author did note

that oil pulling should be used in addition to—not in place of—brushing and flossing. Start with five minutes per day and work your way

up. Gargling with salt water Though it seems simple, gargling with salt water can have several positive impacts on your oral health. The main reason it works is that it helps stop bacteria production, which in turn reduces plaque formation and dampens inflammation.

Other benefits of gargling with a saline solution include staving off bad breath and soothing sore throats. Simply mix ½ teaspoon of salt into a cup of warm water, gargle, spit and repeat daily for optimal results.

Other ways to prevent cancer

Many factors besides poor oral health and hygiene may increase cancer risk. In lectures, I often close with a slide that reads, "The Cure for Cancer Is Prevention." In short, to be perfectly healthy, we need to address all the pillars of well-being.

It's best to work with an integrative physician who specializes in treating the whole person. They can tailor specific instructions and recommendations in each of these key areas to an individual's health concerns or needs. Find a practitioner near you through the American College for Advancement in Medicine (ACAM) at acam.org or through the Institute for Functional Medicine at ifm.org.

Here's a short synopsis of the best ways to reverse and prevent cancer.

Let food be your medicine

Eating real, whole foods such as vegetables, fruits, nuts and seeds, and grass-fed meats and poultry found in nature and free of pesticides and hormones is a must. I often recommend a modified ketogenic diet that follows along the lines of a Mediterranean diet.

Intermittent fasting may also be appropriate, depending on your condition. Again, working hand in hand with an integrative practitioner can help you find the ideal eating plan for total wellness and cancer prevention.

Detox

Ridding the body of toxins is essential for cancer prevention. We live in a highly toxic world, and taking steps to purify our bodies is one of the most powerful ways we can promote better health and stave off disease.

> Drinking purified water, ridding the body of toxic heavy metals—including old amalgam dental fillings—with proven therapies, reducing our exposure to electromagnetic pollution and staying away from harmful radiation can all go a long way toward engendering whole-body health.

Take anticancer supplements

Several nutritional supplements have anticancer properties. Many have even been proven to target circulating tumor cells (CTCs) and circulating stem cells (CSCs)—both of which must be eradicated to truly "cure" cancer.

Your integrative physician can order simple blood tests to determine the protocol that will work best for each person and their particular health concerns. An individual-specific supplement regimen can help not only prevent cancer but treat it as well.

Get moving

Regular physical activity is of paramount importance for all areas of health—including lowering cancer risk. Exercise has multiple proven benefits, from reducing inflammation and boosting immune function to ridding the body of toxins and helping to reduce anxiety, stress and depression.

Regular physical activity boosts mood, helps maintain a healthy weight, and increases oxygen and nutrient delivery to the brain. Aim for a minimum of 30 minutes of physical activity most days of the week.

Reduce stress

Stress is notorious for suppressing the immune system. And if your immune system is compromised, you are at a much higher risk of cancer as well as other diseases. You can try stress relief and relaxation techniques at home, such as meditation, yoga, Tai Chi, aromatherapy). Or you can do them with the help of a professional (guided exercise classes, massage therapy, counseling/therapy).

Get enough sleep

If you're not getting a minimum of seven hours of sleep each night, you are putting yourself at risk of a host of health conditions—including cancer. Proper sleep hygiene—which includes avoiding blue light (from TVs and smartphones) before bed and sleeping in a dark, temperature-controlled room—is essential for a good night's sleep.

Some supplements, such as melatonin, can help you fall and stay asleep through the night. Avoiding caffeine in the afternoon and being aware of medications that might hinder sleep can also improve sleep habits.

The teeth of the matter

While good oral hygiene is only a piece of the puzzle when it comes to preventing cancer, keeping your mouth in tip-top shape has multiple wholebody benefits and should be a priority.

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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.

A doctor who questioned the Covid strategy loses her license

Sacrificing Sarah

fter more than 30 attempts, the medical goon squad finally got their man (or, in this case, feisty woman). Dr Sarah Myhill, the "people's doctor," has been banned from practicing medicine for nine months after she made statements during the Covid pandemic that "undermined public health."

The UK's Medical Practitioners Tribunal Service—the executioners to the General Medical Council's policemen—passed judgment recently in Manchester. Although Sarah may appeal, the verdict is somewhat moot as she deregistered herselflast November, and so a woman who doesn't have a license to practice has, er, had her license to practice removed.

But people shouldn't be going around "undermining public health"—so what on earth has Sarah been up to?

She uploaded a series of videos and articles between March and May 2020 that questioned the Covid narrative of government and health agencies. Her "false claims" questioned the effectiveness of mask-wearing, advocated taking high-dose vitamins to boost the immune system against a Covid infection, and recommended remedies such as ivermectin.

Let's take a look at some of her "false claims":

High-dose vitamins: Sarah advocated taking high-dose vitamins, especially C and D. The Tribunal pronounced that vitamins can cause "serious harm" and had "potentially fatal toxicity." Not so, at least according to the American Association of Poison Control Centers, which monitored 3.31 million cases of poisoning in 2021. Painkillers were the chief culprit, responsible for around 10 percent of poisonings that year, but not a single case due to high-dose vitamins was recorded.

Far from causing harm, vitamins seem to keep people healthy. One study that monitored more than 11,000 people found that those who weren't taking vitamin C were dying prematurely.^{JJ}Another, taking

Bryan Hubbard

data from the vast UK Biobank Survey, demonstrated that people deficient in vitamin D were dying earlier, but those with higher levels were living longer.²

Ivermectin: In the early stages of the Covid outbreak, frontline doctors had very little to offer the patient at death's door. One group of doctors got together to form the Front Line Covid-19 Critical Care Alliance (FLCCC) and develop a protocol based on their experiences of what was working in emergency rooms. The result was MATH+, which incorporated drugs and, yes, high-dose vitamins, to quickly bring down inflammation. They discovered that ivermectin—a drug that treats parasites in animals and scabies in people-is "a highly effective drug for the prophylaxis (prevention) and treatment of Covid" that works by blocking the SARS-CoV-2 virus and preventing inflammation.E

Mask-wearing: Sarah also questioned the benefits of mask-wearing. Quite right, too, says the prestigious Cochrane Collaboration, which this year has evaluated the various strategies to stop Covid contagion. Analyzing the results from 12 studies, the Cochrane researchers concluded that "wearing a mask may make little or no



The real charge against Sarah — and against many other brave doctors who have stood up for what they know is right — is that she undermined the government's fear-based narrative difference" in stopping the spread of the virus or catching it in the first place.

In its concluding remarks, the Tribunal declared that Dr Myhill "does not practice evidence-based medicine." From a quick skim of research studies, it would appear the reverse is true. But the hearing was never set up to be a dispassionate look at the evidence; instead, it was an exercise in propping up a discredited healthcare strategy that has left economies in ruins, placed enormous strain on hospitals, caused excess deaths due to people not getting treatment in time, and sparked a surge in deaths of our young men from an mRNA vaccine that hadn't been thoroughly tested.

The real charge against Sarah—and against many other brave doctors who have stood up for what they know is right—is that she undermined the government's fear-based narrative. The strategy was poorly conceived by men and women who were doubtless doing their best in uncertain times, and they wanted to ensure there were no dissenting voices.

The ploys they adopted to censor those who questioned their strategy are only now coming to light. The UK Army had a special division set up to spy on dissenters and have their social media posts and videos blocked or made invisible with the help of Facebook, Google, Twitter and the like. These social media companies all became willing conspirators with governments, as did the mainstream media, which also became the mouthpiece of government propaganda.

Sarah is just another necessary sacrifice on the altar of fear-based groupthink. All said and done, people like Sarah (and, we hope, *WDDTY*) make people ponder, and that would never do.

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THELASTWORD

How relative risk makes a drug seem effective when it's not

The illusion of the magician

Bryan Hubbard

an All Relatives. Hope you like our new campaign and will join BAR in getting rid of them. No, we're not planning to usurp uncles or mount an attack on aunties; we all love those relatives, and they make a mean Victoria sponge when we visit.

BAR is campaigning to ban the use of the relative risk ratio (collective sound of comatose people slumping into their armchairs). But hold! It's the rocket fuel of the pharmaceutical industry, it drives the sale of new drugs—where much of Big Pharma's profits are to be made—and it gives the mass media exciting new things to talk about.

The relative risk ratio makes it seem that we're all very busy being brilliant and pushing back the boundaries of disease, when actually we're not, of course.

Let's take as an example a news report you read: "New Drug X Reduces High Blood Pressure by 30 Percent."

"Blimey!" you say, dropping your Twitter feed, "I'll have some of that." By the by, when we say "you," we're describing the average Everyman glancing through the news, and not the discerning WDDTY reader.

Eric Everyman rushes to his local surgery, Twitter feed in hand. He shows his doctor the impressive data on the new drug. The doctor confirms that indeed the drug is truly that effective at reducing high blood pressure, as he was assured of the fact by the drug company itself while on a vital, and allexpenses-paid, conference in the Seychelles, fully sponsored by the manufacturer.

But it's the illusion of the magician, whose sleight of hand is achieved with the use of relative risk. When people read that a drug has 30 percent effectiveness, they assume the drug improves a condition by, er, 30 percent. It doesn't. Let's assume that Eric Everyman is 40 years old, doesn't smoke, drinks only moderately and exercises by cycling on weekends. His risk of developing high blood pressure (hypertension) is around 10 percent. In other words, he is 10 percent more likely to develop hypertension than someone of his age who is fitter and, as a result, has a lower risk profile.

If Eric were to take New Drug X, we know his risk would drop 30 percent—but it's 30 percent of his actual risk of 10 percent. In other words, the drug reduces his risk of hypertension by 3 percent—not the sort of



The relative risk ratio makes it seem that we're all very busy being brilliant and pushing back the boundaries of disease, when actually we're not, of course headline rate that would have him rushing to his doctor. So, 30 percent is relative to someone's actual risk, or "absolute risk," as statisticians like to call it.

A recent study makes the point. Headlines reporting on the research exclaimed that women who were using a progestogen-only contraceptive, such as the Pill or a coil, were 25 percent more likely to develop breast cancer.

Again, it's true, sort of—but that's the relative risk a woman faces. A woman in her late 20s has an absolute risk of developing breast cancer of just 0.5 percent, and taking the pill increases that risk to 0.57 percent. By the time she reaches her late 30s, her risk of cancer is around 2 percent—still very low and the Pill and coil raise that to 2.2 percent.^U

Researchers from Oxford University monitored the health of around 30,000 women, some of whom were taking a progestogen-only contraceptive. The incidence of breast cancers in women using contraceptives for 15 years increases from 0.084 percent to 0.092 percent overall, the researchers concluded—but that didn't make it into the headlines, the only thing many people ever read. Instead, reporters used the relative risk figure for that.

Everyone loves relative risk. It gives the media something to report on, it boosts drug company sales, and it gives academics a turn in the spotlight for a study that otherwise would be so underwhelming that it would be consigned to academic oblivion.

Mind you, drinking alcohol is risky. One alcoholic drink every day increases the risk of breast cancer by 10 percent. Worried? Not as much as the researchers would like you to be—they're using relative risk again.

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