

THE EPOCH TIMES

MIND &

BODY

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Enjoy a Chemical-Free Summer

We're bombarded with toxins, but there are simple ways to limit our exposure

JENNIFER MARGULIS

After nearly a year and a half of being advised to stay indoors and socially distanced, people are eager to enjoy summer.

"We're going to concerts, dancing, comedy shows," says my friend Diane Sanny, a retired dental hygienist (and a newlywed) who lives in Ashland, Oregon. "We're looking for any excuse to be with people, laughing, having fun. Basically making up for all that lost time."

But it's not just fun—it's healthy—to spend time in nature and socialize with family and friends. Still, as you enjoy the warm weather and the long summer days, it's also important to limit your exposure to toxins.

Food that isn't farmed organically is often very high in toxic chemicals.

Chemical Overload

The bad news is that our bodies are being constantly bombarded with toxic chemicals. There are at least 80,000 chemicals ubiquitous in the environment, most of which haven't been sufficiently tested for their health effects. In fact, experts believe that an over-exposure to toxic chemicals is a major factor in poor health.

"Unfortunately, in our modern world we're burdened with a huge amount of toxins in our diet and in our environment," explains Dr. Mark Hyman in a video on his website.

Continued on Page 4



The Most Overlooked Risk Factor for Disease

How childhood trauma breaks our biochemistry and fuels disease

SINA MCCULLOUGH

Adverse childhood experiences (ACEs) are the most overlooked risk factor for chronic and autoimmune disease. ACEs are unresolved childhood trauma, which can be physical, mental, or emotional, such as:

- Parents separating or divorcing
- Physical, sexual, or emotional abuse
- Mental illness in the family
- Incarceration of a family member
- Substance abuse by a family member
- Financial difficulties

- Bullied in school
- Childhood illness that required hospitalization

Numerous scientific studies have concluded that ACEs are associated with increased risk for chronic and autoimmune disease. In women, the correlation between ACEs and developing an autoimmune disease in adulthood is as strongly linked as smoking and cancer. Furthermore, the more ACEs you have, the higher your risk of disease.

Continued on Page 6



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Traumatic events during childhood can change a person's stress response in ways that lead to a lifetime of pain and illness.

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TRUTH AND TRADITION



According to traditional Chinese medicine, now is the time to take stock of ourselves.

CHINESE WISDOM FOR SEASONAL LIVING

Autumn's Time for Us to Turn Inward, Clear Out Thoughts

Solar Term: 'Autumn Begins' (Aug. 7-22)

MOREEN LIAO

A solar term is a period of about two weeks and is based on the sun's position in the zodiac. Solar terms form the traditional Chinese calendar system, which follows the ancient belief that living in accordance with nature will enable one to live a harmonious life. This series explores each of the year's 24 solar terms, offering guidance on how to best navigate the season.

Solar Term: 'Autumn Begins'

2021 Dates: Aug. 7-22

It might be hard to believe, but according to the Chinese system of solar terms, we have already entered the season of autumn. This time is aptly named "Autumn Begins."

In ancient China, a "taishi" was a ranking official in charge of recording history and astrology. It was his duty to inform the emperor to begin a customary three-day fast right before the beginning of autumn. The emperor would lead his court nine "li" (about 2.8 miles) out of the west gate of the capital city to welcome the god of autumn.

Later, during the autumn equinox, the emperor would lead his court back to the center of the capital city to mark the arrival of the god of autumn on earth.

For the ancient Chinese, Autumn's descent from heaven on his earthly voyage was a time of rebirth and renewal. Just as nature ceases its abundant growth and sheds leaves down to bare branches, autumn is a good time for us to turn inward, to clear out thoughts and emotions that we don't need, and to even clean out closets and drawers.

According to the "bagua," a system of eight trigrams used in Taoist cosmology, autumn has three yang trigrams on top and three yin trigrams on the bottom. This indicates that yang is still dominating yin in autumn, but it's also receding.

This also is a hint that yin and yang, also known as the forces of good karma and bad karma, aren't strictly opponents of each other. Instead, they are actually two components of one object, and can transform into one another.

Living in Harmony With 'Autumn Begins'

Autumn is harvest season, and it's rich with vivid golden colors. In the Chinese five element theory, there is a cycle of states that matter, the human body, the earth, and society go through. For example, the element wood leads to the element of fire, which then leads to earth. Our body's organs are also associated with specific elements in Chinese medicine and both the season of autumn and our lungs are associated with metal.

When metal is unbalanced, it becomes hard to see our own value, and we tend to compensate by seeking things such as status, money, and material possessions. We may seek actual metal, in the form of gold or silver, or items that fulfill the sense of wealth we get from precious metals. Too much pursuit can reflect an imbalance in the metal element, which

could also manifest itself as a lung or respiratory condition.

Beware of getting bogged down by worries or negative emotions at this time, and do your best to find ways of letting go of your sadness, which is the dominant emotion of the lungs. Crying is an action of our breath and lungs.

Researchers have found depression is prevalent in patients with asthma. "All respiratory symptoms, such as wheezing, breathlessness and nightly symptoms, were more common, at a statistically significant level, in participants who had depression and anxiety, even after adjusting for confounders," notes a 2014 Nordic study.

For the ancient Chinese, Autumn's descent from heaven on his earthly voyage was a time of rebirth and renewal.

A 2019 study published in the International Journal of Environmental Research and Public Health found depressed smokers reported greater difficulty in quitting tobacco use, and they perceived more severe respiratory symptoms compared to non-depressed smokers.

Traditional Chinese theory states that those who get too depressed may damage their lungs or respiratory system. They may also catch the flu or a cold more easily than those who are emotionally stable.

Keeping your lungs free from cold air or cold drinks helps to protect them and prevent coughing. This can also promote smooth digestion and lead to better skin.

Additionally, a good massage, especially one that presses on acupressure points, can help to reduce cellulite and prevent toxins from accumulating at this time.

Seasonal Foods and Scents

Emphasize cooked food and avoid consuming too much cold food, such as raw salads. This can help you to avoid skin rashes or irritation, and keep your emotions stable.

Fewer stimulating flavors and mild food is what the season calls for, with the exception of sour-tasting foods, which nourish the lungs and respiratory system.

Enjoy almonds, banana, cabbage, celery, citrus fruits, eggs, ginkgo berries, leeks, olive oil, pear, white rice, soy milk or grain milk, white radish, and yams.

Scents are also powerful for cleansing and altering the mood in support of health and stable emotions. Try diffusing essential oils of basil, cypress, pine, melissa, or eucalyptus.

Epoch Times contributor Moreen Liao is a descendant of four generations of traditional Chinese medicine doctors. She is also a certified aromatherapist, former dean of the New Directions Institute of Natural Therapies in Sydney, and the founder of Ausganica, a certified organic cosmetic brand. Visit Liaomoreen.com

MEDICALLY CORRECT

Fear: A Disease of Our Time

We are overloaded with distressing data—and that has consequences

PETER WEISS

C.J. is a recently divorced 38-year-old mother "going through a lot of stuff." I hadn't seen her since the start of the pandemic. Entering the exam room, I saw her, and she was wearing a hat, two face masks, and oversized plastic gloves—at least she wore designer sunglasses. I was a little taken aback and asked if she was OK. She blurted out that she had received both vaccine doses, but she has a 7-year-old that she needs to protect.

Sadly, I've seen way too many patients like C.J. this past year. Fear has taken over their lives. It didn't matter how well I explained that her fears—while understandable with all the media hype—were irrational. They were only irrational to me. To her, they were rational. I get that.

Fear has become a disease of our time. Fear is commonly defined as the belief that someone or something is dangerous and likely to cause pain or act as a threat, such as a shark swimming next to you.

My fears include blood in the belly or a fetal heart rate dropping. That's probably because I spend half of my time in my clinic and the other half as a hospitalist, managing emergencies that show up in the emergency department or labor and delivery.

Fear is a healthy emotion to own when applied within reason. But there are also irrational fears that don't compel us toward better decisions—only toward more fear.

False fear lives only in our thoughts and imagination. We all exhibit false fear at some time in our lives, but we usually handle it and it quickly subsides. Like my fear of tight spaces. I don't like it, but I can control it. That said, don't ever put me in the middle seat on an airplane!

I asked C.J. what she was afraid of. Her response was "dying from COVID and leaving my daughter alone." She now homeschools her daughter and only ventures out when absolutely necessary. She quoted statistics she had read and stories she had heard from TV and social media. Those statistics even scared me! Never mind that they were false, but she believed them.

How does a smart, seemingly rational person start down this rabbit hole of fear? Fear-mongering media companies certainly play a role. And the consequences of this fear are severe. This type of pathological fear becomes anxiety, worry, and stress. Since the pandemic, we've seen skyrocketing rates of



Compassion and finding common ground can go a long way in helping someone who is overcome with fear.

ANTONIO GUILLEM/SHUTTERSTOCK

Since the pandemic, we have seen skyrocketing rates of anxiety and stress-related disorders, as well as other serious mental health issues.

Every action we take in medicine or health care policies has unintended consequences, and that includes lockdowns and social distancing requirements. The increase in teen suicide rates since the lockdowns is one example. So is the increase in people—including children—being medicated with anti-anxiety and anti-depression medications.

How does one combat these irrational fears? The root of the problem is that these fears are based on belief—and all too often, our beliefs become fixed. We stop taking in new facts, revisiting our assumptions and only accepting information that validates what we already believe.

If you meet someone like this, finding common ground is a good first step. Acknowledge that the person's fears are real to them. Not the illusory facts, but the fear itself. Don't invalidate how they feel.

I told C.J. that I know COVID-19 is bad and none of us want to get it. I told her how I had operated on active COVID-19 patients, but controlled my fear. That may not have been the best thing to tell her, since she looked set to hold her breath until I left the room.

I'm not going to tell you that I convinced her that all was fine and she should start to live her life again. I did get her to agree to talk with a therapist who could help her and, by doing so, help her daughter as well.

This pandemic of fear is, in part, rooted in being overloaded with limited types of data. Our brains have to sift through and determine what we think is or isn't valid. Unfortunately, some numbers are broadcast over and over again, such as the number of new COVID-19 infections, while other numbers are rarely heard, such as the number of people infected who never even felt ill. Even as we are overwhelmed with some data, we are deprived of crucial context for other data. Sometime we just need to take a break from data dumps that offer nothing but fear.

Amid all of this uncertainty, finding support is critical. This can be spiritual (religious networks), physical (exercise and the outdoors), and mental (meditation and soothing activities like hobbies).

There are studies that find higher intensity exercises can be very beneficial for treating anxiety and fear. Yoga has been shown to reduce symptoms of generalized anxiety.

C.J. actually sent me a note a few weeks ago. She was doing much better. She started going on long walks with her daughter. They even went to the beach. She did see the therapist to whom I referred her, which was of great help.

When I went into medicine, I never thought I would be counselling my patients as though I were a therapist. However, it's amazing how much we can all learn by just listening to what another person is saying and being able and willing to help. Many people just need someone in their life to help put their irrational fears in check and encourage a broader perspective. It's something we may all want to consider, given the dangers of too much fear. Yoda said it best. "Fear is the path to the dark side. Fear leads to anger. Anger leads to hate. Hate leads to suffering."

Dr. Peter Weiss has been a frequent guest on local and national TV, newspapers, and radio. He was an assistant clinical professor of OB/GYN at the David Geffen School of Medicine at UCLA for 30 years, stepping down so he could provide his clinical services to those in need when the COVID-19 pandemic hit. He was also a national health care adviser for Sen. John McCain's 2008 presidential campaign.

Kids Who Had Mild COVID Still Have Antibodies Months Later

SARAH AVERY

Researchers have found robust antibody responses up to four months after infection in children and adolescents who had mild to asymptomatic cases of COVID-19.

All children, regardless of age group, had equivalent or slightly higher levels of antibodies than adults at two months and four months after acute infection.

The study found that the children and adolescents who previously had COVID-19 developed antibody responses capable of neutralizing the SARS-CoV-2 virus. Further, these responses were comparable or superior to those observed in adults.

"The study shows that children who've had mild infections or even those who did not have any symptoms, develop an immune response that will likely provide some protection against future infections," said co-lead author Jillian Hurst, assistant professor in the pediatrics department at Duke University School of Medicine.

The researchers evaluated the SARS-CoV-2-specific immune responses in 69 children and adolescents, with ages ranging from 2 months old to 21 years old. The median age of participants was 11.5 years, and 51 percent were female.

The researchers measured antibody responses among children and adolescents with asymptomatic and mild symptomatic SARS-CoV-2 infection and found that the antibody response didn't differ based on the presence of symptoms, and SARS-CoV-2 neutralizing antibodies remained detectable in the majority of participants up to four months after infection.

The researchers also compared the children's immune responses to those of adults. They found that all children, regardless of age

Even if a child with COVID-19 had mild or no symptoms, research shows strong antibodies that will likely protect the child against future infections.



MA STUDIO/SHUTTERSTOCK

group, had equivalent or slightly higher levels of antibodies than adults at two months and four months after acute infection.

"Most studies of the immune responses of children to SARS-CoV-2 have focused on patients hospitalized for severe COVID-19 or multi-system inflammatory syndrome in children (MIS-C), or have assessed immunity only during acute infection," Fouda said.

"Our study provides important information that SARS-CoV-2-specific immune responses, regardless of disease severity, may decline over time more slowly in children and adolescents."

The study of 69 children appears in JCI Insight.

The study received funding from the Duke University School of Medicine; the U.S. Department of Veterans Affairs, Veterans Health Administration, Office of Research and Development; the National Institutes of Health; the U.S. Defense Advanced Projects Agency; and Virology Quality Assurance. COVID-19 samples were processed at the Duke Regional Biocontainment Laboratory, which received partial support for construction from NIH.

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Enjoy a Chemical-Free Summer

We're bombarded with toxins, but there are simple ways to limit our exposure

Continued from Page 1

Hyman is an integrative doctor and founder of the UltraWellness Center in Lenox, Massachusetts.

These toxins include plastics, pesticides, phthalates, BPA, flame retardants, mercury, lead, and arsenic.

As Hyman explains, these toxicants can actually be the cause of obesity and many other health issues, including liver and kidney malfunction, hormone imbalances, and even brain disruption.

The good news is that once you're aware of the toxins hiding in your food, water, beauty products, lawn—and even in your furniture and multivitamins—you can take steps to avoid them. You can choose nontoxic alternatives—like cleaning with vinegar—and make easy (and often inexpensive) lifestyle changes. And when you do, you reap the myriad health benefits that come with making safer choices.

Small Steps

So how do you limit your exposure to potentially harmful chemicals without making yourself crazy?

"Don't let the perfect be the enemy of the good," insists Dr. Rick Kirschner, past president of the Naturopathic Medicine Institute. "You start at the foot of the mountain instead of trying to jump to the top. The longest journey begins with that single step. For everyone, the biggest changes always happen one small step at a time."

Kirschner, who lives in Sandpoint, Idaho, argues that the best way to reduce your exposure is to think about your bigger goals. Start by imagining where you want to be and what's keeping you from getting there.

For example, much of your toxic exposure comes from the foods you eat, drugs you take, and lifestyle factors like staying indoors or smoking. Reducing these exposures may seem daunting.

But if your goal is to live a longer and more vibrant life, you can find motivation in a visit with older adults you admire. Ask them to share their secrets and how they lived their life. They didn't have smartphones and Netflix, so how did they entertain themselves? You can also read up on longevity research (Dan Buettner's "The Blue Zones" is a great place to start; as is Chris Crowley and Henry S. Lodge's classic "Younger Next Year"). Or start an accountability or toxin-free living group with like-minded friends so you can keep each other on track and share tips.

That's the big picture. But what can you do today, right now, to enjoy your summer fun free from toxins?

Bring Water

It's hot out there and you need to stay hydrated. Good hydration helps your kidneys and other organs function properly. It also helps regulate body temperature and improve sleep, brain function, and mood, according to researchers at Harvard University.

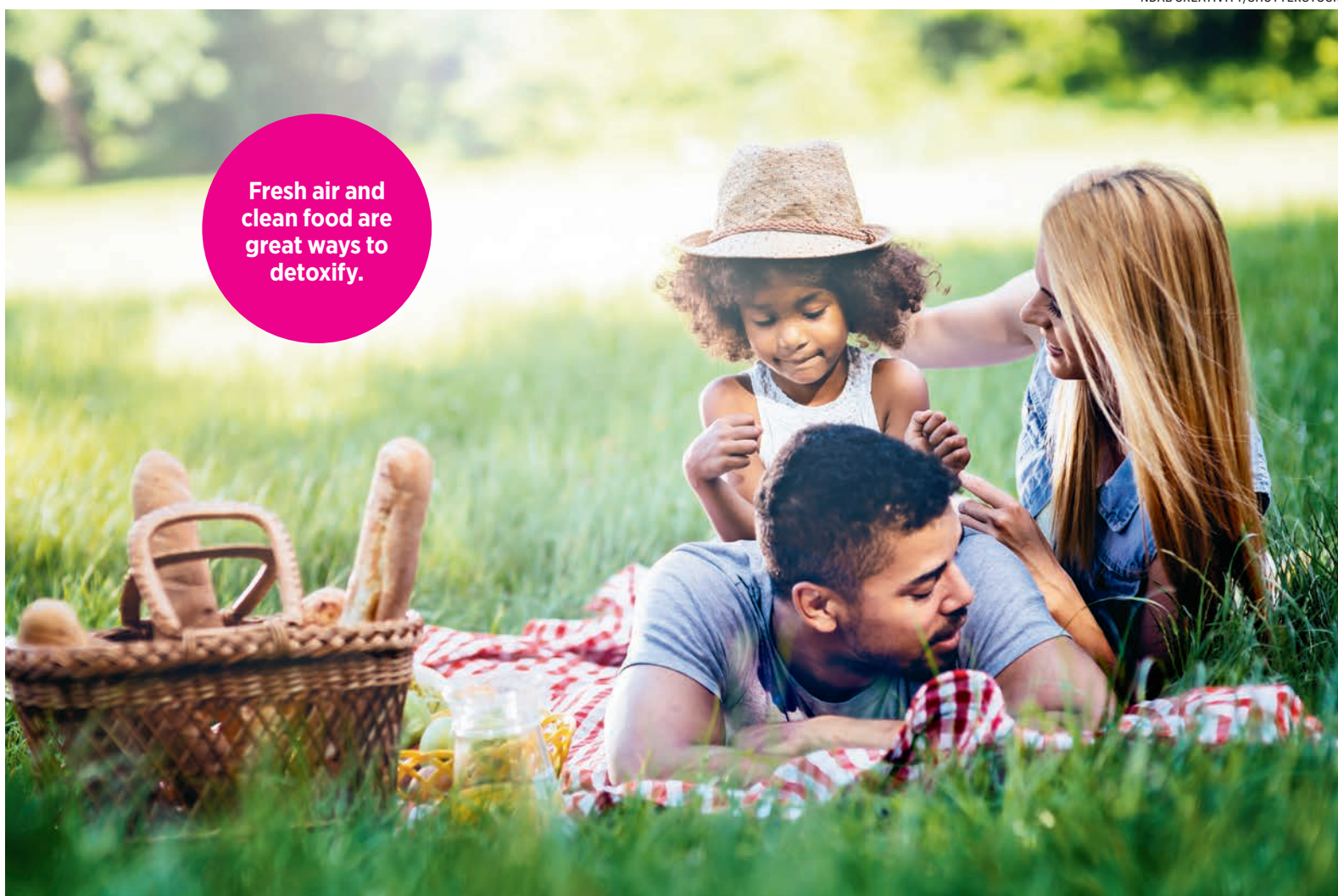
Skip the sugar-laden, dye-filled conventional sodas and opt for filtered water instead. But not plastic bottled water. Bottled water in plastic containers is a poor choice for the environment and for your body. Consider this: A 2018 study published in *Frontiers in Chemistry* found that 93 percent of bottled water contains microplastic, some of which was visible to the naked eye. Especially if the water is heated (from, say, sitting in a hot car), chemicals in the plastic bottles, including bisphenol-A, can leach into it. So when you're thirsty, buy spring water in glass containers. Or, even better, bring your own filtered water in a stainless steel thermos or glass bottle from home.

Disavow Dyes

What you eat matters. We all know that. But at the same time, we're bombarded with images of gorgeous happy people eating doughnuts, sweetened yogurt, and toaster pastries. Food dyes have been linked to hyperactivity and attention disorders in children and found to be contaminated with carcinogens, according to the Center for Science in the Public Interest's report "A Rainbow of Risks."

We know bright pink cotton candy contains Red Dye No. 40 and Smurf blue ice cream usually has Blue Dye No. 1 or No. 2. But even if you think you're making healthy food choices, you may be unwittingly eating food dyes.

Conventional pickles, canned fruit, and even salmon are often prettied up with



Fresh air and clean food are great ways to detoxify.

food dyes. The key to avoiding these toxins is to choose whole foods over packaged items (cucumbers make a refreshing summer snack) and read the ingredient labels. If dyes—or ingredients you don't recognize—are listed on the packaging, put the item back on the shelf.

Go Organic

It's not easy to change your eating habits. In fact, Dr. Sidney Baker, an integrative doctor I spoke with in 2019 for an article on aging, said that in his long career, he found that it was harder to get people to change the way they eat than to change their religious affiliation. You may feel strongly that buying organic isn't worth it. Or you may simply take comfort eating the processed foods you grew up eating.

In her new book "Toxic Legacy," Stephanie Seneff, a senior research scientist at the Massachusetts Institute of Technology, describes environmental toxicants, in particular, glyphosate (the main ingredient in the herbicide Roundup), as a "slow kill." Food that isn't farmed organically is often very high in toxic chemicals such as glyphosate and glyphosate-containing formulations. As Seneff points out, this ubiquitous herbicide has been linked to non-Hodgkin lymphoma and other negative health effects, including gluten intolerance and even infertility.

Though even some organic food has been found to contain glyphosate (likely due to nearby non-organic producers) and other toxic chemicals, the best way to limit your exposure to herbicides and pesticides is still to choose organic over conventional foods as often as possible. This is a trend that is gaining traction. Many grocery stores are now stocking organic produce and other items at comparable pricing to conventional food.

Prune Products

What's in the drawers in your bathroom? How about the cupboards under your kitchen sink? Though you may not realize it, it's likely that some—perhaps many—of the products you're using are teeming with chemicals and toxins.

Many cosmetics contain quaternium-15, a preservative that off-gasses formaldehyde. Conventional baby care products and hair relaxers are often contaminated with 1,4-dioxane, a petroleum-derived cancer-causing chemical also found in soaps, shampoos, and laundry detergents (even though it's not listed on the ingredients).

Go through your home one room at a time. Read the labels on the beauty care products, cleaning products, and even your toothpaste. Opt for fragrance-free, dye-free products containing ingredients you recognize.

If it feels too expensive to buy organic beauty care, skincare, and cleaning products, try making your own. Even if you aren't a DIYer, making your own counter spray, dish detergent, and laundry soap is

Experts believe that an over-exposure to toxic chemicals is a major factor in poor health.



Food dyes may pretty up our food but they add toxins to our bodies.

MICHELLE LEE PHOTOGRAPHY/SHUTTERSTOCK

Bring filtered water with you in a glass bottle and avoid plastic bottled water as it contains microplastics with hormone-disrupting chemicals.



easy. And, at just pennies a batch, homemade cleaning products are less toxic and less expensive.

Move More

Most of us don't usually think of stress as a toxin but many doctors argue that it is. Stress triggers a biochemical shift that leaves the body with too much cortisol, the fight-or-flight hormone that suppresses the immune system even as it raises blood pressure and blood sugar. This hormone shift prepares us for immediate action, but puts us in a debilitated state for most of life's demands. The more anxious we are, the harder it is to think clearly, sleep deeply, and enjoy life.

Researchers at the National Institutes of Health and elsewhere have found that while infrequent, short-lived stress can be beneficial, chronic and acute stress can cause physical decline, cognitive impairment, and even immune dysfunction.

A fabulous way to alleviate toxic stress is with gentle exercise. Daily exercise not only improves your mood and reduces your anxiety levels, it also helps your body rid itself of toxins. Kirschner (the past president of the Naturopathic Medicine Institute) prefers to think of it as movement, rather than exercise. It's not about breaking your bench press record at the gym or running a marathon, it's about incorporating movement into your day—stand up every 20 minutes while you're doing desk work, take the stairs instead of the elevator, park several blocks from your destination, and take other opportunities to get in a quick walk.

"My wife told me one day doing yard work is like going to the gym," Kirschner says, "and it made doing the yard work a real pleasure."

If you need an example for inspiration, consider the date my friend Diane and her husband, Richard Ulrich, are planning for the weekend: a picnic in the park. Sanny will make organic butter lettuce wraps with curried chicken and celery. Ulrich will cut up organic watermelon and pack it in a glass container. They're also bringing carrot and cucumber sticks to dip in hummus. And they'll sit by Bear Creek in Lithia Park, listening to the burbling water, and taking turns reading "The 5 Love Languages" out loud to each other. That's the kind of detox we could all enjoy.

Jennifer Margulis, a regular contributor to *The Epoch Times*, is an award-winning journalist based in Oregon.

It is important to spend time outside because the products in our home, including furniture and flooring, lower the quality of indoor air.

Resveratrol Can Help Repair Skin Damage

This plant compound lends its protective properties to people, research finds

JOSEPH MERCOLA

Resveratrol is a naturally occurring compound designed to increase the lifespan of plants by helping them resist disease and stressors related to changes in the climate, such as too much ultraviolet light.

These polyphenols are found naturally in the skin of grapes, blue and purple berries, and dark chocolate. Research indicates resveratrol has a noteworthy list of therapeutic effects for people. For instance, it may help regulate neurological inflammation and reduce the development of neurodegenerative diseases.

One area of focus for this intriguing phytonutrient is wound healing. An animal study published in July demonstrated one way resveratrol helps skin wound healing. This is significant since chronic wounds are a considerable health challenge and expense.

One study published in 2018 aimed to determine the cost of chronic wound care for individuals who receive Medicare benefits. They used a retrospective analysis of the data to estimate that Medicare spends from \$28.1 billion to \$96.8 billion on wound care, including infection costs, in just one year.

The most expensive appeared to be surgical wounds, followed closely by diabetic foot ulcers. The researchers concluded that expenditures for wound care were "far greater than previously recognized." The data revealed there were approximately 8.2 million people who "had at least one type of wound or infection."

One paper published in 2019 evaluated the results of 28 studies and found analyses aligned with past research, identifying the vast majority of wounds were chronic leg ulcers, a common complication of Type 2 diabetes. Some of the identified factors that affect wound healing include hydration, blood circulation, obesity, smoking, nutrition, and diabetes. Resveratrol addresses several of the factors that undermine wound healing and may reduce the number of chronic wounds and support wound closure. Data from the most recent study is encouraging.

Resveratrol May Promote Wound Healing

Researchers have been investigating the skin-healing properties of resveratrol for years. The focus of the study has moved from demonstrating that resveratrol has a positive impact on wound healing to trying to identify the specific mechanisms at play.

Resveratrol was shown to increase granulation and wound healing in animal studies, and support skin healing, scarring, and photoaging [sun aging] in a review of 41 studies.

In 2020, a lab study demonstrated that resveratrol increased mesenchymal stem cell secretion of growth factors that improved impaired wound healing in a dose-dependent manner. In the same year, authors of another paper proposed that after reviewing the benefits of resveratrol on the skin, they believed that "topical resveratrol could be a valuable alternative not only for daily skin care, but also for the prevention and treatment of various cutaneous [skin] disorders."

Topical administration of resveratrol in mice with Type 2 diabetes improved chemical responses that correlated with higher blood vessel density, which suggested that resveratrol could promote endothelial [the cells that line the cavities of the heart and blood vessels] cell proliferation in those with diabetes.

The 2021 study published in *Laboratory Investigation*, sought to analyze one pathway that resveratrol uses to regulate skin repair. They used both a lab model and an animal wound-healing model, through which they evaluated cell viability and apoptosis [programmed cell death]. The researchers found resveratrol promoted cell proliferation and improved wound healing by increasing a single strand, noncoding RNA molecule called miR-212.

Neuroprotective Effects Support Brain Health

Evidence suggests resveratrol can cross



Resveratrol is a compound found in the skin of grapes, blue and purple berries, and dark chocolate that helps plants resist disease and environmental stressors.

the blood-brain barrier and may help regulate brain inflammation, which is a significant factor in the development of many neurodegenerative diseases. According to a report from Georgetown University Medical Center, giving resveratrol to individuals with Alzheimer's



Resveratrol helps restore the blood-brain barrier that protects brain tissue.

SUN_SET/SHUTTERSTOCK

helps restore the blood-brain barrier integrity and reduces the ability of harmful immune molecules to infiltrate the brain tissue.

By slowing the inflammation of the brain cells, it slowed the cognitive decline of individuals, as compared to a matched group of placebo-treated patients with Alzheimer's.

Resveratrol also has an effect on your bone density and quality of bone. In postmenopausal women, osteoporosis is a widespread and serious condition. As bones become more fragile and porous, they are at greater risk of fracture.

Of all people over age 50, approximately 50 percent of women and 25 percent of men may suffer a fracture in the years to come.

One study from the University of Newcastle in New South Wales found improvements in bone density in postmenopausal women who took 75 milligrams of resveratrol twice daily for 12 months. Bone density was measured with dual-energy X-ray absorptiometry scans, commonly called DEXA scans.

One author in the study said the modest increase at the femoral neck resulted in improvements and "a reduction in the 10-year probability of major fracture risk." Doctors prescribe replacement hormones and bisphosphonates to treat osteoporosis but, as mentioned in a study in *Nutrients*, their side effects can be so dangerous that they may outweigh the benefits.

The compound has also been found to improve blood sugar in those with Type 2 diabetes. After just eight weeks of supplementation, fasting blood sugar declined, high-density lipoproteins increased, and insulin levels improved.

A second study with 56 participants who had Type 2 diabetes and coronary heart disease found similarly encouraging results. The researchers concluded: "Resveratrol reduced fasting glucose, insulin and insulin resistance and significantly increased insulin sensitivity when compared with the placebo. Resveratrol also significantly increased HDL-cholesterol levels and significantly decreased the total-/HDL-cholesterol ratio when compared with the placebo."

One study showed resveratrol also activates autophagy, the process the body uses to break down and recycle dead cells. Another study showed it inhibits neuronal apoptosis, which could contribute to improved cognitive function. A human study in 2020 showed that "regular consumption of resveratrol can enhance cognitive and cerebrovascular functions in postmenopausal women, with the potential to slow cognitive decline due to aging and menopause."

Resveratrol Improves Bone Density, Blood Sugar, and Immunity

Evidence suggests resveratrol has many other health benefits. Studies have demonstrated it has anti-inflammatory, cardioprotective, antioxidant, antiaging, and chemoprotective properties. Additional blood flow to the brain has demonstrated it can improve learning, mood, and memory.

One 2019 study published in the journal *Nutrients* also finds it helps prevent chronic diseases or progression of chronic diseases through several immune pathways. The researchers wrote: "Resveratrol regulates immunity by interfering with immune cell regulation, proinflammatory cytokines' synthesis, and gene expression."

"Resveratrol can suppress the toll-like receptor (TLR) and pro-inflammatory

genes' expression. The antioxidant activity of resveratrol and the ability to inhibit enzymes involved in the production of eicosanoids contribute to its anti-inflammatory properties."

The immune-boosting potential of resveratrol has spawned an outgrowth of research into the possible effect it may have on cancers. Researchers wrote some of the mechanisms resveratrol uses that may alter the immune system include reducing the effects of mitochondrial damage, diminishing abnormal T-cell activation, and boosting natural killer cells.

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One author in the study said the modest increase at the femoral neck resulted in improvements and "a reduction in the 10-year probability of major fracture risk." Doctors prescribe replacement hormones and bisphosphonates to treat osteoporosis but, as mentioned in a study in *Nutrients*, their side effects can be so dangerous that they may outweigh the benefits.

The compound has also been found to improve blood sugar in those with Type 2 diabetes. After just eight weeks of supplementation, fasting blood sugar declined, high-density lipoproteins increased, and insulin levels improved.

A second study with 56 participants who had Type 2 diabetes and coronary heart disease found similarly encouraging results. The researchers concluded: "Resveratrol reduced fasting glucose, insulin and insulin resistance and significantly increased insulin sensitivity when compared with the placebo. Resveratrol also significantly increased HDL-cholesterol levels and significantly decreased the total-/HDL-cholesterol ratio when compared with the placebo."

While grapes are a source of resveratrol, you'll not get the neuroprotective and antiaging benefits by drinking red wine.

Gregorio Valdez, an assistant professor at Virginia Tech Carilion Research Institute, said there is so little resveratrol in wine that you can't drink enough of it to get the benefits. Additionally, alcohol has several significant negative effects on your health, including its effects on sleep, brain aging, and DNA.

One way to access the benefits of resveratrol is by eating muscadine grapes, which contain the highest concentration among foods, especially in the skin. Mulberries and blueberries are other good sources.

Be mindful of your intake, however, because fruit also contains fructose. A whole food resveratrol supplement containing bits of muscadine grape skin is another option.

Dr. Joseph Mercola is the founder of Mercola.com. An osteopathic physician, best-selling author, and recipient of multiple awards in the field of natural health, his primary vision is to change the modern health paradigm by providing people with a valuable resource to help them take control of their health. This article was originally published on Mercola.com

The Most Overlooked Risk Factor for Disease

How childhood trauma breaks our biochemistry and fuels disease

Continued from Page 1

For example, a study conducted by the Centers for Disease Control and Prevention in 2009, involving 15,300 men and women, concluded that if you have two or more ACEs:

You are 100 percent more likely to develop a rheumatic disease; you have a 70 percent increased risk of developing a TH1 dominant autoimmune condition, such as: Type 1 diabetes, multiple sclerosis, Hashimoto's thyroiditis, or psoriasis; and you have an 80 percent increased risk of developing a TH2 dominant autoimmune condition, such as lupus, IBD, asthma, allergies, or chemical sensitivities.

Childhood trauma changes the brain and lowers your stress threshold.

ACEs can contribute to disease, in part, because they prime you to be in a chronic state of fight-or-flight. Here's a familiar example: If you walk down the street and a tiger jumps out from behind a building, your body goes into a state of fight-or-flight. Your sympathetic nervous system is activated, which causes a release of adrenaline, cortisol, and other chemicals that are designed to help you get out of the stressful situation i.e., to either fight the tiger or run away.

The fight-or-flight response is a fantastic tool in that type of acute situation because it can save your life. However, most of us spend roughly 70 percent of our day in fight-or-flight, which can lead to disease. You may not think you are in a chronic state of fight-or-flight. After all, how many tigers do you see while walking down the street? But you don't have to be chased by a literal tiger or under physical stress to be in fight-or-flight, the evening news is more than enough. The

cause is irrelevant, at a biochemical level, your body views mental and emotional stress the same way it does wild tigers.

Furthermore, as a child, when you are faced with a threat, whether it's physical, mental, or emotional, you usually can't fight or run away. Therefore, the fight-or-flight impulse cannot be switched off, which results in changes to your physiology. For instance, childhood trauma resets the hypothalamic-pituitary-adrenal system, which lowers your stress threshold. In other words, you become stressed more easily. The resulting chronic low-grade level of stress can lead to changes in your biology, including:

- Chronic inflammation
- Increased free radical production
- Over-active sympathetic nervous system
- Hormonal imbalances
- Dysbiosis and leaky gut

These biological changes can lead to the development of chemical sensitivities, chronic pain, chronic fatigue, and diseases such as diabetes, cancer, and heart disease.

The good news is, while ACEs can lead to illness, resolving ACEs can lead to complete healing. For instance, one of my clients was diagnosed with lupus. Initially, we identified and addressed his physical triggers and the lupus went into remission. In order to achieve complete healing, we began exploring the possibility that lupus existed because of unresolved childhood trauma.

Ultimately, we discovered he was carrying unresolved emotions about his father that were preventing him from healing. His father was obsessed with his children playing sports. When my client didn't perform to his dad's expectations, he was punished—sometimes with running laps after the ball game, always with verbal abuse. As a child, he interpreted the situation as "I'm not good enough." He held onto that belief during both childhood and adulthood. However, once he transmuted the associated emotions, the limiting be-



lief dissolved—along with the lupus.

ACEs fuel disease by creating limiting beliefs that can make you chronically sick. The most common limiting belief is "I'm not good enough," which ultimately means you don't feel loved. When you don't feel loved, especially as a child, you don't feel safe and you don't view the world as a safe place. Hence, you live in a constant state of fear—constantly on guard, looking for the next tiger.

I believe that not feeling loved is the No. 1 root cause of illness and disease. Most of us live our lives never feeling "good enough" or "loved." We usually develop that belief in childhood and carry it with us until we die. Consequently, many of us look for external validation or approval in an attempt to find love and acceptance—even if it's just for a fleeting moment. So, how do you break that cycle? How do you fix the feeling of not be-

ing loved so you can resolve your childhood trauma and fully heal yourself or prevent a disease from forming in the first place?

You learn to love yourself. When you love and accept yourself exactly the way you are, your old limiting beliefs dissolve and you realize you are worthy of love just the way you are. You realize your inherent value as a human being. That new belief changes your perception of the childhood traumas you have been holding onto and you are finally able to release the anger, guilt, shame, and anxiety. You no longer live in a space of fear—afraid of not being loved or not being "good enough." You are good enough. Consequently, you shift out of the sympathetic nervous system and chronic fight-or-flight and into the parasympathetic nervous system state of rest and repair where disease dissolves because you have tamed your childhood tigers.

Loving and accepting yourself can be challenging. One helpful tool is mirror work. Stand in front of a mirror, look deep into your eyes and say out loud, "I love you ___ (insert your name) and I accept you exactly the way you are."

For most of us, the mirror has become our enemy. Hence, we criticize ourselves each time we see our reflection. The mirror reveals what we are most afraid of by reflecting back to us how we feel about ourselves and how we feel about life. However, if you allow it, the mirror can show you which issues to address in order to set yourself free. It can be a key to developing a deep, healing relationship with yourself in which you no longer chase the moving carrot in search of external validation and you no longer need to run from your childhood traumas. Instead, you will finally reach a state of joy and gratitude that you can tap

Childhood trauma does more than shift our biochemistry, it leaves an imprint in our minds that can forever change how we see ourselves and our world.

into at any moment, and that nobody can take from you.

Try mirror work for 30 days. You may not initially believe the words you are saying. But, one day, instead of criticizing yourself, you will wake up, stand in front of the mirror, and feel excited to meet your new best friend.

Dr. Sina McCullough is the creator of GO WILD: How I Reverse Chronic & Autoimmune Disease, and author of "Hands Off My Food: How Government and Industry Have Corrupted Our Food and Easy Ways to Fight Back" and "Beyond Labels: A Doctor and a Farmer Conquer Food Confusion One Bite at a Time." She holds a doctorate in nutrition from the University of California-Davis. She is a master herbalist, Gluten Free Society certified practitioner and homeschool mom of three.

The Emotional Journey to a Good Death

Facing the inevitable with the insight of those who have gone before can ease our way

PAMELA PRINCE PYLE

As I shut the door behind me, the noises of a full ward faded, giving way to the gentle sounds of a humidifier and an elderly woman who was struggling to breathe. Her eyes were closed, and an oxygen mask covered her nose and mouth. I glanced at the windowsill, where multiple cards were displayed—a child's drawing peeking out of one. Flowers were on the bedside table, and a family photo was displayed nearby. This was a well-loved woman.

I had witnessed her decline with each hospital visit, and it was obvious that the end was approaching. She knew it, too, and had requested to speak with me that day. When I sat gently on the bed, her eyes opened. Recognizing me, she gave a faint smile from underneath her mask. I reached for her hand and leaned forward so that we might hear each other.

Her hand was frail in mine, and yet her grip was tight as I began to share with her the painful truth: She was dying and it was time to make some critical decisions.

I answered her questions as clearly, honestly, and gently as possible. However, something about this particular moment—perhaps her quiet strength in the face of death, or maybe the fact that she would be missed terribly by her family, as well as by me—moved me unexpectedly. When I finally said, "I'm so sorry to have to tell you these things," I began to weep.

To my surprise, my patient grabbed my other hand and squeezed even tighter.

"It's OK," she said as she comforted me. "I am going to have a good death. Please prepare my family. I am ready."

As I left her room, the statement, "I am going to have a good death," became lodged in my mind. In the days and weeks that followed, I couldn't shake it. Sinking into my subconscious, the phrase sometimes woke me in the night, prompting me to wonder: What does it mean to have a good death?

In my 30 years of medical practice—in state-of-the-art hospitals in the United States and in more nascent clinics in Rwanda—I have had countless journeys of walking with the dying and those who love them. My life hasn't been spared from more personal journeys of grieving.

I thought about how so many people struggle mightily against our inevitable destiny, seeing nothing good in it. Others face death willingly, almost eagerly, as though they're arriving at a long-sought destination or getting a chance at last to become the self they knew they were meant to be.

Here's something I know as a doctor: Persistent pain is always a signal that deeper investigation is warranted. Maybe a question that won't go away is meant to serve the same purpose. Perhaps, if I could search more deeply, I could become a better journeyer for myself, my family, my friends, and my patients.

I discovered many ingredients that make the emotional journey to a good death seem possible. However, I want to clarify that good is a relative term. Dying and death are never easy, and a good death may only be felt as better when compared to those who are entirely unprepared. However, isn't better preferable to worse?

Through this time of reflection and study,



Facing our inevitable end can give us the clarity we need to live life well.

I began to formulate three important questions one must ask themselves on their journey to a good death.

- Am I truly living my moments?
- Am I truly breathing my purpose?
- Am I confident of my destination?

Begin living with the end in mind and you'll start your journey to your good death.

Since my bedside encounter with my patient who declared her good death and then lived it, I've focused on learning from the dying, learning from their grieving companions, and learning from those who write on dying. This was the beginning of my emotional journey to a good death. My children were convinced that I'd been given

a terminal diagnosis and just wasn't telling them. It led to opportunities for deep conversations about those three important questions.

As I shared with my children, I now share with you. Please read this carefully and thoughtfully: Whether young or old, in good health or ill, you're dying! From the moment we take our first wobbly toddler steps and sadly, even before, we all have a death date on our calendars. We don't know this date; we don't think about it—it's not even in our reminders. Therefore, the first step on our emotional journey to a good death begins with this awareness.

As death became a companion of sorts, I had never felt more alive. Mark Twain said it best: "The fear of death follows from the fear of life. A man who lives fully is prepared

to die at any time." Begin your emotional journey today if you haven't already started.

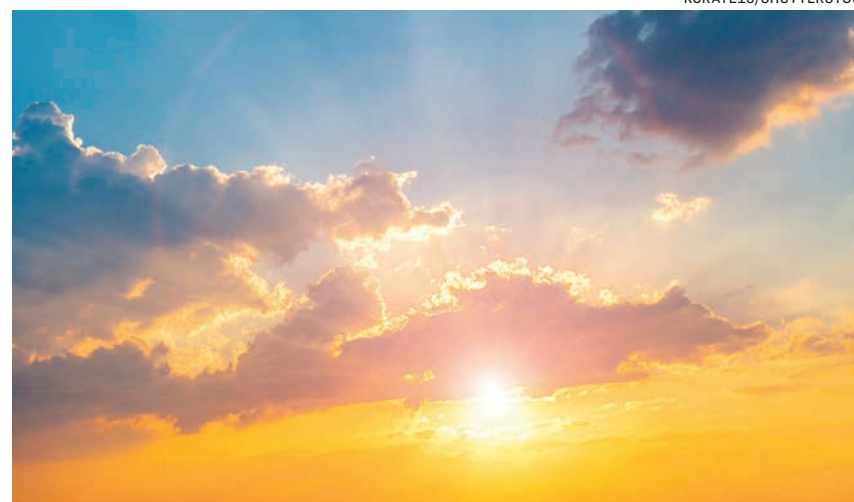
If you've already entered the emotional journey of dying, you may not be able to imagine an ending that's good—or even better than terrible. However, I can offer you hope. The road that you're on has been well-traveled and fortunately, well studied, by experts in every field of compassionate care. You don't walk alone, though you may have felt alone even when surrounded by loved ones.

Dr. Elisabeth Kübler-Ross wrote her landmark work, "On Death and Dying," in 1969. Through an experiential study of dying patients, she described five stages that may occur during the dying process: Denial, anger, bargaining, depression, and acceptance were variably expressed as mechanisms to process losses associated with dying.

Other models exist, describing the grieving process that may occur on the journey of dying. Psychologist William Worden describes four tasks of mourning. He describes tasks that the dying must complete in order to finish their journey of bereavement. They are: accepting the reality of loss; experiencing the pain of grief; adjusting to the environment (re-engaging with normal life activities in the "new normal" of dying); and re-directing emotional energy. Those tasks are shared by the dying and those who love them.

Living and dying are uniquely singular in experience. Once one has received a terminal diagnosis, the emotional stages of dying aren't linear, but more often fragmented, cyclical, and as unique to the dying process as the DNA of the one dying. Understanding this will help you and those who love you provide the guiltless freedom of not accepting today what you had previously accepted or allowing what you hadn't previously allowed. It gives you the courage to speak your fears and transit through them with quiet strength.

The end of the journey toward a good death should be spent loving, forgiving,



The end of our human life needn't be filled with fear or stress.

It's important that the dying know that their physical needs will be met.

laughing, weeping, remembering, and delighting. Sometimes you must tend to the mundane, but spend less time on practical matters. It's difficult to be "dying" hour after hour. Fears can and should be openly expressed, and tears will flow from time to time.

It's important that the dying know that their physical needs will be met to limit suffering. Entering the world of hospice isn't a failure of care, it's caring fully without fail. Doulas are most often known for their presence with families as a child is born. However, death doulas or death mid-wives have been a powerful addition to meet the needs of the dying and their families.

Finally, those dying need to feel that they're loved; that though there will be sadness, their loved ones will be OK one day; and that their life had meaning and therefore they'll be remembered.

Live your moments. Breathe your purpose. Know your destination.

Journey well, my fellow traveler.

How Stress and Depression Are Connected and the Strategy That Can Help You Cope

SARAH COWNLEY

Chronic or long-term stress can contribute to depression, a mood disorder that can significantly interfere with most aspects of life. During the pandemic, cases of depression increased and stress is believed to be a factor.

Experts say that it's clear that chronic stress raises the incidence level of depression. This condition can cause feelings of sadness, disinterest in hobbies and activities, decreased appetite, insomnia, and a lack of concentration.

But they also believe that the effects of depression can cause stress. Carol Landau, a clinical professor at Brown University with a doctorate's degree, said: "The impact of stress on depression, and vice versa, is one of the most important problems of our times."

The causal relationship between depression and stress is what's known as bidirectional. Each can cause the other and make the other worse.

Depression can cause stress by disrupting life and creating a feeling of isolation. By shrinking interpersonal networks and stopping social activities, stress is more likely to take over.



Physical activity can significantly reduce stress, lift your mood, and reduce your risk of disease.

But the reasons behind stress contributing to depression are less obvious. Severe stress, such as that experienced during a divorce or huge financial change, can send the psyche out of equilibrium. When stress levels are chronically raised, the body gets depleted and depression can follow.

Lifestyle Changes

With both stress and depression, a few small lifestyle changes can help break the cycle and create a positive mindset. If you feel like you're starting to become depressed, the best thing to do is to learn some coping strategies.

Exercise is one of the most important lifestyle changes for stress and depression. Just engaging in 30 minutes of physical activity for five days per week is enough to make a difference. Yoga is a great way to get exercise and to help you relax as well.

By managing your lifestyle, you can reduce both stress and depression levels.

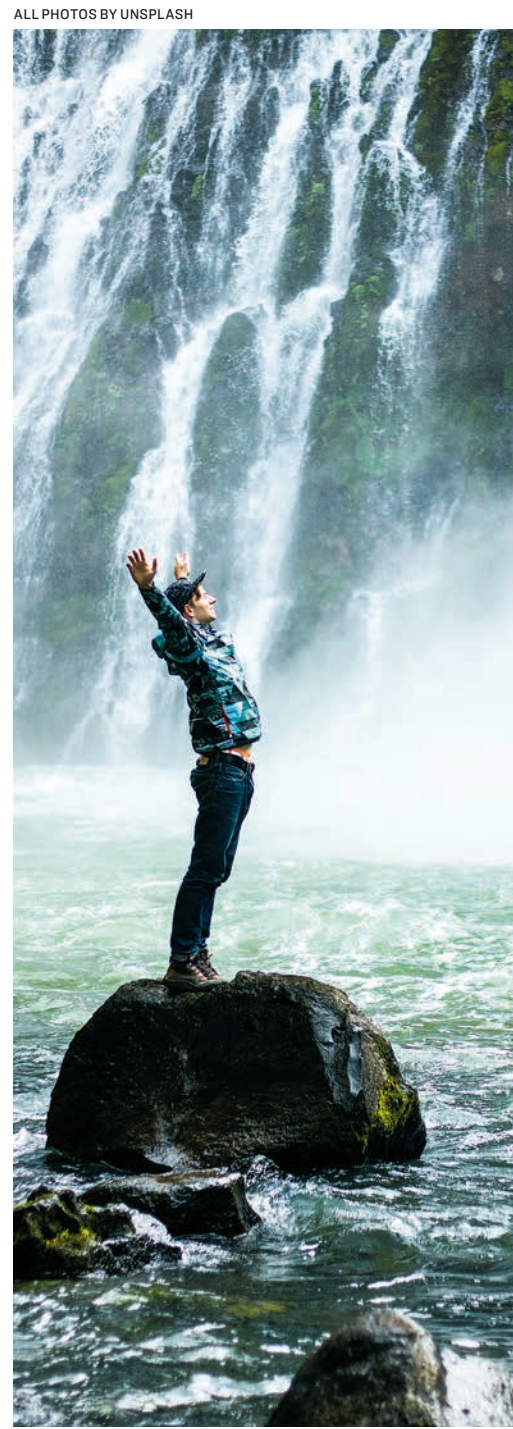
What you eat and drink can greatly affect mood disorders, so be sure to consume whole foods and plenty of fruits and vegetables. Cut out alcohol, as it can affect sleep and make depression symptoms worse. Caffeine can also affect sleep and make feelings of stress more intense, so be sure to limit the amount of coffee you drink each day.

Getting enough rest can help to put your mind at rest. The National Sleep Foundation recommends 7 to 9 hours of sleep per night for adults. Avoiding stressors throughout the day can also help you get a more restful night's sleep.

Social connection can also relax you, helping you feel safe and less isolated.

By managing your lifestyle, you can reduce both stress and depression levels. As the levels of mood disorders increase with the pandemic, it's important to understand how to handle symptoms and reduce risks.

Sarah Cownley earned a diploma in nutritional therapy from Health Sciences Academy in London, and she enjoys helping others by teaching healthy lifestyle changes through her personal consultations and with her regular contributions to the Doctors Health Press. This article was originally published on Bel Marra Health.



We Are Designed for Significance

We have limited time and energy to spend in this life, and luxury tempts us to waste both

JOSHUA BECKER

"Our souls are not hungry for fame, comfort, wealth, or power. Our souls are hungry for meaning, for the sense that we have figured out how to live so that our lives matter, so that the world will be at least a little bit different for our having passed through it." —Harold Kushner

Deep down, we're not all that different. We strive for security. We long for love. We hunger for happiness. And we desire lives of significance. We want to know our lives count for something—something bigger than ourselves.

Our lives are, by definition, finite in nature and composed of limited resources. Each of us has a limited number of minutes and dollars. We also have only so much energy with which to fulfill our purpose. And every passing day represents another opportunity to trade these resources for something else.

Unfortunately, most of our lives are unintentionally traded down, lived in exchange for a return of limited value. We never set out to purposefully trade our lives for things of lesser worth; we desire more.

But in a culture surrounded by similar pursuits, our lives conform too quickly.

At first, we work for security—a worthy and important pursuit.

We invest in our knowledge and skill as a means to earn a living. When possible, we choose work that aligns with our talents. We place the right people around us. We trade our time and talents for a steady paycheck with which to purchase shelter, clothing, and food—security, the baseline of our existence.

This isn't an unwise trade. Security lays the foundation upon which many of our life's choices can be built. It's essential for all other pursuits. And I'm all for it.

But, after achieving security, we invest many of our resources (time and money, energy and focus) into other pursuits.

Usually, we pursue comfort. For most, the essential elements of security—roof, meals, and clothing—are rarely adequate. And so we pursue comfort as an important addition to our baseline of security.

We pursue a bigger house in a nicer neighborhood, a softer couch surrounded by upgraded entertainment choices, a nicer car with more features, and trendier clothing that makes us feel more accepted among our peers.

Society makes comfort appear both attractive and deserved. Sometimes we intentionally seek it out; but oftentimes, the pursuit is so common, we don't even notice how much of our resources we have begun allocating toward it.

After achieving security and comfort, luxury lurks not so far in the distance.

We can see it. We can taste it. It appears overwhelmingly satisfying. And we know what it asks of us: just a few more hours



Conforming to the ways of society may seem logical but this can also lead us away from the deeper longings of our soul.

Unfortunately, most of our lives are unintentionally traded down, lived in exchange for a return of limited value.

each week at work, a few more dollars spent at the store, and a little more research to get it right. We are so close to luxury, why not reach out and take hold? And almost without warning, we begin trading the most precious resources of our lives for the luxurious offerings of this world.

Subtly, about that same time, alongside the acquisition of comfort and luxury, our minds create a ranking system to climb. We seek more money, more power, more prestige, and a more exciting lifestyle than our neighbors. And we attempt to prove our worth by beating out others in this entirely self-constructed competition of life.

Before we know it, we have traded our most worthy pursuits to win a competition that we have invented in our own minds.

But this trade is a foolish one. Our lives hold far greater potential than the comfort and luxury most of us trade them for.

Our hearts cry out for love and happiness, fulfillment, and significance.

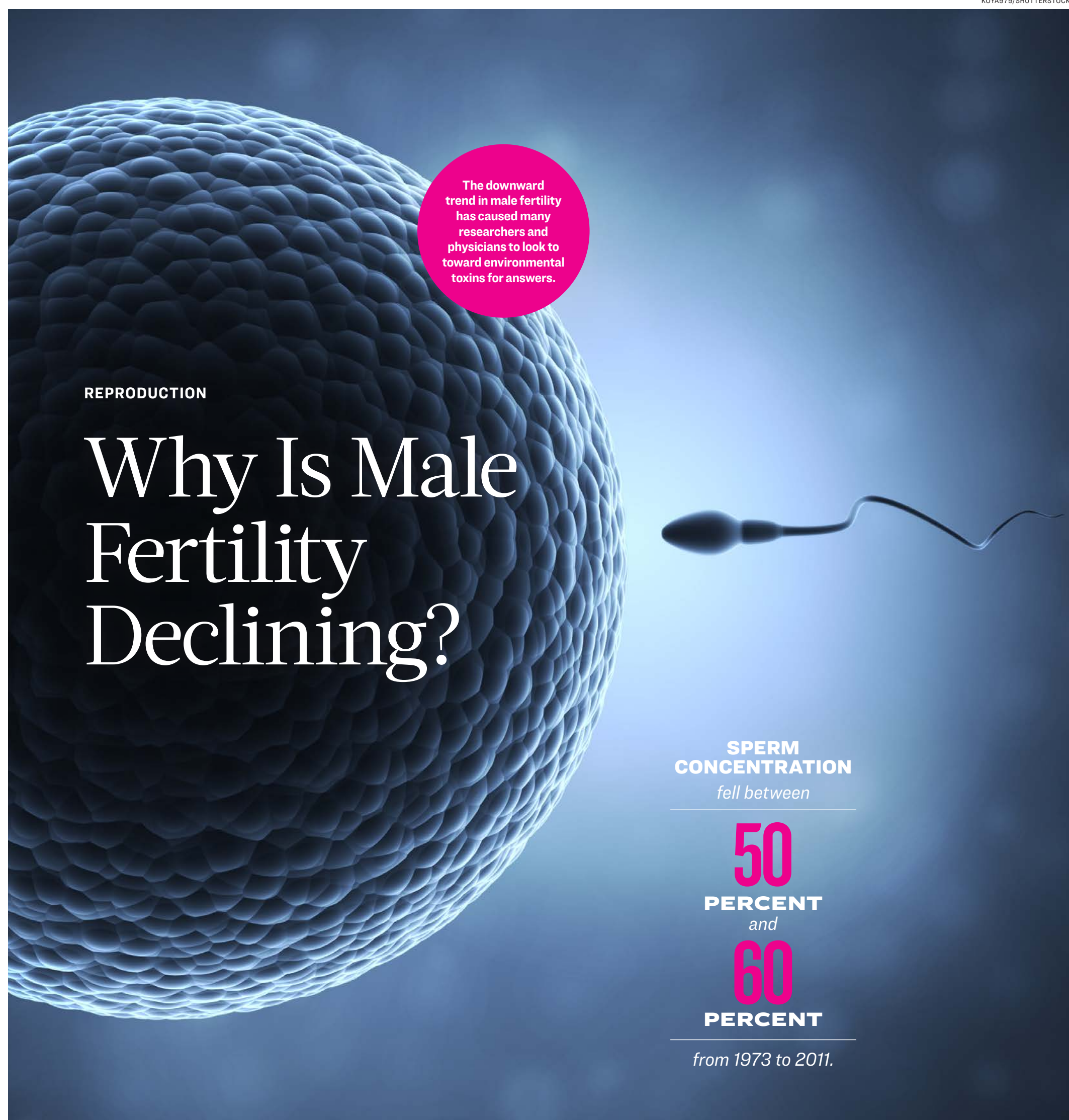
Our resources can be invested into beautiful art, moments of joy, and causes we believe in. We can help others overcome fear, heartache, or significant obstacles to their own fulfillment. We can trade our finite resources for the desires and values held deep within each of our hearts—the purest passions unspoiled by the culture around us.

We are designed to live for pursuits greater than comfort, luxury, and competition.

We are designed to live lives that count for something greater than ourselves. We are designed to craft a life that matters. This is where both happiness and fulfillment are found.

Our hearts cry out for love and happiness, fulfillment, and significance.

Joshua Becker is an author, public speaker, and the founder and editor of *Becoming Minimalist*, where he inspires others to live more by owning less. Visit BecomingMinimalist.com



The downward trend in male fertility has caused many researchers and physicians to look toward environmental toxins for answers.

REPRODUCTION

Why Is Male Fertility Declining?

SPERM CONCENTRATION fall between

50
PERCENT
and
60
PERCENT

from 1973 to 2011.

Mounting studies suggest environmental toxins that could be behind a collapse in male fertility

RYAN P. SMITH

In the United States, nearly 1 in 8 couples struggles with infertility. Unfortunately, physicians like me who specialize in reproductive medicine are unable to determine the cause of male infertility around 30 percent to 50 percent of the time. There is almost nothing more disheartening than telling a couple "I don't know" or "There's nothing I can do to help."

Upon getting this news, couple after couple asks me questions that all follow a similar line of thinking. "What about his work, his cellphone, our laptops, all

Chemicals are introduced with minimal testing and taken off the market only when harm is proved.

these plastics? Do you think they could have contributed to this?"

What my patients are really asking me is a big question in male reproductive health: Does environmental toxicity contribute to male infertility?

Male Fertility Decline

Infertility is defined as a couple's inability to get pregnant for one year despite regular intercourse. When this is the case, doctors evaluate both partners to determine why.

For men, the cornerstone of the fertility evaluation is a semen analysis, and there are a number of ways to assess sperm. Sperm count—the total number of sperm

a man produces—and sperm concentration—number of sperm per milliliter of semen—are common measures, but they aren't the best predictors of fertility. A more accurate measure looks at the total motile sperm count, which evaluates the fraction of sperm that are able to swim and move.

A wide range of factors—from obesity to hormonal imbalances to genetic diseases—can affect fertility. For many men, there are treatments that can help. But starting in the 1990s, researchers noticed a concerning trend.

Continued on Page 13



Clarity Comes at the End

When we finally conclude a chapter of our lives, we are forced to consider how we lived it

JOSHUA BECKER

When a project concludes, there's a natural opportunity for evaluation. This is because clarity always comes at the end. And in some cases, the evaluation can't be avoided.

Take, for example, a sports team. At the end of a season, the team has either won or lost. If they've lost, the team will undoubtedly evaluate their season. Even if there is no formal meeting among the team, the reality of not winning will force introspection.

The players' minds will naturally evaluate the team members, how hard they worked, what strategy they employed, and what they could improve for next season.

Smart teams (and individuals) will formally dissect "last season" looking for solutions to improve their performance "next season." But everyone will look back in one way or another. Finality has that effect on us.

Failing in an objective particularly forces self-reflection. And failure can only be fully known at the end.

The current Olympic season is full of these moments, I'm sure.

The swimmer who falls just short of winning the race may wonder what would have happened if they trained just a little bit harder.

Continued on Page 14

Losses, like those experienced by Olympic athletes during the Tokyo Games, force us to take stock.

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One formula advises you divide your weight by two to get the number of ounces of water you should drink a day. So 160 pounds ÷ 2 = 80 ounces.

Are You Dehydrated?

How dehydration affects health

LISA ROTH COLLINS

Lots of people believe they know when they are dehydrated, but dehydration can be sneaky, not to mention unhealthy and dangerous.

Dehydration is when your body loses more fluids than you have replaced. You may have lost these fluids from excessive sweating (due to exercise, hot weather, or environment such as a sauna), diarrhea, or vomiting. When you lose fluids, you are losing more than just water; critical electrolytes such as calcium, sodium, magnesium, and potassium also are lost and can eventually result in serious health problems. Electrolytes in your blood and other body fluids carry the electric charges your muscles and brains cells need to function.

You need to be only 2 percent dehydrated before your cognitive abilities become compromised.

Symptoms of Dehydration

Symptoms of mild dehydration can include thirst, moodiness, dry mouth, or highly concentrated, dark urine. Dehydration that is more advanced can cause headache, heat exhaustion, heatstroke, heat (muscle) cramps, confusion, an inability to think quickly or clearly, tiredness, and seizures.

Individuals who engage in certain activities or professions can be at special risk for dehydration. Construction workers, farmers, road crews, and others who work in the sun for prolonged periods of time, as well as race car drivers and endurance athletes, for example, are at great risk for dehydration. In fact, professional race car drivers can lose up to 10 pounds of water during a two- to three-hour race.

You need to be only 2 percent dehydrated before your cognitive abilities become compromised because of dehydration. Imagine how dangerous that could be to anyone who is driving or operating heavy equipment.

Dehydration's Effects

Infants, young children, the elderly, and anyone who has a chronic illness tend to be at greater risk of dehydration than others. However, anyone can become dehydrated, so be aware of the symptoms, risks, and consequences of dehydration.

Heatstroke: If you begin to experience heat cramps and heat exhaustion, these symptoms can result in heatstroke. That occurs when your body cannot cool down properly. Symptoms can include seizures, lethargy, and confusion.

Kidney issues: Your body requires lots of water to help flush waste and toxins out. Mild dehydration may result in tiredness, but more prolonged dehydration can lead to permanent kidney damage when kidney stones and toxic buildup obstruct the kidneys. Urinary tract infections also are possible.

Seizures: Dehydration is typically accompanied by a deficiency of sodium and

potassium. These electrolytes help with nerve and muscle function, so when they are in short supply, seizures, involuntary muscle contraction, and unconsciousness are possible.

Low blood volume: If you were to lose more than 20 percent of your body's fluid or blood supply, you would be in hypovolemic shock. This is a potentially lethal condition and should be addressed immediately by emergency room staff or other emergency professionals.

Diminished mental capacity: Just a 2 percent loss in fluids can result in dehydration that impairs cognitive function, such as attention, thinking skills, and coordination. Therefore, even mild dehydration can have a significant impact on your daily life.

Poor digestion: Staying well hydrated is necessary for proper digestion. Insufficient fluid intake can result in constipation.

Tiredness: When you don't get enough fluids, blood flow to the brain slows, which results in lower blood pressure and a higher heart rate. This can make you feel tired.



Altered detox: The body has a natural metabolic detox process that helps neutralize and eliminate harmful toxins. To be effective, this process requires a sufficient amount of water or fluids. Dehydration places this process at risk.

Skin and appearance: When you don't get enough fluids, your appearance can suffer. Dehydration contributes to dull, dry, wrinkled skin, brittle nails, and dry hair.

Dizziness: A reduction in blood flow to the brain can make you feel dizzy and lightheaded. This can also make it more dangerous to drive or engage in activities that require coordination and concentration, such as driving.

Sugar cravings: If you don't consume enough liquids and are physically active, your body will need to draw from carbs at a faster rate. This can result in you feeling hungry and craving sugar when you are really just dehydrated.

Bottom Line

Dehydration is about so much more than just feeling thirsty. Insufficient fluid intake can result in uncomfortable and even life-threatening conditions. Eight glasses of eight-ounce servings of water daily is the general recommendation, along with foods high in water content, such as most fruits and vegetables. However, you may need more fluids if you are ill, exercising a lot, taking certain medications such as diuretics, or spend a lot of time in hot environments.

Lisa Roth Collins is a registered holistic nutritionist and the marketing manager at NaturallySavvy.com, which first published this article.

Tips for Maintaining a Strong Immune System

You can help your body fight off infection by paying attention to a few essentials

IAN KANE

We live in challenging modern times, so maintaining a robust immune system is of utmost importance. Think of your immune system as being a shield that guards you against all of the bad elements out there. When it's in top form, this immune shield is working to protect you 24/7 and you probably won't even notice it.

The primary purpose of your immune system is to protect your body from bacteria and viruses. Weaker immune systems allow some of these bad elements to slip through the defenses, allowing them to wreak havoc on your body and cause a multitude of illnesses.

Your immune system is constantly parsing through everything in your body and one of its main jobs is to distinguish between your body's natural cells and any harmful intruder cells that don't belong there.

If you've ever wondered what exactly your immune system does and why it's so important, then this article should help to shed some light on things.

A Healthy Immune System

A properly functioning immune system can help you to safely go throughout your day as you come into contact with all sorts of germs—which can come from waste, animals, people, and your environment.

Your body's first line of defense is its physical barrier (mainly your skin). If particularly potent forms of bacteria and viruses manage to get through this then your body activates specialized cells that spring into action. These white blood cells

While it's easy to take your immune system for granted, if you don't take care of it, it could have problems taking care of you.



COVID-19 Survivors Have Broad, Longer-Term Immunity

RAJEE SURI

People who have recovered from COVID-19 retain broad and effective longer-term immunity to the disease, according to a new study.

Findings of the study, which is the most comprehensive of its kind so far, have implications for expanding understanding about human immune memory as well as future vaccine development for coronaviruses.

For the longitudinal study in Cell Reports Medicine, researchers looked at 254 patients with mostly mild to moderate symptoms of SARS-CoV-2 infection over a period of more than eight months (250 days) and found that their immune response to the virus remained durable and strong.

The findings are reassuring, especially given early reports during the pandemic that protective neutralizing antibodies didn't last in COVID-19 patients, said Rafi Ahmed, director of the Emory University Vaccine Center and a lead author of the paper.

"The study serves as a framework to define and predict long-lived immunity to SARS-CoV-2 after natural infection. We also saw indications in this phase that natural immu-

are contained within your bloodstream and certain areas in your body (such as your gut). Ideally, they hunt down and destroy any bad actors they encounter.

Sometimes our immune systems overreact and attack our body's own cells—such as in the case of autoimmune diseases or allergies. That's why whenever people donate organs or blood, they must ensure that everything matches up.

While it's easy to take your immune system for granted, if you don't take care of it, it could have problems taking care of you. And without respecting your body's defense mechanisms, you can become afflicted with infections and diseases that can lead to permanent disabilities and even death.

Water, Water, Water

Simply put, water plays a crucial, yet underrated role in maintaining many important roles in your body, and that includes maintaining a robust immune system. Within your circulatory system, there's a specialized fluid called lymph that transports vital immune cells to various locations in your body.

When you're properly hydrated, these cells can move around quickly and hence, be more effective. But if you become dehydrated, your immune system can become compromised since your body's immune cells become more lethargic—as if moving through molasses.

Most people assume that your body mainly loses hydration through rigorous exercise or sweating (such as in a sauna or hot weather) but depending on your climate and activity, you lose the most water reserves by urination (60 percent), and the second most through breathing (28 percent), and a smaller amount through defecation (6 percent).

In order to replace the water that your body has lost, the Institute of Medicine recommends men drink about 130 fluid ounces (3.7 liters) of fluid per day and women about 95 ounces (2.7 liters) of fluid per day.

Eat Healthful Food

As with most things health-oriented, balance is the key. With nutrition, that means a balanced diet that includes lean protein, healthy fats, fruits, vegetables, seeds, and whole grains.

A healthy diet is crucial to maintaining a strong immune system. Eating lots of nutritious foods can help to supply your body with vital vitamins. While your body can produce many vitamins, there are some that can only be obtained through the foods you eat. And three of these are essential to your immune system. Fortunately, they are readily available at your

local supermarket or farmer's market.

Vitamin C

Vitamin C is one of the best vitamins you can give your body to boost your immune system. Luckily, it's one of the most readily available as well.

Foods that are loaded with vitamin C include strawberries, oranges, blueberries, broccoli, spinach, and kale.

A lack of vitamin C can lead to getting ill much more often than usual. Vitamin C is one of the cheapest available antioxidants that you can supplement with if necessary.

Vitamin B6

Vitamin B6 is responsible for triggering numerous important biochemical reactions in your body. It's also vital to transporting oxygen throughout your entire bloodstream and is involved in complex processes such as proper brain development.

If that weren't all, this invaluable nutrient is important in helping you to maintain a healthy nervous system as well.

Foods rich in vitamin B6 include bananas, potatoes (with skin on), chickpeas (which can be found in hummus), green vegetables, chicken, and fatty fish such as salmon and tuna.

Vitamin E

Vitamin E is an antioxidant that is crucial in preventing free radicals from damaging your cells. Free radicals are reactive molecules produced by chemical reactions within your body but can also come from outside elements such as air pollution and cigarette smoke.

Great sources of vitamin E include sunflower seeds, almonds peanut butter, spinach, and leafy green vegetables.

Regular Exercise

A regular exercise regimen isn't just good for building up muscles, it can also boost your immune system and help you lower stress levels.

Exercise supports immune function by increasing your overall blood circulation, which in turn helps immune cells travel to infection sites.

If you're just starting out, try exercising for 30 minutes, two to three times a week. As you get more comfortable, you'll want to aim for 2 1/2 hours of exercise per week, according to the U.S. National Library of Medicine.

Conclusion

It's important to note that all of the above lifestyle changes may take some time to adjust to. Changing your diet and habits is no small feat. In other words, it's not an overnight thing. These healthful habits can make your immune system stronger over time. Therefore, don't expect to eat a bowl of greens and be able to avoid catching a cold that particular day. Please be patient with yourself.

But when you're feeling vibrant and full of energy, pat yourself on the back and thank yourself for maintaining a healthy immune system.

Ian Kane is a filmmaker and author based out of Los Angeles. To learn more, visit DreamFlightEnt.com

In following the patients for months, researchers got a more nuanced view of how the immune system responds to COVID-19 infection.

The study also suggests that patients who survived COVID-19 are likely also to have immunity against some COVID-19 variants.

nity could continue to persist," Ahmed said. The research team will continue to evaluate this cohort over the next few years.

The researchers found that not only did the immune response increase with disease severity but also with each decade of age regardless of disease severity, suggesting that there are additional unknown factors influencing age-related differences in COVID-19 responses.

In following the patients for months, researchers got a more nuanced view of how the immune system responds to COVID-19 infection. The picture that emerges indicates that the body's defense shield not only produces an array of neutralizing antibodies but activates certain T and B cells to establish immune memory, offering more sustained defenses against reinfection.

"We saw that antibody responses, especially IgG antibodies, were not only durable in the vast majority of patients but decayed

at a slower rate than previously estimated, which suggests that patients are generating longer-lived plasma cells that can neutralize the SARS-CoV-2 spike protein."

Ahmed said investigators were surprised to see that convalescent participants also displayed increased immunity against common human coronaviruses as well as SARS-CoV-1, a close relative of the current coronavirus. The study suggests that patients who survived COVID-19 are likely to also possess protective immunity even against some SARS-CoV-2 variants.

"Vaccines that target other parts of the virus rather than just the spike protein may be more helpful in containing infection as SARS-CoV-2 variants overtake the prevailing strains," Ahmed said. "This could pave the way for us to design vaccines that address multiple coronaviruses."

The researchers said the study more comprehensively identifies the adaptive immune components leading to recovery, and that it will serve as a benchmark for immune memory induced by SARS-CoV-2 vaccines.

"We can build on these results to define the progression to long-lived immunity against the new coronavirus, which can guide rational responses when future outbreaks occur," Ahmed said.

The National Institutes of Health funded the work, which is a collaboration between Emory University and the Fred Hutchinson Cancer Research Center in Seattle, Washington.

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Fighting Disease and Depression With Fermented Foods

These foods can feed your microbiome and help with diseases like diabetes and rheumatoid arthritis

JOSEPH MERCOLA

Recent research has shown that fermented foods can not only improve gut microbiome diversity, but lower the inflammatory response in your body that affects conditions such as rheumatoid arthritis (RA).

While I was still in active practice, I was passionate about helping people with RA.

In fact, I treated more than 3,000 people with this disease, 80 percent to 85 percent of whom experienced significant recovery, if not remission. One of the hallmark symptoms of RA is pain in the proximal joints of the hands or feet.

These are the joints that are closer to the palm of your hand as opposed to joints further out in your fingers. RA is also often symmetrical, which means it affects the same joints in both hands or feet. The condition is far less common than osteoarthritis.

In joints that are affected by RA, the lining becomes inflamed from an autoimmune and inflammatory response that causes your body's own immune system to attack itself. This can trigger chronic pain, loss of balance, and deformities.

Unlike osteoarthritis, which damages the cartilage between the bones in your joints, RA can also affect other tissues outside of the joints, such as the eyes, heart, and lungs. Many people with RA experience fatigue, low-grade fever, and symptoms that vary from day to day.

In a search of health care claim databases from 2004 to 2014, researchers found the prevalence of RA in the U.S. population ranged from 0.41 to 0.54 percent. This varied substantially in each year and by gender and age. However, the data also revealed that the rate appeared to increase during that period, which affected a conservative estimate of up to 1.36 million adults by 2014.

A later study in 2019 indicated there has been a global rise in prevalence and incidence of RA. At the regional level, it appeared to be highest in the high-income areas of North America, the Caribbean, and Western Europe.

The lowest rates were found in Western sub-Saharan Africa, southeast Asia, and Oceania. The most recent 2021 study offers an insight into reducing the inflammatory response and, potentially, the damage caused by RA.



Pain in the proximal joints of the hands or feet is one of the characteristic symptoms of rheumatoid arthritis.

Fermented Foods Reduce Inflammatory Proteins

Researchers from Stanford Medicine published their data in the journal *Cell*, in which they evaluated 19 inflammatory protein biomarkers from 36 healthy adults who were randomly assigned to eating either fermented or high-fiber foods over a 10-week intervention period. Both diets have shown an ability to impact gut microbiome in past scientific studies.

In this clinical trial, researchers sought to evaluate how two microbiota-targeted diet interventions could modulate the gut microbiome. They found the gut microbiome and immune system effects on the participants were different. The scientists measured stool and blood samples collected during a three-week period before the intervention diet started, during the intervention, and during a four-week period after the diet ended.

The data revealed that eating foods such as kefir, fermented cottage cheese, vegetable brine drinks, kombucha tea, and kimchi in other fermented vegetables increase the overall microbial diversity in a dose-dependent manner. The primary outcome of the study was a cytokine response score, which remained unchanged.

However, the data also showed that a high-fermented food diet increased microbial community diversity and decreased inflammatory markers, particularly interleukin-6 that has been linked to conditions such as rheumatoid arthritis, chronic stress, and Type 2 diabetes.

In contrast to the reduction of inflammatory markers in a group eating fermented foods, those eating a high-fiber diet that consisted of legumes, seeds, whole grains, fruits, nuts, and vegetables showed no change in inflammatory markers or microbial diversity. Erica Sonnenburg was on the research team and said in a press release:

"We expected high fiber to have a more universally beneficial effect and increase microbiota diversity. The data suggest that increased fiber intake alone over a short time period is insufficient to increase microbiota diversity.

"It is possible that a longer intervention would have allowed for the microbiota to adequately adapt to the increase in fiber consumption. Alternatively, the deliberate introduction of fiber-consuming microbes may be required to increase the microbiota's capacity to break down the carbohydrates."

The researchers concluded that fermented foods could be a valuable strategy to counteract a decreasing microbial diversity and increasing inflammatory response that is ubiquitous in Western society.

Additionally, another researcher postulated that other means of targeting the gut microbiome may include probiotics, prebiotics, and dietary interventions that could affect bacterial health, and therefore your immune health.

Fermentation Creates Healthy Bioavailable End Products

Historically, the primary reason for fermenting foods was to preserve it. Over time, many cultures incorporated these foods into their daily diet and were shared with the world. For example, Japanese natto, Korean kimchi, and German sauerkraut are popular in many areas outside the respective places of origin.

The process is controlled by microorganisms and the type of food being fermented. There's a growing consensus that the fermentation process has nutritional benefits by transforming the food and forming bioavailable end products, including an increase in density of vitamins.

When you consume fermented foods, live cultures give you the primary benefits. Unfortunately, fermented foods in the grocery store don't usually contain live cultures. Instead, before packaging, they might be baked, pasteurized, filtered, or smoked. During the fermentation process, biologically active peptides are formed. In one paper published in *Nutrients*, the authors wrote:

"Fermentation was found to increase antioxidant activity of milks, cereals, fruit and vegetables, meat and fish. Anti-hypertensive peptides are detected in fermented milk and cereals. Changes in vitamin content are mainly

observed in fermented milk and fruits. "Fermented milk and fruit juice were found to have probiotic activity. Other effects such as anti-diabetic properties, FODMAP [fermentable oligosaccharides, disaccharides, monosaccharides, and polyols] reduction, and changes in fatty acid profile are peculiar of specific food categories."

According to the authors of a paper published in *Clinical Reviews in Food Science and Nutrition*, the bacteria in fermented foods produce peptides that have multiple health benefits. The authors say:

"Among these peptides, conjugated linoleic acid (CLA), which has shown the ability to lower blood pressure, exopolysaccharides exhibit prebiotic properties, bacteriocins show anti-microbial effects, sphingolipids have anti-carcinogenic and anti-microbial properties, and bioactive peptides exhibit anti-oxidant, anti-microbial, opioid antagonist, anti-allergenic, and blood pressure lowering effects ...

"As a result, fermented foods provide many health benefits such as anti-oxidant, anti-microbial, anti-fungal, anti-inflammatory, anti-diabetic and anti-atherosclerotic activity."

Gut Bacteria and Mental Health

Scientific evidence has demonstrated that your gut microbiome plays a leading role in your mental health. Researchers have found there is bidirectional communication between your gut microbiome and your central nervous system. It's called the gut-brain axis and mounting evidence has demonstrated that dysbiosis, an imbalance in your microbiome, is associated with triggering mental health conditions such as



ALL PHOTOS BY SHUTTERSTOCK

Making ferments at home is simple and healthier than buying sweetened commercial versions.

anxiety and depression.

Some have coined the term "psychobiome" to describe the crucial connection between your gut bacteria and how you think, feel, and act. A small start-up lab in Cambridge, Massachusetts, is researching human stool samples with a focus on brain drugs.

As *Science Magazine* reports, the small company hopes to capitalize on the mounting scientific evidence from animal studies and epidemiological studies that your gut microbiome is linked to health conditions such as anxiety, Alzheimer's disease, and autism.

As of 2020, the company had developed "one of the world's largest collections of human gut microbes" over a short five years. When talking to reporters from *Science*, the company CEO said the initial targets were depression, insomnia, and visceral pain conditions that are typical of irritable bowel syndrome.

Two types of gut bacteria, in particular *Coprococcus* and *Dialister* bacteria, have been shown to be "consistently depleted" in individuals diagnosed with clinical depression. According to the authors of a study published in the April 2019 issue of *Nature Microbiology*:

"We studied how microbiome features correlate with host quality of life and depression.

"Butyrate-producing *Faecalibacterium* and *Coprococcus* bacteria were consistently associated with higher quality of life indicators. Together with *Dialister*, *Coprococcus* spp. were also depleted in depression, even after correcting for the confounding effects of antidepressants."

Other studies have also identified microbial profiles associated with better or worse mental health conditions. For example, a 2016 research study found the relative abundance of *Actinobacteria* was higher

While K1 was found to be present in high amounts in green leafy vegetables such as spinach, kale, broccoli and cabbage, K2 was only present in high amounts in fermented foods.



Japanese natto, Korean kimchi, and German sauerkraut are popular in many areas outside the respective places of origin.

A new study suggests that not only are fermented foods good for your microbiome, they may also decrease inflammatory markers linked to conditions such as rheumatoid arthritis, chronic stress, and Type 2 diabetes.

and *Bacteroidetes* was lower in depressed individuals compared to healthy controls.

Another study in 2015 found patients diagnosed with major depressive disorder had higher amounts of *Bacteroidetes*, *Proteobacteria*, and *Actinobacteria*, and lower amounts of *Firmicutes* than healthy controls.

Kimchi Can Provide Vitamin K2

One of the benefits of the fermenting process is that it can improve the nutritional value of a particular food. For example, kimchi has antioxidant properties associated with lipid-lowering cardiovascular benefits, antimicrobial action, immune system activity, and anti-atherogenic activity.

Fermented plants also provide high concentrations of vitamin K2. Vitamin K is a fat-soluble vitamin that is an important element for your heart health. In fact, results from the Rotterdam study published in 2004 looked at causes of diseases in the elderly, and determined that those who had consumed the highest amount of vitamin K2 were less likely to experience severe calcification in their arteries and die from heart disease.

K2 is also important for bone health and osteoporosis prevention. However, vitamin K doesn't store well in your body, so it's depleted quickly if you don't get it regularly from your food. But what kinds of foods are the best ones to get the vitamin K2 you need? One thing the Rotterdam study made clear was there is a difference between vitamin K1 and K2 content in foods.

While K1 was found to be present in high amounts in green leafy vegetables such as spinach, kale, broccoli, and cabbage, K2 was only present in high amounts in fermented foods. K2, or menaquinone, is produced by bacteria in your gut and can be found in some animal products, a few plants such as spinach, radish leaves, spring onions, and fermented foods, particularly kimchi and cheeses.

Although natto is a soy product that is also high in K2, I don't promote soy products because most of the soy sold and eaten in the West is genetically modified and grown with highly toxic herbicides.

Tips to Making Fermented Food

If you have RA or other chronic ailments that are rooted in inflammation, your diet is an important first step to facilitate healing. In a previous article, "Rheumatoid Arthritis Medication Implicated in Death of Popular Musician: How Natural Treatment Options May Help You Avoid the Same Fate," I outline many of the recommendations that I used for patients who had RA when I was in practice. Among those recommendations is eating fermented foods.

It's becoming more popular to eat fermented foods at home, yet preparing them has largely become a lost art. Probiotic-rich foods, such as fermented vegetables and homemade yogurt, will boost the population of beneficial bacteria, which then reduces potentially pathogenic colonies.

Since many of the yogurts sold on grocery store shelves are fruit flavored and sweetened with sugar, they don't help promote overall healthy gut flora. To make yogurt at home, you only need a high-quality starter culture and raw, grass-fed milk. You'll find simple step-by-step instructions in "Benefits of Homemade Yogurt Versus Commercial."

One of the few soy products that I recommend is natto, if you can obtain the soybeans organically grown. Natto is a fermented soy you can easily make at home. The fermentation process removes the disadvantages of eating raw or cooked soy, so you're left with a dish that's filled with probiotics and nutrients. If you haven't tried natto before, I urge you to give fresh, homemade natto a try.

You can also experiment with fermenting just about any vegetable. Some of the more popular are cucumbers (pickles) and cabbage (sauerkraut). Once you have the basic method down, it's not difficult.

For links to studies mentioned in this article, please see the article online at TheEpochTimes.com

Dr. Joseph Mercola is the founder of *Mercola.com*. An osteopathic physician, best-selling author, and recipient of multiple awards in the field of natural health, his primary vision is to change the modern health paradigm by providing people with a valuable resource to help them take control of their health. This article was originally published on *Mercola.com*

REPRODUCTION

Why Is Male Fertility Declining?

Mounting studies suggest environmental toxins that could be behind a collapse in male fertility

Continued from Page 9

Even when controlling for many of the known risk factors, male fertility appeared to have been declining for decades.

In 1992, a study found a global 50 percent decline in sperm counts in men over the previous 60 years. Multiple studies over subsequent years confirmed that initial finding, including a 2017 paper showing a 50 percent to 60 percent decline in sperm concentration between 1973 and 2011 in men from around the world.

These studies, though important, focused on sperm concentration or total sperm count. So in 2019, a team of researchers decided to focus on the more powerful total motile sperm count. They found that the proportion of men with a normal total motile sperm count had declined by approximately 10 percent over the previous 16 years.

The science is consistent: Men today produce fewer sperm than in the past, and the sperm are less healthy. The question, then, is what could be causing this decline in fertility.

Environmental Toxicity and Reproduction

Scientists have known for years that, at least in animal models, environmental toxic exposure can alter hormonal balance and throw off reproduction. Researchers can't intentionally expose human patients to harmful compounds and measure outcomes, but we can try to assess associations.

As the downward trend in male fertility emerged, I and other researchers began looking more toward chemicals in the environment for answers. This approach doesn't allow us to definitively establish which chemicals are causing the male fertility decline, but the weight of the evidence is growing.

A lot of this research focuses on endocrine disruptors, molecules that mimic the body's hormones and throw off the fragile hormonal balance of reproduction. These include substances such as phthalates—better known as plasticizers—as well as pesticides, herbicides, heavy metals, toxic gases, and other synthetic materials.

Endocrine disruptors are molecules that mimic the body's hormones and throw off the fragile hormonal balance of reproduction.

Plasticizers are found in most plastics, such as water bottles and food containers. Exposure is associated with negative impacts on testosterone and semen health. Herbicides and pesticides abound in the food supply and some—specifically those with synthetic organic compounds that include phosphorus—are known to negatively affect fertility.

Air pollution surrounds cities, subjecting residents to particulate matter, sulfur dioxide, nitrogen oxide, and other compounds that likely contribute to abnormal sperm quality. Radiation exposure from laptops, cellphones, and modems has also been associated with declining sperm counts, impaired sperm motility, and abnormal sperm shape. Heavy metals such as cadmium, lead, and arsenic are also present in food, water, and cosmetics and are also known to harm sperm health.



Radiation exposure from laptops, cellphones, and modems has also been associated with declining sperm counts, impaired sperm motility, and abnormal sperm shape.

Endocrine-disrupting compounds and the infertility problems they cause are taking a significant toll on human physical and emotional health. And treating these harms is costly.

The Effects of Unregulated Chemicals

A lot of chemicals are in use today, and tracking them all is incredibly difficult. Today, more than 80,000 chemicals are registered with the National Toxicology Program. When the program was founded in 1978, 60,000 of those were grandfathered into the program with minimal information, and nearly 2,000 new chemicals are introduced each year. Many scientists believe that the safety testing for health and environmental risks isn't strong enough and that the rapid development and introduction of new chemicals challenge the ability of organizations to test long-term risks to human health.

Current U.S. national toxicology regulations follow the principle of innocent until proved guilty and are less comprehensive and restrictive than similar regulations in Europe, for example. The World Health Organization recently identified 800 compounds capable of disrupting hormones, only a small fraction of which have been tested.

A trade group, the American Chemistry Council, says on its website that manufacturers "have the regulatory certainty they need to innovate, grow, create jobs, and win in the global marketplace—at the same time that public health and the environment benefit from strong risk-based protections."

But the reality of the current regulatory system in the United States is that chemicals are introduced with minimal testing and taken off the market only when harm is proved. And that can take decades.

Dr. Niels Skakkebaek, the lead researcher on one of the first manuscripts on decreasing sperm counts, called the male fertility decline a "wake-up call to all of us." My patients have provided a wake-up call for me that increased public awareness and advocacy are important to protect global reproductive health now and in the future. I'm not a toxicologist and can't identify the cause of the infertility trends I'm seeing, but as a physician, I am concerned that too much of the burden of proof is falling on the human body and the people who become my patients.

Ryan P. Smith is an associate professor of urology at the University of Virginia. This article was first published on *The Conversation*.



Chemicals are introduced with minimal testing and taken off the market only when harm is proved.

Clarity Comes at the End

When we finally conclude a chapter of our lives, we are forced to consider how we lived it

Continued from Page 9

The team who fails to qualify for the championship game may wonder what would have happened if they practiced together more. The coach whose decisions didn't work out may wonder about the result had they tried another training method.

But when the end arrives, there is no opportunity to go back and make changes. You can't go back and train harder, practice more, lift more weights, or study extra film; the end has come and your opportunity has passed. Albeit harsh at times, clarity always comes at the end.

Of course, this reality extends beyond athletics. We see it all around us.

When the end arrives, there is no opportunity to go back and make changes.

When we receive our final grade at school, we know whether or not we succeeded in the course requirements.

When we set our sights on a weight loss goal, in the end, we realize whether we made enough (or the proper) adjustments to our lifestyle.

When we arrive at the end of a job, we can look back and evaluate whether we effectively fulfilled our role.

When we retire, we're able to fully analyze whether we achieved our professional objectives or not.

When our children move out of the home, we're faced with questions about whether we did enough to prepare them for the road ahead.

When a relationship ends, we're able to look back with clarity on our contribution to (or deduction from) it.

When we fail at a goal, we're left to wonder why.

And ultimately, at the end of our lives, if given the opportunity, we will undoubtedly look back with pride or regret at how we chose to live.

The end always brings clarity. It also brings finality.

When the course is over, so is your opportunity. When your child moves out, that phase of parenting is over. On your deathbed, you can't go back and change the previous decades.

Unfortunately, most of our lives aren't lived with that sense of finality. As a result, we live many days with the assumption that "we can always do it later" or "there is time to change tomorrow." And because we don't believe we're at the end, we're less forced to look back and evaluate the trajectory of our lives and the decisions we make.

Urgency is difficult to manufacture.

But I believe this principle holds opportunity if we allow it.

The "end" of life's major milestones are infrequent (for example: the end of an athletic season, the end of a career, the end of a parenting stage, or the end of life).

But every day provides an opportunity for evaluation.

Every time I kiss my child goodnight, I can look back to evaluate if I was an intentional parent.

Every time I say goodnight to Kim, I can evaluate if I was a faithful, loving spouse. Every time I end the workday, I can evaluate if I gave my best to my work.

Every time I receive a bank statement or credit card statement, I can evaluate if I made wise decisions with my money last month.

Even every time I close a social media account on my computer, I can evaluate if I used the time and conversation in a healthy and productive fashion.

Clarity comes at the end. Maybe we need to recognize the significance of that more often.

Joshua Becker is an author, public speaker, and the founder and editor of Becoming Minimalist, where he inspires others to live more by owning less. Visit BecomingMinimalist.com



Unpacking Emotional Baggage and Finally Letting Go

A whole new life opens up when we start looking forward instead of dragging the past around

CHERYL SMITH

Each one of us bears scars from our past. There isn't a person alive who hasn't felt the sting of heartache, grief, and suffering. Each difficulty we go through leaves its mark, and the deeper the hurt, the longer it takes to heal. But, just as the ownership of too many physical possessions creates chaotic stress and clutter—the long-term accumulation of unresolved emotions can also overwhelm us.

No aspect of our minimizing journeys looks quite the same, including what's inside the suitcases that hold our emotional baggage. It's one thing to peel back the layers of extra clothes and clutter in search of a clearer living space, but digging into long-buried emotions presents a different kind of challenge.

It seems easier to deny those darkened corners of our psyche than face how they're affecting us.

Our lives were meant for more than trudging through the residue of yesterday's mental and emotional overflow. This is a new day—the perfect time to courageously confront the "junk" weighing down those suitcases. The longer we wait, the more cumbersome the load becomes. The only way to move forward is to leave the past. Unlock your suitcase, lift the lid, and unpack.

What do you see? Much of life's emotional baggage stems from childhood events, so chances are it has become such a part of you that you've forgotten it's even there. Here are three things you may come across in your soul-searching.

Grudges

Are you unable to forgive someone who has wronged you? What they did to you may be incomprehensible. They may or may not have apologized or admitted to their own wrongdoing. You may be justified in feeling the way that you do. Your feelings are real, and they deserve validation. And yet, carrying this burden weighs on you. Imagine how much lighter your heart could be if you decided to forgive. A grudge is a prison you build for yourself. Forgiveness is the key that opens it. The one you can't forgive isn't the one who's locked up.

Guilt

Is there any shame for past mistakes and failures in your suitcases? Let me ask you this: Can you do anything to undo what you've done in the past? Is there a rewind button that'll take you back to the point just

before it happened? Guilt is like holding a grudge against yourself. Grace has been extended to each of us. Why is it so hard for us to pass along that grace to ourselves? Forgive yourself, take the lessons with you, and endeavor to make better choices moving forward.

Fear

Even though fear is, in and of itself, a necessary, natural reaction to protect and warn of danger, it can devolve into something unnatural and unhealthy. Fear can become a cruel taskmaster that paralyzes us, even as it drains us of our joy of living.

As I've been "unpacking" my emotional baggage, it has occurred to me just how much of my life has been controlled by fear. With the help of my husband and son, I'm finally understanding the seed of this often overwhelming fear. My dear mom was one of the most fearful people I've ever known. She lived most of her 84 years under the shadow of severe fear.

Until recently, I never really gave much thought to why mom was so afraid and why she automatically assumed the absolute worst in every situation. But as I follow the trail of fear, it's becoming clearer. Of mom's eight siblings, there were seven brothers, but just one sister, who was two years younger than her. When mom was 17, that sister, Opal, died. That traumatic event set a precedent for the remainder of her days on Earth.

Fast forward to when mom was 33 and her first husband was killed in a car accident, leaving her a widow with four underage children. A few years later, mom married dad, and a year after that, I was born. Life growing up was lived with an underlying sense of dread that the bottom would fall out at any moment, and the worst possible outcome was more than likely.

Each time someone was sick, Mom assumed that they were going to die. Every time someone was late, Mom feared that they'd been killed. When things were good, there was a sense that it couldn't last. We were implicitly taught to prepare ourselves for the worst. As absurd as it sounds, this was real life in our home. Mom's fears literally governed our lives, and they were probably at the root of why we moved 47 times.

Fear is a big part of my emotional baggage, but forcing myself to get to the root of it has been enormously helpful in stopping this cycle. Doing so allows me to identify what's real and what's grim imagination.

What else are you finding in your suitcase? Let go of what drags you down and open your heart and mind. If you do, you might discover a whole new life by looking forward instead of back.

And maybe you'll find that you don't need a suitcase at all.

Cheryl Smith blogs at Biblical Minimalism.com. Her family sold their home, released 90 percent of their physical possessions, got out of debt, and now share their story and their Christian faith on their blog. Her new book, "Biblical Minimalism," is now available. In it, she approaches minimalism from a biblical perspective.



▲ Our emotional baggage is often filled with resentment and regret.

It seems easier to deny those darkened corners of our psyche than face how they are affecting us.

WISE HABITS

A Guide to Dealing With Dissatisfaction With Ourselves

One of the hardest things we have to deal with is our basic inability to love ourselves

LEO BABAUTA

Over the years, as I've worked with thousands of people on changing their habits, I've come to a realization: Dissatisfaction with ourselves is a pretty universal phenomenon.

We are unhappy with who we are, sometimes in small ways but often in very fundamental ways.

We doubt ourselves, feel inadequate, dislike our looks, criticize our failings harshly, and feel uncertain about whether we're worthy of praise or love.

The result is anxiety, procrastination, fear, and the inability to change our habits. I've seen so many people who are unable to stick to an exercise program or healthy diet because they don't believe in themselves. At the heart of their failure to make positive changes is a deep feeling of unworthiness and inadequacy.

What if we believed that we are loving, kind, and innately good human beings?

Every time we fail, we see it as just more evidence that we suck. Every time things are less-than-ideal, we blame ourselves—or, if we don't want to be blamed, we blame other people.

What if, instead of beating ourselves up (or blaming others), we just accepted what happened and took appropriate action? What if we took this as an opportunity to see ourselves as human and innately good? This dissatisfaction with ourselves doesn't just hurt our health habits—it hurts our productivity and ability to focus on meaningful work. We doubt whether we're up to facing this task filled with discomfort and uncertainty, so we flee to comfort and distraction instead of trusting that we're up to the task.

Our relationships are also harmed by this dissatisfaction with ourselves. When we don't believe in ourselves, we are insecure in our relationships. That can result in jealousy, anger, fear of losing someone, and treating the other person with distrust.

That's no recipe for a good relationship. And if the relationship becomes shaky, we often either blame the other person or see it as more evidence that we suck.

Our happiness is marred by this dissatisfaction with ourselves. If we don't like our-

selves, don't trust ourselves, and don't see ourselves as worthy of love, then how can we be happy in each moment? Underlying each moment is a dissatisfaction, a lack of contentedness, and a wish that we would be different.

These are just a handful of ways that dissatisfaction with ourselves is harming us. This problem actually affects every area of our lives, from jobs to finances to parenting and more.

The Way Out: Loving Ourselves

Instead of harming ourselves with this constant feeling of inadequacy, what if we loved ourselves instead?

What if we trusted ourselves, believed in our basic worthiness, and believed that we would be OK even if things didn't work out as planned? What if we believed that we are loving, kind, and innately good human beings?

That would change everything: We'd be more trusting in relationships, we'd procrastinate less because we knew we could handle uncertainty and discomfort, and we'd become healthier because we would see healthy food and exercise as just two more ways to love ourselves. We'd seek ways to love others, to serve the world with meaningful work, to enjoy the basic goodness of every moment. We'd be happier, and in the times when we're not happy, we'd still be able to find contentment in the middle of difficulty.

Of course, that's much easier said than done. We have so many years of experience in disliking ourselves, that loving ourselves can seem impossible. It's not. You can do this.

It starts with the simple intention to see yourself as adequate and worthy of love.

Once you have this intention, you can practice a daily session of gratitude for the good things about yourself.

You can start to see the basic goodness in everything you do, even if it's less than perfect (as all humans are). You can see the good-hearted nature in every one of your actions, even the ones that are harmful. You can start to see the good-hearted nature in what everyone else does as well.

This is the practice, and it takes lots of practice. But loving yourself might just be the most important project you've ever undertaken, because it will change your world.

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



Excessive self-doubt and self-criticism might be destabilizing our relationships and sabotaging our building healthy habits.

Dealing With Disaster

Life's greatest tragedies also reveal the depth of love and grace

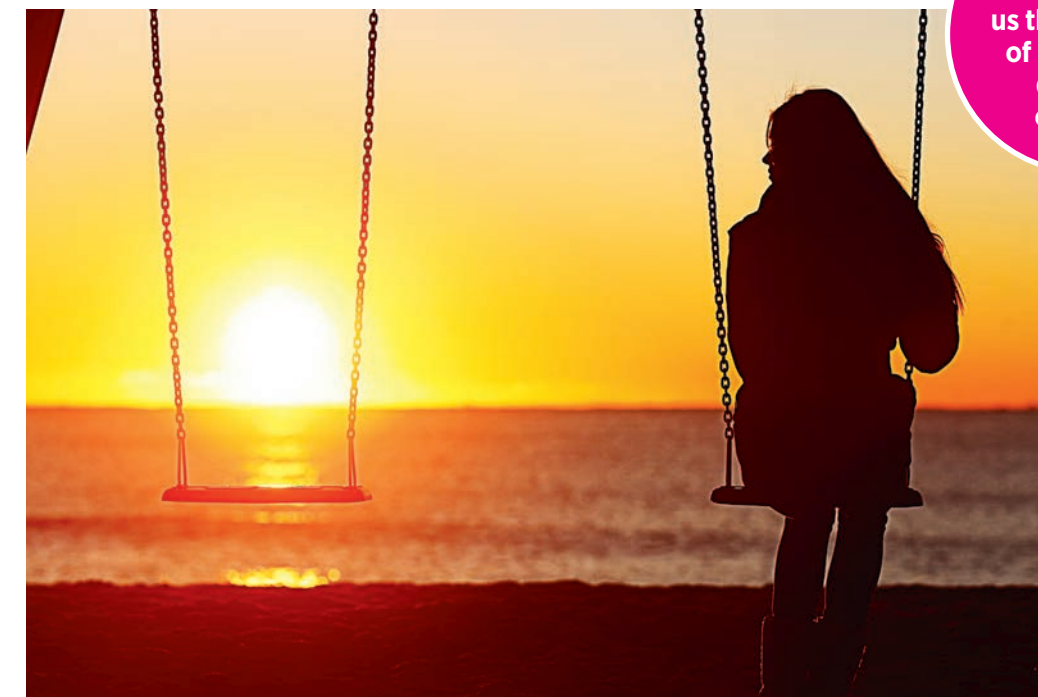
LYNN JAFFEE

Life throws you curve balls. Sometimes they're little bumps that you can handle. But sometimes they're blows that knock you flat and leave you wondering if you'll ever get up. And if you do get up, you're not sure you'll be the same. That's what happened to me.

Four years ago, I set out on a solo road trip from Minnesota through the Southwest. My goal was to go beyond my comfort zone while discovering new corners of states that were close to my heart. I had taken a leave of absence from my busy acupuncture practice and packed up my car for a month of exploring Colorado, New Mexico, and Utah. That was my plan, but what actually happened was something else entirely.

About a week into my trip, my son Andrew, who happened to live in Colorado, got sick. And not just a little sick, he was diagnosed with a rare and aggressive kind of cancer for which there is no cure. Essentially, this cancer would take his life and fairly quickly. As a parent, how do you deal with that? This was new and devastating territory for which I had no knowledge on how to cope.

What I did was spend every second that I could soaking up Andrew's presence and committed myself to being there for whatever he needed. My husband and I took him to chemo, walked his dog, and were available day or night. I kept it together as best I could and grieved in pri-



While there are many guides that can help us accept tragedy once it has occurred, it can be difficult to know how to cope in the midst or expectation of loss.

Losing a loved one puts us through one of life's most difficult ordeals.

impending death. It's also about my coming to the realization that I was losing my son. While many of the stories in "Love Pain" are about times that were unbearably sad, they also describe a time of wonder, love, and incredible grace.

In the aftermath of Andrew's death, I found there were many books and resources on grief and the loss of a child. However, from the first moment of Andrew's diagnosis through his last days, I struggled to find written material that would have helped me as I looked for ways to cope with his terminal diagnosis and the anticipation of losing him. I wrote "Love Pain" in the hope that it will help someone else who is experiencing deep loss, but also as a source of inspiration for anyone during difficult times.

"Love Pain" is set against the backdrop of tragic loss, to be sure. However, the stories also talk about travel, small miracles, and incredible acts of kindness. It offers readers real lessons on living intensely in the moment, finding strength, and looking below the surface of catastrophe to find small gifts and unexpected blessings. You can find "Love Pain" on Amazon.

Lynn Jaffee is a licensed acupuncturist and the author of "Simple Steps: The Chinese Way to Better Health." This article was originally published on AcupunctureTwinCities.com

vate. I coped by staying in the moment, accepting help when it was offered, and appreciating the unexpected gifts that the universe threw our way.

And I wrote; it's what I do.

What I wrote is a book called "Love Pain: Stories of Loss and Survival." It's a collection of stories that weaves entries from Andrew's journals with my own story as we rode a daily roller coaster between hope and breathtaking despair. It's about Andrew discovering himself during a time when he was coming to terms with an incurable illness and his

Kids Set Free to Roam on Their Own Feel More Confident Navigating in Adulthood

VANESSA VIEITES

The distance from home that kids are allowed to roam and play has shrunk significantly over the past 50 years. That's largely due to parents' concerns over safety, especially in cities. More recently, the COVID-19 pandemic has further restricted children's independent activity.

As a doctorate student in psychology, I studied factors that affect people's spatial navigation skills—or how they understand their location and the features within their surroundings. I was also curious about the possible childhood origins of gender differences in how men and women navigate, and why women feel more anxious when trying to find their way around unfamiliar areas.

My findings suggest that children who are allowed to roam by themselves farther away from their homes are likely to become better, more confident navigators as adults than children who are more restricted.

How People Navigate

When a person visualizes their neighborhood, takes a shortcut to work, or explores an unfamiliar city, they use spatial navigation. This is also called wayfinding.

Wayfinding is an essential part of intelligence as well as a survival skill for any person or animal who has to travel to find food, water, shelter, or mates.

But how individuals navigate their environment can vary. For example, some people pay close attention to landmarks such as stop signs or buildings. This is called route information.

Others prefer to use cardinal directions—such as north and south—or global reference points such as the sun as a guide. These are examples of orientation information.

Most people combine both navigational styles. However, individuals who rely primarily on a route strategy are slower and less efficient navigators. That could be because route cues are less stable than cardinal directions. For example, the highway billboard a person normally uses to know which exit to take can be replaced,



Giving kids reasonable freedom to roam on their own may help them learn better navigational strategies and build confidence when they travel alone.

Wayfinding is an essential survival skill for any person.

but which way north is remains the same no matter where someone is located.

Just because a person prefers to stick to a particular route doesn't mean they can't figure out a shortcut. However, people who have a harder time deviating from their regular routes may feel more uneasy or afraid when lost.

Letting Kids Explore

In a peer-reviewed study published in March 2020, my research team gave 159 undergraduate students at a large public university in Miami a series of questionnaires to assess their childhood wayfinding experiences, current navigational

styles, and whether wayfinding causes them anxiety.

The participants reported how often they were allowed to go out on errands and how far they were allowed to travel alone or with friends when they were between the ages of 6 and 15. They also answered questions about the extent to which they now use route and orientation information to navigate, and how anxious they feel when navigating new environments.

We found that, rather than how often they went out on errands without adult supervision, the distance they reported traveling unsupervised as kids was a better predictor of which navigational strategy they preferred. It also predicted how much wayfinding anxiety they had as adults. Individuals who said they were allowed to roam farther alone as kids relied less on local landmarks and felt less worried while navigating as adults.

Gender Differences

Boys across cultures typically grow up having more wayfinding experience than girls do. They tend to be allowed to stray farther from the vicinity of their homes—whether to do chores or play with friends.

Likewise, the men in our study reported being allowed to go outside more often and travel farther distances alone as kids.

In fact, this difference in how far participants were allowed to travel as children drove the two major gender differences we found in the adults. It at least partly explained both why the men used less of a route strategy and why they felt lower levels of anxiety when navigating compared to the women in the study.

Landmarks are all around us and come in handy when a person must quickly identify where they are or where they are headed. But giving kids the freedom to roam on their own—whenever sensible—may help them learn better strategies for navigating unfamiliar places and also build confidence when they travel alone.

Vanessa Vieites is a postdoctoral associate at Rutgers University. This article was first published on The Conversation.



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