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THE EPOCH TIMES

# MIND & BODY

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The immune system's complexity has long challenged doctors and researchers.



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This complex interaction of organs, cells, and microbes keeps us alive, though few of us understand it **4**

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Tips to Better  
Sleep Hygiene

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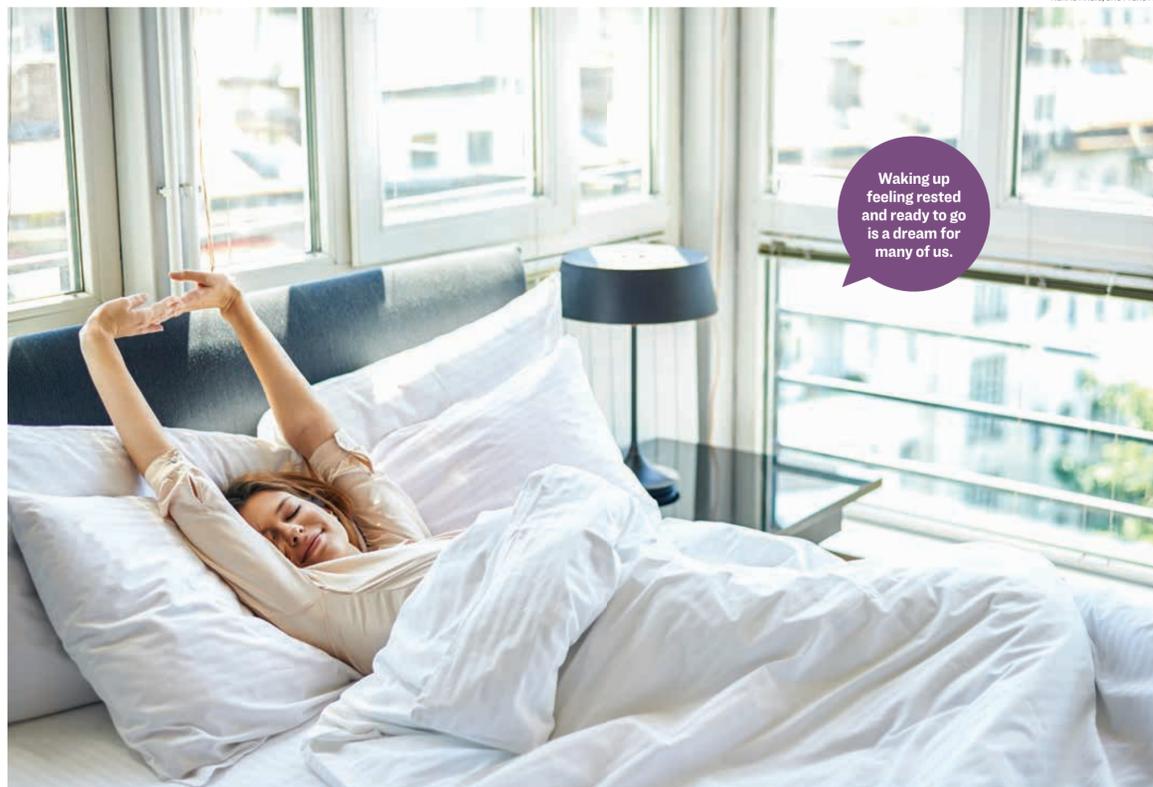
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THE EPOCH TIMES

TRUTH AND TRADITION



## Sleep Hygiene— an Effective Remedy for a Better Night's Sleep

Some unexpected factors could be having a major impact on the quality of your slumber

TATIANA DENNING

A good night's sleep. It's something we all need, yet so many struggle to get.

Most of us have been there at one time or another. Tossing and turning, struggling to shut down our minds, or waking up frequently—these things make for a long and frustrating night.

According to the American Sleep Association, an estimated 50 million–70 million adults have some type of sleep disorder, which is, as they point out, a staggering number of Americans suffering from lack of sleep and its related consequences. It's estimated that insomnia's overall cost to society, in terms of accidents, decreased work production, absenteeism, and mistakes, is approximately \$100 billion annually.

Insomnia causes us to feel cloudy, sluggish, and damages our health. It increases our risk of developing issues such as heart disease, diabetes, stroke, dementia, pain, and more.

So what is sleep hygiene? Well, sleep hygiene simply means good practices and habits for promoting a restful night's sleep. It's my go-to when patients are dealing with sleep issues. Sleep hygiene is easy to employ, and may even be more effective than prescription medications, which have many potential side effects and are only meant for short-term use.

Let's take a look at some things you can do to start improving your sleep tonight.

### Maintain the Same Sleep-Schedule

First off, make sure you go to bed and get up at the same time every day, and try to maintain this schedule throughout the week. While sleeping in on the

weekends is tempting, the Mayo Clinic recommends keeping it to no more than an hour's difference from your weekly routine. This can make a big difference in our body knowing it's time for sleep, and help maintain our body's natural circadian rhythm.

With time, you may find you don't even need an alarm clock.

### Keeping our speech and thoughts positive and calm can decrease our anxiety and stress levels, leading to better sleep.

### Create a Relaxing Pre-Bedtime Routine

Preparing your mind and body for sleep goes a long way in helping to get a good night's rest. Both what we do, and what we don't do, matters.

For the most effective nighttime routine, we should avoid doing anything stimulating or stressful before bed, as these things can elevate cortisol and adrenaline, which gets our bodies ready for activity. So keep those cardio workouts, action movies, and emails out of your evening routine.

Also in the category of what not to do—no electronics within 30 minutes of bedtime. Not only are they stimulating, but the light emanated from them negatively impacts sleep.

In the what-to-do category, taking a warm lavender-infused Epsom salt bath can help you relax and improve sleep. Both lavender and the magnesium found in Epsom salts help promote a

better night's sleep.

Listening to relaxing music, drinking a cup of chamomile tea, or reading a calming book by soft light are also good ways to calm your mind and body.

Keeping our speech and thoughts positive and calm can decrease our anxiety and stress levels, leading to better sleep. So be mindful of the thoughts that come your way.

Mindfulness and relaxation exercises are often very effective in promoting good sleep. Deep breathing, meditation, and progressive muscle relaxation are some great ways to calm the mind and body.

The National Sleep Foundation shares some stories from folks who've figured out solutions to their sleep problems. Misty Hyman, swimmer and gold medal Olympian, suggests writing down what's causing you stress.

Misty says her list "usually includes things I need to do, problems I need to solve, or someone's birthday that I don't want to forget. Then, I prioritize the list. If there is something really urgent, I take care of it right then and there. When I see that the rest can wait until the next day without any consequences, I can fall asleep easily."

And don't forget sleep-inducing scents. Studies have shown that aromatherapy can lead to less anxiety and a better night's sleep. Essential oils like lavender, roman chamomile, and bergamot are just a few of the oils that have been found to help improve sleep.

### Watch What You Consume

The CDC recommends avoiding large meals, as well as any caf-

feine or alcohol before bedtime.

People are often under the false assumption that alcohol helps them sleep better, but the opposite is actually true. While alcohol may help you fall asleep initially, it disrupts sleep later in the night as your body processes it, leading to sleep disturbances.

If you do eat a little something before bed, make it something small and nutritious; ideally a small snack containing both protein and complex carbohydrates. Avoid foods that are spicy or especially rich.

### Keep Your Cool

The environment in your room is also important. To start, having a cool room goes a long way in getting a good night's rest. I know if I'm too warm, or even too cool, I don't sleep as well.

In an article on the online site Health, Charlottesville, Virginia, neurologist and sleep specialist Dr. Chris Winter advises keeping your bedroom in the 60s at night, with 65 degrees Fahrenheit being his recommended temperature. He often hears people say that they like to keep their bedroom in the 70s, but says if he measured the quality of their sleep, it would not be as good as those sleeping in cooler temperatures.

"If somebody said to me, 'I have a friend who doesn't sleep well. You know nothing about them. What one suggestion would you make that you think, odds are, would have the most impact on their sleep?' I would say temperature."

That's a powerful statement for something so simple.

### Humidity Levels Matter

Humidity levels can also have an impact on sleep. High humidity can lead to mold growth and therefore allergies and congestion, whereas too little humidity can also be problematic, as it leads to drying of the nasal passages. The National Sleep Foundation recommends keeping the humidity level in your bedroom at about 50 percent. By investing in a dehumidifier for summer use, and a humidifier for winter use, you may find you sleep more soundly.

I know my husband and I certainly sleep better and wake up with less sinus dryness, and resultant congestion, when we use a humidifier during the winter months.

Lavender and the magnesium found in Epsom salts help promote a better night's sleep.



### Decrease Light Exposure

One of the most important things you can do is make sure your room is dark. Blackout blinds or curtains, or even an eye mask, can help. Make sure there is no light from cellphones or TVs, you can even consider putting a dimmer on your lights, and set it on low as you're winding down for bed.

According to the National Sleep Foundation, "Artificial light disrupts the body's circadian rhythm—the body's 24-hour sleep/wake cycle—and has been shown to affect things like brain wave patterns, hormone production, and cell regulation."

They note that light also decreases the production of melatonin. Melatonin, the sleep hormone produced in the pineal gland, decreases when we're exposed to light. Melatonin begins to rise in the mid- to late evening, and stays elevated throughout the night, until we are exposed to light, at which point it begins to break down.

Remember, even a small bit of light can interfere with sleep.

### The Noise Factor

You may not realize it, but your brain continues to process sound even as you sleep. So in general, a quiet environment is best. Of course, for some, having a room that's too quiet can be just as problematic as having a room that's too noisy.

Personally, too much noise has always negatively impacted my sleep. A ticking clock, traffic, the neighbor's barking dog—all these things can disrupt sleep.

Years ago, while temporarily living much too close to train tracks, I discovered just how well earplugs work to block out noise. Suddenly, I could sleep without every little noise awakening me. Mack's earplugs are what I've found to be the most comfortable, but there are many options out there.

For those who enjoy sleeping with some sort of sound, an easy and portable option is a sound machine. You can choose from anything from white noise to ocean waves to thunder, or even crickets. Pick your favorite sound and drift off into a peaceful slumber.

And of course, be sure to turn off sounds like cellphone notifications or the TV.

### Get Comfortable

A comfortable mattress and pillow can go a long way in providing a good night's sleep. Your mattress should be the right level of firmness for your body, and a good, supportive pillow is crucial, and definitely a worthwhile investment. It's recommended that pillows be replaced annually, and mattresses be replaced approximately every seven years.

Make sure that you also have allergen-reducing zippered cases on both your mattress and pillows. And try to use all-cotton bedding, as it tends to be cooler and more breathable than other fabrics.

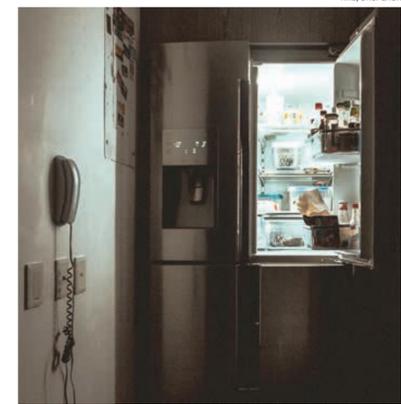
### Limit Naps

Now that you've created the perfect sleeping environment, don't be too quick to curl up in bed. Napping too much leads us back to our starting point—the need for maintaining the same sleep-wake schedule. If we're napping too much, then we're not going to be tired when bedtime rolls around.

Of course, there are a number of cultures around the world that take an afternoon siesta, and for many, a short nap may be beneficial. If you find yourself needing a nap, try to limit it to no more than 30 minutes, and don't take a nap too late in the day.

Insomnia is a costly problem, not just in terms of money, but in terms of both our mental and physical health. I hope some of these simple tips will help you get a better night's rest tonight, leading to a more productive day tomorrow.

*Tatiana Denning, D.O., is a family medicine physician who focuses on wellness and prevention. She believes in empowering her patients with the knowledge and skills necessary to maintain and improve their own health.*



A late night snack may beckon, but habitual overeating can arise from poor sleep.

## Lack of Sleep Is Associated With Increased Appetite

MAT LECOMPTÉ

A missed night's sleep may be all it takes to increase appetite and make you eat more. Research shows that a loss of sleep can trigger a reward system in the brain that can cause cravings of "bad" foods.

Until recently, researchers didn't know if there was a relationship between everyday sleep loss and the brain's reaction to food. For the study, published in the journal *Sleep*, volunteers entered a nine-day study period with a built-up sleep deficit. It was found that even small amounts of sleep loss could put the brain at risk for hyperactivation to food triggers, which could be a risk factor for many lifestyle diseases. This may include metabolic disorders such as diabetes.

According to another study published in the *Journal of Applied Psychology*, work stress can also cause the same reaction in the brain. They found that when people ended a hard workday, they were more likely to eat their feelings if they were stressed and sleep-deprived.

It was once thought that staying up all night would affect appetite and cause slight weight gain, but the effect would go away when normal sleep habits were resumed. But it is now known that chronic short sleep that is experienced by many over-scheduled Americans causes increased appetite and can be linked to body fat.

### The Release of Hormones

The reason the body craves food when you're tired is because of hormones. The control mechanism for eating and feeling full consists of two hormones.

Leptin is secreted by fat cells and tells the brain that the amount of fat being stored is sufficient or has increased. Leptin tells the body that it has plenty of energy in reserve and the brain should produce the feeling of fullness. Ghrelin is the other hormone that is secreted by the digestive system when there is little food in the stomach. It tells the brain to make the person hungry.

Not enough sleep will cause blood levels of leptin to drop. Sleep deprivation also increases levels of the hormone ghrelin, which is known to stimulate the appetite. And this is what can cause the cravings for food, which are not likely to be healthy vegetables.

With the findings of these two studies, it can be concluded that getting enough sleep is not only better for focus, but also for your waistline. For most people, seven to eight hours a night of sleep is enough to curb the food cravings that could lead to adverse health issues.

*Mat Lecompte is a health and wellness journalist. This article was first published on Bel Marra Health.*

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# What Is the Immune System?

This complex interaction of organs, cells, and microbes keeps us alive, though few of us understand it

CONAN MILNER

Remember learning the systems of the body? The skeletal system describes our inner architecture. The circulatory system shows our heart and blood vessels. The digestive system traces the path of our food as it travels from assimilation to elimination.

Each system provides a basic lesson in anatomy and function. Together they reveal the body's multi-layered complexity.

But where is your immune system? What parts are involved? How do they connect and communicate?

These questions can be difficult to answer, because you can't get a good understanding of the immune system from just one angle. It's also a bit of an enigma. The immune system is a relatively recent discovery, but the concept may be as old as medicine itself. In fact, modern medicine has just begun to verify ancient notions about how the body protects itself from disease.

When doctors and scientists discuss immunity today, they typically speak at the microscopic level. They talk about things like leukocytes, lymphocytes, T-cells, B-cells, and several other specialized immune cells that protect the body against microscopic threats like viruses and bacteria.

But what does the immune system look like at the macro level? If we define immunity as the body's ability to protect us from microbial threats, the first line of defense is the skin. It's the places where the skin is open—like our mouth and nose—where our body becomes more vulnerable to infections.

Past the skin barrier, things get a lot more complicated. Orthopedic surgeon Dr. Erin Nance describes the immune system as a "complex network of physical, hormonal, and chemical defense mechanisms." All of this infrastructure is needed to deliver immune support to every cell of the body in a timely manner. However, the organs at the conceptual center of immune function are those that circulate lymph—a bodily fluid that contains high levels of immune cells.

"The primary lymph organs, the thymus and bone marrow, are responsible for generating white blood cells," Nance said.

The thymus is a gland located in the upper chest, just above the heart. It produces and distributes immune cells in response to microbial threats. Marrow is spongy tissue found inside bones where more of these immune cells grow.

They are called primary lymph organs because these structures are essential for our immune development.

Our understanding of these vital organs is relatively new. That's because modern medicine's concept of immunity is only about a century old—and we're still learning how it all works. For example, scientists didn't know what the thymus did until the 1960s.

A more recent example of our ever-evolving immune understanding involves two small lymphatic organs found right behind your mouth and nose. For decades, doctors believed that tonsils and adenoids were little more than troublesome tissue. When these parts become chronically inflamed—often in children who get recurring sore throats and ear infections—they are routinely removed.

**Modern medicine has just begun to verify ancient notions about how the body protects itself from disease.**

But this practice may be weakening our immunity. A 2018 study published in a JAMA journal found that kids who lose these organs saw "significantly increased relative risk of later respiratory, allergic, and infectious diseases."

Tonsils and adenoids belong to the sec-

ondary lymphatic organs category, along with the lymph nodes (clusters of bean-shaped nodules located in your chest, neck, groin, and armpits), and the spleen—an abdominal organ that filters damaged blood cells, and releases immune cells when an infection is detected.

Secondary lymph organs contribute to our overall immune strength, but unlike the thymus and bone marrow, we can live without them if necessary. According to Nance, one of the great features of our immune system's design is its built-in redundancy.

"There are multiple places where the white blood cells are produced, stored, matured, and activated," she said.

## Gut Immunity

So far, our picture of the immune system includes a physical barrier (skin), and the lymphatic organ network. But in the last few decades, we've discovered a whole new level to our immune system—the gut.

About 70 percent of our immune system is located in our digestive system. But why is it there? According to Stephen Wangen, a doctor who specializes in treating gut disorders, it's because the digestive system needs extra protection.

"This is the place where we are most exposed and most vulnerable to the microbial world," Wangen said.

That 70 percent figure refers to the mucosal lining that covers the gut wall. This is lymphatic tissue that acts as a surveillance system, constantly scanning for microbial invasion. Other parts of the body with a mucosal lining, such as your mouth, nose, and urethra, also have this detection feature.

Gut bacteria play a role in our immunity as well. A healthy microbiome—that three to five pounds of beneficial bacteria that lives in our intestines—can crowd out undesirable pathogens, preventing them from settling and thriving inside of us.

This new level of immune understanding has helped explain the purpose of another previously puzzling organ—the appendix. Like the tonsils and adenoids, surgeons routinely removed the appendix because it was thought to be a vestigial leftover that only caused problems. However, today we know the appendix is another appendage of the immune system. It helps mature white blood cells, produce antibodies, and stores healthy gut bacteria if the rest of the microbiome gets wiped out during a GI infection.

The microbiome concept has also helped explain previously puzzling malfunctions, such as why we now see so many people with food allergies.

"All the drugs, chemicals, and antibiotics we take in have impacted the microbiome," Wangen said. "It's changed how the immune system views the food."

## Inflammation: The Language of the Immune System

The more scientists study the immune system, the more complex it appears to be. However, such complexity also means that this system can malfunction in numerous ways.

So how do we take care of our immune system? And how can we recognize when things go wrong?

Wangen believes that modern medicine's microscopic perspective may actually get in the way of real healing. He remembers learning about leukocytes, cytokines, and all the other immune cell lingo when he was in medical school. But he came to see it more as a business model, rather than good medicine.

"They're just taking it down to this molecular level and then creating drugs that will change different factors," Wangen said. "But what does that mean in the big picture?"

When Wangen wants the big picture to immune problems he sees in his practice, his primary focus is inflammation: symptoms of redness, heat, and swelling.

"One of the fascinating things that we tend to neglect, and I don't think the average person would have any idea about it, is that the immune system is what creates inflammation," he said.

We typically see inflammation as some-



We are continually finding entirely new dimensions of the intricate system our body employs to fight off disease.

**Surgeons used to routinely remove tonsils, adenoids, and the appendix because they did not understand their roles.**

thing bad, and it definitely can be. But it also has a positive aspect that is vital to our health.

We need some inflammation for healthy immune function. It is a weapon our body uses to fend off infection, as well as an appropriate reaction to an injury. If you sprain your ankle or bump your head, swelling and redness results. This inflammatory response allows immune cells to get to the site quickly, clear out the damage, and rebuild healthy tissue.

However, inflammation is supposed to be a temporary state, because it can also be hard on the body if it rages for too long. Once the infection is defeated and the wound healing is underway, the swelling and redness are supposed to fade.

But when inflammation fires up at the wrong time, or your body becomes chronically inflamed—these are immune malfunction signals that demand attention. Otherwise, it will turn into disease.

"Almost everything is inflammatory, from dementia to cancer," Wangen said. "If you dig deep, you start to find that all disease has an inflammatory foundation. I was surprised a few years ago hearing about decreased bone density in osteoporosis turns out to be an inflammatory process as well. Everything might be inflammatory at some level."

The conventional treatment for excess inflammation is anti-inflammatory drugs. But Wangen urges his patients to think instead about what might be behind their inappropriate inflammatory response. It could be something we know to promote inflammation, like unrelenting stress or excess sugar consumption, or it could be something unexpected—like a food that most of us would consider healthy.

"People can react to just about anything—dairy, eggs, almonds—you name it. It just depends on the person and how their immune system is responding to that food," Wangen said. "When we figure it out, their digestive tract gets better. Their chronic sinusitis, headaches, or what have you, all get better."

So why do some people suffer from numerous food allergies, and others seem to be able to eat anything without consequence? According to integrative physician Dr. Terry Wahls, we may all have the same basic parts, but the factors we've been exposed to are often drastically different.

"We all have a different set of microbial exposures, antibiotic exposures, and polluting chemical exposures. We have had a different set of lifestyle factors (sleep deprivation, physical and emotional stress)," Wahls said. "All those factors influence how readily my immune cells can protect me, and how readily they can repair and maintain me. If I can't be repaired and

maintained, then I go down the path of rapid aging, early cancers, and dying from infections. I have a shortened life span."

In her practice, Wahls looks at a patient's past to understand why their immune cells got over activated. She then determines what can be done to get immune cells back to normal healing function. Often, all the patient needs are diet lifestyle changes.

"We've been very successful with that," Wahls said.

## Old-Fashioned Immune Health

The immune system, as we understand it today, is a relatively recent construct. However, the idea that our body has the power to heal and protect itself from disease has been observed for millennia.

Compared to modern medicine's increasingly complex picture of the immune system, the ancient ideas were very simple. Interestingly, these old concepts are starting to make a comeback.

If you look at ancient Chinese medicine, you won't find mention of cytokines and T-cells, but you will find time-tested techniques on how to keep the body well.

**All the drugs, chemicals, and antibiotics we take in have impacted the microbiome. It's changed how the immune system views the food.**

Stephen Wangen, a doctor who specializes in treating gut disorders

The oldest known book of traditional Chinese medicine—The Yellow Emperor's Classic of Internal Medicine—explains that the way to defend against seasonal illness is with abundant internal energy, known as qi. The book says that if you're full of good qi, "no evils can invade."

In this paradigm, in which the aim of good health is to embody the balance of nature, disease is merely evidence of living out of balance. One chapter in the Yellow Emperor book states, "Whenever the evils are gathered inside, a deficiency of healthy energy must be present."

Gathering good qi simply means living in balance with nature, and practicing the basic tenets of good health: exercise, a healthy diet, reduce stress, etc. Chinese medicine includes very clear prescriptions for diet and lifestyle, including an emphasis on moderation, something that was also commonly proposed by health practitioners of other ancient traditions.

A few decades ago, modern medicine scoffed at the diet and lifestyle prescriptions of the past. But as new science validates old ideas, more doctors can see their value.

In her clinical research, Wahls has been able to show that lifestyle factors can have a profound effect on immune health. The four most significant factors she has found are eating vegetables, emotional connection, getting outside (the immune system needs ample vitamin D), and sufficient sleep.

"When we don't get enough sleep, our immune cells are nowhere near as effective at protecting us against the various viruses that lay dormant in our brain and our body," Wahls said. "That's when these latent viruses can turn on and lead to chronic health problems."

Wahls knows firsthand how valuable diet and lifestyle can be. It's how she was able to resolve her multiple sclerosis—a debilitating disease where the immune system attacks and destroys the body's own cells. The experience changed how she practiced medicine and clinical research. And the evidence is beginning to change the minds of other doctors.

"My conventional rheumatology, dermatology, and neurology colleagues are starting to realize that diet and lifestyle can be very effective in cooling off disease," Wahls said. "But it takes a lot of patient education to help people understand, and take some effort to change their diet, to begin meditating, to pay attention to sleep, to give up foods that increase leaky gut, to eat more deeply colored vegetables, like carrots, beets, berries, and leave out the sugar."

Wahls' work helps bridge the divide between the simple lifestyle instructions of the ancient medical model with the proof we demand in modern times. She struggled for years to get her papers published, but she says now the tide is turning.

"This is the nature of human existence," she said. "When we all have the understanding of our current constructs, it's really hard to see something other than what you expect to see. It can be frustrating to the innovators on the cutting edge. But this is how life is."

## THE ROOT CAUSE

# Mitochondria: This First Responder May Ease Chronic Inflammation

This organelle's critical role combatting cellular stressors may help heal our misfiring immune system

ARMEN NIKOGOSIAN

Mitochondria are the microscopic power plants found in nearly all cells in the body and are responsible for producing most of the energy we use on a daily basis. While their energy-producing function is critical for normal cellular activity, it has been recently discovered that they also behave as "first responders" when the cell is exposed to chemicals, viruses, or other stressors that can damage DNA.

In a recent study published in Nature Metabolism, researchers found that mitochondria act as the first line of defense in sensing DNA stress. The mitochondria will sense that the cell is under attack and warn the rest of the cell to prepare to protect itself.

It has been theorized by other researchers that in these situations the mitochondria undergo something called the cell danger response (CDR). The CDR occurs when mitochondria detect a cellular stressor that induces them to shift from an energy-producing organelle to that of an inflammation-producing organelle. In an acute situation, such as an infection, this would assist the immune system in keeping the body in balance and help clear the stressor in a timely manner.

The new findings that mitochondria play a role in the early detection of cellular stressors further supports the CDR theory. While the primary purpose of this recent study was to find new cancer treatments that prevent tumors from becoming resistant to chemotherapy, we can use this information to further our search for achieving optimal health by improving energy production, maintaining immune balance, and, potentially, reducing chronic inflammation in our bodies.

Achieving optimal health is intricately linked to mitochondrial function for anyone over the age of 40. Mitochondria are the batteries of the cell and dysfunction is present in a whole host of chronic conditions, most notably aging. After age 40, our mitochondria begin a process of natural decline that mirrors the deterioration of our bodies during the aging process.

Mitochondrial function is also depressed in chronically ill adults and the growing portion of children who are chronically ill. Mitochondrial support with diet, lifestyle changes, and supplements is the first step in any successful effort to slow aging, or recapture energy and vigor. Supporting our mitochondria is also a foundational treatment for any chronic inflammatory condition.

In today's world, we increasingly see signs of mitochondrial dysfunction at younger and younger ages. Chronic inflammation and the increase in chronic medication use in young people are leading causes of this early-onset dysfunction and should be a first consideration for doctors who treat patients with mitochondrial issues. Mitochondrial support consists of diet, lifestyle factors, and replacing nutrients crucial to this important organelle.

## Diet

Going gluten-free and eating a low-grain diet with reduced simple sugars can alleviate mitochondrial dysfunction. Adding high-quality dietary fats, anti-inflammatory nutrients, and certain "superfoods" known to enhance mitochondrial function can also help. These superfoods include almonds, avocados, grass-fed beef, coconut, olive oil, wild salmon, and green tea, to name a few.

## Lifestyle

A sedentary lifestyle isn't healthy for anyone, but it can be worse for someone suffering this affliction. Regular daily exer-

cise tailored to the unique needs of the individual can help. Another good habit is intermittent fasting or time-restricted eating, which gives the body proper time to rest and allows cells to carry out autophagy, which is essentially a process by which cells recycle themselves.

## Supplements

Supplement treatments replace nutrients known to make the mitochondrial function more efficient. Some examples are coenzyme Q10, carnitine, alpha-lipoic acid, vitamin C, vitamin E, and others. Dosing is done based on weight and typically goes far beyond the RDA recommendations or standard dosing as recommended by supplement companies.

An experienced functional medicine practitioner should be able to formulate a mitochondrial support program suited to the unique needs of the individual and their associated problems.

While mitochondrial support has traditionally been used to improve symptoms such as fatigue, brain fog, and other issues centering around energy production, these new findings, which link mitochondria with the early response to cellular stress, may reveal completely new aspects for treatment.

Many patients with mitochondrial dysfunction have decreased immune response and recurrent infections. It was thought for many years that improved immune responses through mitochondrial support were related to better cellular energy efficiency, however, improvements in mitochondria's "first responder" function much better explain this treatment outcome.

The diversity and power of our immune system is vast, with new aspects being discovered every year. What other immune functions can mitochondrial support improve? Although this recent study doesn't delve into the intricacies of activating and deactivating inflammation, promptly reducing the inflammatory response should be possible with better mitochondrial function. A "first responder" should be able to sense when the cellular stressor has decreased or disappeared, allowing the immune system to turn off its attack more promptly.

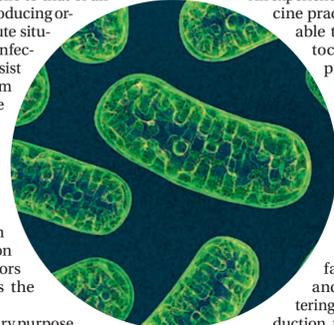
Researchers have often observed chronic inflammation being reduced in patients through adequate mitochondrial support but didn't have a mechanism to explain how this happened.

With these findings, we may have found this mechanism. With more than 60 percent of Americans possessing at least one condition associated with chronic inflammation, adding this new treatment to our toolbox may benefit millions of people.

Armen Nikogosian, M.D., practices functional and integrative medicine at Southwest Functional Medicine in Henderson, Nev. He is board-certified in internal medicine and a member of the Institute for Functional Medicine and the Medical Academy of Pediatric Special Needs. His practice focuses on the treatment of complex medical conditions with a special emphasis on autism spectrum disorder in children, as well as chronic gut issues and autoimmune conditions in adults.

**Mitochondrial support with diet, lifestyle changes, and supplements is the first step in any successful effort to slow aging, or recapture energy and vigor.**

**Chronic inflammation and the increase in chronic medication use in young people are leading causes of this early-onset dysfunction.**



Mitochondria, pictured above, exist within our cells and play a crucial role protecting our DNA.



TATYANA DZEMILEVA/SHUTTERSTOCK

## How Having a Favorite Child Can Affect Their Lives

Parents can find it impossible not to favor the more agreeable child, and this has long-term effects

JONI RAVENNA SUSSMAN

During the recent holiday season, many people may have experienced tension with family as grown siblings found unpleasant feelings of childhood jealousy still lingered. Parents may not have realized that they were the cause.

"It's hard for a parent to admit that love can be doled out inequitably," said Vera Rabie, author of "They Love You, They Love Me Not." "But it almost always is." And it turns out that the consequences of such parental partiality are not only pivotal in shaping the development of the child, but they're also a huge indicator of that child's future success and happiness.

Rabie's studies indicate that favoritism is nearly inescapable and her book illustrates the many ways this favored or disfavored status plays out into adulthood. By studying hundreds of families over the years, Rabie has gathered enough proof to substantiate what she feels to be a new theory in child psychology, a theory she dubs DOLF, for "the distribution of love in families." She hopes her studies will help to debunk many falsehoods, among which is the common misconception that the firstborn is typically the most favored.

"Birth order theory came out [as a result] of biographies which showed that most famous or intelligent inventors, philosophers, artists, religious leaders, and other contributors to society over time have been firstborn." But according to Rabie, the likelihood that the firstborn is favored is about 50-50.

But so what if mom preferred Johnny to Joey? Is that really such a big deal? "Absolutely," says Rabie.

"The value comes in understanding the repercussions of family dynamics and realizing that we each carry a cooperative and competitive nature. The competitive side of that spectrum can drive us, to varying degrees, to compete with the person closest to us. For that reason, a family of four children will see the competition for parental favoritism play out between the two oldest and the two youngest. Or, in the case of a large family such as the Kennedys, among each couple of siblings closest in age.

"We all tend to gravitate toward the sweeter, more easy-going personality, and really don't know how to deal with anger," said Rabie. That's why invariably the child who, by nature, is a pleaser is almost always the favored child among each couple of siblings. This built-in desire to compete with the one closest to us also explains the division of roles between each set of parents, which Rabie describes as the primary love giver and

the auxiliary love giver.

But if you think that being the favored child is a recipe for success as an adult, it depends.

According to Rabie, in a two-parent household, when the primary love giver favors the sweeter, easier-going child, the disfavored child can sense that this all-important, life-giving love is being funneled away from him or her, and instinctively feels threatened on an existential level.

"This makes the disfavored child angry, which then perpetuates the differences in the two siblings' personalities. When one considers that a young child has no chance at survival unless he or she is loved and cared for, it stands to reason that each child's innate drive to survive would include an ability to "sniff out love," as Rabie puts it, and to resent anyone who might be receiving the bulk of it.

**The value comes in understanding the repercussions of family dynamics and realizing that we each carry a cooperative and competitive nature.**

One result of parental partiality is that the favored child of any couple of siblings remains kind, gentle, and isn't easily angered. In a sense, they become the kinder person, likely more successful in the realms of social relationships and overall measures of life satisfaction that arise from such personality traits. But this can lower financial success later on in life, leaving the favored child less hungry to compete in our hyper-competitive world. The results are more profound if the child is favored by both the primary love giver and the auxiliary love giver.

"They turn out lackadaisical, happy-go-lucky and not too concerned with money, career, or future, without a clear path to success; while the disfavored child grows up with the drive and ambition to compete, and ends up winning the social race in real life," Rabie concludes.

Since most parents see children as extensions or reflections of themselves, the disfavored child, now grown and successful, suddenly becomes the one the parents lavish with attention, which can leave heretofore favored child hurt, bewildered, and depressed.

What is a primary love giver, you may ask.

"In every set of parents, there's always a primary love giver and an auxiliary

One child is often more easygoing and agreeable than the other, and that can lead to that other child getting less attention—and working harder in life to make up for it.

love giver. I didn't make the rules," she said. "It's mathematical." Interestingly, it isn't necessarily the mother who is the primary love giver, according to Rabie, as in the case of the Kennedy family, wherein the father, Joe, was the primary love giver while the mother, Rose, a devout Catholic who was very strict and less affectionate, was the auxiliary love giver.

The author highlights the favored and disfavored status among the Kennedy couplets in her book and attributes much of what is thought of as "The Kennedy Curse" to this clear favoritism dispensed between the sets of children both as a result of Joe and Rose's natural preferences, and as the patriarch's way of intentionally engendering a competitive spirit within each of his children.

But what of those many famous firstborns? One might assume they were all favored.

"Roseanne Barr was very disfavored and vindictive to her family but [she is] famous and ambitious," said Rabie. "In fact, most successful people are disfavored."

So, this year, if you noticed that Mom is paying more attention to your brother than you at the holiday gathering, rather than get upset, look inward for feelings of anger, anxiety, or depression. Those are the emotions Rabie's DOLF theory aims to heal.

And those who are parents themselves can also use the holidays as a wake-up call to take a look at their own subtle preferences. If you find you have a soft spot for one child over another, don't berate yourself. Know that this is common.

By looking honestly at family dynamics and the tendency to favor the easier-going child, we can make adjustments, according to Rabie. We can also help to mold our children to be more complete, whole human beings by encouraging the "pleaser" to be more assertive and the "aggressive child" to be kinder.

Finally, as parents, we can become aware of the ways in which we compete with each other for our children's affection. In the process, we'll create not only happier, healthier adults, but joyous future holiday gatherings instead of annual fighting grounds filled with landmines of old hurts just waiting to be tripped.

For more information, visit [loveinfamilies.com](mailto:loveinfamilies.com)

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THINK WELL, WORK WELL

## The Art of Bonding with Your Boss

Building a connection takes an authentic effort to be open and connect

JEFF GARTON

Bonding is the result of establishing an emotional connection. You feel that you're in touch with someone who cares about you and vice versa. Yet work relationships are vulnerable to emotional disconnections that require an extra effort to prevent.

The only time your boss should be a stranger to you is when you first meet. If they remain a stranger and not a trustworthy ally and mentor, neither of you is doing your job in getting to know each other. Some level of bonding is essential.

The strength of any bond you attempt to create will be determined by your thoughts and the emotions they arouse. The idea is to think in a non-negative manner so as to arouse positive emotions that will motivate the desire to connect and stay connected.

To improve the bond with your boss, the communication between you must occur on a level that's deeper than words, which means you both must be motivated to open up and make yourselves emotionally available to the other.

You do and say things that will cause your boss to think favorably about you as a person and the work you do as an employee. Hopefully, your boss's thoughts will arouse these positive emotions that in turn will motivate the desire to improve the bond between you: interest, admiration, affection, awe, joy, gratitude, confidence, pride, enthusiasm, optimism, and contentment.

Otherwise, if either you or your boss provide half-truths, holds back, or masks your emotions, the other may become frustrated because their emotional needs weren't fulfilled. As a result, the urge to avoid can become aroused, rather than the urge to bond. You then experience an emotional disconnect.

If a recent Harvard Business Review survey is correct, the potential exists for many people to experience an emotional disconnect with their boss. In the survey, 58 percent of the respondents said they would trust a stranger before trusting their boss. That's not the ideal foundation for bonding to begin.



ND3000/SHUTTERSTOCK

The strength of any bond you attempt to create will be determined by your thoughts and the emotions they arouse.

The willingness to bond is enhanced when you both feel safe to share personal or other important information. This could be difficult if either of you seems cold or guarded. If your boss doesn't know how to establish trust or make you feel comfortable, you have to decide whether bonding is worth the risk.

Here are some suggestions on how to make yourself emotionally available:

- Relax so that you feel comfortable and others feel comfortable around you.
- Be social, caring, and accepting.
- Smile and laugh when it's appropriate to do so.
- Ask questions and actively listen.
- Express your interest, enthusiasm, and gratitude.

*Jeff Garton is a Milwaukee-based author, certified career coach, and former HR executive and training provider. He holds a master's degree in organizational communication and public personnel administration. He is the originator of the concept and instruction of career contentment.*

Except for being honest, you can't do much better than this. If the bonding is meant to be, it will happen.

I was fortunate that a major portion of my career was with a brewing company whose history and culture was oriented to bonding celebrations. Bosses were willing to belly up to the bar and bond with any of their employees. But we had to accept invitations to participate in activities that didn't exclude any of us for discriminatory reasons.

I chose to bond with my boss during

weekly golf outings, poker nights, and by attending our nationally sponsored sporting events. These activities enabled us to see each other outside of work and without the badge of our rank. We became familiar friends without compromising the work roles we were expected to perform.

But you can't authentically bond with just anyone, and the same holds true for your boss. The unwillingness to bond is an indication that you're attempting to connect with the wrong person or for the wrong reasons, and that may be perceived as self-serving.

For example, befriending your boss with the intention of tricking them into giving you something you want is the opposite of genuine bonding. You see this as a way to get an unscheduled vacation day, an early departure from work, a pay raise, or promotion. Then after getting what you want, you revert to your old self. That's not good.

If you sense that an emotional connection isn't being made, there's a greater than 50 percent chance your boss feels the same way. One or both of you lack the urge to communicate or take your bonding to the next level. This occurs when positive emotions fail to be aroused or when negative emotions are aroused.

The consequence of an emotional disconnect with your boss can be distress associated with a lack of communication, support, and mentoring. You may also experience blaming, disagreements, heated arguments, and other defensive behaviors.

To prevent this distress and achieve a fulfilling bond with your boss, each of you must attend to the following suggestions:

- Be available to one another when required or requested.
- Open and honest communication helps to develop trust.
- Nix any unfavorable thoughts to avoid triggering negative emotions.
- Demonstrate genuine enthusiasm toward one another.
- Insist on reciprocal information sharing.
- Never forget to try to fulfill each other's emotional needs.
- Go for transparency in regard to motives and intentions.

## How to Avoid Slipping Back Into Bad Habits

New research suggests you should prize the journey, not the destination

KIRA M. NEWMAN

You might already be aware that about 80 percent of New Year's resolutions end in failure. The same is likely true of any effort at personal change. Maybe you've taken steps to avoid that fate, like finding an accountability buddy, penciling your goal into your schedule, or downloading a habit-tracking app.

But there's another pitfall to watch out for: success. What if you attain your goal—learn the language, lose the weight, go to bed earlier—and then, in the excitement of checking it off, fail to maintain it?

A new study published in the *Journal of Personality and Social Psychology* found a way to keep people engaged in their goals even after the pride of triumph has worn off. It's a common piece of advice that you've probably heard and perhaps ignored—seeing your goals as a journey, not a destination.

Across six different experiments, Szu-Chi Huang and Jennifer Aaker from the Stanford Graduate School of Business studied more than 1,600 people with a variety of aspirations. Some had fitness targets, such as eating a maximum number of calories or walking a minimum number of steps; others had academic and learning objectives, such as graduating from

an executive education program. Many of the participants were U.S. college students and staff; others were businesspeople in Ghana.

After everyone completed their goals, the researchers divided them into two or three groups.

One group was asked to reflect on their experience as a journey. They were told, "Please take a moment to think about this goal you just successfully attained. Please think about how this experience of attaining this goal is like completing a journey." Sometimes, researchers supplemented this prompt with a picture of a path and the word "journey" beside it; other times, participants were also told that "a journey is completed, because of the steps you took along this path."

A second group received similar prompts, except they thought about their goal as reaching a destination, and saw the same picture with the word "destination" on it. There was a third—the control group—who didn't hear these metaphors at all.

All the participants then journalled about their goal or (in the case of the businesspeople) talked about it with an interviewer.

Ultimately, the researchers found that thinking about goals as a journey can help us maintain good habits even after we've reached our target. The journey groups were more likely to take immediate actions to stay on track, like signing up for an exercise program or doing reading that would further their education. When the researchers checked in with them days or

months later, they had stuck with their habits better than the other two groups.

"Shifting people's focus to the journey aspect of this path could help to induce thoughts about where one started, what one went through, and what one has now achieved," write Huang and Aaker.

Why is the journey metaphor so powerful?

The researchers suspect that our default is to see goals as a destination—an ending point. After all, if our aim is to land a job or buy a new house, it makes sense for our brains to disengage from that goal once we achieve it, so we can move on to other things.

But for goals that are more like lifelong habits, we need a different mindset. In two of the experiments, the researchers found that the journey metaphor gave people a greater sense of personal growth, a feeling of changing and learning over the course of the experience. It was that feeling, in turn, that explained why they stuck to their new habits.

In one experiment, it also proved helpful for people to reflect on their goals-as-journey before their self-improvement project had begun. So, you don't need to wait until you've achieved your New Year's resolution to implement this mental trick. Just imagine heading down a path, one step at a time—and try to enjoy the adventure.

*Kira M. Newman is the managing editor at the Greater Good Science Center. This article was originally published on the Greater Good online magazine.*



HOLLY MANDARICH/UNSPLASH

If you think reaching your goal is the finish line, you may fall back into the old habits you just worked so hard to overcome.

**Thinking about goals as a journey can help us maintain good habits even after we've reached our target.**

# The Mind-Body Benefits of Drinking Tea

Tea comes in many varieties and all of them have benefits for your well-being

## JAYA JAYA MYRA

I'm a very vocal proponent of drinking tea daily. People ask me all the time why tea is my go-to and not coffee: well, let's be clear. I drink coffee, too, but tea has so many mind-body wellness benefits to it that there's no debating its advantages for well-being. Let's take a look.

**Theanine and Neurotransmitter Regulation**  
Tea—white, green, matcha, and black—all comes from the *Camellia sinensis* plant. Let's start our conversation on tea by talking about its compound theanine, also known as L-theanine. The body doesn't make theanine on its own, and it has a whole host of benefits.

First, theanine affects neurotransmitter production and has been linked to increase dopamine and serotonin and even regulating cortisol levels. Cortisol is the body's stress hormone, so better regulation means less stress. Dopamine and serotonin boost mood and promote better relaxation. Theanine is also connected to better focus and cognitive function, improved sleep, and even weight loss (probably because of its cortisol-reducing benefits).

## Caffeine or No Caffeine—Your Choice

Tea comes in many forms, and all of them have different levels of caffeine. White tea contains approximately 15–30 mg per 8-ounce serving. Green teas contain a moderate amount at 35–45 mg per 8-ounce serving, and black teas have the most caffeine per serving, ranging from 40–70 mg per 8-ounce serving. If you like the energy-boosting

benefits of caffeine but are sensitive to too much, picking your tea type based on caffeine levels can give you the boost you need, without giving you anxiety issues. Combined with the relaxing benefits of theanine, you're apt to get a boost of energy, but still feel calm focused and not jittery, unlike a strong cup of black coffee.

**Theanine is connected to better focus and cognitive function, improved sleep, and even weight loss.**

For reference, an 8-ounce serving of coffee contains anywhere from 95–200 mg of caffeine.

You can also drink herbal teas that don't have caffeine. If your tea doesn't contain leaves from the tea plant *Camellia Sinensis*, it's technically a tisane. While a tisane won't have theanine, it can still be a powerful ally for your health.

## Teas, Tisanes, and More Medicinal Benefits

You can make tea and tea blends from common spices and medicinal plants to impart added health benefits for nearly anything you want to improve. When it comes to tea's wellness benefits, the sky's the limit for the different blends you can concoct.

Ayurveda commonly uses tisanes as a way to impart the health benefits of spices. A common ayurvedic blend is cumin coriander fennel tea. This particular blend is known for improving digestion, balancing blood sugar,



A soothing cup of tea can be just the thing to help you perk up and fight off disease.

and improving respiratory issues.

Speaking of Ayurveda, in Ayurveda, regular tea is considered both astringent and bitter, and as such brings a host of detoxifying health benefits. Teas are also a great conduit for other medicinal herbs, or even honey. Honey itself has powerful medicinal benefits, with the raw local varieties being used to fight seasonal allergies.

I'm sure you've heard all the hype about green tea and matcha, right? Well, there are great reasons for that. Matcha is essentially ground-up green tea leaves, which makes it extra rich in antioxidants. Matcha has a unique type of antioxidant known as catechins, which you can't find from other food sources. One cup of matcha has the antioxidant equivalent to ten cups of green

tea and six times as much antioxidants as goji berries, also known for their extra high amount of antioxidants.

This is important because antioxidants help boost immunity, fight infections, slow down the signs of aging, fight cancer, and even help prevent chronic disease. All of that just from a cup of tea!

## When Do You Like Your Tea?

Since you can get pretty much any benefit you want out of tea or a tisane, when you have your beverage is an important consideration in your wellness routine. Tea has been shown to help your brain function better, and as such could make your mornings even more productive than they already are.

Having tea in the morning can impart focus and clarity, whereas having a nice calming herbal or chamomile tisane at night can help you have a better night's sleep naturally. Maybe you need a slight after lunch pick-me-up (don't we all) to make it through the afternoon. Whatever your particular need, you can find the right tea blend to support it.

*Jaya Jaya Myra is a wellness lifestyle expert and go-to media expert on mind-body wellness, stress management, mindfulness, food for mood, and natural, healthy living. She's a best-selling author, TEDx and motivational speaker, and creator of The WELL Method for purpose-filled healthy living. Visit [JayaJayaMyra.com](http://JayaJayaMyra.com)*



Physical therapist and personal trainer, Jeff Cavaliere.

## The Benefits of Building Muscle —for Everyone

Why muscle training is the key to reaching your fitness goals, even if you're not a gym junkie

## CONAN MILNER

Two-thirds of Americans are now overweight or obese, yet we desperately want to be fit. We often blame a lack of willpower, but there's much more to the story.

We confront a variety of discouraging obstacles on the road to fitness. Heredity, hormonal imbalances, stress, a lack of energy, the ubiquity of junk food, and a culture that demands long periods of sitting—it all stands

in the way of having the body we want.

One of the most accessible and effective strategies for overcoming these roadblocks is building muscle.

Muscle building and strength training are activities available to everyone. Muscle is virtually free, yet incredibly precious because you have to work for it. Unlike fat, muscle is hard to acquire and hard to maintain, but so easy to lose.

For example, astronauts can lose muscle and bone mass after just a few days in

space. The body becomes weak when it is no longer subject to the constant pull of gravity.

Though not as extreme, a similar process of muscle degradation happens back on Earth. If your day is primarily spent in front of a desk, on a couch, or behind a steering wheel, your muscles aren't getting the stimulation they need to stay healthy.

*Continued on Page 11*

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# A NEWSPAPER GEORGE WASHINGTON WOULD READ

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People should focus on increasing daily activity to at least 30 minutes a day, which could include walking, swimming, or yoga.

## Gentle Exercise Reduces Risk of Diabetes

No need for high speed to get major health benefits from physical activity

**MAT LECOMPTÉ**

Daily exercise, even lower-intensity exercise, can cut the risk of diabetes, according to a study published in *Endocrine Connections*.

Not getting enough physical activity could lead to metabolic complications such as diabetes, obesity, and heart disease. After smoking, a lack of exercise is the second-most preventable cause of premature death.

**Exercise May Affect Hormones**  
Glucagon-like peptide-1 (GLP-1) is an appetite-inhibiting hormone that lowers blood sugar levels and stimulates insulin secretion. Previous studies have suggested that exercise may affect GLP-1 secretion, but most have been inconclusive. The effects of daily lower-intensity exercise have remained uncertain.

However, this new study shows how moderate-intensity activity is associated with beneficial levels of the GLP-1 hormone, which may lower the risk of diabetes. The findings suggest that even a lower intensity of regular daily physical activity—like the habit of a daily walk—could help to prevent metabolic diseases such as diabetes.

For the study, doctorate student Charlotte Janus and professor Signe Torekov from the University of Copenhagen, together with researchers from Steno Diabetes Center, investigated the association between normal daily physical activity and GLP-1 secretion.

They looked at an overweight population of 703 men and 623 women. The participants' heart rates were monitored on a daily monitor to determine their activity intensity, ranging from sedentary to vigorous. GLP-1 levels were measured before and after drinking glucose to test how physical activity could affect the secretion of the hormone.

Researchers found that moderate-intensity exercise for just 30 minutes a day increased GLP-1 levels in men, but not in women who were on average active for only 20 minutes a day.

“Our study is encouraging as the results suggest that daily activity, even at a relatively low intensity and for a short amount of time, such as brisk walking, gardening, and playing with grandchildren, could improve appetite and blood glucose regulation,” said Janus.

Torekov added, “Greater GLP-1 hormone levels decrease both hunger sensation and blood sugar and may, therefore, decrease the risk of both obesity and type 2 diabetes.”

**After smoking, a lack of exercise is the second-most preventable cause of premature death.**

“The association between physical activity and GLP-1 secretion may only be seen in men due to physiological differences and generally lower activity levels for women in this study. It may also indicate that a certain minimum level of physical activity is required for there the positive effect on GLP-1 levels, however, more studies are required to confirm this.”

The findings of the study suggest that even low-intensity activity could help to reduce the risk of diabetes. People should focus on increasing daily activity to at least 30 minutes a day, which could include walking, swimming, or yoga. Many people find that low-intensity activity is much more achievable than high-intensity exercise, which can be time-consuming or too physically demanding.

“If you don't have the time or ability to do high-intensity exercise, increasing your daily physical activity level may still affect GLP-1 production and have positive impacts on your health,” said Janus.

*Mat Lecompte is a freelance health and wellness journalist. This article was first published on Bel Marra Health.*

## The Benefits of Building Muscle —for Everyone

Why muscle training is the key to reaching your fitness goals, even if you're not a gym junkie

*Continued from Page 9*

And it only gets worse with time. People who are physically inactive can lose as much as 5 percent of their muscle mass per decade after age 30.

Muscles grow when they're met with a challenge. When we repeatedly lift a weight or do enough pushups, working beyond what is comfortable, it causes minor trauma and injury in the muscle tissue. The body adapts in response to this trauma by forging muscle fibers that are stronger, thicker, and more resilient.

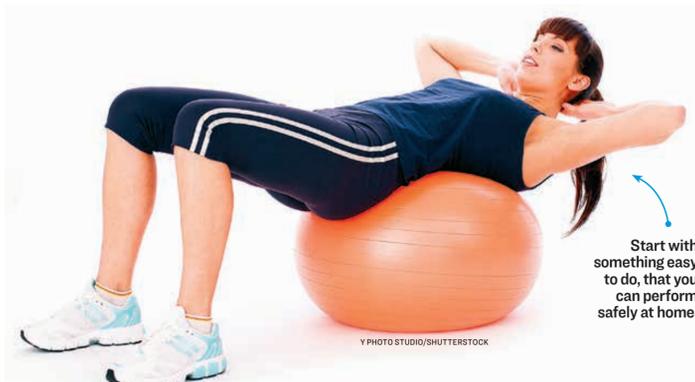
In addition to brute strength, building muscle requires adequate rest. Once you've worked your muscles to their limit, they need some time to repair and recover. That's why seasoned lifters schedule a day or two off in their training regimen.

Exercises designed to increase muscle mass have been around

since the earliest known civilizations. Ancient Chinese soldiers were required to do strength training, and athletes from many old cultures lifted stones, sandbags, and other heavy objects in pursuit of a more powerful body.

Since at least ancient Greece, the broad shoulders, slim waist, and other well-developed musculature depicted in old statues and paintings have been the ideal aesthetic for a healthy physique. But building muscles doesn't just make us look better; it may also contribute to our internal health. Studies find that increased lean body mass can help prevent insulin resistance (type 2 diabetes), rheumatoid arthritis, Alzheimer's disease, and other diseases linked to systemic inflammation.

Building muscle has a practical side, too. The stronger you become, the better you can meet the physical demands of life—shoveling snow, moving furniture, and lifting a to-



Start with something easy to do, that you can perform safely at home.

PHOTO STUDIO/SHUTTERSTOCK

**Increased lean body mass can help prevent insulin resistance (type 2 diabetes), rheumatoid arthritis, Alzheimer's disease, and other diseases linked to systemic inflammation.**

dlar, without throwing your back out.

**An Ally for Weight Loss**

Muscle plays a key role in ensuring sustainable weight loss. Experts warn that those who follow deprivation diets, and other short-sighted weight loss strategies that ignore the importance of muscle, typically see their lost weight return.

According to biochemist Dr. Barry Sears, weight loss strategies that shed pounds through water and muscle weight trigger a vicious cycle sure to create more fat.

“With less muscle mass after weight loss, if you increase your intake of calories, less of them get converted to energy and more of them are stored as fat,” said Sears, who is the creator of the popular Zone Diet.

Part of muscle's magic is found in the impact this tissue has on our metabolism. Muscle mass converts calories to energy. This means that developed muscles encourage us to move, and activity means you're burning more calories. But even when we're still, our muscles are working for us.

When we lose muscle mass, it lowers our basal metabolism—the rate at which we burn calories while at rest, says Dr. Caroline Apovian, director of the nutrition and weight management program at the Boston Medical Center and vice president of The Obesity Society.

“Restricting calories and relying on cardiovascular exercise alone are not enough. Steps must be taken to preserve and build up lean muscle mass, including working out with weights at least a couple of times per week, eating a diet rich in lean protein sources, and sleeping 7-9 hours per night,” Apovian said in an email.

Muscle's metabolic advantages are a big reason why physical therapist and personal trainer Jeff Cavaliere emphasize weight training over cardio.

“Metabolically it's a long-term gain,” said Cavaliere. “If you're creating fat loss, but not leaving behind any appreciable muscle, it results in that skinny-fat physique. It means you don't have any metabolically active tissue.”

**Beneath the Fat**  
Unlike a body that is merely thin, muscle gives us shape. However, much of this definition remains hidden when covered in a thick layer of fat.

Fat loss comes from dietary changes, and the most effective eating plan to lose fat and preserve muscle is one focused primarily on protein and non-starchy vegetables.

The weight loss process can be slow and requires some discipline. But if you're working to build muscle while losing fat, it allows for a lot more leeway.

“By virtue of having more muscle, you're going to be able to eat more... You'll have to support the muscle tissue that you have, and that in the long term is going to have a much bigger benefit for keeping you lean,” said Cavaliere.

In addition to getting adequate protein (which facilitates muscle fiber repair) and vegetables (for nutrients and fiber), Cavaliere also enjoys surprisingly large helpings of carbohydrates, like potatoes (which provide glycogen to fuel muscles). But that doesn't mean you can just eat anything if you weight train. Cavalier was once a dedicated devotee of junk food—until he discovered what it cost him.

“I noticed that when I made im-

provements in what I ate, I started to get more muscle. So it became a lot easier to say no and to find other things that I liked to eat, and realize that my hard work is much more important to me than the doughnut was,” he said.

**Getting Started**

Cavaliere serves as a trainer for athletes, professional wrestlers, movie stars, and anyone else who tunes into his YouTube channel, Athlean-X. Despite the advantages of muscle building, Cavaliere sees many people who are afraid to start because they don't want to look dumb at the gym. Instead, they choose the treadmill because the goal is clear.

There are lots of tools and contraptions designed to challenge your muscles: weights, resistance bands, and various machines. But when people first start, Cavaliere recommends simple routines that require no equipment, such as the classic pushup or variations on a plank.

His philosophy for beginners is to start with something easy to do, that you can perform safely at home. That way, the risk of injury is minimal, but you can still build confidence. Committing to a simple routine for three or four weeks can result in noticeable differences.

“Limit the number of exercises, and let them start to see results,” Cavaliere said. “Once you start to see results, you want to get more of it. It becomes a little addictive. This encourages you to stay on track.”

**More Muscle for Every Body**  
Muscle building isn't just for gym junkies and Mr. Universe contestants. Seniors, for example, benefit from strength training because it makes for stronger bones and connective tissue, as well as muscles.

It can be discouraging to learn that we lose the ability to maintain muscle as we grow older, but it's never too late to introduce preventive measures. “When you do nothing, all these effects of aging are escalated,” Cavaliere said.

Of course, the earlier you can adopt a weight training habit, the better. Muscle building has always attracted young, fit-conscious males, and increasingly, females. But many young women still shy away from weight training because they're afraid of bulking up. Cavaliere says this shouldn't be a concern.

“[Women] should embrace this because it is going to create the aesthetic changes that they're after. It's not just going to be that they lost weight, but they'll get the shape, the curves, and the body that fits differently in clothes,” he said.

Muscles require maintenance, but it may not take as much time as you think. Cavaliere's chiseled physique requires a maximum of 45 minutes of training per day, five days a week. More modest goals may get away with much less.

Whatever your muscle building goals, Cavaliere's advice is to keep your routine challenging and consistent, and to be sure to train all the muscles of the body. He says the more that people can adopt a lifestyle and a progressive plan for changing their body, the better off they'll be.

“We all start out with hurdles, but it's the level of dedication, our commitment to the cause, that makes the difference,” he said. “People really need to understand the true power they have over their own body, and cherish this fact.”



Seniors benefit from strength training because it makes for stronger bones and connective tissue, as well as muscles.

CATHERINE HEATH/UNSPLASH

# Effects of Low Estrogen as We Age

The decline of this hormone can be offset naturally with diet and supplements

DEBORAH MITCHELL

As women age, one of the most common challenges they face is lower levels of estrogen. The impact of this drop has been the subject of endless research, stories, myths, and misunderstanding. Although a lower level of estrogen is a natural part of a woman's life, there is still much we don't know about it, though we have learned a few things.

## Causes of Low Estrogen

By far the most common cause of lowered estrogen is aging. With advancing age comes perimenopause, which is when estrogen levels begin to drop. Once the ovaries stop producing estrogen, a woman is in menopause. Other causes of low estrogen levels can include:

- Thyroid disorders
- Premature ovarian failure, which can develop because of exposure to toxins, an autoimmune condition, or genetics
- Being severely underweight/anorexia/eating disorders
- Excessive exercise
- Low functioning pituitary gland
- Chemotherapy
- Family history of hormonal problems
- Turner syndrome and other congenital conditions
- Chronic kidney disease

## Symptoms of Low Estrogen

Low levels of estrogen can result in symptoms throughout the body. For example:

**Weak bones.** Declining estrogen can result in bone loss, which also increases the risk of fractures and/or osteoporosis.

**Irregular menstrual cycles.** Women with low estrogen may experience irregular periods or skip them.

**Infertility.** Low estrogen can result in a failure to ovulate, which makes it difficult to get pregnant.

**Hot flashes.** This is probably the most recognized symptom of low estrogen.

**Increased risk of urinary tract infections.** This symptom is believed to be associated with the thinning of the tissue in the urethra, which is the result of low estrogen.

**Mood swings/depression.** The mood hormone, serotonin, depends on estrogen, therefore low estrogen can result in a drop in serotonin levels and contribute to depression and mood swings.

## Low Estrogen and Skin

Estrogen plays an important role in supporting skin health. For example, the hormone stimulates the production of collagen and oils for the skin, promotes wound healing, and provides some protection against radiation from the sun.

Therefore, when estrogen levels



Getting a healthy amount of sunshine, and vitamin D with it, can help maintain estrogen levels.



Be sure to include flaxseeds in your diet—they are one of the richest sources of phytoestrogen.

## Low estrogen can result in a drop in serotonin levels and contribute to depression and mood swings.

decline, you may experience skin issues as you become more sensitive to changes in temperature, fabrics, beauty products, and other things that may touch your skin. Such sensitivity can result in rash, itchy or irritated skin, dryness and flaking, hives, or flushing. Because the skin becomes thinner as estrogen levels fall, you may notice that you bruise more easily than you did in the past.

## Low Estrogen and Weight

Declining estrogen has been associated with weight gain and how much fat the body stores. Generally, women store fat in their hips and thighs. However, once estrogen levels begin to drop, the storage area often shifts to the abdomen.

Just because you have low levels of estrogen doesn't mean you will automatically gain weight, however. You can reduce your risk of weight gain by exercising regularly, eating a healthy

diet, and getting adequate sleep.

## Natural Remedies

If you want to boost your estrogen levels naturally, nature has a few suggestions. Discuss the best dosage for your needs with a knowledgeable healthcare provider.

**Black cohosh.** You may know this herb for its ability to help with menopausal symptoms. Research also suggests this herb contains compounds that stimulate estrogen receptors. More research is needed to verify this finding.

**Chasteberry.** This traditional herbal remedy is frequently used for premenstrual symptoms. Experts have found that chasteberry has estrogenic effects when taken at 0.6 and 1.2 g/kg of body weight. A phytoestrogen called apigenin in chasteberry is believed to be responsible for this effect.

**Estrogen-rich foods.** Be sure to include flaxseeds in your diet—they are one of the richest sources of phytoestrogen. Other candidates include soy, pistachios, walnuts, strawberries, and dried fruit.

**Evening primrose oil.** The omega-6 fatty acids in this herbal remedy make it popular for symptoms associated with menopause. In one study, about 40 percent of women who used evening primrose oil experienced relief of symptoms associated with low estrogen.

**Red clover.** The isoflavones (i.e., biochanin A, daidzein, formononetin, genistein) in red clover (*Trifolium pratense*) may act like estrogen in the body. Some research has shown that taking red clover supplements can significantly increase estrogen levels in menopausal women.

**Vitamin D.** This vitamin plays an important role in estrogen production, so you need to be sure to get enough of it. Since vitamin D deficiency is very common, you may want to get a blood test to determine your levels before you take a vitamin D supplement so you know the optimal dose for you.

## Bottom Line

The presence of low estrogen is a natural part of a woman's life cycle. Rather than fear it, this life phase can be understood, embraced, and managed.

*Deborah Mitchell is a freelance health writer who is passionate about animals and the environment. She has authored, co-authored, and written more than 50 books and thousands of articles on a wide range of topics. This article was originally published on NaturallySavvy.com*

# Reduce the Effects of Stress and Anxiety by Writing Your Worries Away

MOHAN GARIKIPARITHI

When you feel stressed or anxious, you might not want to talk about your feelings. And contrary to popular belief, that might be a good thing.

It doesn't mean that you should leave them bottled up, either. New research is showing that one of the best ways to deal with stress and anxiety is to write down those thoughts and feelings.

The research from Michigan State University was recently published in the journal *Psychophysiology*. Researchers found that when participants wrote expressively about the stresses and anxieties they were feeling, their brains could run more efficiently than those who didn't. This included people who chose to talk

about their worries or use other coping mechanisms to help with stress. It appears that writing about stress might create space in the brain so it is able to perform more effectively, thereby inhibiting some of the mental anguish and disrupted focus that stress can cause. Stress uses up your brain's resources, so when more is added, or anxiety exists, the brain is forced to multitask. This is never a good thing.

Offloading your worries onto a pad can help you think about your stress and prepare you for the future. This exercise can also help clear up brain space so the symptoms of stress don't hit as hard. Some of the mental impacts of stress include poor sleep, memory troubles, limited focus, and poor decision-making. It can also

bump up the risk for a heart attack or stroke.

So, next time you're feeling a little bit of added stress and anxiety, open up a journal. Jotting your thoughts down and giving them a little bit of consideration on the page might work better than other unhealthy stress relievers (like junk food) and inhibit some of stress's crippling symptoms.

In addition to jotting down your worries, socializing, exercise, sleep, and a nutritious diet can all help fight back against the effects of stress.

*Mohan Garikiparithi holds a degree in medicine from Osmania University (University of Health Sciences). This article was originally published on Bel Marra Health.*



Offloading your worries onto a pad can help you think about your stress and prepare you for the future.



Both privately and publicly insured children were subject to low-value and often unnecessary health care that exposed them to additional health risks.

# Children Are Getting Medical Care They Don't Need

Public insurance linked to slightly more unnecessary medical treatments, study finds

Kids with public insurance are slightly more likely to receive medical care that they don't need than those with private insurance, a new study finds.

One in nine publicly insured and one in 11 privately insured children received low-value care in 2014, according to the findings in *Pediatrics*. Researchers evaluated data for 8.6 million children in 12 states to see whether having public or private insurance is associated with receiving low-value medical services.

"In a prior study, we showed that privately insured children frequently received low-value services that do not improve their health, but we didn't know if publicly insured children were more or less likely to receive wasteful care," said lead author Kao-Ping Chua, a pediatrician and researcher at Michigan Medicine's C.S. Mott Children's Hospital and the Susan B. Meister Child Health Evaluation and Research Center.

"While we found that publicly insured children were a little more likely to receive low-value services, the difference was not large. The more important finding is that children are highly likely to receive wasteful care regardless of what type of insurance they have. This means that efforts to reduce waste should be global in nature and target the care of all children."

Researchers estimated the prevalence of 20 low-value diagnostic tests, imaging tests, and prescription drugs, such as unnecessary vitamin D screening, imaging for acute sinus infections, and antibiotic prescriptions for colds.

Among publicly and privately insured children in the sample, respectively, 11 percent and 9 percent received unnecessary services at least once in 2014 while about 4 percent and 3 percent received low-value services at least twice.

About one in 33 publicly and privately insured kids received a low-value diagnostic test at least once in 2014. About one in 12 publicly insured and one in 20 privately insured children received a low-value prescription drug at least once.

"Our study shows that insurance type doesn't strongly predict whether a child is likely to receive wasteful care," said Chua, who's also a researcher at the University of Michigan Institute for Healthcare Policy and Innovation.

Chua points to several factors that may explain why some children still receive low-value services despite evidence that they don't work. High on the list is the difficulty in changing the interventionist culture of medicine.

"Parents understandably want to relieve their children's suffering and to rule out serious problems," Chua said. "Both parents and doc-



Researchers estimated the prevalence of 20 low-value diagnostic tests, imaging tests, and prescription drugs, such as unnecessary vitamin D screening, imaging for acute sinus infections, and antibiotic prescriptions for colds.

## Reducing wasteful care will improve child health and decrease the financial burden of health care spending on society and families.

*Kao-Ping Chua, lead author, pediatrician and researcher at Michigan Medicine's C.S. Mott Children's Hospital*

tors sometimes have a tendency to believe that prescribing a drug or ordering a test is better than doing nothing, even though the right answer is often to do less.

"The expectation that something be done can be particularly high when parents miss work and children miss school to go to the doctor, or when children previously received an unnecessary intervention for the same condition, like an antibiotic for a cold."

Some interventions also stem from an overabundance of caution. "Doctors have a strong fear of missing something," Chua said. "Some doctors would rather over-treat and risk the side effects of the intervention than under-treat and risk missing a catastrophic problem."

Unnecessary care has consequences, Chua said. Overuse of antibiotics, for example, can increase antibiotic resistance and the risk of allergic reactions. MRIs sometimes expose children to the risks of sedation while CT scans expose them to radiation, which can increase the lifetime risk of cancer.

All low-value services also come with wasteful health care spending, Chua said. "These interventions waste health care dollars that could be devoted to other valuable causes, and also force many families to pay out-of-pocket for unnecessary care," Chua said. "Reducing wasteful care will improve child health and decrease the financial burden of health care spending on society and families."

*This article was originally published by the University of Michigan. Republished via Futurity.org under Creative Commons License 4.0.*

# Engaging With the Arts May Help You Live Longer

Research finds lower mortality rates among those who visit galleries, theaters, and other arts events

Older people who frequent art galleries, museums, the theater, and concerts may live longer than those who don't, a study in England suggests.

Even after accounting for a wide range of other health and social factors, researchers from University College London found that people over 50 who regularly engaged with arts activities were 31 percent less likely to die during a 14-year follow-up than peers with no art in their lives.

Those who took part in arts-related activities only once or twice a year still had 14 percent lower odds of dying during the study.

"These findings support previous statistical analyses and anthropological work suggesting there may be benefits of the arts to individuals as they age," said Daisy Fancourt, an associate professor of psychology and epidemiology at University College London and co-author of the study.

"It remains possible the association presented here could be the result of unidentified confounding factors, but it is promising that the association is maintained even when controlling for a wide range of socio-economic, demographic, health, social and behavioral factors," Fancourt told Reuters Health in an email.

The study's results are in line with previous research that suggested the arts may support longevity by improving mental health, enhancing social capital, and reducing loneliness and sedentary behaviors, the authors note in *The BMJ*.

"We show the same pattern in a larger sample followed-up for a longer period," said Fancourt.

The authors analyzed data on a nationally-representative sample of 6,710 people who were 50 or older in 2002 when they joined a long-term aging study. In 2004-5, participants were asked how often they engaged with the arts, as well as a host of questions about their habits, background, education, financial situation, and social lives.

Using National Health Service records, researchers followed participants through 2018. By that time, nearly 30 percent had died.

Overall, men were more likely to die, as were unmarried people, those with less wealth and those not currently working. Mortality was also higher among people with health conditions, including depressive symptoms, cancer, and heart diseases, the authors note.

Among those who died, 47.5 percent had said at the outset they never engaged in cultural activities, compared with 26.6 percent who had taken part in an art-related activity once or twice a year, and 18.6 percent of people who had engaged with the arts more frequently.

The findings feed into the wider context of research into the health benefits of the arts, Fancourt said, particularly in light of how many countries offer arts "on prescription" to support physical and mental health.

"Engaging with arts can stretch our imaginations, inspire and cultivate creativity, celebrate meaningful stories, provide social connectivity, build social capital, challenge us and provide exposure to new knowledge or ideas," said Jennifer Novak-Leonard of Northwestern University, in Chicago, who researches cultural participation but was not involved in the current study.

The results suggest arts participation may ultimately improve quantity—not just quality—of life, Novak-Leonard said, but the paper provides no insight into how arts attendance might reduce mortality.

"This study is intriguing, given the substantial magnitude of the reported effects on mortality, but like most studies of association, this one raises more questions than it answers," she told Reuters Health in an email.

The study did not look at aspects of arts participation known to be important, she said, such as the influence of engaging with the arts during one's youth.

"Contemporary research focuses not only on attendance but also motivations for engagement," Novak-Leonard said.

*By Vishuadha Chander From Reuters*



The arts may support longevity by improving mental health, enhancing social capital, and reducing loneliness and sedentary behaviors.

**For moms who are terrified to start, this is about as easy of a sell as you can get. And my kids loved it. No shame, no blame. Just me making their life easier. No more cleaning, and no more tears over not being able to organize their room.**

## BECOMING MINIMALIST

# Big Family Minimalism

An unexpected baby and 3 unexpected foster children created a hardship that led to transformative change

JILLIAN JOHNSRUD

I never searched out minimalism. I stumbled upon it as a survival tool. Our story is a twisting journey, but our minimalism story started in 2014, while I was nailing a job interview despite my phone exploding with text messages and missed calls.

See, while I at the interview, a 5-year-old boy with big hazel eyes had just been dropped off at our house by a social worker.

He had been in foster care for a while and had disrupted from the last five homes. This happens when foster parents or the birth family aren't able to meet the child's needs and a new family has to be found. The social worker was rather confident we couldn't handle him either.

She mentioned, almost offhandedly, he also had two little sisters. No other family had been able to keep them together and the state didn't want to attempt to place them together again. I just smiled a sweet smile and said, "Well, we aren't every other family. When you are ready, we are ready for anything."

It was a lie. No one is ever fully ready. His little sisters moved in a few months later. I quit my job and lived at the end of my rope for the next year.

Having four little kids at home is a lot (6, 5, 2, and 1). Just that alone. But it wasn't just that. Because these kiddos had high needs and were in foster care. We had 12 appointments

a week, including meetings with professionals and various therapies. There were also difficult visits with birth parents. There were court dates and a rotating door of overworked social workers. There were lawyers, judges, and court-appointed advocates. There was the uncertainty of not knowing what the future held for these kids we loved so much.

These sweet kids had seen so much trauma and neglect in their short lives that every behavior was broken. I had the skill, knowledge, and love that was needed, but I was exhausted—like lay on the floor at night after I tucked them in and cry silent, hot tears exhausted.

## A Life at the End of Our Rope

We were all at the ends of our rope. While it was challenging to be the ringleader of this circus, it wasn't any easier for my kids. The 2-year-old had lived with five different families before us. She called me and her birth mom, mama.

Just getting them ready for the twice-weekly visits with birth parents would nearly break us. They were excited, terrified, overwhelmed, full of dread, happy, conflicted: all at the same time. So they hit each other, melted down, took off their clothes, bit each other, screamed, hid, and lost their coats.

It was like dressing a whole litter of angry kittens into costumes and taking their picture. I would arrive to drop the kids off at the visit only to be criticized, belittled, or ignored by the birth family. I would smile then go cry alone in my minivan.



Jillian Johnsrud took her family down a path of minimalism that had them evaluate everything from toys to team sports.

**These sweet kids had seen so much trauma and neglect in their short lives that every behavior was broken.**



Families need time for connection and adventure, and that means letting other things go.

The foster care process isn't easy or fun for anyone, not the kids, not the birth families, nor the foster parents. We all lived in a constant state of anxiety not knowing if they would be with us for the next birthday, or at Christmas, or when school starts. No one knew.

## So Minimalism Found Us

I imagine most people start with minimalism with their stuff. De-cluttering and all. Maybe they read an awesome blog, or hear a podcast, and think, "I should get rid of some of this stuff!"

I needed it in every area of my life, all at once. I dubbed 2015 the year of "Easier, not harder." That was my only litmus test. Is this easier or harder?

I stopped wearing color because I didn't have the time or skill to coordinate outfits.

I opted out of most of my commitments that were, in fact, optional. I pulled my kids from sports.

I ate the same breakfast every day. I told all my kids' teachers we weren't doing any homework. None.

No reading charts, no math worksheets, no flashcards. I was so thankful for what the teachers were doing at school, but I couldn't add "teacher" to my list of things to squeeze into our evenings.

I had to set boundaries with professionals. "No, I can't change our appointment time every single week. Either keep our time, or we skip it."

I had to learn minimalism in my relationships. Most people were incredibly supportive, encouraging, and really understood the importance of what we were doing. But some people didn't. I didn't have any leftover emotional energy to hear, "Why are you doing this? Why don't you just give them back? The system is so broken, you shouldn't have to put up with this."

I started owning the fact that I live in a real human body that needs food, water, exercise, and sleep. Less clutter. Less cleaning. Less overwhelming. Less hectic. Less appointments. We needed a margin for the right kind of more: More engagement. More quiet. More stories and cuddles. More adventure. More travel. More time in the garden. More focused time. More creativity.

More stuff and more space weren't going to give us any of that.

We donated 50 percent of the kids' toys. And only kept three out at a time to play with. And I saw the kids settle in. Instead of the anxiety, overwhelm, fighting, and frus-

**Enter Minimalism—Level Ninja** I'll admit, I had a bit of a mommy meltdown when I found out we were



The Johnsrud family at Glacier National Park in Montana.

pregnant. Sure, we had spent thousands upon thousands of dollars on fertility treatments over the years. Sure, we had tried for seven years. But now? Adding a baby definitely didn't fall into my "easier not harder" motto.

We had been shopping for a bigger house. We were a family of six in 1,650 cozy square feet. A bigger house seemed to make sense. Every single person who came to our house echoed the words, "So when are you moving to a bigger place?" like it was the chorus line in a Disney movie.

But the saying "a baby changes everything" is true.

Turns out, we didn't want more and bigger. Our entire life already felt "more and bigger." We wanted less.

Actually, we all needed less. Less clutter. Less cleaning. Less overwhelming. Less hectic. Less appointments.

We needed a margin for the right kind of more: More engagement. More quiet. More stories and cuddles. More adventure. More travel. More time in the garden. More focused time. More creativity.

More stuff and more space weren't going to give us any of that.

We donated 50 percent of the kids' toys. And only kept three out at a time to play with. And I saw the kids settle in. Instead of the anxiety, overwhelm, fighting, and frus-

stration they felt when confronted with a massive heap of toys, they just played. Slowly, carefully, and thoughtfully with one toy. There was no cleaning up at the end of the night. Each child set one toy on a shelf and it was over. That one simple change freed up a mountain of emotional and relational energy.

I made it a mission to touch every item in our house. I would ask a few questions.

Is this a "hard-working" item, or is it "lazy?" We didn't have space for lazy items. Our home couldn't be a storage unit for barely-used items.

I would ask, "If I didn't already own this and saw it at a yard sale for \$5 would I buy it instantly, with joy?" Because if it doesn't add \$5 of value, it doesn't deserve a place in our home.

Minimalism is an act of faith at first. We pared our life down. Appointments, relationships, classes, sports, commitments, stuff with no guarantee of a better outcome. There was no promise in writing that what we would gain would be better than what we were letting go of.

You pull your kid from a sport and just hope. Hope that the extra two hours a week somehow adds as much value as the sport was adding. It takes a bit of faith to hold space. To create margin and not rush to fill it up again.

We got rid of "perfectly good" toys and a ton of McDonald's Happy Meal

junk toys. It's an act of faith to say, "We are going to donate all these toys that we actually spent money on and just hope that 'less is more.'"

## To the Mamas

I kind of just want to give you a hug at this point. I've raised six kids (my oldest passed away). I have to say that motherhood, in the thick of it, is the hardest and most beautiful part of my life. It has been my defining work.

So if you feel like your kids will kick, scream, and cry themselves into a puddle if there were less toys, less classes, less sports, less commitments. Remember this: If you're maxed out, they're maxed out.

My very normal kids hate picking up toys. Actually, I think they hated it even more than I did. They hated being corralled into the van. They hated the rush and my grumpy voice saying, "Where in the world are your shoes? Why are they in the bathtub? Can anyone answer me this? WAIT! Why are you covered in purple paint? OMG, I don't even care. Come on. We are SO late. Please, please, please just put your shoes on."

Despite what it seems, minimalism is a perfect fit for families. If anyone needs this, it's families.

Here is how we started this journey with the toys. (Because no one likes living in a house that looks like a daycare crossed paths with a tornado!)

I had this conversation with my four kids who at the time were 3-8: "I think I haven't been doing a good job. I think maybe I've made it too hard for you guys to pick up your room. The job is simply too hard. And that's my fault. So here's what we will do. You pick up as many toys as you can handle. Then I will come clean up the rest. I'll put them away on this special toy shelf. Anything you can take care of, just pick up and you can keep that in your room. The only rule is, only keep as much as you can handle. If it gets to be too much for you to take care of on your own, we will keep less toys in your room."

They managed to clean and organize about five toys. All the rest I took out of their room and put on a "toy shelf" where they could swap toys (if their room was clean).

It also made it simple to see what toys we could sneak away in the dark of night. If they hadn't picked the toy off the toy shelf in a few months, obviously it wasn't a high-value toy.

For moms who are terrified to start, this is about as easy of a sell as you can get. And my kids loved it. No shame, no blame. Just me making their life easier. No more cleaning, and no more tears over not being able to organize their room.

**Big Family Minimalism** When you walk into our home,

**The foster care process isn't easy or fun for anyone, not the kids, not the birth families, or the foster parents.**

## Childhood Deprivation Affects Brain Size and Behavior

Study of Romanian orphans subject to terrible institutional conditions provides insights into childhood development

NURIA MACKES

The human brain goes through dramatic developmental changes in the first years of life. During this period it is particularly sensitive to environmental influences. This sensitivity helps babies learn and develop, but it also leaves them vulnerable to negative experiences, such as maltreatment, which can have a lasting physical and psychological impact.

In our latest research, published in PNAS, we show that

extreme adversity early in life is linked to changes in brain structure in adulthood. Early childhood adversity experienced in institutions was related to a smaller brain as well as regional changes in brain structures. Some of these changes were linked to neurodevelopmental problems, such as attention deficit hyperactivity disorder (ADHD), which can arise following adversity.

Our study examined a group of adoptees who were exposed to severe early deprivation when

living in institutions in Romania under the Ceaușescu regime. The conditions in these institutions were appalling. Often children did not have enough food and they had no toys to play with. They were confined to cots and had no permanent caretakers with whom to form a bond. Many children died in these institutions.

After the fall of Nicolae Ceaușescu, footage of the conditions in these institutions gained worldwide publicity. This was followed by a large interna-

tional adoption campaign. For the children, adoption meant a sudden change in their circumstances for the better. They were now living in nurturing and loving families.

The English and Romanian Adoptees (ERA) Study follows the development of some of these children who were adopted by families in the United Kingdom. The study included a comparison group of U.K. adoptees who did not experience any institutional deprivation.

Previous research on the ERA

study has shown that the Romanian adoptees were severely affected when they first arrived in their adoptive homes. For most of them, this was followed by rapid recovery.

By age six, many of the children, especially those who had spent only a limited time in the institutions, had fully recovered their physical and cognitive development. Yet many of the adoptees who had been exposed to institutions for an extended time developed cognitive problems and mental health disorders,

such as increased symptom rates of ADHD and autism spectrum disorder (ASD) and lower IQ. These problems often persisted through to adulthood.

## Brain Images

We were interested to find out whether fundamental changes in brain development could explain this increase in mental health disorders. To do so we investigated the impact of early institutional deprivation on adult brain structure by taking brain scans of our participants in a magnetic resonance imaging (MRI) scanner.

We found that institutional deprivation was associated with a smaller brain in young adulthood. There was a direct



The longer the adoptees had spent in the institutions, the smaller their brains tended to be.

relationship with the duration of deprivation—the longer the adoptees had spent in the institutions, the smaller their brains tended to be. A smaller brain

volume was also linked to lower intelligence and more symptoms of ADHD.

Some regions in the frontal and temporal parts of the brain

seemed to be particularly sensitive to deprivation. Changes in a region in the temporal part of the brain, the inferior temporal cortex, were associated with fewer symptoms of ADHD. This indicates that this change in brain structure might be compensatory, rather than impairing, as it was associated with better outcomes.

This research has shown that early institutional deprivation is associated with changes in brain structure that are still visible in adulthood more than 20 years after the adoptees left the institutions. These findings provide compelling evidence for the notion that extreme adversity early in life can lead to long-lasting changes in brain development

despite later environmental enrichment.

Changes in brain structure did not always suggest impairment—in some cases they suggested compensation. Future research is needed to identify how we can best prevent and treat psychiatric conditions that arise from adversity. For example, it would be interesting to see whether the compensatory processes found in this study could be targeted in cognitive training to reduce ADHD symptoms in people who experienced early deprivation.

*Nuria Mackes is a postdoctoral research associate of neuroimaging at King's College London. This article was originally published on The Conversation.*

# How Optimism

## May Keep You Alive Longer

A new study suggests that optimism might be a secret to longevity

KIRA M. NEWMAN

You've probably heard a story or two about someone who lived past 100. Perhaps you have a wise-cracking great-grandfather. Or maybe you heard about that WWII veteran who ate ice cream and smoked cigars every day.

These stories tend to be both remarkable and slightly baffling. Sometimes, they defy our assumptions about what keeps people alive. What is their secret? According to a new study, one secret to a long life might be wholly unrelated to what we eat or how much we exercise: our optimism.

Researchers examined long-term surveys of more than 69,000 women and 1,400 men. Both groups reported how optimistic they were: whether they expected good or bad things to happen to them in the future, and if they felt in control of important aspects of their life. The women averaged 70 years old and were followed for 10 years; the men averaged 62 years old and were followed for 30 years. Both groups were predominantly white.

Who was still alive by the end of the study? As it turns out, more optimistic people tended to have a longer lifespan. The most optimistic survived 10-15 percent longer than the least optimistic. (In comparison, people who avoided heart attacks survived 16-18 percent longer than those who had one.) The most optimistic also had a better chance of living to age 85—perhaps not as impressive as

the fabled centenarians, but that's still considered "exceptional longevity."

Similar patterns held even after accounting for other factors that could have influenced their optimism and survival, such as their socioeconomic status, how healthy they were to begin with, and whether they were depressed. "Optimism may be an important psychosocial resource in promoting healthy aging," the researchers write.

Why is optimism a survival skill? For one, it might motivate us to take better care of ourselves. That's one way to interpret another finding in the study: The link between optimism and longer life got weaker after accounting for the healthy behaviors that people engaged in, like eating well, exercising, not smoking, and getting regular medical checkups.

"Optimistic individuals tend to have goals and the confidence to reach them; thus, optimism may foster health-promoting habits," the researchers write. Optimists may be more engaged with self-improvement and ready to tackle obstacles they encounter on the road to good health.

If your glass is half full, you might also be better at coping with stress and negative emotions so they don't get under your skin and compromise your health. Indeed, optimistic people do tend to look healthier on a variety of biological tests.

While previous studies have found that optimists are protected against premature death, this is the first to examine the "exceptional longevity" that people strive for. And it complements other research suggesting that happy people—people who demonstrate more positive



Living a long life is more likely for those that expect good things, researchers find.

emotions or are more satisfied with life—may also live longer.

These findings might not seem like good news to those of us who aren't natural optimists. But perhaps that's my knee-jerk pessimism talking. Luckily, research suggests that optimism is something we can cultivate—by practicing gratitude, envisioning our "best possible self," or doing certain types of therapy. And that makes the future look a little bit rosier.

*Kira M. Newman is the managing editor at the Greater Good Science Center. This article was originally published on the Greater Good online magazine.*

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