

WELL BEING JOURNAL™

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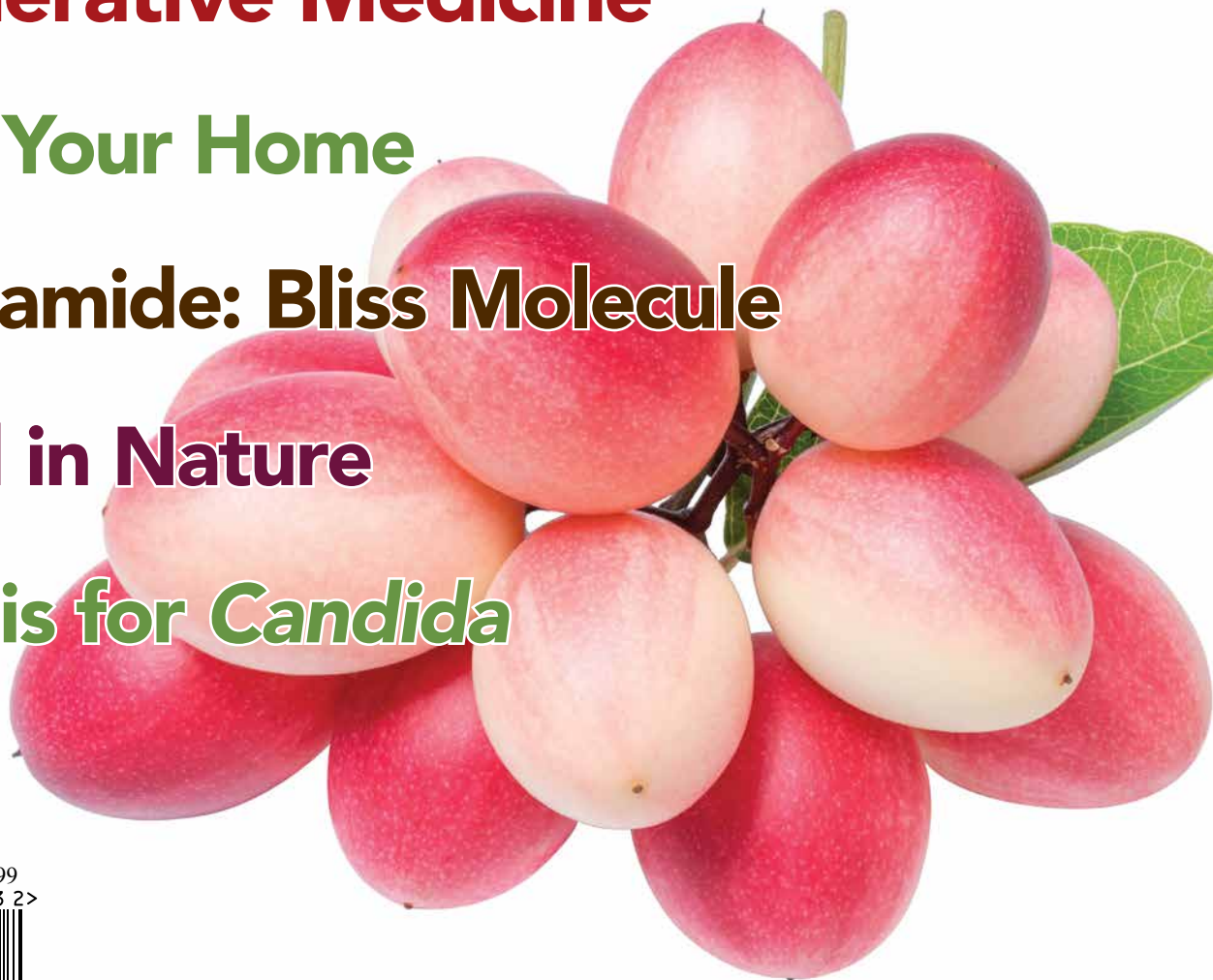
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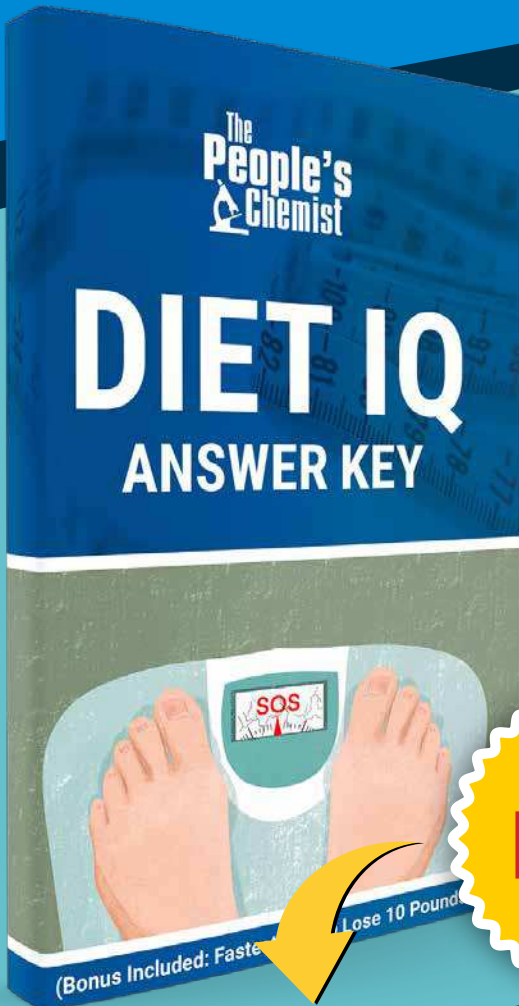


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Up Front

Summer Vibes: Transformative Power of Positivity

Make it your choice to have a more balanced, positive outlook on life. Try to commit to the state of appreciation and gratitude, so you don't take the gift of life for granted. You'll discover that the Universe will rhyme with you by sending more beauty and abundance your way.

—Alla Svirinskaya

Energy Rules, Hay House (2023), page 230

IN A WORLD that can often feel overwhelming, it's important to remember the power of positive thinking. Studies have shown that a more positive mindset can reduce stress, foster deeper relationships, and boost overall well being. Unsurprisingly, positivity has also been linked to increased resilience, as individuals who tend to focus on the good are better equipped to handle difficult situations and bounce back from setbacks.

One of the more significant benefits of positive thinking is its ability to reduce the risk of heart disease and stroke, and even increase life expectancy. This is due in part to the fact that a more optimistic outlook can lead to healthier behaviors, such as regular exercise and a balanced diet.

Beyond the effect on the individual, positive thinking can have a ripple effect on society. When we approach challenges with resilience and a can-do attitude, we are more likely to inspire others to do the same. This can lead to a more compassionate, supportive, and productive society.

Experts caution that positive thinking is not about suppressing negative aspects of life or denying painful emotions. Rather, it is about acknowledging the challenges we face in the day-to-day and choosing to approach them with a belief in oneself. When we have a positive mindset, we are more likely to find solutions to problems, overcome obstacles, and persevere through tough times.

In this issue of *Well Being Journal*, we aim to highlight the importance of positive thinking through personal accounts and scientific studies. By focusing on the good in ourselves, in others, and in the world around us, we can create a brighter and more fulfilling future for generations to come. Remember, positivity is not just a fleeting emotion, it is a way of life. —KG

Summer 2023 Issue—A Hint at What's Inside:

- Anandamide: bliss molecule
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- Superfood: apple peel
- Power postures
- Strategies to detox the home
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Things that Make You Go Hmmm...



Protect Food Sovereignty & Biodiversity: An Open Letter

By Navdanya International

WE, THE WOMEN OF THE WORLD, meeting together in India as the “Diverse Women for Diversity”—representing seventeen nationalities and multiple cultures—welcome and support the decision of the Mexican government to phase out the use of genetically modified organisms (GMOs) and glyphosate.

We are dismayed that the United States government and the biotech industry are pressuring the government of Mexico to impose GMO corn. This directly violates Mexico’s sovereign rights enshrined in the Convention of Biological Diversity (CBD) and the Cartagena Protocol on Biosafety—international agreements that ensure sovereignty and the *precautionary principle*. We also ask

the European Commission to stand by the decisions they have made under the precautionary principle.

Precautionary principle*

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

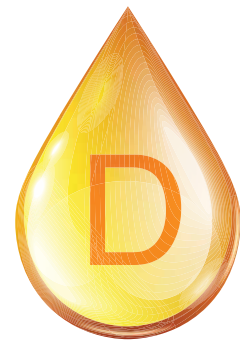
*Principle 15 of the Rio Declaration on Environment and Development

We call on the government to:

- Stop pressuring the Mexican government to accept GMO corn. Mexico is the genetic reservoir of maize globally, which we must preserve.
- Recognize and accept the policy decisions democratically adopted by a sovereign country.
- Acknowledge that the policies of Mexico are based on solid international scientific evidence demonstrating the harmful impacts of GMOs and glyphosate on human and environmental health.
- Recognize that the biodiversity of maize in Mexico is essential to food sovereignty not only in Mexico, but globally. No GMO should be introduced in a country which is a centre of diversity.

GMOs, pesticides, and the industrial food system are the single biggest reason for the disappearance of biodiversity. We will continue our efforts in defense of life, diversity, and freedom. Δ

Well Being Journal abridged the above statement from “Open Letter from Diverse Women for Diversity to World Leaders,” by Navdanya International. Published March 9, 2023, on *Regeneration International*. Learn more at <https://regenerationinternational.org/>



Vitamin D Proven Effective Against COVID-19

AS THE COVID-19 PANDEMIC enters its endemic phase, widespread efforts to mitigate the virus are winding down, requiring the individual to make decisions to minimize infection and spread. While healthy

lifestyle choices continue to be valuable, having scientific evidence to support such choices has largely been lacking, with government, industry, and mainstream medicine focused elsewhere. Fortunately, many academic studies around nutrient supplementation have taken place, leading to a growing body of knowledge that has improved our understanding of how best to limit COVID-19 infection.

One such study, a meta-analysis of five selected trial studies, demonstrated the value of vitamin D supplementation in the prevention of severe COVID-19 illness.¹ In analyzing five sequential trials, researchers sought to uncover a decreased risk of death and ICU admission associated with adequate serum vitamin D. By pooling results, the researchers increased sample size which allowed them to determine a positive association between vitamin D supplementation and reduced severity of COVID-19, a correlation that had only received anecdotal support previous to the analysis.

Between eighteen and forty-nine percent of the world's population is deficient in vitamin D, depending on a variety of factors.² The harmful implications of vitamin D deficiency go far beyond the COVID-19 pandemic, and include overall health concerns like musculoskeletal health. Vitamin D levels can only be determined through routine blood work, and should never be assumed to be adequate, even by those eating a healthy, whole foods diet. Thankfully, adding vitamin D to one's dietary regimen remains inexpensive and easy, with one caveat. Unlike vitamin C, which may be taken in excess of dosing guidelines, vitamin D is a hormone nutrient with safe maximum dosing for healthy individuals. Please

follow recommended guidelines and seek the support of a trusted health professional when making adjustments to one's own supplement regimen. —TP

—Adapted from:

1. Argano C, Mallaci Bocchio R, Natoli G, Scibetta S, Lo Monaco M, Corrao S. "Protective Effect of Vitamin D Supplementation on COVID-19-Related Intensive Care Hospitalization and Mortality: Definitive Evidence from Meta-Analysis and Trial Sequential Analysis." *Pharmaceuticals* (Basel). 2023 Jan 16;16(1):130. doi: 10.3390/ph16010130. PMID: 36678627; PMCID: PMC9864223.
2. Cashman, K D (2022). 100 Years of Vitamin D: Global differences in vitamin D status and dietary intake: a review of the data, *Endocrine Connections*, 11(1), e210282. Retrieved Feb 20, 2023, from <https://ec.bioscientifica.com/view/journals/ec/11/1/EC-21-0282.xml>



Energy from Light

AN AMAZING NEW INSIGHT into the powers of the human body was introduced by a study involving the destroyed reactors at Chernobyl.¹ Five years after the nuclear explosion, robot cameras sent into the reactor showed the growth of black fungus (*Cryptococcus neoformans*)—the common fungus found on shower curtains and walls around bathtubs and showers. Studies then showed that the black in their cells were crystals

of melanin, the same pigment in human skin and brain.

The astonishing results demonstrated that these cells were using melanin to convert radioactive energy to nourish their cells. Since then, new studies have shown that melanin functions in the same manner that chloroplasts in plants use light photons to generate biological energy and food.²

Both melanin and chloroplasts use ambient energy to break water down into oxygen and hydrogen—a process used in creating and maintaining organic life. Results recognize that up to ninety percent of the energy needs of the human body can be created by melanin interacting with various forms of energy, including radioactivity, electromagnetic fields, and visible light. Δ

—By Bruce Lipton, PhD. Excerpted from *Think Beyond Your Genes* newsletter (September 2022). Learn more at BruceLipton.com

1. Ekaterina Dadachova, et al. "Ionizing Radiation Changes the Electronic Properties of Melanin and Enhances the Growth of Melanized Fungi," *PLOS One*. (2007) 5:e457.
2. Arturo S Herrera, et al. "Beyond Mitochondria, What Would be the Energy Source of the Cell?" *Central Nervous System Agents in Medicinal Chemistry*. (2015) 15:32-41.

"If we accept the latest empirical research, real science that correctly describes human beings as highly cooperative, reciprocal, and intuitively moral creatures, then it follows logically that it must be cooperation, and not selfishness, that is the cause of our prosperity."

—Nick Hanauer, in "The Dirty Secret of Capitalism—and a New Way Forward," at https://www.youtube.com/watch?v=th3KE_H27bs

Detox Your Home

By Daniella Chace, MSc, CN

MOST OF US WANT TO REDUCE TOXINS, yet our society is not set up to make this possible without a concerted effort going into most decisions we make throughout the day. We may want to use less plastic, for example, but it can be difficult to find something as simple as a toothbrush that's plastic-free. It's hard to do the right thing for our bodies and planet because we lack the infrastructure to help us.

That's where a home detox can help. In my work tracking down toxins (triggers of disease), I have discovered that most are right under our noses—at home. In fact, according to the US Environmental Protection Agency (EPA), we are exposed to more toxins indoors than out, and our homes have become our number one source of toxicity.

One reason for this is that more than 40,000 chemicals are used to manufacture common consumer goods. Because we spend most of our time indoors, we are exposed to these chemicals daily, and they have a greater impact on our health than outdoor environmental pollution.

A Path to Health

WELCOME TO A WHOLE NEW WORLD of insight into the causes of disease and a direct path to improved health. In my career as a toxicology clinician, I have been fortunate to help thousands of clients stem the effects of environmental toxins—starting with the home.

Many people reach out to me after their doctor has told them that they have a degenerative or chronic disease and



there is nothing much to be done about it. The truth is that our bodies are making new cells around the clock, so we are constantly healing.

A good first step is to get tested for toxins (eg, elevated levels of heavy metals, pesticides, phthalates, immune-suppressing fungi, or pathogenic bacteria) and get to work boosting nutrients, removing toxins, and treating infections.

Become a Toxin Detective

TOXINS ARE LINKED to numerous common health conditions. Polytetrafluoroethylene (PTFE)-treated substances (eg, nonstick coatings on cooking pans) can raise cholesterol levels. Heavy metals can affect blood pressure. Volatile organic compounds (VOCs) can cause migraines.

One of the most surprising and common ways we take in toxins is by breathing in chemicals that have become stuck to the dust that permeates our indoor environments. This consistent exposure to a combination of toxic substances can overwhelm our immune systems and interfere with biological functions.

For example, studies have proven that chronic low exposures to common VOCs may be a significant health issue. VOCs are found in items that we come in contact with daily, such as oil-based paints, paint strippers, nail polish remover, adhesives, wood finishes, Teflon-coated pans, and air fresheners.

But rest assured, our bodies have a powerful natural detoxification system, enlisting the liver, kidneys, lungs, lymph, gastrointestinal tract, and even our sweat to excrete toxins. As soon as the compounds that are interfering with our biological processes are cleaned out, our bodies can begin to heal.

The Home Detox Method

DETOX CLEANING is a method for removing pathogens and toxic residue on surfaces, in fabrics, and in the air. Let's go over a few examples of natural cleaning tools that can help you get the job done easily.

Biodegradable Cleaning Gloves

IF YOU'RE USING nontoxic, food-grade cleaning solutions, gloves aren't necessary. But if you still would like your hands covered, opt for biodegradable or compostable gloves. Skip gloves made of vinyl, PVC, or synthetic latex.

Bottles and Jars

YOU'LL NEED STURDY GLASS BOTTLES and jars (with lids) in a variety of sizes for storing your homemade cleaning solutions. Canning jars are a good option—the glass is thick and non-reactive, plus the jars are long-lasting, refillable, and sustainable.

Common Source of VOCs: Mattresses

Synthetic mattresses are a primary source of toxins in the home, such as flame-retardant chemicals that disrupt thyroid hormones. Flexible foam and memory foam mattresses off-gas high levels of VOCs that can trigger airway inflammation and sleep apnea.

Careful consideration of our mattress material is warranted because of the amount of time we spend sleeping and the close proximity of our faces to the material. Old synthetic mattresses can cause allergies, eye mites, sinus inflammation, and other issues. Plus, over time, mattresses can become infested with bugs, bacteria, and fungus.

See Detox Cleaning Solutions for a chemical-free bedbug treatment.

One way to salvage an old mattress is to cover it in a natural and nontoxic fabric mattress zipper encasement. Sturdy wool zipper cases work well to contain mattress materials, but they cannot be washed because they may shrink when drying. As a simple solution, consider an additional cotton topper that is washable to protect the mattress and its encasement. These are called mattress covers and look like heavy-duty fitted sheets.

When shopping for covers, keep in mind that although it may be tempting to buy a plastic case because they are inexpensive, they should be avoided due to off-gassing and microplastic shedding.

Finally, avoid mattress covers that claim to be waterproof, as the waterproofing is achieved with synthetic material and chemicals, such as vinyl and PFOAs. Organic cotton covers hold up well in the wash and add a little extra cushion. These nontoxic cases and covers can minimize exposure to the chemicals embedded in your existing mattress. This is a great strategy if you're not ready to invest in a new natural material mattress.

Broom & Dustpan

A WELL-MADE BROOM with properly cut fiber is a must-have. Bristles made of natural materials, such as bamboo, palm, straw, and vegetable fiber can last for generations, yet they are completely biodegradable and compostable. I particularly love the combination of design and function in the traditional natural-fiber brooms and brushes from Japan, Sweden, and Germany.

Look for a dustpan made of stainless steel, wood, bamboo, or some other natural material, rather than plastic. Think how you will store it, too. If you want to hang it from a hook, look for a dustpan with a hole in its handle.

Cleaning Brushes

BRUSHES ARE CRITICAL. With the right brushes, you will find that you need very little cleaning solution—and you save some serious elbow grease. If you already own plastic scrub brushes, keep using them until they are worn out, rather than buying new brushes, to conserve resources. When you're ready to buy new cleaning brushes, look for wooden varieties with plant-based bristles.

Rags

I FIND THAT COTTON CLOTH works better than paper towels; paper gets soggy and falls apart and you end up using a lot of it. Making paper towels requires industrial processing and many trees, so they are a real drain on our natural resources.

Microfiber cloths are popular, but microfiber is eighty percent polyester and twenty percent polyamide: plastic and chemicals! These cloths release microplastics into waterways and cannot be recycled or composted.

Instead, look for cotton, hemp, and bamboo cloth rags, as they are biodegradable. I prefer 100 percent cotton terry cloth for cleaning and have a big stack of the washcloth sizes in my kitchen and cleaning daddy.

Tip: Old rags are good to have around for wiping up messes because you can toss them out guilt-free. Anything cotton that is at the end of its life can be made into rags. I cut up old towels and clothes and use socks like a glove when cleaning.

Sponges

USE SPONGES made of plant fibers like gourd, coconut shells, and walnut shells. They stay clean for a long time thanks to natural organic biocides that kill mold and bacteria. They are also eco-friendly because they're completely biodegradable. Avoid plastic sponges, as they contain phthalates and glues.

Vacuum

A PROPER VACUUM CLEANER is an essential tool for removing dust from nooks and crannies, and from carpet fibers. I prefer a vacuum with a washable filter rather than vacuum bags so that I don't have to keep vacuum bags on hand, plus it saves money and creates less waste. If you are sensitive to dust, look for a vacuum with a HEPA filter.

Make Your Own Cleaning Solutions

MAKING YOUR OWN CLEANING SOLUTIONS has three big advantages: no toxins, less expense, and less waste. By using ingredients such as tea tree essential oil from a glass bottle, baking soda from a paper box, and real lemons, you skip all the chemicals and plastic packaging. This is important for our health and the planet, and these zero-waste solutions cost a small fraction of the bottled products found in most homes.

For my cleaning solutions, I rely on the following ingredients for their effectiveness, sustainability, and low-waste packaging, and ease of access. Each ingredient has a purpose. Lemon juice and vinegar, for example, have acids that break down oily substances. Abrasives like baking soda and salt offer scrubbing ability. And antimicrobial essential oils kill bacteria, mold, and fungi.

Cleaning Up After Pets

We love our pets but let's face it, they make serious messes. I rely on two special tools to remove toxins created by pets. A black light can locate the mess, and enzymatic cleaners dissolve and remove the biological residue.

Black Light. A black light urine detector is a flashlight that uses UV light to illuminate not only urine but also spray, feces, and vomit residue on carpets and other surfaces. It can be incredibly helpful if you smell something off and can't find the source. Turn off the lights and shine the black light over all surfaces to illuminate the source, and thereafter you can target the site with some deep cleaning.

Enzymatic Cleaners. Biological messes are protein based. Anywhere there are proteins, fungi and bacteria can grow, which means potential pathogens. Enzyme sprays are the most effective treatment for pet gunk. The enzymes break down the proteins so they can be completely removed.

One caveat about essential oils: Remember that they are concentrated and powerful. They can be diluted in cleaning solutions; added to laundry water, or used full-strength in the soil around the house to deter pests. However, if drips of full-strength essential oils are left on paint or varnish, they can erode the surface. I learned this the hard way when a few drops landed on my new washing machine and left pockmarks.

Baking Soda

BAKING SODA, or sodium bicarbonate, is inexpensive and shelf stable for years. I use it in many of my cleaning solutions as a nontoxic abrasive.

Castile Bar Soap

CASTILE SOAP is a soap made from plant oils in a style similar to that originating in the Castile region of Spain. Plus, it is gentle and mild, and doesn't contain harsh surfactants.

Essential Oils

ESSENTIAL OILS are volatile, aromatic oils extracted from plants. Many are potent antimicrobial agents. My favorite antibacterial essential oils are eucalyptus, lemongrass, orange, palmarosa, patchouli, peppermint, and tea tree.

My favorite antifungal essential oils are citronella, geranium, lemongrass, orange, palmarosa, patchouli, and tea tree.

My top choice is tea tree essential oil because it is broadly antimicrobial, effective against bacteria, fungi (including mold), mildew, viruses, and mites, and it can be used in both cleaning solutions as well as personal care products, including toothpaste and deodorant.

When you're working with essential oils, look for organic, and always dilute them, as they are highly concentrated.

Grape Seed Extract

GRAPE SEED EXTRACT, which has virtually no fragrance, is a potent antimicrobial agent. It can be used interchangeably for any essential oil.

Salt

BOTH TABLE SALT AND COARSE SALT work well as gentle abrasives and are especially handy for jobs like scrubbing cast-iron pans.

Washing Soda

WASHING SODA, or sodium carbonate, softens water and helps lift soil from fabrics when used in combination with soap.

White Vinegar

VINEGAR contains acetic acid produced by fermentation via bacteria. It bleaches, cuts grease, and breaks down minerals, such as lime buildup on faucets.

Detox Cleaning Solutions

WITH A FEW SIMPLE INGREDIENTS, you can make all the household cleaning solutions you need. These are four of my go-to formulas; you may alter the recipes to meet your needs once you have tested them. I like to make my solutions ahead of time so I can move through my cleaning chores easily.

Dishwasher Detergent

DISHWASHER DETERGENT is often unnecessary. Dishwashers heat water to at least 140 degrees Fahrenheit, the temperature needed to kill microbes. All you really need is a little baking soda to alkalize the water, which helps remove fats and proteins.

1 tablespoon baking soda

Pour the baking soda into the soap dispenser and run the dishwasher as usual.

The Dirt on Dust

Household dust is not as innocuous as it sounds. The higher the concentration of house dust, the more defensive our immune system gets, and a hyperalert immune system can contribute to a host of health problems. Dust is made up of natural detritus from humans and pets, including skin cells, fur, and hair, as well as tiny particles from fabrics. It's filled with the same chemicals that contaminate our personal care products, clothing, and cookware, such as perfluorooctanoic acid (PFOA) and brominated flame retardants (BFRs).

As mentioned earlier, some of these chemicals raise cholesterol, so removing dust can help reverse high levels for many people. I've had clients with "stubborn cholesterol"—elevated levels that don't come down with dietary changes—whose cholesterol levels dropped once they implemented a home detox and were more mindful about dusting their homes.

Since plastic is so prevalent in most homes, plastic particles are also common in dust, and we end up breathing them in. The phthalates these plastics contain are endocrine-disrupting chemicals that act like hormones in our bodies, sending erroneous messages to cells and confusing our hormone systems. As these nano-plastics make their way into our blood, they also become part of the plaque in our arteries. Perhaps the most surprising way that dust becomes highly toxic is that these plastic particles are *superabsorbent*—they act like sponges that hold on to a wide range of concerning chemicals.

You may find some of the most chemically complex dust in the bedroom. Particulates from foam, pillows, and mattress material are released into the air and onto the floor, where they can become trapped in synthetic carpet fibers. On top of that, fibers from clothing, laden with formaldehyde and heavy metals, also become part of the dust.

Another hidden source of dust are electronics: Most of us use laptops, smartphones, and other electronics throughout the day. Electronic devices that have plastic parts, such as monitors and casings, contain toxic chemicals. As the plastic heats up, it releases tiny particles, which gather in the dust that circulates around the room. Cleaning electronics in the office seems like a no-brainer, but we tend to forget about it because it can be hard to see and accumulates in hard-to-reach places.

Essential Oil Spritzer

WATER AND ESSENTIAL OIL are all you need to add fragrance to a room. If you're feeling creative, mix oils to create your own signature scent.

1 cup water

½ teaspoon essential oils

Combine the ingredients in a spray bottle, shake, and spritz as needed.

Bedbug Treatment

COMMERCIAL BEDBUG TREATMENTS are highly toxic. You can treat a bedbug infestation effectively with oregano or thyme essential oil. The two oils contain monoterpenoids (carvacrol in oregano, thymol in thyme) that have been proven effective in killing and repelling bedbugs.

½ cup water

1 tablespoon oregano or thyme essential oil

Combine the ingredients in a spray bottle and shake well. Mist all areas of the affected mattress with the spray. Open windows to ventilate the room and let the mattress dry. Then vacuum thoroughly to remove dead bugs.



Home Detox Case Study Toxins and Your Kidney Function

I worked with a mother and young daughter who had been diagnosed with reduced kidney function. When I arrived at their home, I discovered many fragranced products: plug-in air fresheners, air-freshening sprays, incense, perfumes, fragranced deodorant and menstrual care products, scented laundry detergent and dryer sheets, scented dishwasher and hand soap, scented candles, and fragranced cleaning products. This was the first clue to the cause of their health issues. Fragranced products contain a long list of toxins that directly affect the kidneys.

We spent several hours removing the fragranced products from the family home. The curtains and carpets were permeated with chemicals. We ran the curtains through several rounds of washing with unscented laundry soap and hot water before they were clean. We called in a carpet cleaning company that used natural enzymes to remove the chemicals from the carpets. All the surfaces in the house were thoroughly washed, including the walls, to remove the layers of chemical residue created by years of emissions from fragranced products.

The entire process took about a week, but it was well worth the effort: kidney function improved for both mother and daughter.

Pan Degreaser

THIS ACIDIC COMBINATION breaks down fats and works well to remove grease buildup on pans and around stove hoods and vents. The solution will last a couple months in a cool, dark cupboard and longer in the refrigerator. Keep in mind, the citrus juice residue can cause mold to develop in the lid of the jar, so I try to use up each batch within a few months.

A few citrus peels

2 cups white vinegar

Drop the citrus peels into a jar and add the vinegar, making sure that the peels are submerged in the liquid. Put on a lid and let the mixture sit for a few weeks so that the acidic vinegar can draw out the oils from the peels. Then remove the peels.

To use, apply a few tablespoons to a clean cloth or scrub sponge and wipe down greasy surfaces. Or pour the solution into a spray bottle, mist onto greasy surfaces, and wipe with a dry cloth.

These recipes are a good first step to minimizing exposures to some of the most common toxins in daily life. With a trained eye, you can begin to identify potential sources of illness and educate others. A passion for healthy living is a beautiful thing for society as a whole; and if kids live in your house, know that you are supporting their health today and into the future, and this means healthier humans for generations to come. Δ

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“I would have ended my life—it was only my art that held me back. Ah, it seemed to me impossible to leave the world until I had brought forth all that I felt was in me.”

—Ludwig van Beethoven, recalling his suicidal depression over his deafness, from *Fire in the Crucible: Alchemy of Creative Genius*, by John Briggs (St Martin’s Press, 1988)

Boost Positivity with Yoga and Power Postures

By Christopher Willard, PsyD



POSITIVE PSYCHOLOGIST and researcher Emma Seppala studied how yoga affected war veterans, and she found reductions in hypervigilance, startle response, breath rates, and regulation months after the yoga class ended. In addition, the yoga-practicing vets experienced fewer anxiety symptoms, such as nightmares and flashbacks. The more expansive yoga postures are usually the most empowering—especially chest-opening postures that deepen the breath, such as Cobra Pose and Upward-Facing Dog.

You don’t have to practice yoga to experience the power of changing your posture to change your mood. Social psychologist Amy Cuddy, PhD, is famous for discovering that the Wonder Woman posture—standing up straight with your hands on your hips—can shift your body chemistry.

Confidently inhabiting your body can help you lead a fuller life out to the edges of your safety zones, which is where we grow. Ask yourself: How do I typically inhabit my body? How far do I stretch it physically? How much space do I occupy? Does it feel safe to do so? What is my body language communicating to others?

Notice your voice and posture throughout the day in different settings, interactions, and activities. Add a power posture or two into a safe time and place in your day and see if there’s a shift internally. Even internally visualizing ourselves in a confident posture can make a difference in how we feel.

If you are physically limited, make these empowering postures in your imagination—research finds it’s almost as good. Δ

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IT'S MORE IMPORTANT THAN EVER to reduce the presence of viruses, bacteria, and mold in our homes. Because most germs and other pathogens are airborne, transmission occurs primarily through shared air rather than through shared surfaces. Plus, constantly cleaning surfaces is time-consuming and only half the battle. Generally, air filtration is passive, taking hours to filter the air, and doing nothing to disinfect surfaces. However, HOCl atomizing works immediately—disinfecting both air and surfaces simultaneously, while also treating hard-to-reach areas.

What is the best way to disinfect the air in your home?

An HOCl atomizer is one of the best and easiest ways to disinfect both air and surfaces. The UX4 atomizer is a sleek, powerful machine that uses ultrasonic technology in combination with fluid control to create a dry mist that turns into microdroplets and gas.

HOCl atomizing eliminates 99.99 percent of germs and allergens, and it removes odors too, allowing you to breathe more easily and reduce illnesses.

The UX4's polished 360° design blends beautifully with any décor. With four spray volumes, interval mode, and soothing adjustable light, it's easy to customize to your personal requirements. The removable tank offers easy refilling and cleaning, providing complete disinfection that's effortless.

What is HOCl?

There's Nothing More Natural or More Effective

HOCl, known as hypochlorous, is simply (H) Hydrogen, (O) Oxygen, and (Cl) Chlorine.

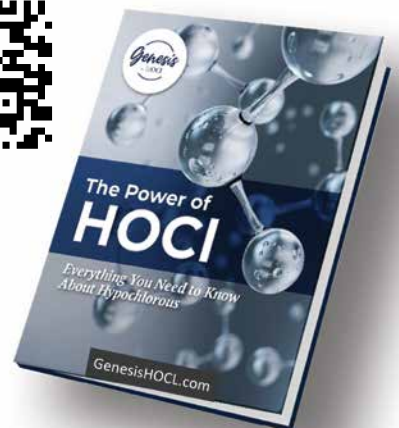
HOCl is found in the human body at the white blood cell level. It's part of our natural immune system helping us fight infection. What could be safer than that?



According to the National Institutes of Health, "HOCl may well be the disinfectant of choice for viruses." Another NIH study indicates HOCl atomizing is the best application technique with its ability to disinfect large areas by producing small, aerosolized particles to control viruses. What's more, HOCl is so safe that the USDA states it can be used as a no-rinse disinfectant in the production of organic fruits and vegetables.

Not all HOCl is created equal. Our HOCl is an EPA-approved, hospital-grade disinfectant and is manufactured through a unique process, using reverse osmosis water, thus eliminating residue.

For more information on hypochlorous atomizing and to see our products in action, please visit <https://genesishocl.com/wellbeingjournal> and download our e-Book, *The Power of HOCl, Everything You Need to Know about Hypochlorous*.



Overcome Matter with Your Mind

Your thoughts have consequences so great that they create your reality.

—Joe Dispenza

By Joe Dispenza, DC

CONNECTING THE DOTS between the outer, physical world of the observable and the inner, mental world of thought has always presented quite a challenge to scientists and philosophers. To many of us, even today, the mind appears to have little or no measurable effects on the world of matter. Although we'd probably agree that matter affects our minds, how can our minds possibly produce any physical changes affecting the solid things in our lives?

Mind and matter appear to be separate, that is, unless there's a shift in our understanding about the way the mind can shape our reality.

Always Matter, Never Mind? Always Mind, Never Matter?

I WANT TO SHARE with you a remarkable study that demonstrates how our thoughts and feelings influence matter. Cellular biologist Glen Rein, PhD, conceived of a series of experiments to test healers' ability to affect biological systems. Since DNA is more stable than substances such as cells or bacterial cultures, he decided to have healers hold test tubes containing DNA.¹

This study took place at the HeartMath Research Center in California. The folks there have conducted extraordinary research into the physiology of emotions, heart-brain interactions, and much more. Essentially, they and others have documented a specific link between our emotional states

and our heart rhythms. When we have negative emotions (such as anger and fear), our heart rhythms become erratic and disorganized. In contrast, positive emotions (love and joy, for instance) produce highly ordered, coherent patterns that HeartMath researchers refer to as heart coherence.

In Rein's experiment, he first studied a group of ten individuals who were well practiced in using techniques that HeartMath teaches to build heart-focused coherence. They applied the techniques to produce strong, elevated feelings such as love and appreciation, then for two minutes, they held vials containing DNA samples suspended in deionized water. When those samples were analyzed, no statistically significant changes had occurred.

A second group of trained participants did the same, but instead of just creating positive emotions (a feeling) of love and appreciation, they simultaneously held an intention (a thought) to either wind or unwind the strands of DNA.

This group produced statistically significant changes in the conformation (shape) of the DNA samples. In some cases, the DNA was wound or unwound as much as twenty-five percent!

A third group of trained subjects held a clear intent to change the DNA, but they were instructed not to enter a positive emotional state. In other words, they were only using thought (intention) to affect matter. The result? No changes to the DNA samples.



— continued on following page

The positive emotional state that the first group entered did nothing by itself to the DNA.

Another group's clearly held intentional thought, unaccompanied by emotion, also had no impact. Only when subjects held both heightened emotions and clear objectives in alignment were they able to produce the intended effect.

An intentional thought needs an energizer, a catalyst—and that energy is an elevated emotion. Heart and mind working together. Feelings and thoughts unified into a state of being. If a state of being can wind and unwind strands of DNA in two minutes, what does this say about our ability to create reality?

Keep in mind, *conscious* positive thinking cannot overcome *subconscious* negative feelings. You may want wealth, you may think “wealthy” thoughts, but if you feel poor, you aren't going to attract financial abundance to yourself. Why not? Because the mind is in opposition to the body (or vice versa) and your message isn't consistent. You're thinking one way and feeling another way. Instead, when mind and body are working together, when our thoughts and feelings are aligned, anything is possible—even on a *genetic* level.

Mind Over Genetics

IN JAPAN, a study was conducted to find out what effect one's state of mind might have on genetic health and disease. The subjects were two groups of patients with type II diabetes, all of whom were dependent on insulin. Remember, most diabetics medicate with insulin to remove sugar (glucose) out of the bloodstream and deposit it in the cells, where it can be used for energy.

At the time of this study, the people involved were being treated with insulin pills or injections to help control their elevated blood-sugar levels.² Each group had their fasting blood-sugar level tested to establish a baseline. Next, one set of subjects watched a comedy show for an hour, while the control group watched a boring lecture. The test subjects then ate a delicious meal, after which their blood glucose levels were checked again.

There was a significant discrepancy between the subjects who enjoyed the comedy show and those who viewed the uneventful lecture. On average, those who watched the

lecture had their blood-sugar levels rise 123 mg/dl—high enough that they would need to take insulin to keep themselves out of the danger zone. In the joyful group, who had laughed for one hour, their after dinner blood-sugar values rose about half that amount (slightly outside of normal range).

Initially, the researchers who performed the experiment thought that the lighthearted subjects had lowered their

sugar levels by contracting their abdominal and diaphragm muscles when they laughed. They reasoned that when a muscle contracts, it uses energy—and circulating energy is glucose. But the research went further. They examined the gene sequences of the jovial individuals and discovered that these diabetics had altered twenty-three different gene expressions just by laughing at the comedy show. Their elevated state of mind apparently triggered their brains to send new signals to their cells, which turned on those genetic variations that allowed their bodies to naturally begin to regulate the genes responsible for processing blood sugar.

Our emotions can turn on some gene sequences and turn off others, this study clearly showed. Just by signaling the body with a new emotion, the laughing subjects altered their internal chemistry to change the expression of their genes.

Story of Transformation

BILL, 57, WAS A ROOFING CONTRACTOR. A lesion had appeared on his face, and a dermatologist diagnosed malignant melanoma. Although Bill underwent surgery, radiation, and chemotherapy, the cancer recurred in his neck, then his side, and finally his calf. Each time, he underwent a similar course of treatment.

Naturally, Bill experienced “Why me?” moments. He acknowledged that his excessive sun exposure was a risk factor, but he knew others who had been similarly exposed and didn't develop cancer. He fixated on that unfairness.

In a moment of self-reflection, Bill realized that for more than thirty years, he had been stuck in resentment, and feeling that he always had to give up what he wanted for the sake of others. For example, he had wanted to become a professional musician after high school. But when an

“The researchers examined the gene sequences of the jovial individuals and discovered that these diabetics had altered twenty-three different gene expressions just by laughing at the comedy show.”

injury left his father unable to work, Bill had to join his family's roofing company.

Whenever something didn't go his way, such as the housing market collapsing just after he expanded the business, he always found someone or something to blame. Bill had so memorized the emotional response pattern of bitterness that it dominated his personality and became an unconscious program. His state of being had signaled the same genes for so long that they had created the disease that now afflicted him.

No longer could Bill allow his environment to control him: the people, places, and influences in his life had always dictated how he thought, felt, and behaved. He sensed that to break the bonds with his old self and reinvent a new one, he would have to leave his familiar environment. So, for two weeks in Baja, Mexico, he retreated from his familiar life.

The first five mornings, Bill contemplated how he thought when he felt resentment. He became an observer of his thoughts and feelings; he became conscious of his unconscious mind. Next, he paid attention to his previously unconscious behaviors and actions. He decided to halt any thought, behavior, or emotion that was unloving toward himself.

After the first week of this vigilance, Bill felt freer, because he had liberated his body from its emotional addiction to resentment. By inhibiting the familiar thoughts and feelings that had driven his behaviors, in a sense he impeded the signals of the survival emotions from conditioning his body to the same mind.

His body then released energy, which was available to use to design a new destiny for himself. For the next week, Bill became so uplifted that he thought about the new self he wanted to be, and how he would respond to the people, places, and influences that previously controlled him.

For instance, he decided that whenever his wife and kids expressed a wish or need, he would respond with more kindness and generosity instead of making them feel like a burden. In short, he focused on how he wanted to think, act, and feel when presented with situations that had challenged him in the past.

He was creating a new personality, a new mind, and a new state of being. Bill began to put into practice what he'd placed in his mind while sitting on that Baja beach. Shortly after his return, he noticed that the tumor on his calf had fallen off. In a week or so, when he went to his doctor, he was cancer free. He has remained that way.



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By firing his brain in new ways, Bill changed biologically and chemically from his previous self. As a result, he signaled new genes in new ways; and those cancer cells couldn't coexist with his new mind, new internal chemistry, and new self. Once trapped by negative emotions of the past, he now lives in a more positive future.

Weird Science: Can the Mind Affect the Past (and One Another)?

IN JULY 2000, Israeli doctor Leonard Leibovici, MD, conducted a double-blind, randomized controlled trial involving 3,393 hospital patients, divided into a control group and an "intercession" group. He set out to see whether prayer could have an effect on their condition.

Prayer experiments are great examples of mind affecting matter at a distance. But stay with me here, because everything is not always what it seems. Leibovici selected patients who had suffered sepsis (an infection) while hospitalized. He randomly designated half of the patients to have prayers said for them, while the other half were not prayed for. He compared the results in three categories: how long fever lasted, length of hospital stays, and how many died as a result of the infection.

The prayed-for benefited from an earlier decrease in fever and a shorter hospitalization time; the difference in the number of deaths among the prayed-for and not-prayed-for groups was not statistically significant, although greater in the prayed-for group.

That's a powerful demonstration of the benefits of prayer and how we can send an intention out through our thoughts and feelings. However, there's one additional element to this story that you should know about. Did it strike you as slightly odd that in July 2000, a hospital would have more than 3,000 cases of infection at once? Was it a very poorly sterilized place, or was some kind of contagion running rampant?

It turns out, those who were praying weren't praying for patients who were infected in 2000. Instead, unbeknownst to them, they were praying for lists of people who had been in the hospital from 1990 to 1996—four to ten years prior to the experiment. The prayed-for patients actually got better during the 1990s from the experiment conducted years later. Let me say this another way: the patients who were prayed for in 2000 all showed measurable changes in health, but those changes took effect years before.

A statistical analysis of this experiment proved that these effects were far beyond coincidence. This demonstrates that our intentions, our thoughts and feelings, and our prayers not only affect our present or future, but they can actually affect our past as well.

Now, this leads to the question: if you were to pray (or focus on an intention) for a better life for yourself, could it affect your past, present, and future? Quantum law says that all potentials exist simultaneously. Our thinking and our feelings affect all aspects of life, beyond both space and time. Δ

AS AN AUTHOR of several scientific articles on the close relationship between the brain and the body, Joe Dispenza, DC, explains the roles played by brain chemistry and neurophysiology in physical health and disease. In his research into spontaneous remissions, Dispenza has found similarities among people who have experienced so-called miraculous healings, showing that they have actually changed their minds, which then changed their health. When not traveling and writing, Dispenza is busy seeing patients at his chiropractic clinic near Olympia, Washington. He can be contacted at: www.drjoedispenza.com.



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"Intelligence. We must do away with the absolutely specious notion that everybody has to earn a living. It is a fact today that one in ten thousand of us can make a technological breakthrough capable of supporting all the rest. The youth of today are absolutely right in recognizing this nonsense of earning a living. We keep inventing jobs because of this false idea that everybody has to be employed at some kind of drudgery because, according to Malthusian-Darwinian theory, he must justify his right to exist.... The true business of people should be to [learn more] and think about whatever it was they were thinking about before somebody came along and told them they had to earn a living."

—R Buckminster Fuller, in an interview by Elizabeth Barlow, conducted with a panel of thinkers concerned with social responsibility originally published in *New York Magazine* March 30, 1970, page 30.

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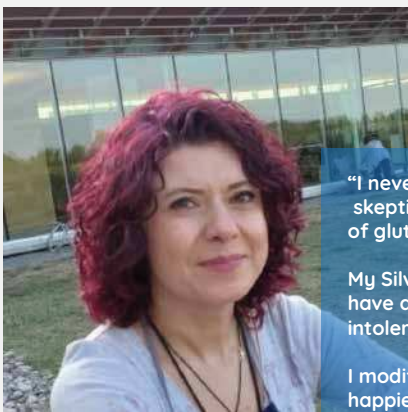
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Natural High: Meditation, Diet, and the Power of Touch

By Dawson Church, PhD

CANNABINOIDS are psychoactive compounds that are used in both medical and recreational settings to achieve elevated emotional states. Plant-derived cannabinoids, such as the THC found in marijuana, are called phytocannabinoids. *Few people are aware that our bodies also produce cannabinoids naturally.* These are referred to as *endocannabinoids*.

Our brains have receptors specific to cannabinoids—similar to a lock and key. The endocannabinoids and their receptors comprise what is known as the endocannabinoid system. This system plays a role in appetite, pain, inflammation, sleep, stress, mood, memory, motivation, and reward.

There are two types of receptors: Cannabinoid receptor 1 (CB1) and cannabinoid receptor 2 (CB2). CB1 receptors are primarily in brain regions involved in limb control, posture and balance, learning, and memory. CB2 receptors are found in immune tissues, such as the tonsils and spleen.

Low endocannabinoid levels in the human body have been linked to major depression, generalized anxiety disorder, PTSD, multiple sclerosis, attention deficit/hyperactivity disorder, Parkinson's disease, fibromyalgia, and sleep disorders.

The health benefits of activating your endocannabinoid system are extensive, including:



- Stress control
- Anxiety reduction
- Increased optimism
- Improved concentration
- Drop in hyperactivity
- Lower cortisol
- Increased neurogenesis
- Thicker myelin insulators around nerve cells
- Improved sleep
- Reduced impulsivity
- Mood improvement
- Reduced inflammation
- Fewer headaches
- Decreased activity in the amygdala (the brain's fear relay)

Among the methods for boosting your endocannabinoid system are eating plenty of fruits and vegetables. Particularly potent endocannabinoid boosters include olive oil, green tea, probiotics, dark chocolate (it contains *anandamide*), and foods rich in omega-3 fatty acids (they upregulate both CB1 and CB2).

Anandamide: The Bliss Molecule

Anandamide is known as the joy chemical. It has also been called “the brain’s own marijuana” and “the bliss molecule.” Research has demonstrated that anandamide is involved in the neural generation of pleasure and motivation.

Anandamide can also improve cognitive function, motivation, learning, and memory, while triggering the growth of neurons in the brain centers that govern those functions.

A blissed brain is a learning brain; meditation cements our feel-good experiences into brain hardware through increasing neuroplasticity. Anandamide also relieves anxiety and depression while stimulating closeness and connection with others.

The endocannabinoid systems can also be boosted by our behaviors. These include reducing stress, exercising (activates the endocannabinoid system), and deep meditation (raises your level of anandamide).

One of the most fun ways to enhance anandamide is through the *power of touch* and release of oxytocin. In a fascinating series of experiments, Don Wei and colleagues at the University of California-Irvine demonstrated that oxytocin spikes anandamide. Engage in social behavior

and “oxytocin-driven anandamide signaling” kicks in. What a bargain—two pleasure neurochemicals for the price of one.

Why Not Just Use Phytocannabinoids?

IF YOU CAN ACHIEVE an elevated brain states using phytocannabinoids and drugs, why not just smoke an herb or pop a pill rather than taking time to meditate? You don’t have to be a mathematician to compare the level of effort required of meditators with drug users: hours of meditation versus one pill. Why not the pill?

Two words: side effects. Chemically induced joy comes at a cost. That cost can be high. One study found that adolescents who smoke just a couple of joints show changes in their brains. That’s not a couple of years of smoking marijuana or the decades that some adults rack up. It’s just two joints. If adolescents continue smoking marijuana for five years, they lose progressively more neurons in the planning, decision-making, learning, and memory regions of the prefrontal cortex.

A research team led by Gabriella Gobbi, MD, PhD, discovered that teenagers using cannabis had a nearly forty percent greater risk of depression and a fifty percent greater risk of suicidal ideation in adulthood.

The research that revealed these startling numbers was not just a single study of adolescent marijuana use. It was a meta-analysis and review of eleven studies with a total of 23,317 teenage subjects followed through young adulthood.

Further, Gobbi’s team only reviewed studies that provided information on depression in the subjects prior to their cannabis use. “We considered only studies that control for [preexisting] depression,” said Gobbi. “They were not depressed before using marijuana, so they probably weren’t using it to self-medicate.” In other words, marijuana use *preceded* depression.

In adults with prolonged marijuana use, the wiring of the brain degrades. Areas affected include the hippocampus (learning and memory), insula (compassion), and prefrontal cortex (executive functions). The authors of one study stated that “regular cannabis use is associated with gray matter volume reduction in the medial temporal cortex, temporal pole, parahippocampal gyrus, insula, and orbitofrontal cortex.”

Study authors continue, “These regions are rich in cannabinoid CB1 receptors and functionally associated with motivation, emotional, and affective processing. Furthermore, these changes correlate with the frequency of cannabis use...age of onset of drug use also influences the magnitude of these changes.”

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I'd like to flip the "why not use phytocannabinoids" questions on its head. *Why use them?*

Your own body synthesizes the chemicals to produce an elevated state all by itself. It does this in concentrations that are not harmful, are in perfect balance, have the correct ratios one to another, degrade effortlessly when they are no longer needed, create no hangover, and produce no side effects.

When a more blissful state can be achieved daily, consistently, safely, and on demand, why seek exogenous sources?

A Native American medicine woman told me that in her Twisted Hair clan, one of seven that make up the Cherokee nation, teachings about psychoactive herbs or "plant medicine" are passed from generation to generation. She said, "If you take plant medicine, you can have the [enlightenment] experience. But you will not grow as a human being unless you learn to create the experience within yourself."

Power of Touch

TOUCH DOESN'T JUST FEEL GOOD. It can produce invisible but pervasive healing effects in your body. Oxytocin deactivates glutamate—the most excitatory of neurotransmitters—making you feel calmer and more emotionally balanced. It stimulates the release of nitric oxide in your blood vessels, improving circulation.

To test the physical effects of oxytocin, a group of researchers administered psychological and physical tests to thirty-four married couples. Half were randomized into a control group that kept a diary of their moods and levels of physical affection.

The experimental group were taught a technique called "listening touch." They tuned into their partner's mood by touching the partner's neck, shoulders, and hands. They did this both back-to-back and facing each other.

Men and women alternated giving and receiving "listening touch." They practiced for four weeks at home, thirty minutes three times per week, then went back into the lab for a second set of tests.

The researchers found that touch was producing oxytocin as expected. But as the hormone flowed through the blood vessels of the husbands, it triggered the production of nitric oxide. This lowered their blood pressure and the beneficial effects persisted for a whole day.

Oxytocin can even produce bonding between species. One study demonstrated that when a person and a dog interact, oxytocin is released in both species. The levels increase as they gaze affectionately at each other, similar to a couple in love. The longer they gaze, the more oxytocin is released, stimulating yet more gazing.

Boost Brain Health with Loving-Kindness Meditation

MEDITATION is good way to raise your anandamide and oxytocin levels, and research shows that loving-kindness produces more beneficial brain changes than other types of meditation.

Specifically, a study comparing a non-meditating group with groups doing mindfulness and loving-kindness meditation found marked differences between the three. The researchers measured telomeres—the "end caps" of chromosomes. These are regarded as among the most reliable biological marker of aging since they get shorter by about one percent per year.

Those in the loving-kindness group "showed no significant telomere shortening over time." Those in the mindfulness group fell between the compassion group and the no-meditation group.

Regardless of the meditation type, you don't need to be a Tibetan monk to experience benefits, and the results can be immediate. Early studies showed that eight weeks of mindfulness meditation had an effect, and later studies suggested that even four weeks made a difference.

A startling study performed by investigators at the University of North Carolina showed that just four days of meditation were associated with increased cognitive flexibility, creativity, memory, and attention. The lead researchers said that these "profound improvements" were "really surprising" and that they are "comparable to the results that have been documented in far more extensive training."

A study of beginning meditators found that their practice became progressively more enjoyable and easier during ten weeks of meditation. This held true whether they used a loving-kindness style meditation, observed the flow of their thoughts, or focused on the breath.

In terms of structural changes, a research group at Harvard University examined the effect of twenty-seven-minute guided mindfulness sessions over the course of eight weeks. They found increases in the gray matter in regions of the brain related to emotional regulation, learning, memory, perspective taking, and sense of self. Yet in just a few minutes, observable changes take place. After just the first eight minutes of mindfulness, attentional focus improves.

Ultimately, keep up the meditation for months—then years—and the very structure of the brain changes fundamentally. From the first few minutes of meditation to the ten-thousandth hour, your brain continues evolving.

Role of Meditation in Emotional Contagion and Heart Coherence

DID YOU KNOW that a single happy person makes the people around them happier by thirty-four percent? Those affected in turn make others happier—by fifteen percent. The ripple keeps spreading, with the next layer happier by six percent.

Do negative people spread emotional contagion too?

Yes, but negativity has less clout than positivity. Having an unhappy connection increases your chances of unhappiness by just seven percent.

The fourteen percent of the US population who are meditating, and the large numbers doing so worldwide, produce positive emotional contagion in many more.

Emotional contagion is just one explanation for the growth of meditation. Another is field effects. Everything begins as energy, then works its way into matter. Though energy fields are invisible, they shape matter. Albert Einstein said, “The field is the sole governing agency of the particle.”

Many studies show that human beings are influenced by the energy field of others. In a series of 148 one-minute trials involving twenty-five people, trained volunteers going into heart coherence were able to induce coherence in test subjects at a distance. They didn’t have to touch their targets to produce the effect. Their energy fields were sufficient.

When you are in a heart coherent state, your heart radiates a coherent electromagnetic signal into the environment around you. This field is detectable by a magnetometer several meters away. When other people enter that coherent energy field, their heart coherence increases too, producing a group field effect.

Meditation can be a powerful tool to help promote positivity and coherence—accelerating the trend toward human thriving and providing a substrate of compassion that turns consciousness away from conflict. Δ

DAWSON CHURCH, PHD, is an award-winning author whose best-selling book *The Genie In your Genes* has been hailed by reviewers as a breakthrough in linking emotions and genetics. His follow-up title *Mind to Matter* reviews the science of peak mental states. He has conducted dozens of clinical trials, and founded the National Institute for Integrative Healthcare to promote groundbreaking new treatments.



Well Being Journal adapted the above excerpt from *Bliss Brain: The Neuroscience of Remodeling Your Brain for Resilience, Creativity, and Joy* by Dawson Church, PhD. Copyright 2020 by Dawson Church and reprinted with permission by Hay House, Inc.

Shining a Green Light on Migraine Prevention Strategies

RESEARCHERS at The University of Arizona Health Sciences recently completed a clinical study evaluating green light as a potential preventive therapy for migraine sufferers.

“Migraine is one of the most common neurological conditions in the world, and it’s debilitating,” noted Mohab Ibrahim, MD, PhD, lead study author and associate professor at the UArizona College of Medicine.

Twenty-nine participants, all of whom had failed multiple traditional therapies for migraine, were prescribed green light exposure as part of the study. “In this trial, we treated green light as a drug,” Ibrahim said. “It’s not any green light; it has to be the right intensity, the right frequency, the right exposure time and the right exposure methods. Just like with medications, there is a sweet spot with light.”

Using a numeric pain scale of 0 to 10, participants noted that exposure to green light diodes resulted in a sixty percent reduction in pain, from 8 to 3.2. Green light also shortened the duration of headaches and improved the participants’ ability to fall and stay asleep, perform chores, exercise, and work.

“Despite recent advances, the treatment of migraine headaches is still a challenge,” said Amol Patwardhan, MD, vice chair of research in the Department of Anesthesiology. “The use of a nonpharmacological therapy such as green light can be of tremendous help to a variety of patients that either do not want to be on medications or do not respond to them. The beauty of this approach is the lack of associated side effects.”

The noninvasive, low-risk nature of green light makes it a promising candidate for other neurological conditions, such as fibromyalgia or HIV-related pain. “As a physician, now I have another tool in my toolbox to treat two of the most difficult neurological conditions—migraine and fibromyalgia,” Ibrahim added, “so that’s very exciting.” —KG

—Adapted from “Shining a Green Light on a New Preventive Therapy for Migraine.” Originally published at <https://healthsciences.arizona.edu/>

Reverse Trauma with Compassion

By Christopher Willard, PsyD

THE INCREDIBLE THING about helping is that it has an exponential effect, rippling outward toward others. In fact, when we do something kind and generous, it may well come back around, science shows. We are likely to be compassionate when we feel safe and secure, but acting compassionately helps us feel safe, secure, and happy. It's hard to say where it all begins.

We used to think about only nature and nurture—genes or environment—with regard to our physical and mental health. The relatively new field of epigenetics; however, has shaken up more than a century of genetic science. Simply put, epigenetics explores the way our genes express themselves in relation to our experiences.

Through the epigenetic lens, we're learning that how we respond to the large and small stresses of life may impact our children and grandchildren at the genetic level.

Our ancestors' experiences may have reshaped their DNA, which expressed itself in new ways that were passed down to us. Take a look at your family tree: many of our ancestors experienced war, slavery, genocide, and/or poverty. These historic traumas and stresses may have altered the DNA we're now walking around with today. The way we respond to stress—with optimism or pessimism, fear or generosity—is likely to be shaped by these same genetic influences.



A team of researchers took a group of happy, well-adjusted, genetically identical mice and stressed half of them. The affected mice, not surprisingly, acted differently than the mice that lived a low-stress life of eating, napping, and performing low-impact hamster wheel workouts every day.

When the researchers tested the stressed mice, they found parts of their DNA had actually activated as a result of the stress. What's more, those genetic and behavioral changes were passed down even to the grandchildren of the mice, who were born with the genetic changes.

As James Potash, MD, who led a study at Johns Hopkins University, put it, "If you think of the stress system as preparing you for fight or flight, you might imagine that these epigenetic changes might prepare you to fight harder or flee faster the next time you encounter something stressful."

Pass on Better Genes to Future Generations

MAYBE YOU HAVE LIVED through some traumas, but you ended up getting help, went to therapy, or worked on your issues before your DNA began to change its expression. Maybe you laughed with friends, got a good night's rest, ate a healthy breakfast, and pulled onto the highway feeling well regulated.

Cortisol isn't jamming your system and oxytocin is flowing, so you can access your compassion as you drive. Now, say someone cuts you off, honking and speeding past. Rather than getting stressed, you consider their possible circumstances and wave the driver into the lane.

Just after that, some amazing things happen, inside and out. Your brain's neuroplasticity forges a new pathway, hardwiring the new habit, making it more likely you'll be kind and generous tomorrow, too. There's a boost of serotonin, which regulates mood and anxiety. You also get a dose of oxytocin—that warm, fuzzy "love" hormone that stays elevated for a few hours—and dopamine, another feel-good reward neurotransmitter that helps build habits.

In other words, generosity and compassion regulate mood and anxiety and make us feel safe enough for compassion. We also feel good when we do a good deed, because we're activating and building the parts of our brains associated with connection and trust. We are truly acting our way into a new way of feeling and thinking.

Social Contagion Effect

THE SOCIAL CONTAGION EFFECT, observed by Emory University's James Fowler and Yale's Nicholas Christakis, shows that acts of kindness and generosity spread from one person to the next. In numerous studies, they demonstrated that merely observing acts of generosity inspires a ripple effect of "downstream reciprocity" in others up to three degrees of separation from you.

Researchers have also observed many of the same neurotransmitters in both givers and receivers of kindness, although there's a greater amount in the givers. In one study, researchers asked subjects to spend five dollars either on themselves or someone else. To the surprise of the researchers and subjects, those who gave away the five dollars felt better than those who spent the money on themselves. Neuroscientist Richard J Davidson has said, "The best way to activate positive-emotion circuits in the brain is through generosity."

When you do something as simple and seemingly small as waving another driver to go ahead of you, you're happier and more optimistic. Instead of passing mean genes onward to future descendants, you pass along resilient, regulated ones. Plus, your behavior ripples outward

by at least three degrees of separation and downward by at least three generations via gene expression. This is truly the start to becoming a good ancestor, literally and figuratively. Δ

CHRISTOPHER WILLARD, PSYD, is a clinical psychologist at Harvard Medical School and author of more than eighteen publications for children and adults. An international speaker and mindfulness educator, his books include *Growing Up Mindful* and *Raising Resilience*.

Well Being Journal adapted the above excerpt from *How We Grow Through What We Go Through* by Christopher Willard, PysD. Copyright 2022 Christopher Willard and reprinted with permission of Sounds True.



Change Your Attitude, Change Your Genes

We are not victims of our genes, but masters of our fates, able to create lives overflowing with peace, happiness, and love.

By Bruce Lipton, PhD

SINCE THE DAWNING of the Age of Genetics, the common opinion has been that DNA determines so much of who we are—from eye and hair color to susceptibility to certain addictions, disorders, and even cancer. To this day, millions of people believe they are victims of heredity, and attribute poor health to inevitable biochemical mechanics rather than a combination of mental, physical, emotional, and spiritual causes.

There is no doubt that some diseases, such as Huntington's chorea, beta thalassemia, and cystic fibrosis, can be blamed entirely on one faulty gene. But single-gene disorders affect less than two percent of the population; the vast

majority of people come into this world with genes that should enable them to live a happy and healthy life. The diseases that are today's scourges—diabetes, heart disease, and cancer—short circuit a happy and healthy life. These diseases, however, are not the result of a single gene, but of complex interactions among multiple genes and environmental factors.

Correlation Versus Causation

THE CONFUSION OFTEN OCCURS with the misunderstanding of two words: correlation and causation. If I show you my keys and say that a particular key “controls” my car,



you at first might think that makes sense because you know you need that key to turn on the ignition. But does the key in fact “control” the car? If it did, you couldn’t leave the key in the car alone because it might just borrow your car for a joy ride when you are not paying attention. In truth, the key is “correlated” with the control of the car; the person who turns the key actually controls the car.

In other words, specific genes are *correlated* with an organism’s behavior and characteristics. But these genes are not activated until something triggers them.

The notion that genes control biology has been so frequently repeated for such a long period of time that scientists have forgotten it is a hypothesis, not a truth. In reality, the idea that genes control biology is a supposition that has yet to be proven and, in fact, has been undermined by the latest scientific research.

Mind-Over-Genes

THE SCIENCE OF *EPIGENETICS*, which literally means “control above genetics,” has profoundly changed our understanding of how life is controlled.

Epigenetic research has established that DNA blueprints passed down through genes are not set in concrete at birth. Genes are not destiny! Environmental influences, including nutrition, stress, social engagement, and emotions, can modify those genes without changing their basic blueprint.

For example, UCLA epigeneticist Steve Cole, PhD, studied the effect of social engagement on gene expression and risk for disease. Cole has discovered that whole sectors of genes look markedly different in lonely people versus people who are socially secure. “If you measure stress, using our best available instruments, it can’t hold a candle to social isolation. In fact, social isolation is the best-established, most robust social or psychological risk factor for disease out there. Nothing can compete,” he told *Pacific Standard* magazine.

Of the approximately 19,000 human genes, lonely and not-lonely people showed sharply different gene expression responses in 209 genes, many of which play roles in inflammatory immune responses. Cole reasoned that if social stress reliably created this gene profile, it might

explain the results of his earlier studies in which lonely HIV carriers succumbed so much faster to the disease than socially active HIV carriers.¹

In another study, Cole and collaborators found a similarly unbalanced gene expression and immune response profile in groups of impoverished children and depressed patients with asthma. The team discovered that immune functions in poorer kids had more active inflammatory genes and, simultaneously, expressed more sluggishness in gene networks that control the inflammation response than well-to-do children.

The health histories of the poor kids also showed more asthma attacks and other health problems. Though poverty seemed to be interfering with the behavior of their immune systems, Cole’s team suspected other factors at work. So, they showed the kids films of ambiguous or awkward social situations and asked them how threatening they found them. On average, the poor kids perceived more threat; the well-off children perceived less. But some kids in both groups were outliers: a few of the poor kids saw very little menace in the ambiguous situations and a few well-off kids saw a lot.

When the results of individuals with perceptions of insecurity were separated from the socioeconomic scores and laid over the gene-expression scores, the data showed that it

was really the kids’ perceptions of their vulnerability, their perceptions of how scary the world is, not their income levels, that accounted for most of the difference in immune gene expression. In fact, when controlled for variations in threat perception, poverty’s influence almost vanished.²

The question of why the kids found the world so scary was outside the subject of that study, but Cole believes that isolation plays a key role, a hypothesis buttressed by a study in which Yale psychiatrist Joan Kaufman studied fifty-seven school-age children who had been removed from abusive homes.

The study measured the serotonin transporter gene (SERT)—which has both a long and short form—because previous studies had found that people who carry the short SERT are more likely to become depressed or anxious when stressed.

“Of the approximately 19,000 human genes, lonely and not-lonely people showed sharply different gene expression responses in 209 genes, many of which play roles in inflammatory immune responses.”

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The kids with the short SERT did in fact suffer twice as many mental health problems as those with the long variety. But there were unexpected results as well. When Kaufman laid both the kids' depression scores and their SERT variants across their levels of social support (defined as contact at least once monthly with a trusted adult figure outside the house), that seemingly paltry (ie, once a month) social connection erased about eighty percent of the combined risk of the depression related short SERT variant.³

Ultimately, belief modification can induce rapid changes in gene activity. When individuals raise their levels of optimism and deepen their social connections, they not only raise their level of happiness, but also dramatically improve every single business and educational outcome tested for.

Mindset Matters

CURRENT RESEARCH echoes another amazing mind-over-genes experiment, conducted more than thirty years ago, of eight men in their seventies who were dropped off at the front entrance of a converted monastery in New Hampshire. A few of them were stooped with arthritis, and two walked with canes. When they entered the building, they walked into a time warp.

Music on a vintage radio played tunes from 1959, black-and-white programs on the TV showed archived videos of old programs, such as *The Ed Sullivan Show*, books on the shelves and scattered magazines lying around were all from the same period. This became the men's home for a five-day, radical experiment designed by Harvard psychologist Ellen Langer.

During their stay, the test subjects reminisced and engaged in conversations about events and sports of that time period. Measurement of the men's dexterity, grip strength, flexibility, hearing and vision, memory, and cognition—all testable biomarkers of age—were assessed before they arrived, and the men were retested at the end of their stay.

By several measurements, they outperformed a control group that came to the monastery but did not participate in the time warp experiment. The experimental group was more supple, possessed greater manual dexterity, and sat taller. Most unexpectedly, their sight improved, and independent judges acknowledged that they looked younger. Langer remarked that the men had “put their mind in an earlier time,” and their bodies went along for the ride.⁴

The BBC recreated Langer's experiment in a four-part broadcast called *The Young Ones*, this time engaging six aging former celebrities as the test subjects. These men were transported in vintage cars to a country house meticulously retrofitted to represent a 1975 home. After a week

of reliving and sharing thirty-five-year-old news and sports stories, the aging celebrities showed the same marked improvement on test assessments as the rejuvenated septuagenarian participants in Langer's New Hampshire experiment.

One of the test subjects who had arrived in a wheelchair walked out with a cane. Another individual who could not put his socks on without assistance when he arrived hosted the final evening's dinner party, easily moving around with enthusiasm and purpose. Those who stooped when they first arrived left walking taller and looked younger.⁵

The production was nominated for a British Emmy and renewed interest in Langer's research, which is currently being expanded through a variety of approaches, all of which are measuring how a change in the perceptions can lead to physiologic and mental “youthing.” Psychologist Jeffrey Rediger, a Harvard colleague of Ellen Langer, acknowledged, “health and illness are much more rooted in our minds and in our hearts and how we experience ourselves in the world than our models even begin to understand.”

In another mind-bending study, this one about weight loss, researchers told half of the cleaning staff at seven hotels that they were burning lots of calories in their daily work, enough to satisfy the Surgeon General's recommendations for an active lifestyle; the other half did not hear that positive news.

“Although actual behavior did not change, four weeks after the intervention, the informed group perceived themselves to be getting significantly more exercise than before.” And in fact, those who perceived that they were getting more exercise lost weight and lowered their blood pressure, body fat, waist-to-hip ratio, and body mass index.⁶

The evidence that belief exerts a powerful influence over physiology, gene expression, and behavior has led epigeneticist Cole to conclude: “To an extent that immunologists and psychologists rarely appreciate, we are architects of our own experience. Your subjective experience carries more power than your objective situation.”

Biology of Belief

ELECTROENCEPHALOGRAPH (EEG) analyses suggest that our thoughts are an internal process that is of profound influence in shaping the interior of the body. EEG studies illustrate how the mind's expression of positive and negative thoughts shape the behavior of the body's internal milieu (cells, tissues, and organs).

Interestingly, magnetoencephalograph (MEG) assays offer profoundly different insights than are offered by EEG



assessments. Specifically, EEG activity is read via electrodes attached to the scalp because the electrical activity of the brain's neurons is physically conducted to the skin overlying the skull. The MEG apparatus, however, reads brain activity using a probe that does not even touch the head or body. This is truly an important finding since it reveals that our thought processes are not contained in the head, but they are "broadcast" out into the environment.

The point is significant because positive and negative thinking not only shape our internal experiences but also shape our interactions with the external world. That is to say, consciousness shapes our life experiences, both internally as it influences health and externally as it shapes our worldly experiences.

The conclusion is profound: We can experience personal empowerment. By assessing our thoughts, and then through editing and reversing negative thoughts, we can manifest a healthy, happy, and harmonious life. Today, physics, biology, and psychology collectively demonstrate the power of your own consciousness in creating the life you want.

A master once said to those who wanted to learn, "You can do all the miracles that I can do, even better than I can...but you must have belief." In other words, to transform our world, we must transform our thoughts! The influence of positive thinking is real, and now more than ever, necessary. Heaven on Earth is just a thought away.⁷ Δ

BRUCE H LIPTON, PhD, cell biologist and lecturer, is an internationally recognized leader in bridging science and spirit.

Bruce was on the faculty of the University of Wisconsin's School of Medicine and later performed groundbreaking stem-cell research at Stanford University. He is the best-selling author of *The Biology of Belief*, *The Honeymoon Effect*, and *Spontaneous Evolution*. In 2009, Bruce received the prestigious Goi Peace Award (Japan) in honor of his scientific contribution to world harmony. Learn more at www.brucelipton.com



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References available at the following website address:
<https://www.brucelipton.com/product/the-biology-of-belief/>

"If you look deeply into the palm of your hand, you will see your parents and all generations of your ancestors. All of them are alive in this moment. Each is present in your body. You are the continuation of each of these people."

By Thích Nhất Hạnh

From *A Lifetime of Peace: Essential Writings by and about Thích Nhất Hạnh* by Jennifer Schwamm Willis New York: Marlowe & Company (2003)

The Mindful Kitchen

By Jules Blaine Davis

FREEDOM IS AN INSIDE JOB. It begins with checking in with yourself. It begins with lighting the fire, finding your breath, and feeling your feet. When you nourish you, you become what you need. You become full, light, and hungry for more.

When preparing the following recipes, anchor your mind in the present moment, tune your senses on the ingredients, and let your intuition guide your way.

Jam Egg with Toast

EGGS KNOW HOW TO BREAK OPEN. With the support of fire and the right tools, you can make something soft and delicious with salted butter, jam, and toast.

What I love about this recipe is it works for all times of the day. You can have it for breakfast, lunch, dinner, or as a snack—you never know when you might want to break open the incredible adventure that is your life.

Tools

- Stainless steel sauté pan
- A small glass bowl
- Spoon
- Stainless steel spatula or wooden spoon
- Wide bowl

Gather

- Salted butter you love
- Local organic eggs (always)
- Sea salt
- Organic raw cream (optional)
- Bread you love
- Local seasonal jam



In the Bowl

- Sautéed kale
- Avocado
- Raw, unfiltered honey
- Goat or parmesan cheese
- Nut or seed butters (optional)
- Thinly sliced heirloom tomato
- Smoked salmon
- Prosciutto

As you turn on the stovetop, bring the dial to just before medium, place a little butter in the pan. While the pan is warming, gather your eggs and crack them in your glass bowl. Feel the shell inside of you cracking, too.

You can put a bowl near you for the empty shells. I crush them up for my chickens as eggshells help their beaks get stronger.

Look at those little suns! Like the yolk inside of you, bright and beautiful, these big yellow eyes are waiting to be stirred round and round—adding air to give it the breath and softness you will need. The more you mix, the more air they will receive and the softer they will be.

Pour the eggs into the warm pan and bring the stove to low. Stir slowly with the spatula, adding a little salt or even cream here. You can also add shredded parmesan, goat gouda, or any hard cheese.

Feel your feet as you watch what is raw create a shape that is light and airy. Toast your bread in the oven or on a cast-iron pan. Make sure your butter is soft so it will be easy to spread. Bring the jam out and a small wood spoon to scoop it out. Serve in a wide bowl with any additions you love. Offer this goodness to yourself as you nourish the healer inside you.

Mindfulness Tea

Tools

- Kettle or pot you love
- Favorite cup or mug
- Steeper or sieve for loose-leaf tea
- Small plate to rest the steeper
- Spoon long enough for the honey pot
- Cozy to keep the heat in and to rest your warm cup in your hand

Gather

- Organic loose oolong tea
- Boiling spring water
- Raw, unfiltered sage honey
- Organic raw cream, or any milk you love
- A bowl or little plate you love



As you fill the kettle, you invite yourself into this moment right here. Slow it way down as you put the kettle on high heat. Reach for a vessel you love, a shape that fits your hand so you can feel the warmth in your palm. Making tea takes a moment, so you can too.

Take this time to breathe, in through your nose and exhale through your mouth. Loosen your jaw and feel your body settle. Gather your tea and place it in your cup. I see you preparing this in your tea area. If you don't have a tea area yet, you can make one—a place where the honey, the spoons in a glass jar or drawer, perhaps the cups, and of course the tea, are all gathered for this moment.

When everything is in the same place and accessible, there is an ease that permeates the experience, and your life.

Gather a spoon, the honey, and cream. Once the water boils, it is ready to pour in your vessel. Leave room at the top, and use your empty bowl to rest your sieve or tea bag after it has steeped. You want everything to happen in this one place. Making this tea will restore and reconnect you to the beginning of the day, again and again.

I start the day feeling the love right here with my body and this warm milky tea. I let my tea steep for a bit, covered with a tea cozy to keep the warmth in, as I like to use this time to sit and breathe.

Once the tea has steeped—about five minutes or so—I add honey first, then cream. I stir it all together. Keep tasting and stirring and finding what you love. I love sharing this love with you.

Tip: If using a teabag rather than loose leaf, be mindful that the teabag doesn't contain microplastic that will leach into the freshly boiled water.

Hydrating Summer Beauty Water

THIS BEAUTY WATER is one thing you don't have to go to the spa for. I mean, what are you waiting for? Having this in the fridge, on the kitchen island, or in the center of the dining room table says: "Hello! Come sit and enjoy this moment of your life."

Oh, and we need so much more water than we are currently drinking, so here is a loving invitation to drink more water with beauty.

Tools

- Glass pitcher, carafe, or vessel you love
- Long wood spoon
- Knife
- Wood board
- Open bowl or compost bucket
- Ball jars or glasses

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Gather

- Seasonal herbs, fruits, and veggies you can find at your local farmer’s market
- Fresh spring water

Apple peel with rosemary, watermelon with basil, or cucumber with mint are gorgeous combinations, but you will know the way to your own beauty water. One thing that will support you in creating this is making it accessible—have your fruits in a bowl near the knives and cutting board—an active altar to something you love to make. This will inspire you to make it more than once. Enjoy! Δ

JULES BLAINE DAVIS, THE KITCHEN HEALER, is a TED speaker and one of Goop’s leading experts on women’s healing. She has led transformational gatherings and retreats for over fifteen years. To learn more, visit julesblainedavis.com and soundstrue.com.



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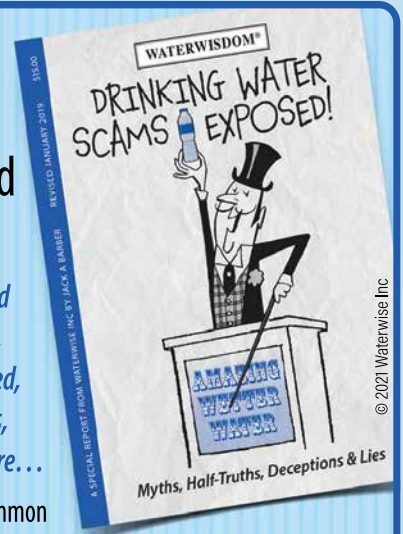
Learn more about the health benefits of apple peels, rosemary, and watermelon on pages 43 to 52.

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Seven Ways to Rewild Yourself

By Micah Mortali

WE EVOLVED IN INTIMATE CONTACT with the land, the seasons, and nature. Rewilding re-acquaints us with our environment and ourselves. It draws us out to experience the sweetness of a freshly picked wild berry, the interspecies connection we make when we come eye to eye with a wild creature, and the fellowship of friends sitting on the earth sharing stories of their day.

Rewilding calls us from our indoor environments and virtual worlds and asks us to adapt to the real world, the natural world. It helps us recover and enliven our senses, which may have been dulled by staying largely indoors.

By stepping outdoors, lifting our noses to the sky, smelling the wind, taking a long view, and becoming students

of nature, we can better discern the wisdom of nature and remain close to it. Here are a few ways we can connect more with nature, no matter where we live:

Take Off Your Shoes

LIFE-FORCE DEFICIT is a loss of sensory stimulation from the ecosystems and life-forms that our nervous system evolved with. Addressing this loss is part of the impetus for human rewilding.

Sitting at a desk, staring at a computer, being inside an office—cut off from sunlight, fresh air, and the sounds of nature—we live an indoor life. When rewilding, we come to the outdoors *with no agenda*. When I get home from a long day at work, I take off my shoes and walk barefoot



on the grass, no matter the weather. Nature is the perfect balance to endless meetings, right angles, and stale office air. In nature, I don't have to be someone; I can just be.

The simple practice of walking barefoot on the earth and bringing awareness to the sensual experience of contact and connection can be life changing. It's about so much more than just being barefoot. It's about opening yourself to sensual contact and relationship with nature. Making physical contact with the earth through the senses is one of the pillars of human rewilding.

Give Thanks

THE NEXT TIME you experience a refreshing walk through new fallen snow, a perfect sunset, or the gift of seeing a wild animal, consider offering a gesture of gratitude to the living earth. Drawing your hands to prayer in front of the heart, you can simply say "thank you."

You might offer a small token, such as an acorn, a pine cone, or small pebble, to show your thanks. You could also make an earth mandala, drawing a circular symbol with natural objects you gather, and offer it with gratitude. As the days and months go by, the mandala will be received into the earth.

You could also take a handful of water from a pond, lake, stream, bay, or ocean and speak your words of love and gratitude into the water, allowing your prayer to slip through your fingers and become one with the water.

Maybe you would like to burn a locally and sustainably harvested ceremonial incense such as cedar or mugwort, placing your intentions in the burning ember so that the rising smoke carries your prayer of gratitude and love to the heavens. These are small gestures, but they are powerful. These actions build a habit of focusing on the many ways we are in a deep state of inter-being with all of creation.

Forest Bathe

FOREST BATHING in Japanese is *shinrin yoku*, a term coined by Tomohide Akiyama, director of the Japanese Forestry Agency. Shinrin means "forest," and yoku means "to bathe." The official definition of the practice is "taking in, in all of our senses, the forest atmosphere."

Shinrin yoku is not about roughing it in the wilderness; in fact, forest bathing stations in Japan have bathrooms and concession stands. The idea is to make the forest accessible so that you can receive the therapeutic benefits of immersing all five senses in the forest's embrace.

In 1990, Yoshifumi Miyazaki, PhD, measured the effects of shinrin yoku and found these proven benefits:

- Reduces physiological stress, depressive symptoms, and hostility
- Improves sleep, vigor, and feelings of aliveness
- Lowers cortisol levels
- Decreases blood pressure and pulse rate
- Increases heart rate variability
- Improves immune system functioning due to decrease in stress hormones

Forest bathing's benefits go far beyond stress reduction and immune boosting. It also fosters a connection between human beings and nature, which contributes to human rewilding.

Walk with Awareness

THE AVERAGE MODERN HUMAN has no idea how to walk in the woods. Shoes turn most people's feet into iron-clad tanks that crash and crush, so that they have no awareness of what is underfoot. The modern shoe is the house of the foot, creating a tight seal that separates our feeling and sensing feet from the textures and contours of the living earth. Perhaps it was reading about hobbits that first inspired me to want to walk through the woods quietly and with awareness.

Here is an awareness practice for walking in the woods that I call "Don't Step on a Twig!" The goal with this walking meditation is to avoid stepping on twigs and making loud sounds that startle the forest. In order not to do this, though, there are a few things you need to do. The first is that you need to pay attention to how you are walking.

Most of us walk heel to toe, which means that when we take a step, our heel lands first and then we roll onto the front of the foot. This way of walking came about when we started wearing shoes with heels and thick soles for walking in cities and on cobblestone streets.

When our ancestors walked barefoot, however, they walked toe to heel. They explored the terrain with the ball of the big toe, rolled their weight out to the pinky toe side of the foot, and then gradually lowered the heel. When you walk this way, you have much more awareness of the terrain.

Try to walk this way barefoot at home before trying it in a park or in the woods and notice the difference: Lift your foot slowly, place the ball of the big toe first, feeling to make sure that the surface below doesn't make a sound. Then roll to the outer edge of your foot, still sensing the surface below, and adjusting accordingly. Slowly and mindfully, lower your heel down.

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If you sense something under your heel, do not lower it all the way down. Instead, keep the weight on the front of your foot as you lift the other foot to continue walking. You'll need to keep your knees slightly bent, and you may even place your hands on your thighs just above your knees for support. You will also need to walk more slowly and mindfully than you normally do.

If you do this while breathing consciously, the combination of breath awareness and slow, mindful steps will completely change your experience when you're outdoors moving over land and through different ecosystems. You may also find yourself blending into the landscape. It is important to pause regularly when walking in this way and to pay attention to what is moving all around you. Over time you will find that your senses get stronger.

Forage and Eat with the Season

TO BRING REWILDING TO FOOD is to practice gratitude for the gifts of this earth that sustain us. Foraging is the practice of gathering up the food that grows wild on the land where we live.

Each season brings with it sights, smells, textures, sounds, and flavors. The circular rhythm of the seasons grounds us as we naturally attune to them in our daily habits, sleep, and diet. Today, eating with the seasons is coming back, and we know that eating locally is good for our health as well as the planet.

My favorite practice for attuning to the food cycles of my bioregion is to forage for food growing naturally on the land. Foraging brings the earth to our bodies in deep and nourishing ways. The physical nutrition energizes and sustains us, and we also receive something else, an embodied connection with the trees, soil, plants, and water that provide this food to us.

Spring Forage: Ramps (*Allium tricocum*)

FROM LATE WINTER INTO EARLY SPRING, the ramp is one of the first green shoots to poke out of the melting snow. The first ramp shoots let me know spring has truly arrived. Like other onions, these wild ones grow from a bulb underground.

The base of a ramp is white with a slight pink hue. The part you eat above the base forms into green, wide, spear-shaped leaves. I cut them off just above the ground—never pull them up by the roots—and fill up a small shopping bag. If you harvest ramps, be sure to leave the bulbs in the ground so they can keep growing and be found again next year. I make sure that I don't overharvest and always leave about eighty percent of the ramps in any given patch.

Ramps have a delicious, mild, onion-like flavor. You

can sauté them on their own or with dandelion greens and flowers you harvested to enjoy a true foraged spring meal. You can also sauté them and fold them into an omelet, chop and add them to soups, sprinkle on pizza, and even make a pesto. Wild foods like ramps are healthful and precious.



Summer Forage: Staghorn Sumac (*Rhus typhina*)

STAGHORN SUMAC is a shrub native to eastern north America that is found in sandy or rocky soil. It is not to be confused with poison sumac, which has greyish-white berries that grow and hang down in clusters.

Staghorn sumac produces large, deep red berry clusters that point up to the sky, and its branches have a velvety surface, like that on newly grown deer antlers. Staghorn sumac often grows in disturbed areas, open lots, and along fences and the edges of open spaces. The red berry clusters can be picked in late summer and soaked in cool water to make a pink "sumac-ade," a delicious tart beverage that tastes a lot like lemonade.

The berry cones contain a lot of vitamin C. You only need to soak the berry clusters for five to fifteen minutes for the water to be infused by both the color and flavor of the berries. The longer the berries soak, the more sumac flavor. You can add your favorite sweetener to taste. I prefer maple syrup and like to drink my sumac-ade over ice. Because sumac is such an easy plant to identify, forage, and prepare, it is a great food to forage for beginners and children.

Fall Forage: Hickory Nuts

HICKORY is a tough, strong tree. Its wood is very hard and dense, and it has long been used to make tool handles and baseball bats. Shagbark hickory bark peels off the tree trunks in long, vertical strips, giving the trees their shaggy appearance.

Hickory trees produce nuts that fall to the ground in September and October. Of the different varieties of hickory trees, shagbark hickory nuts taste best. The nuts are oval, about an inch to two long and a little over a half inch to an inch wide. They're covered in a green casing that is sectioned in four quarters. When the nuts are ripe, the outer casing comes off easily. Hickory nuts are edible directly out of the shell and taste similar to a pecan or a walnut. They have a slightly sweet nutty flavor and can be used in place of either pecans or walnuts in your favorite recipes.

Before almonds and other nuts grown in California were transported nationwide, gathering hickory nuts in the fall was a classic pastime. Hickory-nut pie was a staple on the Thanksgiving table in the 1800s and early 1900s. Most people today have no idea that hickory nuts are an edible and abundant food source.

Winter Forage: Eastern White Pine (*Pinus strobus*)

IN THE DEPTHS OF WINTER, the eastern white pine, like other evergreens, holds on to its green needles. Rich in vitamin C, the needles can be used to make a comforting tea. The eastern white pine needles grow in packets of five, which is an easy way to identify it. The five needles of the white pine are also symbolic of the five nations of the Haudenosaunee (Iroquois) Confederacy, which chose the white pine to be the great "Tree of Peace."

The weapons of the warring tribes are said to have been buried under the Tree of Peace when they joined together as one. The Iroquois culture and form of governance are known to have inspired our founders and the representative democracy they established for the United States.

To make a bright, citrus-pine-flavored tea from white pine needles, you will want to gather at least twenty

packets of white pine needles. Rub a couple of the packets between your hands to release the pine resin, as you offer a gesture of thanks to the trees for this provision. You can drop the crushed needles into a pot of freshly boiled water and allow them to steep for five to fifteen minutes. I like to cut them up into smaller pieces to help release the oils before steeping them.

Strain the needles from the boiling water and pour the tea into a mug. Before sipping, hold the cup up near your nose and take a few deep inhalations. Drink as is or sweeten with maple syrup or honey. Enjoy!

Search for Animal Tracks

TRACKS TELL US that even though we may not see animals moving on the land, they are out there, sharing this land. Paying attention to animal tracks, signs, and scat is another way to reconnect with the wild.

When tracking with mindfulness, practice the "Animal-Track Mandala Meditation." When you find an animal's tracks, get down low on the land so you can look at it closely. Kneel, squat, or lie down on your belly. Get close enough so that you can see all of the features of the track—the depressions from the individual toe pads or claws, the punches in the soil from the nails, and any variations in the depth of the tracks. Whether or not you can identify the animal who made this track, take time to study the track intently, as if it were a *mandala* designed to deepen meditation.

As you gaze at the track, let go of whatever else you might be doing. Let your attention be single pointed, as you scan all the small features. Smell the earth and the air around you and notice if you can pick up any scents left behind by the creature. Some animals, like fox, leave a musky scent.

Imagine the animal stepping on this exact piece of earth before you were here. Open your awareness to the presence of this animal, feel the animal here in this space with you. Stretch your mind with this awareness and sense where this animal might be at this moment. Then take a few breaths and feel how the earth underneath you and the air all around you is like an ocean that connects you with the spirit and presence of this wild being. Take a moment to express gratitude for the gift of this track and respect for the thread that connects you with this creature.

Urban Rewilding

TAKE SOME TIME RIGHT NOW to reflect on your connection with nonhuman life-forms on this earth. What would it look like and what would it feel like to invite a rekindling of your relationships with other species? What calls



out to you? Are there small actions you can start with? No matter where you live, here are a few options to get started on rewilding:

- **Bird watching.** In urban and suburban areas, bird watching is a great way to reconnect with the more-than-human world. As David Lindo, better known as the Urban Birder, reminds us, “Look up!” This gives you a broader perspective immediately, and you will be surprised by the birds that frequently appear in pocket parks, tree-lined streets, yards, and gardens. Today, birdwatchers are younger, more urban, and more diverse, and they’re also connecting with each other and advocating to protect the earth and its species.
- **Become an amateur naturalist.** Learn about the trees, plants, animals, insects, and other features of the land where you live. Use field guides to learn what trees grow near your home. Learn about the wild edibles that grow near you. Pay attention to the birds. Are there watersheds nearby? Where does the water flow from? Where does it flow to?
- **Nature meditation.** There is no substitute for sitting outside every day and getting to know the creatures you share the land with around your home. After sitting quietly for a few minutes, birds and other animals may appear and go about their business around you. Some people have actually befriended chickadees and hummingbirds, who eat or drink from their hands.
- **Cat or dog rescue.** Adopting a pet allows you to have a relationship with another species that can be profound. Animals experience the world differently. Observing them and interacting with them, we broaden our senses and awareness.

- **Join local organizations that support the land.**

Make friends with local conservation, land management, and other environmental organizations that are active in your area. Perhaps there are walking or hiking groups, foraging clubs, craftspeople, or other groups you can learn and explore with.

Final Thoughts

IN REWILDING we awaken to the miracle of life, give thanks for every breath, and assume our role as caretakers of this precious and sacred living earth. We remove the shoes that insulate us from the energy flowing in the grass and through the earth and stones. We open our windows and listen to the language of birds, wind, and clouds; the voices of thunder, rain, and space; and the sounds of the moon and the stars. In the words of the poet Walt Whitman, “After you have exhausted what there is in business, politics, conviviality, and so on...what remains? Nature remains.” Δ

MICAH MORTALI, MA, is the founder of the Kripalu School of Mindful Outdoor Leadership, one of the largest and most established centers for yoga-based education in the world. An avid outdoorsman, Mindful Outdoor guide, and popular meditation teacher, Mortali has been leading groups in wilderness and retreat settings for twenty years. He holds an MA in health arts and sciences from Goddard College.



Well Being Journal adapted the above excerpt from *Rewilding: Meditations, Practices, and Skills for Awakening in Nature* by Micah Mortali. Sounds True, December 2019. Reprinted with permission.

A Taste of Palmaia—The House of AiA

“Chia seeds have a long history of use in Mexico, where they were used by the Aztecs and Mayans as a source of energy and nutrition. Today, chia seeds are still used in many traditional Mexican dishes, such as agua frescas, which are refreshing fruit drinks. These tiny black or white seeds are a rich source of omega-3 fatty acids, fiber, protein, antioxidants, and other essential nutrients. Consuming chia seeds regularly can help improve cardiovascular health and reduce inflammation.”

—Carlos Carrión, Executive Chef at Palmaia, The House of AiA

Chi-ha: Chia Seed Pudding

Alkaline water-activated chia seeds in a silky blend of mango, ginger, and coconut milk, topped with cacao nibs, orange-infused dates, seasonal berries, and garden basil leaves.

Ingredients

1 cup organic chia seeds

1 cup alkaline water

1 large mango or 2 medium size mangoes, fresh

1 cm of fresh ginger

2 cups of coconut milk

½ cup pitted dates

Optional toppings:

Cacao nibs

Orange juice-soaked goji berries

Fresh, seasonal berries

Basil

Serves 4

Method

1. Warm up alkaline water, carefully add to chia seeds and stir, set aside.
2. Blend mango, ginger, coconut milk, and dates until smooth.



3. Add fruit blend to the soaked chia, stir, and let soak for 20 minutes.

4. Transfer the soaked chia to a bowl and top with cacao nibs, goji berries, fresh berries, and basil leaves. Δ

Learn more at:

<https://thehouseofaia.com/>



Music As Medicine

By Christine Stevens, MSW, MT-BC

MUSIC AND SOUND are present in the very language of medicine. Health refers to being of “sound mind and body.” The Chinese word for medicine, *yao*, is derived from the word for music, *yue*.¹

But the connection between music and medicine is deeper than language—music is one of the oldest forms of preventive care.

Medicine men and women used drumming and chanting to treat illnesses. Shamans in indigenous tribes used the beat of the drum to summon spiritual health. This deep-rooted connection between music and medicine continues today. You can see it in the growing body of evidence-based research validating the intuitive wisdom of the ancients.

Music Medicine Research

MOUNTING EVIDENCE is demonstrating just how deeply music is woven into the fabric of our DNA. Thanks to cutting-edge research in the field of genomics, studies show the benefits of music for stress reduction, regardless of prior musical training.

Barry Bittman, MD, a former concert pianist turned neurologist, is leading the research in mind-body medicine and music. Determined to study the deepest level of biological evidence of stress reduction through music making, Bittman designed a creative research project.

As part of the experiment, he eliminated all subjects with prior music-making experience, ensuring that everyone was a novice. Blood samples were taken to create a baseline level of genomic activity for each subject. The



blood was tested for forty-five known genomic markers of stress—switches that “turn on” biological responses associated with various chronic health challenges (eg, cancer or heart disease).

Next, all the subjects went through a one-hour stress-induction phase. Participants spent one hour putting puzzles together. Much as in life, where stress is created when things don’t fit together right, the puzzle pieces were designed to create stress. The pieces didn’t match, and they even had pictures on both sides. In addition, subjects were frequently told, “You are doing okay, but everyone else is doing better.”

Next, researchers randomly assigned the subjects into three subgroups. The first group had to continue the stress induction with the puzzles for an additional hour. Following this period, the results of their blood samples showed no change. Their stress DNA switches remained on.

The second group got to chill out; they sat around and relaxed, reading magazines and newspapers in a quiet room in comfortable chairs for an additional hour. This group showed a slight reversal in genomic responses, with an average of six out of forty-five genes reversed.

The third group went into a piano keyboard lab and played music together for an hour. The group followed a recreational music-making keyboard program, the Yamaha Clavinova Connection, which was designed for fun, creativity, group support, self-expression, and relaxation. Unlike in the usual structured music lesson, subjects were free to make their own music using drums and percussion sounds, emulating a drum circle, and improvising on the keyboard.

When the blood samples for this group were retested, they had reversed nineteen of forty-five gene markers of stress. In other words, playing music was found to be three times more effective for reducing stress-related gene expression than simply chilling out.²

According to Bittman’s results, as we engage in making music, we can disengage genomic triggers associated with stress. Thus, it’s not only what music does but also *what it undoes*. There is a principle to music’s medicine—an activation and deactivation pattern. It’s not only what we turn on, but also what is turned off; not only what we get from music, but also what we get to let go of that is healing.

You may have noticed a similar effect in your own mood states. Notice that it’s hard to be angry when you’re laughing; hard to be sad when you’re happy; hard to worry about the past when you’re in the now. The *simultaneous-state theory* in psychology points to the unfeasibility of being in two opposing states at the same time. This activation/deactivation principle applies to music medicine.

In rhythm, we find that drumming-based music turns off the thinking mind and allows us to enter a more meditative state.

Beating Stress

ONGOING RESEARCH in *psychoneuroimmunology* and mind-body medicine shows that rhythm can enhance the immune system on a cellular level. For the first time, scientific research has validated why rhythm is one of the oldest tools of music medicine, one that has withstood the test of time.

Psychoneuroimmunology

PSYCHONEUROIMMUNOLOGY (PNI) is a discipline that examines the effect of the mind on health and resistance to disease. PNI has evolved in the last forty years and aims to understand the relationship between the immune, endocrine, and central nervous systems.

In 2000, Bittman performed the first biological research study on the impact of group drumming on the immune system. All the subjects in the experiment were healthy individuals who had no prior musical or drumming experience.

The experiment compared three groups: a resting control group that sat and read magazines, a listening group that just listened to drumming music, and a drum-circle experience in which subjects played rhythms together led by a drum-circle facilitator.

Blood samples were taken before and after the one-hour experiment to test key indicators of the immune system—the body’s natural defense system against disease and virally-infected cells. These blood tests included tests for dehydroepiandrosterone (DHEA), cortisol, natural killer (NK) cell activity, and other cytokines that are considered orchestrators of the immune system.

Not all experiments go as planned. After the first drum-circle test, Bittman found no significant changes in the experimental group compared with the control. His research team then tried different approaches to drumming—using less talking or leading the drumming by a local shaman. Still, no significant results occurred. It’s important to note that some subjects reported feeling better or having fun, but it did not change their biology.

Finally, it became apparent that the subjects were actually intimidated by drumming. Performance anxiety and a fear of making a mistake or losing the beat were causing their stress to rise. This anxiety was driving biology in the wrong direction.

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Working with an interdisciplinary team, Bittman developed a friendlier approach to the act of drumming—a protocol later called HealthRHYTHMS. He began with the rhythm of breathing to put people at ease by having them tune into the body. He then led the group in rhythm icebreakers, drumming the rhythms of their names, call and response, a drum circle of free expression, and guided imagery while drumming.

It worked: results of blood samples showed that the new group-drumming protocol enhanced immune function significantly on a cellular level. In just one hour, the subjects transformed their biology, boosting elements of the body's natural immune system and simultaneously reducing the biochemicals that can lead to illness and disease.³

Replicating the experiment in another part of the world, Japanese researchers tested a group of stressed-out employees, taking blood samples before and after the group-drumming protocol. Results successfully replicated Bittman's study, showing a cross-cultural truth to the health-enhancing impact of rhythm on the body.⁴

Taken together, these studies indicate a common theme. It was the active participation in drumming that boosted biology. *Changing health or enhancing wellness requires an active role.* Active drumming brings with it the health benefits of exercise, self-expression, and a sense of camaraderie and support with other drummers in the group. The study also demonstrated the accessibility of rhythm, since none of the subjects had ever played music before.

Since Bittman's initial experiment, there have been four additional studies on group drumming, all of which were published in peer-reviewed journals. The HealthRHYTHMS group-drumming protocol developed for Bittman's experiment has been shown to reduce employee burnout, decrease anger in adolescents in corrective institutions, improve mood states and participation in seniors, and reduce the impact of stress in nursing students.^{5,6,7} These studies continue to point to the functional use of rhythm across a variety of populations.

The next time flu or allergy season approaches, it may be time to join a drum circle. Whenever you need to boost your immune system and reduce stress, you might want to consider a drum over a drug. The effectiveness is well

documented. For more information, visit the USA Drum Circle Finder at drumcircles.net/circlelist.html.

Rhythm in Exercise

THE FIELD OF EXERCISE PSYCHOLOGY has also been examining how rhythm influences physical performance. Music helps enhance motivation when exercising, but does it actually improve performance when working out at the gym or going for a jog?

Costas Karageorghis, PhD, author of *Inside Sport Psychology* and head of the Music in Sport and Exercise Research Group at Brunel University, is a researcher as well as a musician who plays piano and performs in a jazz trio around London. He brought live music to mass-participation running events, such as London's half-marathon "Run to the Beat."

With the success of his marathon project, Karageorghis created audio recordings for running that are based on scientific findings of how music can best improve your body's performance. Karageorghis found that there is a real measurable benefit when movement is synchronized with musical tempo.

He showed that when music is synchronized in rhythm to the movement rate of exercise, a fifteen percent increase in treadmill endurance occurs, when compared with a control group.⁸ Karageorghis also found that participant-preferred music resulted in the most significant benefits.

Just imagine what you could do with fifteen percent more energy in your workout!

In another study, Karageorghis compared different tempos of music at different levels of exercise intensity with regular exercisers. Results showed that a medium-to-fast tempo range of 125 to 140 beats per minute was ideal for exercise when working out in the exercise range of forty to ninety percent maximum heart rate.⁹

Final Thoughts

TO SAY "MUSIC MEDICINE" is to move music to a place in your life beyond entertainment or distraction. Instead of tuning out, this approach allows you to use music to tune in and tune up.

For people who have experienced a separation from music, allowing music back into their lives can be very freeing.

“Whenever you need to boost your immune system and reduce stress, you might want to consider a drum over a drug. The effectiveness is well documented.”

At a health conference where I was leading a drum circle, a woman in her seventies sat in the back row with her hands crossed over her body. She was not very engaged, and in fact seemed resistant to joining us.

Fifteen minutes into the circle, I noticed that she had picked up a small shaker and was playing along. As we continued to play, she moved toward the center of the circle and switched to playing a drum. Soon, she was smiling brightly and rocking out to the groove. The vibrancy was visible on her face, and she literally looked ten years younger.

After the circle, she walked up to me with tears in her eyes. She shared with me that she had a lot of stress in her life and felt constricted by the pressures of work and family obligations. The drum circle brought her relief—a way to let go for the first time. She confessed that she never thought of herself as musical, but “something” helped her open up and discover that the less she tried to play, the better she sounded.

As we orchestrate our lives as vibrant, well-tuned, and resonant human instruments, we contribute to a worldwide symphony of health and wellbeing. When building our repertoire of tools for healthy living, music becomes an essential practice for living a truly harmonious life. The key is in identifying your individual needs and creating your own music prescription that allows your heart to sing.

Release any limiting beliefs you have about your own inner musical spirit and recognize that in all the elements of music, you will find a gateway into the healing benefits of sound. Δ

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Well Being Journal adapted the above excerpt from *Music Medicine: The Science and Spirit of Healing Yourself with Music* by Christine Stevens, LMT, and used with permission by Sounds True. Copyright 2012 by Christine Stevens, LMT.

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“Once upon a time, drug companies promoted drugs to treat diseases. Now it is often the opposite. They promote diseases to fit their drugs... It is simply no longer possible to believe much of the clinical research that is published, or to rely on the judgment of trusted physicians or authoritative medical guidelines. I take no pleasure in this conclusion, which I reached slowly and reluctantly over my two decades as an editor of the *New England Journal of Medicine*.”

—Marcia Angell MD, in *The Truth About the Drug Companies: How They Deceive Us and What to Do About It*, Random House, 2005

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Six Top Benefits of Citrulline

By GreenMedInfo Research Group

YOUR BODY converts the amino acid citrulline to arginine, which plays a key role in nitric oxide synthesis. This compound, found in high concentrations in watermelon, is useful for blood pressure, erectile dysfunction, metabolic health, and more.

Introduction

CITRULLINE, also known as L-citrulline, is a non-essential amino acid metabolized by your kidneys. Your body converts citrulline to arginine, which plays a key role in nitric oxide (NO) synthesis that helps dilate blood vessels and improve blood flow.

Citrulline is found naturally in fruits and vegetables, with watermelon being a top source. In fact, the word citrulline comes from *Citrullus lanatus*, the scientific name for watermelon. Foods and supplements that boost vascular tone are useful considering vascular dysfunction may lead to heart disease.

Because NO plays an important role as a vasodilator, precursors such as citrulline and arginine are particularly important. Of note, some studies have found that taking citrulline could increase arginine levels more efficiently than arginine supplements alone. A 2022 study published



in *Nutrients* noted, “Supplementation of L-citrulline is recommended instead of L-arginine since most L-arginine is catabolized during its course to the endothelium.”¹ Here are more reasons to include citrulline in your regimen:

Reduce Blood Pressure

CITRULLINE has a positive effect on blood pressure due to its ability to increase NO level. A systematic review and meta-analysis found citrulline supplementation of approximately six grams per day led to a significant reduction in systolic blood pressure. Citrulline supplementation also led to reduced blood pressure in people with obesity and high blood pressure or pre-hypertension.²

Improve Erectile Dysfunction

WHILE ARGININE boosts vasodilation and endothelial function mediated by NO, it’s not always useful when taken orally because it’s largely metabolized before being absorbed systemically. On the other hand, “L-citrulline escapes pre-systemic metabolism and is converted to L-arginine, thus setting the rationale for oral L-citrulline supplementation [to support] penile erection,” researchers wrote in the journal *Urology*.³

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They found that 1.5 grams of citrulline per day for one month led to improvements in erection in men with mild erectile dysfunction. Citrulline supplementation was “safe and psychologically well accepted by patients,” the study found, concluding that all patients reported improvements and greater satisfaction.

Citrulline, taken as part of a supplement drink that also contained testosterone, resveratrol, and caffeine, also improved erection firmness and frequency among men with sexual dysfunction when taken for fourteen days.⁴

Improve Asthma Control

OBESE ASTHMATICS tend to have airways that are deficient in NO. This leads to airway dysfunction that can make asthma control difficult. In a study of obese adults with poorly controlled asthma, fifteen grams of citrulline daily for two weeks improved asthma control and increased NO.

“In patients with established asthma, obesity and weight gain have been associated with increased asthma severity. This is a major public health concern, given that the CDC has estimated that more than one-third of asthmatics are obese,” study authors wrote. “The results of this pilot study are potentially paradigm shifting in how we think about NO in asthma...These results suggest that treatment with L-citrulline could be beneficial for this clinical asthma phenotype.”⁵

Delay Sarcopenia

FROM ABOUT THE AGE OF THIRTY, a gradual decrease in muscle mass tends to occur, leading to a reduction in strength. This age-related condition, known as sarcopenia, is associated with muscle wasting and degeneration due to muscle atrophy and muscle cell death. Exercise is known to help delay sarcopenia, but adding citrulline to exercise can provide an extra boost.

In a study of forty-four adults between the ages of sixty and seventy-three years, those who engaged in physical activity and took a citrulline supplement had improved strength and endurance, along with greater walking speed. Improvements in markers of muscle damage were also noted.⁶ Similarly, other research has revealed that citrulline stimulates muscle protein synthesis by “specifically reallocating mitochondrial fuel to the protein synthesis machinery.”⁷

Boost Athletic Performance

CITRULLINE MALATE is a combination of citrulline and malic acid—an organic compound found in various fruits and vegetables that may increase citrulline bioavailability. Among athletes engaging in high-level

training or competitions, citrulline malate may be useful for enhancing athletic performance and relieving muscle soreness.

In a study involving flat barbell bench presses, eight grams of citrulline malate administered before a training session led to a significant increase in the number of repetitions performed (52.92 percent) and a significant decrease in muscle soreness (forty percent) twenty-four hours and forty-eight hours later.⁸ A citrulline-arginine duo has also been found to boost athletic performance.

Support Metabolic Health

CITRULLINE may also be useful for people with obesity and Type 2 diabetes. In a study of forty-five such patients, citrulline supplementation at a dose of three grams per day for eight weeks led to decreased levels of insulin, glucose, triglycerides, and markers of inflammation, along with an increase in beneficial HDL cholesterol.⁹

Citrulline Source: Watermelon

WATERMELON is a top source of citrulline, with about 200 to 300 milligrams of citrulline per cup of fruit. Yellow watermelon contains higher concentrations than pink-fleshed varieties, as does the rind, which can be added to smoothies or juices.

As a whole food, watermelon contains other powerful compounds, such as lycopene, which offers synergistic benefits. Other good sources of citrulline include cucumbers, cantaloupe and melon, summer squash, and pumpkin. While you can get meaningful quantities of citrulline from whole foods, for therapeutic effects, you may need to supplement. Citrulline supplements are commonly available in both capsules and powder form.

As a supplement, this amino acid is safe, effective, and associated with very few side effects. In fact, one study out of Paris found that even high doses up to fifteen grams were safe and well-tolerated by participants. Authors concluded, “The present study clearly showed that citrulline (CIT) is well tolerated (no side effects), and it should be underlined that CIT did not induce gastrointestinal disorders at high doses...The present pharmacokinetic study confirms our previous experimental data showing that CIT is an excellent arginine precursor at the whole-body level.”¹⁰ Δ

Well Being Journal adapted the above excerpt from the previously published original at greenmedinfo.com titled “Six Top Benefits of Citrulline,” January 26, 2023.

References available at the following website address:
<https://greenmedinfo.com/blog/6-top-benefits-citrulline>

Love Berries? Eight Reasons Why You Should Try Lingonberries

By Diane Fulton, PhD

LINGONBERRY (*VACCINIUM VITIS-IDAEA*), also known as partridgeberry or mountain cranberry, is a hardy, low-growing evergreen shrub that grows in northern climates. The berries are small, bright red, and tart, and contain powerful polyphenols (eg, anthocyanins, resveratrol, and quercetin), vitamins, minerals, free amino acids, and omega-3 fatty acids.

Due to their antioxidant, anticancer, anti-inflammatory, and immune-boosting properties, lingonberries are gaining increasing attention as a superfood. Lingonberries' most important benefits include fighting a variety of chronic conditions—from cancers and obesity to heart disease, oxidative stress, and viral infections. Here are

eight reasons why you should give lingonberries a try this summer.

Protect Heart Health

A 2017 *IN VITRO* STUDY published in the *Canadian Journal of Physiology and Pharmacology* found that lingonberry anthocyanins protected cardiac cells from oxidative-stress-induced apoptosis. Study authors wrote, “Lingonberries contain very high levels of anthocyanins, which are the red pigments that give all berries their bright red, blue, or purple colors. In addition to containing more anthocyanins per gram of fresh weight than other commonly consumed berries, lingonberry also contains other polyphenols,



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including quercetin, glycosides, kaempferol glycosides, resveratrol, phenolic acids, and proanthocyanidins...Dietary changes that increase the consumption of antioxidant-rich berries like lingonberry may be beneficial in disease states hallmarked by oxidative stress.”¹

In an experimental rat model examining high blood pressure, long-term treatment with lingonberry juice lowered blood pressure and improved vascular function due to the berry’s anti-inflammatory properties.² Similarly, according to an eight-week animal model, eating lingonberries resulted in decreased triglyceride levels, improved gut microbiome, and reduced atherosclerosis.³

A 2021 study published in *Food & Function* found that both lingonberry and blackberry leaves showed strong cardioprotective properties and significantly lowered low-density lipoprotein cholesterol levels associated with cardiovascular disease risk. Results were comparable to lovastatin—a cholesterol-lowering drug.⁴

In vitro research published in *Nutrients* suggested that lingonberry’s antioxidant and anti-inflammatory properties may help manage obesity and corresponding inflammation, which can lead to endothelial dysfunction—a coronary artery disease characterized by narrowing of the arteries and interrupted blood flow to the heart. Study authors concluded, “These results suggest that consuming polyphenol-rich lingonberry fruit may help prevent and treat obesity and endothelial dysfunction due to their antioxidant and anti-inflammatory actions. Thus, lingonberries could be a dietary recommendation for preventing and managing obesity and cardiovascular complications...”⁵

Fight Cancers

LINGONBERRY LEAVES AND FRUITS are linked to a range of bioactivities due to phenolic compounds, such as proanthocyanidin and quercetin. A 2020 study published in the journal *Antioxidants* examined lingonberry crude dry extracts against cancer cell lines and found both anticancer and antioxidant activity. Researchers concluded, “Quercetin and proanthocyanidins can be regarded as markers of antioxidant and anticancer activities of extracts of ling-

onberry leaves and fruits. These lingonberry compounds might be beneficial as promising chemo-active agents for alternative novel phyto-preparations and nutraceutical products.”⁶

Building on that research, a 2022 study found that lingonberry extract inhibited the proliferation of liver cancer cells in a dose-dependent manner. Study authors noted, “This study demonstrates that lingonberry extract rich in polyphenols had different degrees of inhibitory effects on liver, colon, and breast cancer cells, with the strongest effect on the proliferation of [liver cancer] cells... Phenolic acids and flavonoids in berries can penetrate the cell membrane of cancer cells, producing a strong antiproliferative effect.”⁷

A systematic review of ten lingonberry and twenty-one bilberry *in vitro* studies found potent inhibition of colorectal cancer cell growth and tumor formation. Proanthocyanidins—particularly high in blueberries and lingonberries—showed the strongest ability to kill human colorectal cancer cells.^{8,9}

Protect Your Brain

FORTY HEALTHY older adults drank a mixed berry beverage (150 g blueberries, 50 g blackcurrant, 50 g elderberry, 50 g lingonberries, 50 g strawberry, and 100 g tomatoes), or a control beverage with no fiber or polyphenols.

The berry intervention reduced total and LDL cholesterol, lowered glucose and insulin concentrations, and improved memory test performance compared to the baseline and control beverage. Berries showed preventive potential for Type 2 diabetes, cardiovascular disease, and cognitive decline. Study authors reported, “There are several underlying mechanisms whereby berries potentially may elicit metabolic and cognitive health effects...After ingestion, polyphenols are present in the circulation mainly as polyphenol metabolites. In human blood brain barrier models, both anthocyanins and flavonols have been shown to cross the blood brain barrier and can be found in various brain regions important for learning and memory...In addition, substantial parts of the ingested polyphenols are not absorbed into the circulation but instead, like dietary fiber, pass to the colon.

“The berry intervention reduced total and LDL cholesterol, lowered glucose and insulin concentrations, and improved memory test performance compared to the baseline and control beverage.”



In the colon, polyphenols are metabolized to other compounds, such as phenolic acids, and the metabolites may be absorbed into the circulation, and may enter the brain. Further, polyphenols and/or their metabolites have been shown to interfere with the gut microbiota composition and metabolism, and may modulate release of bacterial metabolites, such as short chain fatty acids. Consequently, polyphenols entering the gut can be suggested to promote benefits on metabolism and brain functions through promoting a more favorable gut flora and/or release of bacterial metabolites.”¹⁰

In a systematic review examining the effects of blueberries and lingonberries in neurotoxicity and brain inflammation, both berries combated reactive oxygen species and showed significant neuroprotective abilities and benefits for brain aging. Surprisingly, the leaves have a much higher antioxidant capacity than the fruits.¹¹

In an *in vitro* oxygen-glucose deprived injury rat model, lingonberry significantly protected the brain by suppressing the inflammatory biomarkers in primary neurons and modulating key proteins following hypoxic injury—when oxygen is lacking in the brain (ie following stroke).¹²

Mediate Oxidative Stress

IN A STUDY OF LINGONBERRY POLYPHENOLS, the anthocyanins and flavanols scavenged reactive oxygen species and inhibited cellular death—demonstrating its ability to prevent and ameliorate oxidative stress and protect cells. Researchers concluded, “The current study suggests that

partridgeberry has numerous potential health implications in both prevention and amelioration of various diseases involving oxidative stress.”¹³

In a mice model, a fourteen-day dose of lingonberry extract prevented acute toxicity from gamma radiation, indicating that lingonberry anthocyanins have immune-stimulatory potential against oxidative stress and radiation-induced illnesses.¹⁴

Through *in vitro* analysis, total phenolics and flavonoids in lingonberry extracts were slightly higher than those in blueberry extracts but blueberries bested lingonberry in anthocyanin content and antioxidant activity. Both berries were effective against oxidative-stress-related diseases, such as cancer, heart, neurological and kidney diseases, and arthritis.^{15,16}

Counteract Obesity

DIETARY BERRY FRUITS—blueberries, cranberries, raspberries, strawberries, mulberries, lingonberries, blackberries, black chokeberries, elderberries, bilberries, grape, blackcurrants, jaborcabras, red bayberries, sea-buckthorns, goldenberries, and goji berries—were found to counteract obesity or obesity-associated complications based on animal experiments and human studies.

Researchers wrote, “Generally, the bioactive compounds present in berry fruits demonstrated great potential to prevent the development of overweight, insulin resistance, hyperlipidemia, hepatic steatosis, and obesity-associated inflammation...It could be concluded that ingestion

of berries or berry extracts promise to enhance insulin sensitivity, ameliorate obesity-induced inflammation, improve lipid profile, and lower the risks of cardiovascular disease.¹⁷

In a 2022 animal study, mice fed whole lingonberries showed fewer atherosclerotic plaques, while mice fed the lingonberry fiber fraction had the highest caecal butyric acid—an indicator of gut health. All groups fed lingonberry diets—fiber or berries—had improved plasma lipid profiles.¹⁸

Prevent Diabetes

IN AN OBESE MURINE MODEL, mice ate a low-fat, high-fat, or lingonberry-supplemented high-fat diet (eg soybean oil) for six weeks. Lingonberries prevented the high-fat diet induced adverse changes in both blood cholesterol and glucose levels and had a moderate effect on weight and visceral fat gain—demonstrating its obesity-fighting ability and prevention of comorbidities, such as Type 2 diabetes. Researchers wrote, “Diet has an important role in the prevention and treatment of obesity, Type 2 diabetes, and other obesity-related diseases. Diets containing plenty of polyphenol-rich vegetables have been shown to lower the risk of obesity-related comorbidities. Berries are specifically rich in various polyphenols. Diets containing berries are associated with lowered risk of Type 2 diabetes, likely due to the flavonoids, anthocyanidins, or other polyphenols present in berries...The results of this study encourage evaluation of lingonberries as a part of healthy diet against obesity and its comorbidities.”¹⁹

In a murine study published in the journal *Evidence-Based Complementary and Alternative Medicine*, obese and insulin-resistant mice fed three different lingonberry extract doses—125, 250, and 500 milligrams per kilograms (mg/kg) for eight weeks—resulted in a significant decrease in glycemia and insulin levels (Type 2 diabetes markers) in a dose-related way.²⁰

Prevent Infections and Viruses

ACCORDING TO A 2017 STUDY published in the *International Journal of Dentistry*, fermented lingonberry juice exerted a positive response in *Candida glabrata*—the second most common yeast infection—by expressing proteins related to oxidative stress and maintaining cell wall integrity *in vitro*.²¹

The extracts of all tested berry fruits, particularly bilberry, strawberry, and lingonberry, strongly inhibited coxsackie virus, flu viruses, and H3N2, confirming their antiviral properties. Study authors concluded, “The results reveal that the total extracts of all tested berry fruits inhibit the

replication of CV-B1 and influenza A virus. CV-B1 is inhibited to the highest degree by both bilberry and strawberry, as well as by lingonberry total extracts, and influenza A by bilberry and strawberry extracts. Anthocyanin fractions of all wild berries strongly inhibit the replication of influenza virus A/H3N2. Given the obtained results, it is concluded that wild berry species are a valuable resource of antiviral substances and the present study should serve as a basis for further detailed research on the matter.”²²

In a 2019 comparison study of lingonberries and cranberries, an extract of lingonberries contained more polyphenols than cranberries but both effectively decreased biofilm formation and oral streptococci activities to prevent dental caries (cavities).²³

Promote Longevity and Healthy Aging

ACCORDING TO A 2021 REVIEW published in the *International Journal of Molecular Sciences*, eating lingonberries showed a positive influence on healthy aging and longevity. Researchers wrote, “Berries, especially members of the Ericaceae family, are among the best dietary sources of bioactive compounds with beneficial health effects. The popular berries are in the genus *Vaccinium*, such as bilberry, cranberry, and blueberry... Fresh lingonberry fruit is the best source of bioactive compounds and antioxidants, but they are not available on the market all year round. Therefore, the consumption of dried berries, which by removing the moisture makes the skin and pulp concentrated and increases the antioxidant levels in each gram of product, in the form of teas or snacks, could be part of a healthy lifestyle.”²⁴

In a 2019 randomized, double-blind, placebo-controlled clinical trial examining the effect of lingonberry and amla fruit extract (LAE) on several skin conditions, significant dose-dependent improvements were observed in skin elasticity, thickness, hydration, and the degree of wrinkles. According to the authors, “Our findings indicated that LAE exerted strong beneficial effects on the skin. Because various skin conditions were improved by oral intake of LAE, the combination extract may act as a potential anti-aging agent by inhibiting the weakening of the skin structure caused by aging.”²⁵ Δ

Well Being Journal adapted the above excerpt from the previously published original at greenmedinfo.com titled “Love Berries? 10 Reasons Why You Should Try Lingonberries,” February 21, 2023.

References available at the following website address: <https://greenmedinfo.com/blog/love-berries-10-reasons-why-you-should-try-lingonberries>

Apple Peels: Nutritional Powerhouse

By Diane Fulton, PhD

URSOLIC ACID (UA) is a health-promoting compound found in fruits, vegetables, and herbs, including apple peels and rosemary leaves.¹ UA is an effective remedy for managing various chronic conditions, including cancer, obesity, diabetes, cardiovascular disease, osteoporosis, liver disease, and muscle wasting. Let's take a closer look at the ongoing research examining the role of ursolic acid in health and disease.

Colon and Rectal Cancers

IN RECENT RESEARCH, ursolic acid has shown strong protective properties against a variety of cancers. *In vitro* studies found that UA promotes apoptosis, inhibits cell proliferation and angiogenesis, and significantly upregu-

lates signaling pathways that exhibit the highest increase in colon and rectal cancer cell expression.²

In a 2021 *in vitro* study examining the effects of ursolic acid on colon adenocarcinoma, UA effectively inhibited the proliferation of injured colon cells. Specifically, UA was found to help fight colon cancer by suppressing abnormal cell cycle processes, such as dysregulation in protein folding, and an imbalance between cell proliferation and programmed cell death.³

Breast Cancer

AMONG THE TOP NATURAL PRODUCTS shown to help fight breast cancer, ursolic acid has been shown as effective as curcumin, sauchinone, lycopene, denbinobin, genipin, and capsaicin.⁴



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A comprehensive review of *in vitro* and *in vivo* studies has shown that UA inhibited the growth of breast cancer (BC) and colorectal cancer (CRC) cell lines through various molecular targets and signaling pathways and stopped the cytotoxicity against both BC and CRC.⁵

Epirubicin (EPI) is a commonly used drug for the treatment of BC but has been shown to cause cardiac toxicity due to dose accumulation. In a human *in vitro* study, UA enhanced the sensitivity of BC cells to EPI by modulating the autophagy or cell recycling pathway.⁶

In a systematic study, ursolic acid inhibited breast cancer proliferation by inducing apoptosis, regulating cell cycle checkpoints, and scavenging free radicals to reduce inflammation. Study authors concluded, “There are growing interests in the relationships between health benefits and specific phytochemicals of fruits and vegetables... Ursolic acid exhibited potent antioxidant and anti-inflammatory activity, which play important roles in the prevention of breast cancer.”⁷

Drug-Resistant Cancers

IN AN IN-DEPTH REVIEW, ursolic acid and more soluble and bioavailable derivatives demonstrated widespread pharmacologic effects—antitumor, anti-inflammatory, antioxidant, antiapoptotic, anti-allergy and anticarcinogenic—to fight chronic disease.⁸

Researchers have uncovered a close association between the anticancer effect of UA and the activation of mitochondrial-dependent signaling pathways.⁹

In an animal study, new UA-liposome derivatives at ten milligrams per kilogram (mg/kg) dose led to reduced myeloid-derived suppressor cells and regulatory T cells residing in tumor tissues. UA corrected the tumor mediated immune-suppressive microenvironment and deterred tumor growth for cancers in general.¹⁰

A series of recent studies have demonstrated the benefits of using ursolic acid against drug-resistant cancers, such as oral carcinoma, multiple drug-resistant breast cancer, chemotherapy resistant and metastasized colorectal cancers, and drug-resistant liver cancer.^{11 12 13 14}

Obesity and Diabetes

IN A STUDY INVOLVING DIABETIC RATS, ursolic acid at 2.5, 5, and 10 mg/kg doses was administered for eight weeks. UA significantly improved blood glucose in a dose-dependent manner, reduced plasma insulin level, non-essential fatty acid, total cholesterol and triglyceride levels, restored free radical effect of scavenging, and increased levels of adiponectin.¹⁵ Of note, a low level of this fat-created hormone

has been associated with obesity, diabetes, and metabolic diseases.

Since it acts as a negative regulator in the insulin-signaling pathway, ursolic acid has attracted interest as a novel treatment for Type 2 diabetes. In *in vitro* and *in vivo* studies of noninsulin-dependent diabetic mice, researchers found significant blood glucose lowering effects in the UA versus the control group.¹⁶

Dogwood plant extracts—UA, loganin, and mooroniside—ameliorated diabetes-associated complications and decreased fasting blood glucose levels. Loganin and UA together increased reactive oxygen species scavenging activity in Type 2 diabetic mice.¹⁷

Additionally, UA alleviated renal damage in Type 2 diabetic mice by downregulating proteins in the signaling pathway, which inhibited extracellular matrix accumulation, renal inflammation, fibrosis, and oxidative stress.¹⁸

In a 2018 study involving mice with induced diabetic nephropathy, UA increased body weight, reduced the kidney-to-body-weight index,

protected kidney cells, and alleviated inflammation and kidney cell damage. Study authors reported, “UA has multiple bioactivities, including anti-viral hepatitis, antitumor, anti-oxidation, anti-bacterium, and anti-inflammation... UA could be applied in the development of an effective therapeutic strategy for treating diabetes-induced nephropathy.”¹⁹

Cardiovascular Diseases

IN A REVIEW of *in vitro* and *in vivo* studies, ursolic acid inhibited inflammatory pathways and increased scavenging

“A series of recent studies have demonstrated the benefits of using ursolic acid against drug-resistant cancers, such as oral carcinoma, multiple drug-resistant breast cancer, chemotherapy resistant and metastasized colorectal cancers, and drug-resistant liver cancer.”



of reactive oxygen species important to heart health. UA appears to slow down the development of cardiovascular diseases, including atherosclerosis and myocardial fibrosis.²⁰

In an animal model involving exposure to vascular injury, daily doses of 6 mg/kg body weight for ten days of UA not only inhibited vascular injury, but slowed atherosclerosis progression, and reduced the degree of stenosis after angioplasty by eighty percent. Authors of the study wrote, “These results suggest that UA may be of potential therapeutic value in vascular injury, and a possible treatment strategy for the prevention of the progression of atherosclerosis and restenosis after angioplasty.”²¹

Using both *in vitro* and *in vivo* studies of atherosclerosis-induced mice, UA significantly improved plaque formation and shrunk necrotic core areas, demonstrating its cardioprotective, antioxidant, and anti-inflammatory properties.²²

Neurodegenerative Disease

NEURODEGENERATIVE and neuropsychiatric disorders are among the more common diseases associated with aging and have been implicated as oxidative-mediated. In a literature review, UA modulated intracellular antioxidant systems, inflammation, and cell death-related pathways, which are paramount to protecting your brain.²³

Similarly, in a 2020 oxidative-mediated animal brain injury experiment, UA significantly reversed oxidative stress and injury dysfunctions in the brain through its neurodegenerative and antioxidant abilities.²⁴

In an Alzheimer’s disease (AD)-induced mouse model, both rosmarinic acid and UA from the rosemary plant reversed spatial and recognition memory deficits and lowered stress and anxiety caused by AD.²⁵ In a similar mouse study, UA significantly reversed learning and memory deficits by improving oxidative stress and the inflammatory response under AD conditions.²⁶

Through *in vitro* study of AD, UA and acteoside (ATS)—a compound found in bitter tea—successfully treated AD by regulating multiple targets, bioprocesses, and signal pathways. ATS and UA synergistically protected heme oxygenase (HO)-induced neurotrosis (trauma to brain nerves).²⁷

In Parkinsonian mice, the neuroinflammation and neurodegeneration along with impairments in biochemical and behavioral parameters were reversed with UA treatment (26 mg/kg body weight).²⁸

In another Parkinson’s disease mouse model, UA promoted autophagic clearance of protein aggregates and attenuated the pathology and characteristic symptoms in Parkinson’s by regulating abnormal protein accumulation in the brain.²⁹

Liver Disease

UA AND ITS MANY DERIVATIVES have been found to be chemo-preventive and anticarcinogenic in the treatment of liver cancer. Liposomes coloaded with UA in an *in vitro* study altered cell proliferation, apoptosis, and cell cycle—effectively treating liver cancer.³⁰

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Through an *in vitro* study of liver cancer mice, UA derivatives inhibited the proliferation and migration of liver cancer cells and prolonged the survival time of tumor-bearing mice. According to the study authors, “UA could significantly inhibit the growth of [hepatocellular carcinoma cells line] and prolong the survival time of tumor-bearing mice. It demonstrated that UA possess great potential in liver cancer therapy and may enlarge the application of UA in clinical therapy.”³¹

Osteoporosis

IN AN AGED RAT STUDY, a combination treatment of UA and its isomer oleanolic acid (OA) significantly enhanced bone properties, such as bone mineral density, vitamin D, and calcium levels, which may prevent and control osteoporosis.³²

UA promoted bone formation, increased osteoblastic activity, and reduced osteoclastic activity in acute osteoporosis-induced rats. Researchers found that UA inhibited osteoclast differentiation by fifty percent.^{33 34}

Gastrointestinal Disease

ACCORDING TO A 2021 STUDY examining the protective effects of UA and OA on gastrointestinal diseases, the combination of the two compounds reduced the risk of intestinal pathological injury, alleviated intestinal dysfunction, and restored intestinal barrier function. Together, they effectively treated intestinal damage and diseases, including inflammatory bowel disease and colorectal cancers.³⁵

A 2022 study investigating the antibacterial activity of UA found a decrease in survival and inhibition of biofilm creation as well as changes in the morphology of bacterial cells when using UA treatment during the initial steps of urinary tract infections. Study authors explained, “Multispecies bacterial biofilms are often the cause of chronic recurrent urinary tract infections within the human population. Eradicating such a complex bacterial consortium with standard pharmacotherapy tends to be unsuccessful. Therefore, plant-derived compounds are currently being researched as an alternative strategy to antibiotic therapy for preventing bacterial biofilm formation and facilitating its eradication... The use of UA-containing formulations, especially during the initial steps of urinary tract infection, seems to be reasonable.”³⁶

Muscle Wasting

IN A 2018 MUSCLE ATROPHY RAT MODEL, combining low intensity treadmill exercise with UA significantly reduced body weight and visceral fat, improved muscle mass, and

decreased atrophy-related gene expression. Authors wrote, “This study was conducted to evaluate the effects of UA and low-intensity treadmill exercise on the improvement of muscle atrophy and exercise capacity caused by physical dysfunctions such as aging... UA increases running distance and exercise time, which not only reduces serum levels of fatigue-related factors, but also increases mitochondrial transcription factor A expression, which plays a key role in mitochondrial biogenesis, mitochondrial enzymes citrate synthase activity, and COX mRNA expression, thereby increasing endurance exercise capacity... This study is meaningful in that UA was identified to have a possible use as an exercise mimetic for reduction of body weight or visceral fat mass and inhibition of muscle atrophy.”³⁷

Using *in vitro* and *in vivo* models of muscle wasting from chronic kidney disease, UA improved muscle mass by suppressing myostatin—a muscle growth inhibitor—and inflammatory cytokines via increasing protein synthesis and reducing enzyme breakdown of proteins.³⁸

Ursolic Acid’s Powerful Effects

ALTHOUGH SCIENCE IS STILL PRELIMINARY, ursolic acid stands out as an important phytochemical with a variety of bioactivities—from anticancer to antibacterial. As a natural compound, ursolic acid is isolated from the leaves of various plants (rosemary, marjoram, lavender, thyme, and organum), fruits (apple fruit peel), flowers, and berries.³⁹ Ursolic acid is also available in supplements that contain whole plant extracts. Δ

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References available at the following website address:
<https://greenmedinfo.com/blog/top-10-benefits-ursolic-acid>

“But now ask the beasts, and let them teach you; and the birds of the heavens, and let them tell you. Or speak to the earth, and let it teach you.”

—Job 12:7–8

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Peptides: Little Proteins, Big Impacts

By Tony Robbins

BACK IN THE 1960s, at the peak of the Cold War arms race, the Soviet Union had a problem. To keep pace with America, they were pulling out all the stops to expand their nuclear program. But they couldn't stop their reactors from leaking—a significant problem in military submarines. Sailors were passing from terminal cancers. In 1973, the generals tapped a young doctor and gerontologist named Vladimir Khavinson to find a solution.¹

Khavinson's research team focused on mini proteins called peptides—short chains of amino acids that help regulate cell division and gene expression. Peptides are also a big part of our repair kit for every tissue and organ in the body. As signaling molecules, peptides bind like in a lock to protein receptors on a cell's surface.

The Soviet scientists devised ways to isolate and extract these protein fragments. The new preparation was injected into at-risk sailors, and they stopped dying. In fact, they suddenly seemed to have vastly improved immune systems—and it wasn't a fluke. Years later, after the Chernobyl nuclear power plant disaster, locals who received peptide treatments had far lower cancer rates.²

Peptide Therapeutics

WE ABSORB PEPTIDES—to a point—from meat, fish, and plant-based proteins (beans, wheat, oats) in our diet. With age, the stockpile of peptides in our bodies diminishes and that can lead to a loss of function and a weakened, vulnerable immune system.



More than eighty peptides have been approved by the FDA to treat one or more diseases.³ Unlike chemical drugs, peptides preserve the body's natural feedback loops and restore homeostasis. If you're healthy, peptides can help you reach and sustain physical peak. If you're ailing, peptides have been shown to be low-risk therapeutics for diabetes, cancer, and cardiovascular disease.

Applications are in the pipeline for neurodegenerative illnesses, such as Alzheimer's. Equally exciting, peptides are emerging as a valuable tool in battling autoimmune conditions and out-of-control inflammation—the root of degenerative diseases.

Case Study

OVER THE LAST FIVE YEARS, Mitchell Fleisher, MD, a Virginia-based family physician who specializes in regenerative medicine, has successfully prescribed peptides to dozens of patients. One such patient, a 45-year-old truck driver, had a serious traffic accident. The injury increased the man's inflammatory response and sent his multiple sclerosis—an autoimmune disease that attacks the nervous system—into relapse.

“When he came to me, he was using a cane and dragging his right foot,” Mitchell explained. “He couldn't drive or work in the garden. He spent most of his time on the couch.” Though the patient had an acute fear of needles, Mitchell persuaded him to try three commonly used peptides: thymosin alpha 1, thymosin beta 4, and BPC-157. Six weeks later, the man walked up to the reception desk with a big grin, and his cane held high above his head. “If this keeps up, doc,” he said, “I might dance an Irish jig!” Indeed, the body has an amazing ability to heal when you provide it with the key ingredients it needs.

Types of Peptides

TO STAVE OFF FEELING AND LOOKING OLDER, millions of people have turned to peptide supplements for bodybuilding, performance enhancement (both athletic and sexual), and skin rejuvenation. Properly administered, peptides are generally safe, and because their molecules tend to be smaller than biological proteins or antibody medicines, they're less likely to set off immune system alarms and provoke inflammation. Additionally, since they hit their targets more selectively than chemical-based drugs, serious side effects are rare. According to German chemist Horst Kessler, PhD, once the signaling is done, peptides “can be recycled by the body—no accumulation, no complicated detoxification.”⁴

Since most peptides are broken down by the gastrointestinal enzymes, they need to be injected in fatty tissue just under the skin, typically in the lower abdomen or upper

arm, with ultra-fine insulin needles (similar to those used by diabetics who self-administer insulin). Recent advances, such as fail-safe, auto-dosing, prefilled syringes, have made these shots simple and easy to use. A new generation of peptides are now also available orally, as nasal sprays, or topical creams.

As a caveat, you'll need to seek out reputable sources. By one estimate, four of five peptides sold on the web are “adulterated or outright fakes.”⁵ The better way to go? A compounding pharmacy that fills customized prescriptions by licensed physicians in a highly regulated, sanitary environment. Additionally, you'll need to find the right doctor. Peptides are *pleiotropic*, meaning they have multiple effects, so you'll want someone experienced in supervising their use. The International Peptide Society can suggest certified medical practitioners.

Here's a quick review of three common peptides as a basis for further research by you and your regenerative physician:

Peptide: Thymosin alpha-1 (TA-1)

Indication: Strengthen the immune system; combat age-related decline

Summary: As you age, the thymus gland gradually turns into fat tissue and stops producing the robust battalions of T cells that fight off infections or eliminate rogue cancer cells. If you had to choose a single peptide to help address immunological aging, thymosin alpha-1 may be the one.

TA-1 has proven its ability to stimulate the immune system in both animal and human studies. It has also shown promising data in fighting liver and kidney disease and rheumatoid arthritis. Also, TA-1 is FDA-approved for malignant melanoma, hepatitis B, and hepatitis C. Its safety record is outstanding.

Peptide: GHK-Cu

Indication: Revive skin and restore hair

Summary: The peptide GHK-Cu is a topical foam that can be used daily to improve fine lines and wrinkles. It counteracts cosmetic aging by boosting collagen synthesis up to seventy percent.⁶ According to William Seeds, MD, chairman of the International Peptide Society, GHK-Cu also stimulates wound healing and “amazing hair growth.”⁷

Melanotan I has also shown promising results in skin health. Specifically, it darkens skin by stimulating the production of melanin pigment production. Melanotan I is FDA-approved for treating skin damage in people with light intolerances and may also help those struggling with mold toxicity. Generally, it offers aesthetic benefits and may even have some intriguing side benefits: higher fat

metabolism and increased libido.

As an honorable mention, the peptides MOTS-c and Humanin are derived from the mitochondria—the powerhouses of the cell. Among other functions, they may revitalize carbohydrate and fat metabolism. This category of mitochondrial peptides is a potential wellspring of future innovation for longevity, health span, and peak performance. Δ

TONY ROBBINS is an entrepreneur, *New York Times* bestselling author, and philanthropist honored by Accenture as one of the top fifty business intellectuals in the world. Robbins has consulted and coached some of the world's top athletes, entertainers, Fortune 500 CEOs, and four US presidents. Through his philanthropy and partnership with Feeding America, he has provided more than 800 million meals and is on track to provide one billion meals by 2025.



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Getting Health Clues from Your DNA

By Anne Bodensteiner, PhD, RDN, LRD

RECENT RESEARCH into the human genome has allowed scientists to uncover links between human behaviors, risk factors for certain diseases, and even body size. As genetic tests become increasingly popular, it's important to remember that (1) your genes aren't your destiny, and (2) knowing your risk factors can encourage positive lifestyle changes to increase both health span and lifespan.

Most genetic information related to wellness traits does not mean you are destined to have a certain disease. Rather, it suggests that you may increase the chance of developing that condition if your lifestyle contributes to poor health.

While some people may have an increased predisposition to diabetes, they may be able to avoid high blood sugar with a balanced diet and regular physical activity. In other words, your behaviors, lifestyle, social interactions, and exposure to toxins can impact the way your genes work.

In the field of genetic testing, there are some interesting genes that have been associated with health traits. For example, did you know genes can influence the way you metabolize caffeine? Or that your body size may be determined by hundreds of different genes? Genetic tests can even help reveal your sleep patterns, food allergies, whether you like bitter foods, or your potential for ligament tears.

Ultimately, if you take a genetic test and it reveals higher risk for a disease, there is no need to fret. You have greater control over what happens and knowing this information can empower you to make informed choices about your health. Δ

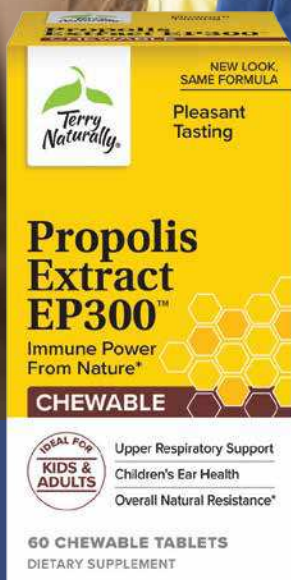
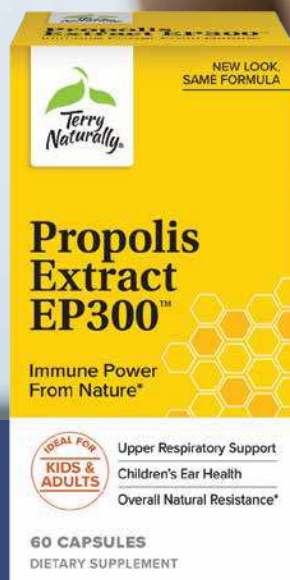
ANNE BODENSTEINER, PHD, RDN, LRD. Assistant Clinical Professor and Graduate Program Director Department of Nutrition and Dietetics, University of North Dakota

“Peptides are the sheet music containing the notes, phrases, and rhythms that allow the orchestra—the body—to play as an integrated entity. And the music that results is the tone or feeling that you experience subjectively as your emotions.”

—From *Molecules of Emotion* by Candance B Pert, PhD Scribner (1997), page 148

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Need-to-Know Benefits of Propolis

By Terry Lemerond

HONEY isn't the only healing substance honeybees are known for. They also produce propolis—a brown, waxy resin made from leaf buds and tree sap flows mixed with the bee's saliva, beeswax, and pollen.

Sometimes called “bee glue,” propolis is used by honeybees for a variety of functions, including to seal holes and cracks in the hive, maintain the hive's internal temperature, and as an embalming substance to mummify invaders and prevent contamination of the hive. Effectively, propolis is the hive's immune system—blocking all types of disease and infection-causing microorganisms that would be expected to thrive in a warm, high humidity environment.

It is unsurprising that beehives are scientifically validated as among the cleanest environments in the natural world, all because propolis' powerful barrier that wipes out bacteria, fungi, and viruses.

Propolis comes from the Greek word “pro” meaning “for” and “polis” meaning “the city.” In short, “for the city” is exactly what propolis does.

Healing Applications

PROPOLIS HAS PROFOUND IMPLICATIONS for humankind, as validated by science for decades. Researchers have identified more than 300 elements in propolis that exert a broad spectrum of biological properties, including anti-



crobial, immunomodulatory, antioxidant, anti-inflammatory, antiallergic, dermato-protective, laxative, antidiabetic, and antitumor activity.¹

Even though the leaf and tree sap sources for propolis may vary for honeybee colonies around the world, researchers find that colonies everywhere are protected by its impressive pathogen-fighting actions.

Viruses

WITH AN INCREASE in immune-related diseases, such as allergies, psoriasis, and Type I diabetes, research is now examining the role of propolis in potentiating the host defense system when the immune response is not sufficient to manage a specific infection or pathological condition.

In other words, propolis has been labelled an “immunomodulatory” substance, meaning it can enhance the immune response when needed.

A 2021 review showed that propolis is effective in suppressing the growth of the H1N1, H0N1, and H3N2 viruses as well as retroviruses, such as HIV.² Another plus: propolis can help heal cold sores caused by a herpes simplex virus.³

In a study published in the journal *Biomedicine Pharmacotherapy*, a consortium of Brazilian and US researchers concluded, “Propolis has also shown promise as an aid in the treatment of various of the comorbidities that are particularly dangerous in COVID-19 patients, including respiratory diseases, hypertension, diabetes, and cancer. Given the current emergency caused by the COVID-19 pandemic and limited therapeutic options, propolis is presented as a promising and relevant therapeutic option that is safe, easy to administer orally, and is readily available as a natural supplement and functional food.”⁴

Bacteria

MUCH LIKE PROPOLIS can help keep the beehive safe from bacterial infections, it has applications in preventing and treating bacterial infections in humans as well. This protection ranges from a simple infected cut to serious food poisoning caused by the *E. coli* bacteria, and potentially life-threatening infections linked to *Staphylococcus aureus*

(MRSA) bacteria. Researchers have credited propolis with “broad spectrum” antibiotic properties that may even enhance the safety of conventional antibiotics.⁵

The polyphenol compounds called flavonoids are largely responsible for many of the protection the propolis provides. In some cases, the flavonoids simply enhance the immune system, in other cases, they act directly on the bacteria causing the infection. Among the flavonoids, ar-

tepillin C has been found to kill the staph bacteria that causes potentially fatal infections.⁶

Another extract of propolis called kaempferide is confirmed against *Staphylococcus Saprophyticus*, *Enterococcus Faecalis*, and *Listeria monocytogenes*—gram-positive bacteria responsible for urinary tract and abdominal infections, meningitis, cellulitis, encephalitis, vaginal infections, and more.⁷ Of note, many of these bacteria are notoriously antibiotic resistant.

Combination Infections

EAR INFECTIONS (otitis media) are a common childhood malady that can be caused by a virus, bacteria, or both. Statistics show five out of six children have had at least one ear infection by the time they are three years old. It’s not surprising that ear infections are the number one reason children are brought to the doctor.

Ear infections stem from an obstruction of the eustachian tube—the canal that connects the middle ear with the throat and equalizes the pressure between the outer and middle ear. When that canal gets blocked as a result of a pathogen or even an allergy, fluid backs up into the ear.

Childhood ear infections are becoming more and more difficult to treat in an era of increasing antibiotic resistance but propolis may provide a solution. Clinical studies have shown that propolis can reduce the duration and severity of ear infection, reduce the need for antibiotics, and prevent recurring infections. By activating the immune and natural defense systems, propolis offers safe treatment and prevention without the use of medications that can have serious side effects.

“Childhood ear infections are becoming more and more difficult to treat in an era of increasing antibiotic resistance but propolis may provide a solution. Clinical studies have shown that propolis can reduce the duration and severity of ear infection, reduce the need for antibiotics, and prevent recurring infections.”

— continued on following page

Fungi

THE *CANDIDA* YEAST FAMILY, especially *Candida albicans* (a fungus), is often the cause of a great deal of discomfort in the gut, mouth, and genitourinary (genital and urinary) organs. This may in part be because the overuse of antibiotics paves the way for yeast overgrowth in various parts of the body, primarily in the gastrointestinal tract.

Ongoing research confirms that propolis is effective against a broad variety of *Candida* infections, including those resistant to pharmaceutical drug treatment. Brazilian research has found it is especially effective against thrush—a common yeast infection of the mouth, often affecting adults with dentures. Another Brazilian study showed propolis is an effective treatment for vulvovaginal candidiasis—a common infection of the lower female reproductive tract caused mostly by the opportunistic fungus *Candida albicans*.⁸

Parasites

RESEARCH FROM IRAN AND INDIA confirms that propolis is an effective treatment for various parasitic diseases, including malaria, trichomoniasis (sexually transmitted), toxoplasmosis (from cat feces or contaminated meat), Chagas disease, and leishmaniasis (tropical infections transmitted by insects).^{9,10}

According to a 2021 review published in *Biology*, propolis stands out as a promising treatment for infectious diseases that lack adequate therapies due to the resistance of pathogens to drugs. “Propolis presents a great spectrum of components that could be used to treat characteristic features of distinct diseases. Not all propolis present the same activities; depending on the flora of the geographical area, each propolis has a different chemical composition with unique biological activities, making propolis a promising source of discovering molecules, which can be used in different clinical situations.”¹¹

This is further confirmation that propolis offers a safe, effective, and far-reaching solution to a broad range of infectious diseases.

Cancer

ONE OF THE MOST IMPRESSIVE REVIEWS of the research on propolis and cancer comes from a group of scientists at Chulalongkorn University in Bangkok, Thailand, who demonstrated a range of propolis’ anticancer effects:

- Neutralizing free radical damage
- Stopping out-of-control cell lifespans
- Optimizing immune system response

- Stopping cells from metastasizing throughout the body, usually through the bloodstream

Additionally, recent research found that propolis induces apoptosis—validating its effectiveness against several types of cancer, including breast, prostate, colon, pancreatic, brain and oral cancers, leukemia, and melanoma. Propolis re-establishes communication between cells—effectively restoring the cells’ lifespan and inhibiting tumor growth.

A 2021 study published in *Nutrients* found that propolis is a rich source of biologically active compounds that may inhibit proliferation, angiogenesis, and metastasis of cancer cells. Authors wrote, “Propolis is one of the most interesting substances produced by honeybees. Its antibacterial, antifungal, and immunomodulatory properties have been known since antiquity. Propolis also has an anticancer effect. Through [various signaling] pathways, propolis can induce apoptosis, cell cycle arrest, and reduce proliferation, viability, invasion, migration, and chemoresistance of cancer cells.”¹²

Angiogenesis

ALL LIVING BEINGS require nutrients in some form to survive. Cancer cells and cancerous tumors are no different. Angiogenesis is the process of growing a blood vessel network to nourish a cancerous tumor and allowing it to thrive and grow.

It stands to reason that cutting off that blood supply and oxygen, thus eliminating nutrients, will stop a cancerous tumor from growing and spreading. Numerous studies show that propolis, and especially *CAPE*, sparks angiogenesis by helping shrink the tumor-feeding network of blood vessels.

In addition to *CAPE*, other ingredients of propolis such as artemisinin, galangin, kaempferol, and quercetin showed an ability to stop angiogenesis and starve tumors.

CAPE

CAPE (caffeic acid phenethyl ester) is one of the most powerful polyphenols present in abundance in propolis. It kills rogue cells and regulates inflammation—both major factors in most types of cancer. It also boosts apoptosis. In the simplest terms, this means that propolis tells the immune system to control abnormal cell growth.

Wound & Burn Healing

PROPOLIS has been confirmed to boost collagen production, helping grow new skin cells to replace damaged ones. “Propolis, which is well tolerated with rare incidents of allergy and no toxicity, is referred to as an excellent

candidate for burn management, enhancing skin cell proliferation, activation, and growth capacity,” wrote Italian researchers in the journal *Burns and Trauma*. Notably, the authors suggest that propolis’ wound healing effects may be especially important for people with diabetes, who often experience slow wound healing.

Tooth Decay

A MUCH-OVERLOOKED BENEFIT of propolis is in various bio-dental applications. According to a 2017 study published in the *Journal of Dental Research, Dental Clinics, Dental Prospects*, propolis extract has cariostatic effects, and limits plaque formation on the tooth surface, ultimately reducing dental caries. “...Brazilian propolis possesses significant antimicrobial effects against *Streptococcus mutans* in the oral cavity by inhibiting the enzyme activity and cell division...Further, propolis could be used as an alternative and natural therapy against the infectious condition of the oral cavity with no reported side effects.”¹³

A Brief History

The medicinal properties of propolis have been used for millennia—from oral care to mummification:

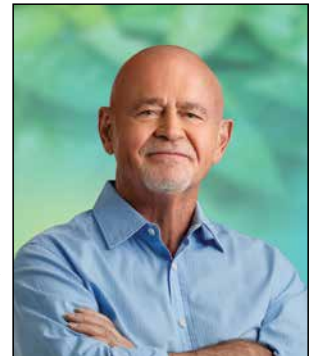
- Propolis was carried into war by Roman soldiers as early as 100 BC for its wound healing properties.
- In 1600, propolis was listed as an official drug in the London Pharmacopeias.
- Russian soldiers carried propolis, sometimes called “Russian penicillin,” into the battlefields of World Wars I and II.
- Ancient Jews referred to propolis as “Tzori” and used it as medicine. The therapeutic properties of Tzori are mentioned throughout the Old Testament.
- Greeks used propolis as the primary ingredient of polyanthus—a perfume that combined propolis with aromatic herbs and essential oils.
- Hippocrates is thought to have turned to propolis to treat wounds and ulcers, both external and internal.
- Pedanios Dioscorides, “The Father of Pharmacognosy” who lived around 50 AD, recorded medical uses of propolis in *De Materia Medica*.
Dioscorides wrote, “The yellow bee glue that is of a sweet scent...is soft and easy to spread after the fashion of mastic. It is extremely warm and attractive and is good for the drawing out of thorns and splinters. And being suffumigated it doth help old coughs and being applied it doth take away the lichens.”
- Literature from the twelfth century mentions medicinal preparations containing bee glue in the treatment of both oral and pharyngeal infections, and dental caries.

Safety

PROPOLIS HAS BEEN PROVEN safer than antiviral pharmaceutical drugs, even in pregnant women and those with diabetes. It has also been shown to protect the heart, lungs, liver, and kidneys, among other organs.

Propolis is commercially available in the form of topical creams, lozenges, mouth rinses, and toothpastes. Plus, it has a variety of therapeutic advantages—from safety and cost-effectiveness to limited allergic reactions and biocompatibility with the human cell. Δ

TERRY LEMEROND is a natural health expert with over fifty years of experience helping people live healthier, happier lives. Terry shares his nutrition and health knowledge through his newsletters, podcasts, webinars, radio program, and his website TerryTalksNutrition.com



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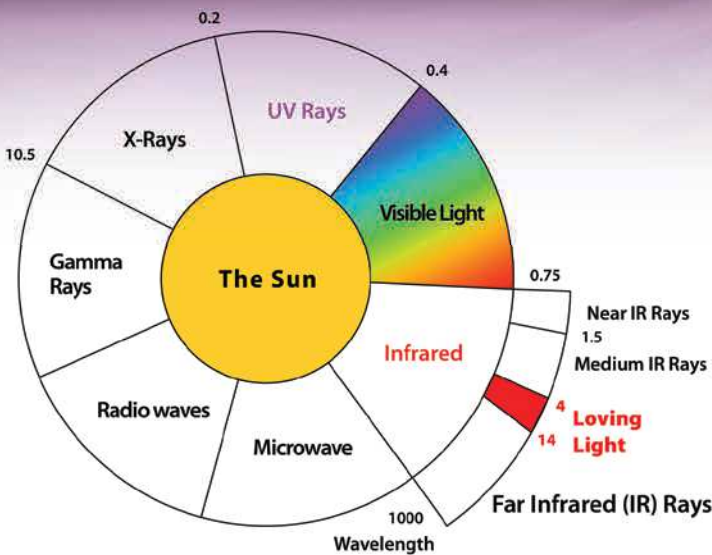
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Health Notes

Hyperbaric Oxygen Therapy: Oxygen Under Pressure

By MARK HYMAN, MD

MOST EVERY SCUBA DIVER knows about the decompression chamber, also known as the hyperbaric oxygen chamber, used to repressurize the body to prevent decompression sickness—a medical condition caused by a rapid decrease in pressure, such as when floating up to the surface too fast.

Athletes use hyperbaric oxygen therapy (HBOT) to heal injuries and recover faster. Medical uses include wound healing, treating resistant infections (bugs don't love oxygen), and, increasingly, treating hearing loss and aiding in stroke recovery, traumatic brain injury, chronic fatigue, and even dementia and Parkinson's. Could HBOT extend life? Turns out it just might.

The treatment consists of “diving” down to what is the equivalent of more than 1 atmosphere (atm) below the surface of the ocean in a *100 percent oxygen environment*. Of note, being the equivalent of more than thirty-three feet (1 atm) to sixty-six feet under the ocean (2 atm) in a fully oxygenated environment is a hormetic stress to the body. For comparison, room air is only twenty-one percent oxygen.

Dose Makes the Poison

PURE OXYGEN is toxic in high doses when administered for prolonged periods of time. When given at the right dose for the right duration under pressure, it kicks your system into healing mode and boosts longevity.

Scientists from Tel Aviv University treated thirty people over sixty-four years old with sixty sessions over ninety days in a chamber at 2 atm in a 100 percent oxygen environment.¹ They found that HBOT can get rid of zombie cells and lengthen telomeres better than any other lifestyle or medical intervention.

The scientists literally reversed the biological age of these participants in only three months. That is an impressive result for a safe, well-established medical treatment. HBOT also works to enhance health and extend life through other established mechanisms, such as increasing new blood vessel growth (good for the aging brain and heart) and mitochondria production. It also increases stem cell activity and activates sirtuins, which improves nutrient sensing.²

Soon, this therapy may not just be for scuba divers, athletes, and those with difficult-to-treat wounds. It may prove to be a health-maintenance longevity strategy. While the “dose” of 2 atm used in this study requires a medical-grade chamber, lower doses are also being studied. Low-dose chambers can be safely used at home. Higher-dose at-home chambers are also now available. This is a low-risk strategy for longevity pioneers! Δ

MARK HYMAN, MD, is a senior adviser for the Cleveland Clinic's Center for Functional Medicine, board president for clinical affairs for the Institute for Functional Medicine, founder and director of The UltraWellness Center, and host of one of the leading health podcasts, *The Doctor's Farmacy*. He is the bestselling author of numerous books, including *Eat Fat, Get Thin*.

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Embodied Self-Awareness: Effective Communication Between Body, Mind, and Feelings

By Alan Fogel, PhD

STUDIES SHOW West Africans test higher on measures of interoceptive awareness compared to Europeans and North Americans, most likely because they have a cultural worldview that emphasizes the holistic connection between the head and the heart.

People from East Asian cultures are similarly better than Westerners in assessing their interoceptive awareness. This is most likely based upon centuries of traditional Asian health practices that recognize the shared contribution of both body and mental states.

Yes, we inhabitants of Western culture are seemingly too busy and distracted, too much in our own heads to slow down and feel ourselves. Dichotomies like mind versus body—

built into everyday language—are an unseen influence in keeping us away from feeling ourselves.

People with migraines, for example, may refer to the headache as “it.” “Why is *it* happening now?” Rather, accepting the migraine as part of one’s whole self and learning to pay attention to the muscle tension that precedes the onset of an attack can lead to reduction of pain and stress.

Interoceptive Awareness

The ability to identify, access, understand, and respond appropriately to the patterns of internal signals—providing a distinct advantage to engage in life challenges and on-going adjustments.

In the case of pregnancy, to take another example, the language is more favorable to the sense of embodiment. People say, “I am pregnant” rather than “I have a pregnancy.” That often changes, however, when it comes to giving birth. Researchers compared a group of women during childbirth who were instructed to just feel the sensations of each contraction as it came and went with a group who were given methods to distract themselves from the sensations. The latter group was being asked, essentially, to separate the mind from the body.

The women who were asked to attend to the sensations using the felt experience had less self-reported pain than the women in the distraction group.

You’d think that if you pay direct and undivided attention to pain or discomfort, it’d make the sensation worse. It turns out, fully embracing the felt experience changes the experience: the pain begins to feel less intense when we actually feel it and accept that it is a part of our embodiment in the present moment. Δ

ALAN FOGEL, PHD, is a Professor of Psychology Emeritus at the University of Utah and has been an active contributor to research on emotional development in human relationships from infancy through adulthood. Fogel is also a licensed massage therapist, a Rosen Method Bodywork Practitioner and Senior Teacher, and founding editor of the *Rosen Method International Journal*.

Well Being Journal adapted the above excerpt from *Restorative Embodiment and Resilience: A Guide to Disrupt Habits, Create Inner Peace, Deepen Relationships, and Feel Greater Presence* by Alan Fogel, published by North Atlantic Books, copyright © 2021. Reprinted by permission of publisher.



Nourish Your Body with Mindful Eating

By Michael J Shea, PhD

A SIMPLE AXIOM for healthy digestion is to remember to *drink your foods and chew your liquids*.

This is especially important for those who are following the recent trend of ingesting more liquid-based foods such as juices and smoothies. These constitute a meal and need to be consumed slowly (mindfully)—over a period of thirty to forty-five minutes if possible.

If the liquids are not sufficiently mixed with the saliva, there is a loss of mechanical signaling that chew-

ing provides along with the loss of chemical signaling from the saliva. The result is typically a sense of bloating and discomfort in the belly, especially if the fluids are cold. In fact, it’s advisable to drink them at room temperature or warmer.

The pylorus—a valve that connects the stomach and small intestine—allows three to five tablespoons of liquefied food (chyme) to exit the stomach at a time. If the food is not adequately chewed, it lingers until the acid and enzymes in the stomach can break it down more. Nothing leaves the stomach until it reaches a body temperature of 98.6 degrees.

That is why consuming cold liquids and foods during meals will slow down this process. Consider enjoying a cup of tea or warm water with lemon to prepare the stomach environment. Δ

MICHAEL J SHEA, PHD, is a founding board member of the Biodynamic Craniosacral Therapy Association of North America and the International Affiliation of Biodynamic Trainings. He is the author of several books, including *Somatic Psychology*, and lives in Juno Beach, Florida.

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