

THE EPOCH TIMES

MIND &

BODY

NINA FIRSOVA/SHUTTERSTOCK

FOOD AS MEDICINE

PROBIOTICS

Are Becoming a New Front in

FIGHTING CANCER

These microbial residents of the gut play a deciding role in many disease pathologies, research suggests

MARTHA ROSENBERG

If you're like most people, you think of probiotics—"good" live bacteria that keep your gut healthy—as something that might be added to your yogurt or taken with antibiotics to protect your intestinal microbiome from being compromised.

This view of probiotics often extends to "prebiotics"—fiber-rich foods that the good bacteria in your gut "eat"—and "postbiotics"—substances released by the probiotics.

But as researchers study the relatively new science of gut microbiota, they're finding that probiotics have many complex and valuable actions. Probiotics biotransform nutrients and fight toxins and pathogens in the body, they affect mood and body weight, and appear to sometimes prevent cancer and tumor progression, according to scientific research.

Anti-cancer effects have now been studied with colon, oral, breast, cervical, and pancreatic cancers.

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Eating foods with live bacterial cultures nurtures the symbiotic "communities" of these microorganisms inside us.

EAT WELL

The Five C's to Better Eating

Forget food rules and tune into these choices for healthier digestion

AMY DENNEY

When it comes to the "how" of eating, most of us gravitate to the age-old "how much?" But you can't solve every digestive woe through calorie counting. There's much more to consider when it comes to how we should eat than simple volume, and these other factors can facilitate gut healing, prevent digestive distress, and promote overall wellness.

In fact, eating behaviors, rather than the actual food, can often be the culprit behind a plethora of gut problems. Rather than make radical dietary changes, some experts say you're better off evaluating how you eat and making changes there, rather than exclusively honing in on what you eat.

"A lot of it is psychological," said Sachin Patel, a functional medicine practitioner. "We want people to feel good about what they eat."

Patel and others are on a mission to get back to basics with food and, what he calls, the "lost art of learning how to take care of ourselves."

It's never too late to adjust habits, and examining a few choices around eating habits has proven effective.

Patel is a frequent speaker and podcast guest, spreading the message of the "five C's" of eating well, which mostly encourages maximizing the nervous system's role in digestion. The five C's are choose, chew, chill, cherish, and check.

Rather than inviting stress, chaos, and fear to the dinner table, Patel encourages tips he said are commonsense physiology.

"The doctor of the future is the patient," he said. "Don't wait until you get sick to learn how to be healthy."

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IT'S NOT JUST WHAT YOU EAT

You can eat healthy foods and still have digestion issues if you eat in a rush while stressed, and don't chew enough.

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Symptoms, Causes, and Cures for Weak Stomach Acid

Hydrochloric acid plays an essential role in healthy digestion and disease prevention

ANN LOUISE GITTLEMAN

People often talk about “acid stomach” being a bad thing. To tame a burning belly, they might drink milk or chug Pepto-Bismol and blame the fiery feeling on too much stomach acid.

But rather than needing to decrease the amount of hydrochloric acid (HCl) in the stomach, many people actually need to increase it. It turns out that HCl is a potent sterilizer of all kinds of contaminants due to its highly acidic pH. Outside your body, HCl is actually potent enough to burn a hole in your carpet!

HCl's Role in the Body

HCl is your body's front line of defense against hostile gas-producing bacteria and parasites, so low levels of the acid make us more susceptible to infection from salmonella and other bugs in food and water.

In addition, lower levels of HCl lead to malabsorption, poor assimilation, and ineffective distribution of essential nutrients, such as sodium, iron, calcium, and magnesium. Fifteen minerals, eight essential amino acids, and numerous vitamins depend on HCl for their absorption into the body.

For example, no matter how much calcium you take in supplement form, if your stomach acid drops too low, taking those supplements won't help prevent osteoporosis. Lowered levels of HCl can also lead to an underfunctioning liver and pancreas, a deficit of potassium (essential for the heart), and the formation of boils, abscesses, and puss.

Sadly, our levels of HCl may be declining at the very moment when we need HCl most. Medical professionals have long believed that stomach acid production declines by half after you reach age 40. But based on the work I've done with thousands of people, I think we need to revise that thinking. A lack of stomach acid has become much more widespread, and these days, I believe more and more people—most people, in fact—suffer from this condition.

One overriding factor in our national HCl shortage is stress.

Stomach acid production declines by half (or more) after you reach age 40.

We're all gulping down our food, eating irregularly, drinking large amounts of fluids with meals, swallowing air when we're eating, and taking in way too much food at one time.

These kinds of stressors slow down our secretion of stomach acid. The popularity of low-carbohydrate ketogenic diets has also made the stomach acid problem much worse. The large amount of protein in such a diet overwhelms your HCl production. Your body can't produce enough HCl to break down the protein. Consequently, you end up with undigested food, indigestion, and constipation.

In addition, if you drink too much water—especially cold water—while you eat or within two hours of eating, you disrupt your stomach acid function. Or if you don't chew your food enough, your diet lacks vitamins A and B or zinc or iodine or salt, you have medical X-rays, you drink chlorinated water—and the list goes on and on.

Dozens of factors may decrease your valuable stomach acid and can leave you with gas, bloating, acid reflux, heartburn, constipation, and diarrhea—and sometimes even worse symptoms.

Is Your HCl Low?

Are you experiencing any of the following signs of low HCl?

- A sense of feeling full, almost as soon as you start eating
- Belching and bloating
- Gassiness
- Nausea and vomiting
- A loss of your taste for meat
- Heartburn and burning in your stomach
- Sour taste in your mouth
- Bad breath
- Chronic yeast infections
- Weak nails
- Rectal itchiness
- Hoarseness and laryngitis



We rely on stomach acid to break down food and help us obtain nutrients. When this acid becomes weak, our health can follow.

• Rosacea

To find out if you have adequate stomach acid, try this home test. (Don't try it if you have ulcers or a pre-ulcerative condition.)

- Take an HCl (betaine hydrochloride) supplement of 500 to 550 milligrams and 150 milligrams of pepsin with your next meal. (Note: HCl shouldn't be taken simultaneously with anti-inflammatory medications like Indocin, Butazolidin, aspirin, or Motrin.) I recommend HCl+2, the supplement I created for my own clients. (It also contains bile acids for healthy fat digestion, so you get a double whammy of digestive help.)

- Observe how you feel. Extreme warmth signals that you have sufficient stomach acid and means you should discontinue the supplement or cut back the amount.
- If you experience no relief from your digestive problems, or feel no pain or warmth, double your HCl dose at the next meal.
- Continue adding an extra dose per meal until you feel warmth. Caution: Don't take more than five tablets at a time.
- At succeeding meals after you reach your limit, take one less than your maximum with food.
- After three to six months, try reducing your dosage.

While many, if not most of us, suffer from a lack of stomach acid, certain people are more susceptible to declining levels, such as those who suffer from:

- Gastroesophageal reflux disorder (GERD)
- Deficiency in protein, calcium, magnesium, or iron
- Immune disorders
- Arthritis
- Hives
- Osteoporosis
- Hepatitis
- Gallbladder disease
- Lupus
- Vitiligo

Following a healthy diet, like the ones in my books “The New Fat Flush Plan” and “Radical Metabolism” is a huge step toward buttressing your lagging HCl production and helping to ban your gut grief. To help your system get the HCl it desperately needs, I recommend supplementation as part of your basic daily protocol.

Ann Louise Gittleman holds a master's in nutrition education from Columbia University, and is certified as a nutrition specialist by the American College of Nutrition. She also has a doctorate in holistic nutrition and has served as the chief nutritionist of the Pediatric Clinic at Bellevue Hospital and is the former director of nutrition at the Pritikin Longevity Center in Santa Monica, Calif. This article was originally published on AnnLouise.com

ESSENTIAL ACIDS

15 minerals and 8 essential amino acids depend on hydrochloric acid for absorption.



EAT WELL

The Five C's to Better Eating

Continued from Page 1

1 We Can Choose Besides choosing the right food, we can also maximize our health by choosing when we eat, how we eat, and who we eat with.

Patel says that it's best to stop eating two to three hours before bedtime. When we fall asleep in the middle of our body's digestive process, it doesn't let our body recover as well.

Scientists say the brain resets itself by removing toxins during sleep, even though some of the work is a mystery.

“When you sleep at night, your brain goes through a car wash process. When our bellies are full, that process becomes somewhat inhibited,” Patel said. “Our body has to prioritize getting food out of our digestive system, as opposed to doing all the other processes that are necessary.”

Precise eating times and caloric timing are individual, he said. For those who are trying to lose weight, intermittent fasting—often eating a full day's calories in an eight-hour window—might be recommended. No more than three meals is ideal for metabolism.

“The time of day when digestion is strongest is midday,” Patel said. “That's when we believe people should have their biggest meal of the day.”

Sitting at a table to eat is preferable to dining on the run or while standing. Sitting takes fewer bodily resources, since the muscles and nervous system are relaxed. Choosing good company and conversation also trumps watching the news or getting involved in tasks that raise anxiety.

Of course, it's best to avoid processed food with artificial ingredients and stick to fresh foods.

“Artificial flavors can be a big problem because it tricks our brain into thinking something's coming when it isn't,” Patel said. “Every meal is an opportunity to put raw material into our bodies so [they] can function properly.”

A few other recommendations include avoiding foods cooked in seed oils; gluten and grains; foods sprayed with glyphosate, an herbicide applied to crops; and starches alongside protein. Eat greens with protein instead.

Eating options have proliferated, including natural foods that are accessible fresh from distant countries, thanks to our modern delivery system. And yet, Patel says, it's the first time in history that people have complained about how hard it is to eat healthily.

The food we eat forms the raw material that makes up the cells in our bodies. Some of it can linger in the gut for days, weeks, and even years, Patel said.

2 Chew Your Food The mechanics behind chewing involve a fascinating cascade of processes that can either make us feel better or worse after eating. Digestion truly begins inside the mouth. A habit of longer, slower chewing increases saliva production, which does two things. First, it sends a signal to the brain to

If circulation, heart rate, and breathing are increased due to anxiety, the body doesn't properly dedicate itself to the role of digestion.



Eating behaviors, rather than the actual food, can often be the culprit behind a plethora of gut problems.



Meals are a time to connect with loved ones. Social connection relaxes us and lets our body enter into rest and digest mode.

Cherish your meal and those you eat with. Studies reveal that gratitude has long-lasting effects on the brain.



ALL PHOTOS BY SHUTTERSTOCK

Maximize your health by choosing when to eat, how to eat, and who to eat with.

activate the parasympathetic nervous system responsible for our “rest-and-digest” state. This is why it's so important to take on a relaxing posture while eating, since any form of stress will interrupt digestion.

Foods that have a larger surface area and require more chewing to break them down, such as leafy greens and celery, facilitate saliva production. This usually means chewing a bite of food 30 to 45 times. When you do, metabolism improves.

The second effect of having more saliva is that it increases stomach acid. Patel said that many people struggle with low stomach acid. Stress, infections, nutritional deficiencies, lack of hydration, and medications can cause hypochlorhydria, or low stomach acid.

Proton pump inhibitors (PPIs) stop gastric acid production and are among the top 10 most commonly prescribed drugs in the world for gastroesophageal reflux and peptic ulcers. PPIs are also available over the counter, marketed for heartburn. It's becoming apparent that there are previously unknown risks, especially with long-term use, including gut dysbiosis, which is when the symbiotic bacteria in the stomach get unbalanced.

Stomach acid is important for digestion but also vital to a healthy immune system. Having the correct pH in the stomach balances enzymes and acids in the stomach, including pepsinogen, which helps digest proteins, and hydrochloric acid, which kills bacteria and pathogens in food and breaks down proteins into smaller, digestible molecules. If proteins aren't digested completely, small particles can cause food sensitivities.

The proper pH level also sends chemical signals to the pancreas and gallbladder to activate their role in the digestive process, Patel said.

Slowing down, sitting down, and enjoying a meal are really relevant to a healthy lifestyle, Patel said. Yet, that isn't the norm in a hurried world.

“Most people don't chew their food. Food is an inconvenience for them,” he said, pointing out moms who are often so busy taking care of everyone else's needs that they speed eat. “The only thing our digestive system asks of us is to chew. We have to slow down; that's going to make a big difference.”

Slow eating can be a strategy for both wellness and weight loss, which often go hand in hand. Slow eaters reported being more full, had better memory of their actual portion size, and consumed fewer snacks than those eating “normally” in a study of 21 participants reported in the journal *Nutrients* in January 2019.

Eating more slowly also gives the stomach time to tell the brain when it's full, which can reduce the likelihood of overeating.

3 Chill Out Meal time can be a wonderful opportunity to relax and balance out a hectic day and life. Gathering around a table is an opportunity to chill out and

laugh, both associated with stimulating the vagus nerve.

The vagus nerve is a two-way communication system between the brain and organs involved in digestion, and many experts believe that “toning” the vagus nerve can improve gut function.

Meals can become an opportunity to intentionally divert the nervous system away from the sympathetic side, which is the part that's activated by stress to fight, flee, or freeze. If circulation, heart rate, and breathing are increased due to anxiety, the body doesn't properly dedicate itself to the role of digestion. That's why it's good to know how to enter a state of calm as you sit down to eat.

As good ways to calm down, Patel advises taking a few deep breaths, getting in some good belly laughs, or connecting with loved ones by asking how things are going.

“Just speaking itself activates the vagus nerve, and activating the vagus nerve creates that communication to the brain that we're safe and we're in a relaxed state,” he said.

As an interesting aside, laughter was found to lower cortisol and improve learning ability and recall in a study that examined both healthy and diabetic older adults. The control group, which wasn't exposed to humor, experienced no changes in the study published in *Alternative Therapies in Health and Medicine* in 2015.

4 Cherish Meals Practicing gratitude is another area of study that's showing potential benefits for overall physical health. Prayer and other acts of mindful gratitude are meaningful and significant.

“Really having gratitude for all the hands that touched that food even before it was brought into our home, acknowledging the hundreds of people who may have been involved in getting that food into your home, and, of course, the person who prepared the meal,” Patel said.

Studies have shown that a sincere practice of gratitude can have long-lasting effects on the brain. One such study published in 2016 in *NeuroImage* discovered that a heartfelt note along with a monetary gift to a favorite charity had greater behavioral and neural benefits three months later than those who just paid it forward with a monetary gift.

5 Check It Out The first four C's are all about putting better habits into place around mealtime, but the last “C” is about checking to see if digestion is improving. The only way to know is to monitor your stool.

Examine your stool every day. Large pieces of undigested food mean you're chewing too fast. A foul odor may indicate you aren't properly digesting protein. Ideally, you want your stool to be “type 4” on the Bristol stool chart, which is snake-like, smooth, and easy to pass.

Patel recommends doing an annual stool function test, too, which can identify pathogens, parasites, and bacterial imbalances.

There's a proper posture for bowel movements that can reduce hemorrhoids, alleviate back pressure, and prevent bacteria from seeping backward into the small intestine, where it can potentially cause an overgrowth.

“Bacteria is only a problem when it is where it doesn't belong. A lot of [irritable bowel syndrome] is caused by bacteria making its way into the small intestine that shouldn't be there,” Patel said. “Believe it or not, a lot of people, especially in the Western world, use the bathroom wrong. Most people literally fight their anatomy when they go to the restroom.”

Ideally, we want our knees to be above the hips and the pelvis to be posteriorly tilted to relax the puborectalis muscle, which loops around the pubic bone, wrapping around the colon. If this muscle is tight, it kinks the colon and makes it hard to have a bowel movement. Using a stool to elevate the knees relaxes that muscle and allows gravity to do most of the work.

Patel is an advocate of wellness education, disease prevention, and decentralizing health care. Rather than wait until people are unhealthy, he wants to empower a generation of children and families to become mindful of what their bodies are capable of.

“I wish more people knew they had possession of such a remarkable, highly intelligent piece of machinery at their disposal,” he said. “If they just learn how to use it more effectively, it can have such a huge impact in all areas of their life.”

Amy Denney is an award-winning journalist, certified Holy Yoga instructor and light therapy specialist. She works with clients looking for natural, side-effect free solutions to pain and stress.



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MELISSA DIANE SMITH

This article is the second in a three-part series on gluten-related health conditions and the gluten-free diet. The next article in the series is "Think Outside Traditional Sandwich Bread."

It isn't just your imagination: Wheat allergies and gluten-related health conditions, including celiac disease and gluten sensitivity, are much more common today than they were a few decades ago. There has been a real increase in their prevalence. The question is: Why? The simple answer is, we humans have strayed a long way from the nutrient-rich, pesticide-free food on which we thrive, and the more we have strayed, the more health problems we have developed. Celiac disease and gluten sensitivity are two of many disease expressions of that.

Early Health Problems From Wheat

With all the wheat-based products (e.g., bread, bagels, muffins, cookies, pasta, pizza, and burritos) that Americans and other people around the world eat, it's automatic to assume that wheat has always been a component of the human diet. But that isn't true. Before grains became widespread, people primarily ate meat and vegetables and no wheat or other grains.

Grain-based agriculture—the planting and sowing of wild species of gluten-containing wheat and barley—started in the Middle East sometime between 12,000 B.C. and 9,000 B.C. and took 5,000 years to spread through the middle of Europe and reach the fringes of Europe.

Researchers have linked the shift in agriculture with shifts in human health. In an

article published in April in the Proceedings of the National Academy of Sciences, anthropologists looked at the genetic record and bones of people from previous cultures and came to some interesting conclusions. "Specifically, demographic reconstructions from archaeological and population genetic records suggest that the agricultural transition led to increased individual fitness and population growth, likely due in part to new food production and storage capabilities. Yet, bioarchaeological analyses of human skeletal remains from this cultural period suggest simultaneous declines in individual physiological well-being and health, putatively from 1) nutritional deficiency and/or 2) increased pathogen loads as a function of greater human population densities, sedentary lifestyles, and proximity to livestock," the researchers wrote.

A 1997 article in the Journal of Pediatric Gastroenterology and Nutrition looked more specifically at the impact of wheat on populations historically. After a diet that included gluten grains was adopted, a portion of Europeans "could not recognize gluten as a 'tolerable' protein," according to the article. "They may not have had any complaints for centuries, since the content of gluten in the grains they ate was low, but when 'industrial' quantities of gluten were introduced to improve bread making, their descendants were exposed to unbearable quantities of an intolerable protein. This population ... generated a complex defense mechanism (an immunoresponse) against the gluten, which ultimately is the origin of the damage to their intestines and other organs," the article reads. Celiac disease is presumably a direct consequence of this development.

Celiac disease, an autoimmune disease in the small intestine, produces a wide range

We humans have strayed a long way from the nutrient-rich, pesticide-free food on which we thrive.



"Wheat Belly: Lose the Wheat, Lose the Weight, and Find Your Path Back to Health (2011) by William Davis, MD.

of bone abnormalities including osteoporosis, rickets (soft, thin, and bowed bones), gnarled bones from arthritis, dental enamel defects, and other abnormalities involving long bones and cranial bones.

In "Going Against the Grain," I write: "These skeletal abnormalities increased in number as the cultivation of gluten grains spread throughout Europe and continued to increase as grains became more and more of a staple. By the Middle Ages, when people in Europe had to rely on grains for the vast majority of their calories, bone health was generally horrible, with evidence of dietary stress in many, if not most, skeletons.

"The decline in bone health could have been caused by many factors associated with a high-grain diet (including its high content of mineral-blocking phytate), but widespread celiac disease is one explanation."

Furthermore, even after agriculture was adopted in other parts of the world, the majority of people didn't eat gluten-containing grains. Various gluten-free grains or tubers became staples, and some cultures didn't rely on any grains at all.

Today, however, gluten-based foods, mostly wheat products, have not only been introduced into all of these continents, but are often eaten at every meal.

As I explain in my book, in addition to being a source of the problematic protein gluten, wheat is also high glycemic and high in carbohydrates, lectins (such as wheat germ agglutinin, which increases gut permeability and causes an unhealthy imbalance in gut bacteria), and antinutrients (such as phytate that blocks the absorption of key minerals in the body and leads to a host of health problems resulting from nutrient deficiencies).

Many people aren't aware that high-wheat diets are implicated in most chronic health

problems—everything from bone diseases such as osteoporosis, to iron-deficiency anemia, to autoimmune diseases such as autoimmune thyroid disease and Type 1 diabetes.

Hybridization of Wheat
Some practitioners and researchers believe the health-degrading effects of wheat and gluten became much worse beginning about a half-century ago because of new-fangled agriculture techniques—hybridization, backcrossing, and inducing mutations through the use of chemicals—that have been performed on wheat since the 1960s in an effort to increase yield.

The hybridization explanation is most championed by cardiologist Dr. William Davis. In his 2011 book "Wheat Belly," he writes that wheat gluten proteins undergo considerable structural change with hybridization, and that in one hybridization experiment, 14 new gluten proteins were identified.

The prevalence of autoimmune diseases associated with gluten intake, such as celiac disease and non-celiac gluten sensitivity, has risen since the hybridization of modern wheat strains—and those conditions are associated with more than 200 different health conditions, Davis writes.

Davis also mentions some studies that suggest there are impairments unique to wheat consumption, including cerebellar ataxia and dementia, heart disease, visceral fat accumulation, and the process of glycation (via the blood sugar-spiking carbohydrate amylopectin A in wheat) that leads to cataracts, diabetes, and arthritis.

Increased Use of Glyphosate on Wheat and Genetically Modified Crops

Another huge change took place in the past several decades—first in our environment and then in our agricultural system. That change was the use of chemical herbicides, especially glyphosate, the active ingredient in the weedkiller Roundup.

Glyphosate isn't used extensively on wheat, but it's sprayed on about a third of the fields that grow wheat, typically before the wheat is planted, to clear out weeds, and to a lesser extent, after the wheat has matured, to help it dry.

Many lines of research suggest that exposure to glyphosate sets the stage for people to develop unfavorable changes in their gut and their gut microbiome and, in turn, develop a host of chronic health conditions. These can include, but aren't limited to, wheat allergy, celiac disease, and gluten sensitivity.

Glyphosate-based weedkillers went to market in 1976 when they were used by consumers on weeds around crops, but not directly on crops.

That dramatically changed with the introduction of herbicide-resistant, Roundup Ready genetically modified organisms (GMOs), such as genetically modified corn and soy, in 1996. The crops were modified to tolerate repeated spraying of this herbicide that kills other plants. There's no current

took probiotics had a "twice as high (60 percent compared to 31 percent) chance of clearance of their HPV-infection-related cytological abnormality as a control group." As noted earlier, HPV infections can progress into cervical cancer.

Breast Cancer

Each year in the United States, about 264,000 women are diagnosed with breast cancer, 42,000 of whom die.

The 2019 study in Oncology Reviews noted that probiotics show efficacy with breast cancer in an animal study.

"The results showed a significant increase in the survival time among the L. acidophilus [a probiotic] group compared to that of the controls, demonstrating that this treatment can promote the immune responses via stimulation of the production of pro-inflammatory cytokines such as IFN- γ [interferon gamma] and inhibition of the production of anti-inflammatory cytokines such as IL-4 [interleukin 4] and IL-10 [interleukin 10].

Other researchers agree, writing in the journal Nutrients in 2019, "The prevention of colorectal cancer is associated with favorable quantitative and qualitative changes in the intestinal microbiota, as well as changes in metabolic activity and in the physicochemical conditions of the intestine."

In patients who had polyps removed, the researchers wrote that the "synbiotic intervention inhibited the colorectal cell proliferation ability and colon cell necrosis ability." Other researchers agree, writing in the journal Nutrients in 2019, "The prevention of colorectal cancer is associated with favorable quantitative and qualitative changes in the intestinal microbiota, as well as changes in metabolic activity and in the physicochemical conditions of the intestine."

Each year, 13,000 women in the United States are diagnosed with cervical cancer, and 4,000 die. Both the "Pap smear" and problematic vaccines such as Gardasil are designed to mitigate that number.

Research published in Clinical Nutrition ESPEN in April states that "numerous clinical studies have demonstrated the efficacy of probiotics in preventing cervical cancer, but their dosages, bacterial strains, and duration of therapy are somewhat inconsistent."

A 2013 study in the European Journal of Cancer Prevention found that women who



"The loss of our soil system led to our vulnerability that led to the breakdown of the digestion of key peptides in gluten, which led to a dramatic rise in chronic inflammatory conditions," says Dr. Zach Bush in a recent webinar titled "Gluten, Glyphosate, and the Industrialization of Our Food Supply."

commercial harvest of wheat modified in this way.

The weedkiller wasn't just sprayed on GMO crops. Beginning in the 1980s, glyphosate began to be used as a pre-harvest drying agent on non-GMO, gluten-containing crops such as wheat, barley, and oats, and still is to this day, though in limited amounts. A 2017 study found that Americans' exposure to glyphosate increased by approximately 500 percent since 1994.

In a recent webinar titled "Gluten, Glyphosate, and the Industrialization of Our Food Supply," four experts spoke, including integrative medicine physician Dr. Zach Bush and science adviser and researcher John Gildea. They work together at the Seraphic Group, a company dedicated to developing root-cause solutions for human and planetary health.

Gildea explained that there are four or five peptides (or chains of amino acids) in gluten that are harmful if they aren't digested fully down to the amino acid level. Enzymes on the surface of your small intestine can digest those peptides down to the amino acid level where they aren't harmful, but exposure to glyphosate dramatically reduces the ability of the enzymes to do that.

When the gluten peptides aren't digested fully, they can cause cell disruption and tight junction disassembly in the gut, which leads to a "leaky gut," which seems to be a common factor for all intestinal diseases. A 2020 research article by Dr. Alessio Fasano suggested that "leaky gut" is a common factor for the vast majority of chronic inflammatory diseases, Gildea explained.

Bush said that glyphosate, which is found in the residues from the weedkiller in food, is a powerful antibiotic. It kills bacteria and other microorganisms, disrupting the important metabolic function of the microbiome not only in the soil, but also in the gut.

Based on his extensive study on the relationship between the microbiome and



Wheat is pervasive in the Western diet. While that is fine for many, more and more people are experiencing gluten intolerance.

human health, Bush laid out the following timeline of events related to the widespread use of glyphosate and the loss of our health:

- 1976: Glyphosate-based weedkillers went to market, and people sprayed them on weeds, but not directly on crops. No remarkable change in health occurred for the first 10 years.
- 1980s: Metabolic dysfunction increased, leading to an increase in weight gain and Type 2 diabetes.
- 1996: Glyphosate as a direct crop treatment began because of the introduction of herbicide-resistant GMOs. Using so much glyphosate led to high residues of glyphosate in our soil systems, water systems, and food.

"The loss of our soil system led to our vulnerability that led to the breakdown of the digestion of key peptides in gluten, which led to a dramatic rise in chronic inflammatory conditions," Bush said.

"The American gut is fed by a nutrient-depleted, chemically based agricultural system. We have disrupted our capacity for microbiome diversity ... in our gut. And with that loss of diversity came the chronic disease epidemics that really went berserk in the 1990s."

Among those chronic disease epidemics are celiac disease and gluten sensitivity.

The Bottom Line

If you have celiac disease or gluten sensitivity, eat a gluten-free diet to protect yourself from ill health and bodily damage. But also go further to protect your health by eating organic food and, even better, regeneratively grown organic food.

The use of GMOs and synthetic chemical pesticides and herbicides including glyphosate is prohibited on certified organic foods. A 2017 survey of more than 3,000 respondents found that when people ate a non-GMO, mostly organic diet, a wide range of health symptoms improved: Forty-two percent said their gluten sensitivity improved.

But experts including Bush say that growing food through regenerative agricultural practices that rebuild soil health is the way to work with nature and regenerate planetary and human health. When we improve the health of the microbiome in our soil, it inevitably improves the gut microbiome, and we will thus be far less susceptible to developing gluten-related conditions and other chronic health conditions.

Melissa Diane Smith is a holistic nutrition counselor and journalist who has been writing about health topics for more than 25 years. She is the author of several nutrition books, including "Syndrome X," "Going Against the Grain," "Gluten Free Throughout the Year," and "Going Against GMOs."



When we improve the health of the microbiome in our soil, it inevitably improves the gut microbiome.



As gluten intolerance grows, so do options for gluten-free products.

FOOD AS MEDICINE

Probiotics Are Becoming a New Front in Fighting Cancer

Continued from Page 1

How Do Probiotics Work?

According to a 2020 study in Biomedicine and Pharmacotherapy, key probiotic mechanisms of action include:

- binding, degradation, and inhibition of mutagen [an agent that changes genetic material]
- procarcinogen prevention and conversion of harmful, toxic, and highly reactive carcinogens
- gut pH lowering by short-chain fatty acids formed during degradation of non-digestible carbohydrate
- host's innate immunity modulation and enhancement through secretion of anti-inflammatory molecules

When specifically fighting colon cancer, probiotics may have these mechanisms of action, according to a 2019 study in Oncology Reviews:

- enhancing the host's immune response
- altering the metabolic activity of the intestinal microflora
- binding and degrading carcinogens
- producing antimutagenic compounds
- altering the physicochemical conditions

When it comes to fighting cervical cancer, a 2012 study published in the European Journal of Cancer Prevention found that probiotics were responsible for the following actions:

- normalization of gut microbiota
- decrease of harmful substances produced by intestinal bacteria
- enhancement of NK [natural killer]-cell activity

Moreover, the researchers wrote that the clearance of human papillomavirus (HPV)-related cervical lesions, which are related to cervical cancer in that the lesions often precede the cancer, is likely accomplished by the following actions of probiotics:

- reconstitution of vaginal (bacterial) microflora
- direct killing of pathogens
- competition for host-cell receptors
- interference with gene expression of pathogens

Clearly, probiotics aren't a "one-trick" bacteria but have several actions that could help to fight cancers.

Cancer Diagnoses Are Growing

It should surprise no one that the diagnoses of cancers are growing. According to the Global Burden of Diseases, Injuries, and Risk Factors Study of 2019, 18.7 million people worldwide received a cancer diagnosis in 2010 compared with 23.6 million people in 2019.

The occurrence of cancer in people younger than age 50, called early-onset cancer, "has dramatically increased around the world, with the rise beginning around 1990," according to The Harvard Gazette.

Yet, as those who have had cancer or had friends and family with cancer know, treatment is seldom a cure and can have disappointing results.

Not only does cancer have "no suitable cure existing till now," according to the 2020 study in Biomedicine and Pharmacotherapy, but "the safety and stability of the standard chemotherapeutics drugs and synthetic agents used to manage cancer are doubtful."

"Multi-drugs and hormonal chemotherapeutic agents not only kill the cancer cells but also damage the healthy cells and develop drug resistance. In addition, these cytotoxic drugs are associated with life-threatening side effects that mostly result worse than malignancy of the cancer itself," the researchers wrote.

Some of the cancers that have demonstrated encouraging results from treatment with probiotics include the following:

Colon Cancer

Colon cancer, or colorectal cancer (CRC), causes nearly 700,000 deaths each year, and only lung, liver, and gastric cancers are more fatal. Because of its human toll and probiotics' localization in the intestines, the effect of probiotics on this type of cancer has been particularly studied.



"Accumulating evidence indicates that changes in the gut microenvironment, such as undesirable changes in the microbiota composition, provide favorable conditions for intestinal inflammation and shaping the tumor growth environment, whereas administration of certain probiotics can reverse this situation to a certain extent," a 2020 study in Oxidative Medicine and Cellular Longevity reads.

"A double-blind test of synbiotics ... [a mixture of probiotics and prebiotics] in 37 patients with CRC [colorectal cancer] and 43 colonic polypectomy patients [those who had colorectal polyps removed] demonstrated that the abundance of Lactobacillus and Bifidobacterium [two probiotics] increased, whereas that of Clostridium perfringens [a food poisoning-linked bacterium] decreased in CRC patients."

In patients who had polyps removed, the researchers wrote that the "synbiotic intervention inhibited the colorectal cell proliferation ability and colon cell necrosis ability." Other researchers agree, writing in the journal Nutrients in 2019, "The prevention of colorectal cancer is associated with favorable quantitative and qualitative changes in the intestinal microbiota, as well as changes in metabolic activity and in the physicochemical conditions of the intestine."

Cervical Cancer

Each year, 13,000 women in the United States are diagnosed with cervical cancer, and 4,000 die. Both the "Pap smear" and problematic vaccines such as Gardasil are designed to mitigate that number.

Research published in Clinical Nutrition ESPEN in April states that "numerous clinical studies have demonstrated the efficacy of probiotics in preventing cervical cancer, but their dosages, bacterial strains, and duration of therapy are somewhat inconsistent."

A 2013 study in the European Journal of Cancer Prevention found that women who

MINDSET MATTERS

Your Mental State Could Age You Faster Than Smoking

Mental health trumps other factors for healthy aging, researchers find

FLORA ZHAO & HEALTH 1+1

What is the top cause of accelerated aging? Bad habits such as smoking and excessive drinking are often the first things that come to mind. However, perhaps surprisingly, scientists have recently found that the leading culprit behind aging is a poor psychological state.

A Prime Culprit of Aging: Negative Psychological State

A joint research paper by American and Hong Kong scientists examined the effects of various factors on people's biological age using data from 11,914 adults in the China Health and Retirement Longitudinal Study database. The data included participants' blood tests, living conditions, psychological status, disease history, and more.

In the study, published in *Aging in September*, researchers found that the mean effect of stroke, liver disease, and lung disease on biological aging doesn't exceed 1 1/2 years.

They also tested healthy people and found that for people without any diseases, the primary cause of accelerated aging was their state of mind.

Having a poor psychological state adds up to 1.65 years to a person's biological age, the study found. The second factor is smoking, a bad habit that affects life expectancy, accelerating aging by 1.25 years. Other factors that contribute to accelerated aging include being male, living in rural areas, and being single, among others.

Suffering from depression or anxiety may also increase a person's biological age and accelerate aging, the study found. Of all the negative psychological states, feeling unhappy increases aging by 0.35 years, while restless sleep increases aging by 0.44 years.

"Mental and psychosocial states are some of the most robust predictors of health outcomes—and quality of life—yet they have largely been omitted from modern health care," the article's co-author Manuel Faria of Stanford University said.

Older Biological Age: Faster Aging, More Prone to Disease

There's a difference between a person's biological age and chronological age.

In the Aging study, researchers developed a statistical model to calculate biological age and gave it a figurative name: the aging clock. A person's biological age can be obtained with the aging clock by an input of the person's blood biochemical indicators, blood pressure, heart rate, marital status, living area, lifestyle, and more.

If a person's biological age is lower than his chronological age, he is aging slowly. On the other hand, if his biological age is higher than his chronological age, he is aging quickly. Increased biological age is also associated with higher all-cause mortality and infection rates, as well as some diseases.

In addition to psychological factors such as stress, loneliness, mental health, and negative perceptions of aging, there are several psychosocial factors that accelerate aging, including negative fateful life events and modern lifestyles.



Stress fuels oxidative damage that shortens DNA telomeres.



KATHRIN ZIEGLER/GETTY IMAGES

The positive effects of compassion on health are greater than the adverse effects of smoking and drinking.

Nutritious foods are an important ingredient to a long and healthy life but your state of mind is also essential.

There are some causes behind negative psychological states that accelerate the aging process.

Why can negative psychological states affect a person's biological age so prominently? When assorted negative feelings accumulate, the human body will undergo a series of subtle reactions, and many physiological indicators will also change accordingly. The body secretes stress hormones and other chemicals, and oxidative damage increases. Aging-related genes are therefore stimulated, creating instability in the body's life rhythm.

Under stress, the body produces large amounts of glucocorticoids, which impair almost all body tissues and accelerate the aging process. Glucocorticoids are associated with memory and cognition, causing epigenetic changes in DNA and affecting DNA methylation associated with aging, which can contribute to arteriosclerosis and other health problems.

Animal studies have shown that competition-induced social stress can cause accelerated aging. Some researchers have calculated that accumulated stress across the course of life leads to an increase in biological age of 3.6 years.

Moreover, stress may exacerbate oxidative damage and shorten DNA telomeres in the human body, both of which contribute to aging and increase biological age by 10 years. Studies of childhood trauma and post-traumatic stress disorder also suggest that this stress-induced accelerated aging may persist for years.

There are also studies showing that cumulative stress results in insulin resistance in the human body. Insulin resistance will lead to chronic inflammation and oxidative stress, which are key mechanisms of biological aging. Leukocyte telomere length (LTL) is inversely associated with insulin resistance. As insulin resistance increases, LTL decreases and cellular senescence increases.

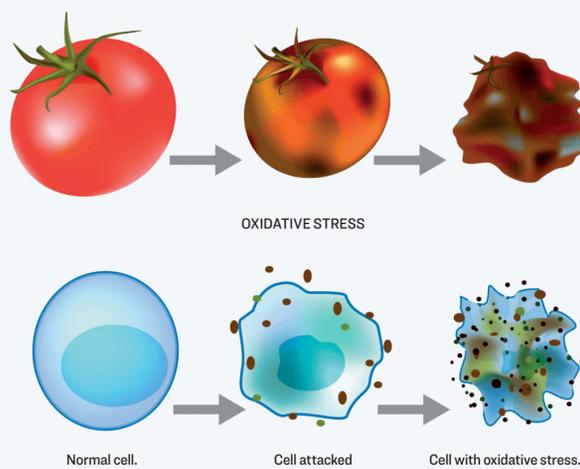
Among the blood biomarkers inputted into the aging clock, the increase of a crucial marker—cystatin C—indicates the decline of renal function. Decreased renal function is a major risk factor for increased all-cause mortality in the general population. Furthermore, abnormal cystatin C levels may be associated with new-onset depressive symptoms.

The Swift Rise of Unhappiness in Recent Years

On a whole, our psychological states are increasingly worse: We feel unhappier and lonelier.

According to Gallup, the unhappiness of the global population has been rising over the past 15 years and is now at a record high. People feel more anger, sadness, pain, worry, and stress than ever before. If the negative experience index ranges from zero to 100, people's unhappiness has risen from 24 in 2006 to 33 in 2021.

In more than 5 million interviews on happiness conducted by Gallup, statistically representative of 98 percent of the world's population, interviewees were



asked to describe their lives on a scale of zero to 10, where zero represents the worst possible life and 10 represents the best possible life.

When the survey began in 2006, 3.4 percent of respondents said their lives were a zero. In 2021, after 15 years of tracking, those numbers of people on either end escalated significantly. Among them, those who rated their lives the best accounted for 7.4 percent, an increase of 1.1 times, while those who rated their lives the worst reached 7.6 percent, an increase of 3.75 times.

Loneliness has increased substantially since the outbreak of COVID-19.

An online survey of 950 Americans conducted by Harvard University in October 2020 showed that 36 percent of all Americans—including 61 percent of young adults aged 18 to 25 and 51 percent of mothers with young children—felt serious loneliness. The report also revealed the dire costs of loneliness, including premature mortality and a wide array of severe physical and emotional problems

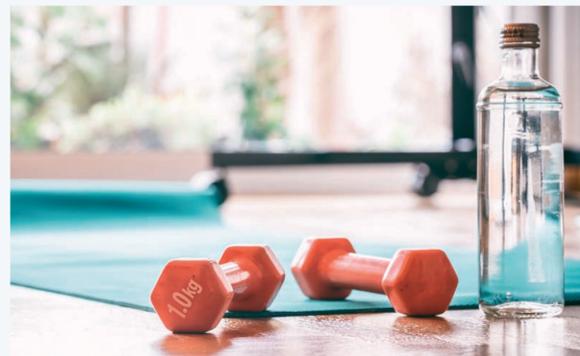
such as depression, anxiety, heart disease, substance abuse, and domestic abuse.

A Way to Change the Psychological State and Reduce Biological Age

How can we change our mental state and reduce unhappiness? Numerous studies have found that apart from improving diet, being close to nature, and exercising regularly, maintaining compassion for oneself and others can also lead to a positive psychological state and delay aging.

Compassion is defined by scholars as the sensitivity to suffering in others with a commitment to help alleviate it. In contrast to empathy, compassion isn't simply the ability to recognize and experience the psychological states of others, it also requires motivation followed by action. Not only that, it encompasses being self-compassionate.

Compassion improves mental and physical well-being in various aspects, which can be manifested in reduced loneliness, enhanced happiness, decreased cardiovascular risk and inflammation, and improved diabetes.



Exercising regularly, being close to nature, and maintaining compassion for yourself and others can lead to a positive state of mind and delay aging.

Under stress, the body produces large amounts of glucocorticoids, which impair almost all body tissues and accelerate the aging process.

Having a poor psychological state adds up to

1.65

YEARS

to a person's biological age.

“Mental and psychosocial states are some of the most robust predictors of health outcomes—and quality of life—yet they have largely been omitted from modern health care.”

Manuel Faria, study co-author

A study published in *Translational Psychiatry* in 2021 involved a 10-year follow-up of 1,090 American adults. Researchers examined the physical and mental effects of compassion toward self (CTS) and compassion toward others (CTO) by making phone calls and filling out forms. The results showed that an individual who consistently had higher levels of CTS and CTO was less lonely years after.

If an individual starts out with low levels of CTS and CTO but changes afterward, his mental well-being will also improve accordingly.

The positive effects of compassion on health are greater than the adverse effects of smoking and drinking. This echoes the finding at the outset of the article that poor mental states accelerate aging more than smoking.

This is because compassion and good deeds can enhance the connection with others without making them feel threatened. People are likely to reciprocate with more responses and warm returns. Moreover, CTS and CTO are reflective of empathic abilities—understanding the emotions and perspectives of others—which reinforces more valuable social relationships.

In the post-pandemic era, people experienced increased depression, anxiety, and stress, as well as a decreased sense of social security.

A study involving adults from 21 countries and regions in the context of the COVID-19 pandemic also demonstrates the general protective effect of compassion on people. Compassion refers to CTS, CTO, and compassion from others—that is, three directional flows of compassion.

The results show that, with more compassion for self and others, an individual has less psychological distress and a higher sense of social security. An individual can be less depressed if he's compassionate toward others. Reduced depression, anxiety, and stress come along if an individual is self-compassionate. Compassion from others may alleviate the fear of looming health risks such as that of the pandemic onset and increase the sense of social security.

However, actions that express compassion and kindness are more beneficial than merely holding thoughts of compassion or empathy.

Also, studies have shown that individuals who meditate with love and compassion for others have longer DNA telomeres and are less likely to age.

Flora Zhao is a health reporter for *The Epoch Times*.

Health 1+1 is the most authoritative Chinese medical and health information platform overseas. Every Tuesday to Saturday from 9:00 a.m. to 10:00 a.m. EST on TV and online, the program covers the latest on the coronavirus, prevention, treatment, scientific research and policy, as well as cancer, chronic illness, emotional and spiritual health, immunity, health insurance, and other aspects to provide people with reliable and considerate care and help. Online: EpochTimes.com/Health TV: NTDTV.com/live

MINDSET MATTERS

The Unlimited Potential of a Growth Mindset

This one personality trait can be a deciding factor in whether you take up life's challenges, or let them pass you by

ZRINKA PETERS

Imagine a class of fourth-grade students all working intently on age-appropriate puzzles. When they're done, the teacher asks those who would like to tackle a harder puzzle to move to the right of the class, and those who would like another of the same-level puzzle to move to the left. The class quickly divides into two halves. Why did some students relish a challenge while others shrink from it and chose to stay in their comfort zone?

That's the question Stanford psychology professor Carol Dweck set out to answer, ultimately producing a body of work that challenged prevailing views of intelligence and took the "nature-versus-nurture" argument to a whole new level. Dweck identified two main systems of thought, or mindsets, that govern our views of our own intelligence and capa-

bilities, as well as our perceptions of others' abilities. She called these the "fixed mindset" and the "growth mindset."

Both are discussed in her wildly popular TED talk, "The power of believing that you can improve," and in detail in her bestselling book "Mindset: The New Psychology of Success."

A fixed mindset views intelligence and ability as existing in "fixed," strictly limited, amounts. A person is either naturally intelligent, artistic, or athletic, or they're not, and no amount of effort or intervention can change that. With this view, serious challenges or setbacks throw an individual's inherent talents and abilities into question, and cast a negative judgment on them. In an attempt at self-preservation, fixed-mindset people put more effort into looking and feeling "smart" than into actually learning from mistakes.

"When people with the fixed mindset opt for success over growth, what are they really trying to prove? That they're special. Even superior. The scariest thought... [is] the possibility of being ordinary," Dweck writes.

A growth mindset, on the other hand, is the belief that a person's intelligence and abilities are capable of great growth and development, and that the natural abilities one has are only

a starting point. That doesn't mean that anyone can become an Einstein or a Van Gogh, but that each person's potential is unknown and possibly far beyond what they might believe for themselves or others might believe for them.

A fixed mindset views intelligence and ability as existing in 'fixed,' or strictly limited amounts.

A fixed mindset, with its view of finite ability, makes people protective of their perceived talents and very conscious of managing how those talents are perceived by others. For an intelligence and ability are always up for judgment. After all, if you excelled in school or at work and were once labeled as "brilliant," what happens when you meet failure? Doesn't that mean you're really not that special? Fixed-mindset people have a hard time coping with setbacks and failures and often shy away from challenges, because instead of "I failed," a set-

back becomes "I'm a failure." Criticism isn't received well because it threatens to unmask deficiencies.

In an interview with Google, Dweck described how the self-esteem movement of the 1990s contributed to an explosion of fixed-mindset thinking.

"We were told to tell everyone how fabulous, brilliant, talented, special they were all the time. This was going to motivate them and boost their achievement," she said. "Instead... it was a complete disaster. It led to the acceptance of mediocrity. It didn't challenge people to fulfill their potential. And, our research shows telling people they're smart actually backfires. It makes them afraid of challenges, it makes them fold in the face of obstacles, because they're worried, 'Oh, does this not look smart?' The whole currency is built around 'smart.'"

Dweck recommends not using words such as smart, brilliant, or talented when praising successes. For a student, being repeatedly labeled as "brilliant" when they get As poses an identity problem when a tough assignment brings home a C-plus. For a coach to tell her athlete or a manager to tell his employee that he or she is a genius may be flattering, but it's probably not helpful. Instead, praise effort, perseverance, focus, strategizing, and learning.

The fixed mindset is common all around us. As you might have guessed, the challenge-averse fourth-graders described above dem-

onstrated a fixed mindset. Superwoman, Spiderman, and so many pop culture superheroes reinforce the fixed-mindset notion that you either have "it" or you don't. Media coverage of famous artists and athletes often focuses on their inherent talent rather than the extreme effort they put in.

A growth mindset, though, encourages a person to focus on "becoming" instead of just "being"—focusing on the hard work, experimentation, and at times extra help that are all a part of the process of learning and growing. Mistakes and disappointments are viewed as opportunities for learning and growth, not as identity-defining moments.

When growth-mindset principles, such as the idea that tackling a tough challenge actually grows your brain, were taught to students in low-achieving classrooms, the improvements in educational outcomes were remarkable.

Dweck, in her TED talk, explains: "This happened because the meaning of effort and difficulty were transformed. Before, effort and difficulty made them feel dumb, made them feel like giving up. But now, effort and difficulty—that's when their neurons are making new connections, stronger connections—that's when they're getting smarter."

In the classroom, a growth mindset emphasis on the process of learning and development can help reignite a love of learning and has been shown to improve educational outcomes.

In business, a growth mindset can help inspire innovation, collaboration, and growth.

In parenting and relationships, it can help foster mutual growth and willingness to admit mistakes, and in all circumstances, it can help transform negative situations—setbacks and difficulties—into opportunities for learning. Dweck sums it up in her book, saying, "The passion for stretching yourself and sticking to it, even (or especially) when it's not going well, is the hallmark of the growth mindset."

The notion of a growth mindset isn't just a clever idea designed to trick students and employees into working harder. Developments in neuroscience support the idea. Scientists used to think that the brain developed rapidly in the early years of life to build neural connections, then leveled out for a few decades until it finally began to decline. But, according to Harvard Health, they now know that the reality is a bit more complicated. The brain can actually continue to change and develop steadily throughout life and even improve in some areas with age.

Zrinka Peters is a freelance writer focusing on health, wellness, and education topics. She has a BA in English Literature from Simon Fraser University and has been published in a wide variety of print and online publications including *Health Digest*, *Parent.com*, *Today's Catholic Teacher*, and *Education.com*

Nurturing a Growth Mindset

Everyone holds some mixture of the two mindsets. But how do you know which one dominates your thinking? And how can a person develop more of a growth mindset? The following questions, taken from Dweck's book, can help tease out some answers.

Is there something in your past that you think measured you? A test score? A dishonest or callous action? Being fired from a job? Being rejected? Focus on that thing. Feel all the emotions that go with it. Now put it in a growth-mindset perspective. Ask yourself: What did I (or can I) learn from that experience? How can I use it as a basis for growth?

Do you want to grow? It's tempting to create a world in which we're perfect. We can choose partners, make friends, or hire people who make us feel faultless. But think about it—do you want to never grow? Instead of looking for people to flatter you, seek constructive criticism.

How do you act when you feel depressed?

Do you work harder at things in your life or do you let them go? Next time you feel low, put yourself in a growth mindset—think about confronting and learning from obstacles. Think about effort as a positive, constructive force, not as a big drag. Is there something you've always wanted to do but were afraid you wouldn't be good at? Make a plan to do it.

Embracing a growth mindset is about becoming unstuck from patterns of thinking that hinder growth and development, allowing a person to move toward fulfilling his or her potential.

Cultivating a growth mindset is how we can ensure that we keep moving forward.



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Healthy longevity begins with our thoughts and emotions.

Paradigm Shift: From Health Control to Medically Dependent

It's a profound change when our health declines and we must rely on drugs and experts to keep us healthy

PAMELA PRINCE PYLE

We've all had the experience of a temporary illness. You're healthy one day, but the next morning, you wake up with some kind of bug. You take some medicine, get some rest, and a couple days later, you're back to normal. In a week, this episode is all but forgotten. It's a health hiccup, a short-term setback. But perhaps you've reached the age when your peers are always sharing about their latest maladies. On social media, you read about another former classmate dying suddenly from a heart attack. You discover that a friend or a neighbor is going in for a follow-up appointment after a suspicious mam-

Some people take responsible strides to improve their health, but others become fearful and obsessed.



Aging is a natural part of life, and in many cases, it may require some assistance.

ogram. Then you realize it has been more than two years since you've seen your doctor. You make an appointment and show up for a wellness exam and—surprise! Your blood pressure and cholesterol are both a good bit higher than they should be. After your "wellness" visit, you don't feel so well anymore. As a result, you change your diet, start exercising, lose a few pounds, and once more feel in control of your destiny. Then comes your follow-up appointment. For some people, these changes will have made a significant difference. But you may not be one of these people. Despite all of your healthy changes and vigorous efforts, your blood pressure remains high. The doctor calls in another prescription for you to pick up on your way home. A paradigm shift is occurring. You've enjoyed good health for most of your life. It has been one of the few areas in which you always felt "in control." Suddenly, you realize that you aren't. Despite all of your disciplined attempts to regain your health, you're now a patient. For some, this paradigm shift is traumatic, especially if they've lived under the

illusion of being "in complete control" of their health—which truly is an illusion. Some people take responsible strides to improve their health, but others become fearful and obsessed. They fight feverishly to regain control and obsessively check their blood pressure daily and at every "free blood pressure check" opportunity. Others feel guilty when they remember all of the friends with failing health they haven't reached out to. They then worry, "Will everyone going to forget me in my illness the way I've ignored others?" Still others take these changes in stride and decide to see the journey forward as "a part of growing older." Maybe they decide it's time to be a bit more responsible with their diet and exercise, but they don't become unsettled or distraught. They accept the inevitability of aging. It's this last group we should strive to join. I want you to note that I didn't write, "as part of growing old." Each day we grow older, but regardless of age, we don't have to have the mindset of old. Old implies not valued or no longer hopeful. Older, or sometimes I use the word "elder", implies wise, experienced, and traveled. The idea of old versus older may seem like a euphemism, however, in the context of how we see ourselves and experience our paradigm shifts of health, they matter. Healthy longevity begins with our thoughts and emotions. Surrendering to the need for lifestyle changes, medicine, or even just needing to watch your weight through diet and exercise is healthy. Struggling against our thoughts and physical realities doesn't change them, it just creates more stress. This is often described as perseverated thinking or circular thoughts. Studies reveal that this type of thought patterns lead to additional stress with associated adverse health outcomes through hormonal dysregulation. Surrendering to life's unavoidable paradigm shifts is not quitting. It's accepting and managing one's health within this construct. If you can't surrender it all, surrender a little bit of it, even for a day at a time or a moment at a time. Almost all of us will face this shift of feeling relatively healthy but needing some kind of medical treatment to maintain a certain level of health, such as lifestyle changes, health care visits, holistic care visits, therapy, and yes, sometimes prescriptions. Let that daily dose of awareness serve as a healthy dose of reality: We aren't in full control of medical outcomes. All we can control is our attitude and our choices. We can choose the behaviors that make for a healthy lifestyle.

Dr. Viktor Frankl, a holocaust survivor who was imprisoned in the Auschwitz and Dachau concentration camps, and later founded logotherapy, wrote about those who survived their circumstances. He stated, "Everything can be taken from a man but one thing: the last of the human freedoms—to choose one's attitude in any given set of circumstances."

Dr. Pamela Prince Pyle is a board-certified internal medicine physician, who was one of three physicians selected in 1992 by Carolina Health Specialists to begin the first hospital-based internal medicine practice outside of a university setting in the United States. In 2009, Pyle began traveling to Rwanda for medical work with Africa New Life Ministries and was instrumental in the founding and growth of the Dream Medical Center in Kigali. She is the author of "A Good Death: Learning to Live Like You Were Dying," coming in 2022. Her website is PamelaPrincePyle.com

AUTOPHAGY

I Did a Horrible 3-Day Water Fast—and I'd Do It Again

I was uncomfortable, exhausted, and sometimes nauseous, but I was glad I did it

JENNIFER MARGULIS

My friend Lynn texted me an Epoch Times article about how fasting helps people heal from long COVID and COVID-vaccine injury. I texted her back that my co-author, molecular geneticist Dr. Joe Wang, and I were also researching and writing about fasting as a way to induce autophagy, which is a cellular process to clear waste and toxins from inside your cells.

So when Lynn called the same day to say she wanted to do a water-only fast, I decided to join her.

Health Benefits of Fasting
Lynn, who struggles with her weight, has done multi-day fasts in the past. I fast for Yom Kippur, the Jewish day of atonement, but I've never done a fast that lasted more than a day and a half. Still, I've read about the health benefits of fasting for years.

Continued on Page 14

BENEFITS OF WATER FASTING



Incidental weight loss.



Help heal digestive issues.



Improve insulin sensitivity.



Enjoy a longer, healthier lifespan.



Slow the growth of cancer.



Experience cognitive benefits.



Reduce dependence on medication.

Strange New Organ Transplant Methods Raise Urgent Questions

New techniques use organs from partially resuscitated people and look toward genetically modified pigs

MARTHA ROSENBERG

If you or a loved one has needed an organ transplant, you know the problem first hand: There are not enough organs for those who need them and there is a long waiting period. That desperate need, and potential profits, have fueled a Frankenstein-like effort to find or create organs to give recipients a longer lease on life. The need for organs can be a matter of life or death. In the United States, more than 105,000 people sit on the national waiting list, and every nine minutes, a new name is added. Seventeen people die every day while waiting for an organ transplant in the United States, according to the government's organ donor website.

Continued on Page 11

The most common transplant operations are for hearts, kidneys, livers, pancreases, lungs, bone and bone marrow, skin, and intestines.



PHOTOGRAPHY/SHUTTERSTOCK

Some medical scientists and companies hope genetically modified pig organs can be used in people seeking transplants.

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THE EPOCH TIMES

Cancer Risks From Tainted Cosmetics

While tainted products are a significant problem, some products are risky all on their own

MARTHA ROSENBERG

Two commonly used categories of hair products have come under increasing scrutiny after research has linked them to cancer or found them contaminated with cancer-causing ingredients.

These add to a growing list of common cosmetic products that have been linked to cancer, following other well-publicized cases such as that of talcum powder. The use of baby or talcum powder by women in the perineal area is now linked to ovarian cancer. A few years ago, a St. Louis jury found that asbestos-tainted talcum powder contributed to the development of ovarian cancer.

Johnson & Johnson appealed the decision twice but was left to pay a \$2.1 billion settlement.

The Lanier Law Firm, which handled the suit, noted that the Missouri Court of Appeals found “evidence that Defendants discussed the presence of asbestos in their talc in internal memoranda for several decades; avoided adopting more accurate measures for detecting asbestos and influenced the industry to do the same; attempted to discredit those scientists publishing studies unfavorable to their Products; and did not eliminate talc from the Products and use cornstarch instead because it would be more costly to do so.”

When profit incentives become mixed with complex global supply chains that can make these kinds of tainted products more likely, the risk to human health increases.

Dry Shampoo the Latest Tainted Product

In October, high levels of benzene, a chemical that can cause blood cancers such as leukemia, were found in dry shampoos by an independent laboratory.

The lab tested 34 brands of spray-on shampoo, 148 batches in total. Upon finding that 70 percent of dry shampoo samples it tested contained “quantifiable” levels of benzene, Valisure, the independent laboratory, petitioned the U.S. Food and Drug Administration (FDA) for the products to be recalled.

“The detection of high levels of benzene in dry shampoos should be cause for significant concern since these products are likely used indoors, where benzene may linger and be inhaled for prolonged periods of time,” Valisure CEO David Light said in a statement.

Light said these and other issues with product contamination underscore the need for independent testing to be better integrated “into an increasingly complex and vulnerable global supply chain.”

Valisure noted there was significant variability from batch to batch—even within a single brand.

“There was also significant variability between subsequent sprays from some bottles, suggesting inconsistent product mixtures in some products.”

Deodorants and sunscreens such as Johnson & Johnson's Neutrogena products and Procter & Gamble's Secret and Old Spice brands have recently been recalled because of the presence of benzene.

Nor are hand sanitizers exempt. Recently, Salon Technologies Inc., maker of Antica Ocean Citron Hand Sanitizer Gel, recalled its product because of benzene contamination. Other hand sanitizers have been recalled as the FDA warning widened.

Hair Products Linked to Cancer

Dry shampoo isn't the only problematic

hair product.

Recently, chemical hair straighteners, sometimes called relaxers, came under the oncological microscope.

A study of more than 33,947 American women of different races and ethnicities, led by the National Institute of Environmental Health Sciences (part of the National Institutes of Health or NIH) and published in the Journal of the National Cancer Institute, discovered that those who frequently used the products had more than twice the risk of uterine cancer of those who hadn't.

In more than 10 years of follow-up, 378 women of the 33,947 studied developed uterine cancer. Uterine cancer is the most common female reproductive cancer, according to the NIH, with 65,950 expected cases in 2022 alone.

According to the authors of the Journal of the National Cancer Institute study, “exposure to excess estrogen and a hormonal imbalance of estrogen and progesterone have been identified as key risk factors for uterine cancer.”

Specific carcinogenic chemicals that may lurk in the hair products include formaldehyde, formaldehyde-releasing chemicals, and oxidized para-phenylenediamine found in hair dyes, the researchers wrote.

“Concentrations of parabens in endometrium tissues and phthalates in urine samples were higher in participants with endometrial cancer than those who are endometrial cancer-free,” the authors said, noting that “low-dose bisphenol A (related to parabens and phthalates) has been associated with altered hormones in rats.”

The scalp allows more chemicals to enter the body than forearms, palms, and abdomens, they added.

This isn't the first time that chemical hair straighteners have been linked to hormone-related cancers in women; last year, the International Journal of Cancer published research that indicated an increased risk of breast cancer in women who used chemical hair straighteners when they were adolescents.

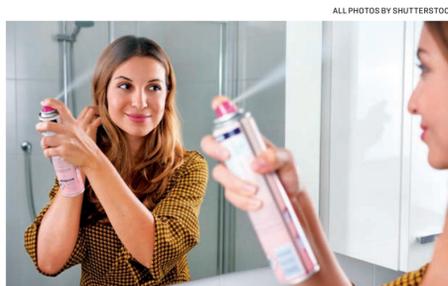
Specific carcinogenic chemicals that may lurk in the hair products include formaldehyde, formaldehyde releasing chemicals, and oxidized para-phenylenediamine

“Frequent use of straighteners and perms [chemical hair products that can also straighten hair] was associated with a higher risk of premenopausal but not postmenopausal breast cancer,” wrote the researchers. The cancers were both invasive cancer or ductal carcinoma in situ. Research in the journal PLoSOne echoed the findings.

Also last year, the journal Carcinogenesis linked the use of hair straighteners to the development of ovarian cancer.

“Our novel findings suggest that frequent use of hair straighteners/relaxers or pressing products, which are primarily used by African American/Black women, and possibly permanent hair dye, may be associated with the occurrence of ovarian cancers,” the researchers wrote.

While one-time use isn't linked to ovarian cancer, the use of the products four times a year is, according to the journal, as well as other publications.



ALL PHOTOS BY SHUTTERSTOCK

The propellants used in dry shampoos was tainted with benzene leading to massive product recalls.

Strange New Organ Transplant Methods Raise Urgent Questions

Continued from Page 9

The most common transplant operations are for hearts, kidneys, livers, pancreases, lungs, bone and bone marrow, skin, and intestines; some such transplants come from living donors, but most are obtained after a donor is deceased.

Different organs remain viable for different amounts of time after the patient has died, or after the organ has been taken from the deceased.

According to Donor Alliance, the liver can remain viable for transplant for up to 12 hours, and kidneys for up to 36 hours. But for other organs, such as the heart or lungs, that window is much shorter, in the range of 4 to 6 hours.

With so few organs available for so many in need, there's tremendous pressure on scientists and industry to push the boundaries of medical ethics with products and procedures that can sound like mad science.

These vanguard developments raise fundamental questions about human life, the commodification of the human body, and the very definition of “human.”

Let's put aside the obvious horrors of forced organ harvesting from prisoners of conscience in China, including Tibetans, Uyghurs, and, most notably, Falun Gong practitioners, “the primary victims of this cruel practice,” according to the U.S. Human Rights Commission.

Everyone can agree that this practice is abhorrent, but there are other new practices that raise more complex questions, including a new practice that some fear is being used to curb the dead donor rule.

That rule requires that a patient be dead, and often for several minutes, before their organs are taken. This ensures organs only come from the deceased.

Reviving the Dead—Partially

Doctors are using a relatively new procedure called NRP-cDCD (“normothermic regional perfusion with controlled donation after circulatory death”) to widen the window on organ transplants and make more organs available.

In this procedure, terminal patients are allowed to die and then be partially resuscitated. Their blood is circulated with the help of machines that warm it, but the arteries that feed the brain are clamped off and starved.

Writing in the journal Cureus in 2022, pro-NRP researchers say that the method “is an emerging technology, a cost-effective alternative in donation after circulatory death (DCD), and will increase the pool of donors in heart transplantation.”

Among other advantages, NRP “restores heart function” and allows “con-

tinuous warm blood perfusion,” the researchers write.

Until now, transplant surgeons wouldn't remove the organs of patients who are not brain dead, even if they couldn't survive without life support. The procedure raises questions about what can be done with the body after death and how “death” itself is defined. Other procedures challenge the definition of the human body.

Transplants From Genetically Modified Animals

Scientists are in a race to develop genetically humanized animals for their organs. For example, scientists are currently trying to grow human organs in genetically altered pigs and other animals, and in 2017, the creation of what's claimed to be the first part-human, part-pig hybrid was announced.

Xenotransplantation—using animal organ donors—is far from new. The first pig-to-human corneal transplant, for example, was performed in 1838, according to the journal EMBO Reports, but xenotransplantation was beset with failures until recently.

With the advent of CRISPR gene editing (clustered, regularly interspaced, short palindromic repeats) and stem cell science, an otherworldly new form of “chimeric” animals boasting human organs has made xenotransplantation viable.

Doctors had all but given up on such procedures after too many experiences like Dr. Keith Reemtsma's in the 1960s. Reemtsma, a transplant surgeon at Tulane University, inserted rhesus monkey and chimpanzee kidneys into humans, but the transplants all failed.

“An infant known as Baby Fae received a baboon heart at the Loma Linda University Medical Center in California in 1984 but died of rejection 21 days later,” wrote Dr. Joshua Mezrich, a transplant surgeon writing in The Wall Street Journal.

After more mishaps, transplant doctors stopped work with animal organs altogether, Mezrich wrote, and “only implantation of inert tissue from animals, such as heart valves, continued.”

A major risk with transplantation is the human immune system attacking and rejecting the newly transplanted organ as foreign.

According to the government health site MedlinePlus, “all [organ] recipients have some amount of acute rejection,” and if anti-rejection medicines are not used—risky unto themselves—“the body will almost always launch an immune response and destroy the foreign tissue.”

When transplants come from pigs—a preferred animal donor over primates because of size, breeding time, and public



Public reticence about killing primates for organs, and other factors, led scientists to focus on genetically modified pigs.



Some researchers worry human stem cells will change pigs' brains.

Issues With Transplantation Research

As the human body becomes more manipulatable by surgeons and scientists, the extent to which transplant research requires “living” human bodies also increases. This can complicate the mourning process for family members or play on the emotions of the organ

What happens when human genes go into pigs and pig organs go into people?



recipients themselves.

In one example, earlier this year, scientists at NYU Langone Health in New York City announced the plan to study pig kidney behavior in brain-dead individuals for two to four weeks.

After a pig heart was transplanted into Alva Capuano, who was brain dead, as part of a study at Langone medical center, her husband, Richard Capuano, told The Wall Street Journal that the decision “was monumentally hard on the entire family.”

“Even though we realized she

had already died and wasn't coming back, there is still a respirator on and there is still a heartbeat. Psychologically it plays a game with you,” he said.

Many remember the recent saga of 57-year-old David Bennett, the first human recipient of a pig heart, who died weeks after his transplant, apparently from porcine cytomegalovirus (though human herpesvirus 6, which may cross-react with cytomegalovirus, was also found in Bennett).

According to a study published in The New England Journal of

Medicine, the pigs used in recent failed human heart transplants at Langone, were significantly altered.

“The genetic modifications of the donor pig (including its heart) fell into two categories: those that inactivated pig genes and those that introduced human genes. In total, 10 different modifications were introduced, most to prevent graft rejection by the human immune system,” noted the journal.

The pig heart recipient, Bennett, had a criminal history and was denied a human heart because he was known to not follow medical guidance, raising other transplantation questions.

With advances in technology, researchers and companies have begun pursuing new products based on genetic manipulation.

Scientists are currently trying to grow human organs in genetically altered pigs and other animals.

More than
105,000
PEOPLE
sit on the national waiting list, and every nine minutes, a new name is added in the United States.



acceptance of their use—their intrinsic protein, alpha-gal, leads to rapid human rejection.

In 2020, the FDA approved a pig without alpha-gal, the first intentional genomic alteration. Some researchers and medical scientists want to use pigs that are genetically altered to prevent rejection of their organs in humans.

Scientific and Ethical Experts Weigh In

While many applaud scientific breakthroughs that allow more organs for human transplants (and these developments can certainly be lucrative), others question the direction in which we are going. In a 2021 statement, the American College of Physicians (ACP) raised serious concerns about NRP-cDCD.

The procedure, it said “is more accurately described as organ retrieval after cardiopulmonary arrest and the induction of brain death. It raises significant ethical concerns and questions regarding the dead donor rule, fundamental ethical obligations of respect, beneficence, and justice, and the imperative to never use one individual merely as a means to serve the ends of another, no matter how noble or good those ends may be.”

ACP is the largest medical-specialty society in the world, with 160,000 members internationally.

'Humanized' Animals

In a 2018 paper in the journal Embo Reports, authors worry that human stem cells transplanted into genetically altered pig embryos “will migrate to the animal's brain and alter its behavior or cognitive state.” While such a brain presence could propel Alzheimer's and Parkinson's disease research, “there is no consensus on accurately assessing what it means to possess a human-like cognitive state,” wrote the researchers.

“Should personhood be defined as the percent of human brain cells expressed in a human-animal chimera...?” ask the researchers.

The U.S. National Institutes of Health has refused to support the transplantation of human-animal chimeras for this reason.

Moreover, could the advanced genetic technology we have today be used on “healthy human embryos to create designer babies for behavioral or cosmetic enhancements?” they asked.

Nita Farahany, a professor of law and philosophy at Duke Law School, agrees about the slippery slope that genetic engineering allows, she said in a recent interview with The Wall Street Journal. Scientists still don't have a grasp on how insertion of human genes through gene editing affects animals' cognitive capabilities, so “you're starting to blur the line essentially between humans and non-human animals,” she says.

Disease Transmission

Research in the magazine Philosophy Now raises another ethical question: The possibility of disease transmission and future pandemics occasioned by transplantation.

“Diseases like HIV, Ebola, Hepatitis B, and, most recently, bird flu, originated in animals,” wrote co-author Laura Purdy in the magazine. “Pigs, where current xeno research is now focused, are thought to have been the vector of the devastating 1918 influenza epidemic.”

Known and unknown viruses are embedded in pigs' DNA as they are in all mammals, says Purdy, and “currently harmless organisms, like the E. coli that lives in our guts, could pick up new, possibly harmful traits from the micro-organisms that came along for the ride on pig organs.”

Whether extreme NRP-cDCD surgery or the creation of pig-human chimeras, the race to harvest new organs has a dark side, according to experts.

“In some ways, the legal determination of death and medical practice are starting to diverge in ways that raise complex ethical and legal challenges we will increasingly face as a society,” Farahany of Duke University told The Epoch Times.

Beyond the moral issues of giving further intelligence to genetically modified pigs, or the health issues of inserting animal organs into people, there are fundamental questions about how we are commodifying the body and what it will mean for the sanctity of the body for future generations.

In a time when people can be fired or censured for not getting injected with a relatively new and unverified mRNA vaccine, which some describe as a gene therapy, these questions take on particular urgency.

And given that many of these organ failures are driven by preventable lifestyle factors, such as stress, diet, and a lack of natural movement, one has to wonder if we are putting scientific and commercial interests ahead of the human beings they are supposed to serve.

The Scratchy, Gritty, Misery of Dry Eye Disease

Part 1: Understanding the symptoms, causes, and biology of this affliction

JACQUELYN WATERS

This article is part one of a two-part series. Part two will run next week and describe treatment options.

Millions of Americans suffer from dry eye disease (DED), according to the American Journal of Ophthalmology—and the number is increasing.

DED used to be considered an irritating nuisance, but now it's a recognized medical disease with serious consequences if not effectively treated. The prevalence of suicidal ideation among patients with severe DED reveals just how devastating this disease can be.

Symptoms of Dry Eye Disease

In order to function properly, eyes need to keep their ocular surface moist. When the eyes lose the ability to maintain an adequate film of moisture at this surface, pain, irritation, and other symptoms occur. The biochemical processes involved in maintaining healthy ocular surfaces are intricate. Like any body system, disruption of the delicate balance of these processes can lead to disease.

The severity of eye irritation for DED sufferers ranges from mild irritation to severe pain. There may be a scratchy feeling, or a foreign body sensation, where it feels as though there is something in the eye. The eyes may feel gritty and may sting or burn. The blood vessels may be pronounced, making the white part of the eyes red.

Dry eyes are frequently sensitive to light, and for some individuals, bright light may feel unbearable. Dry eyes may feel tired and heavy. Blurry vision is another potential symptom of the disease.

When the eye is irritated because of DED, an inflammatory cascade is set in motion: Inflammatory chemical messengers, called cytokines, are released, and helper T cells are recruited to the ocular surface. This causes discomfort and adds an additional strain on the body.

Risk Factors for Dry Eye Disease

Anyone can get DED, but your risk of getting the disease increases with certain factors.

Nonmodifiable risk factors include being over 50 years old, being female, being of Asian ethnicity, having meibomian gland dysfunction, having connective tissue diseases, and having certain autoimmune conditions such as Sjogren's syndrome.

Modifiable risk factors include being on hormone replacement therapy, having androgen deficiency, using contact lenses, using computers and smartphones, and using medications including antihistamines, antidepressants, medicines for high blood pressure, anti-anxiety medicines, and isotretinoin.

In addition, a diet low in omega-3 fatty acids and refractive surgery are likely to contribute to increased risk for developing dry eye.

Disruption of the normal chemistry of the tear film at the ocular surface has been



ALL IMAGES BY SHUTTERSTOCK

observed following ocular surgery, infection, and the use of contact lenses.

Tear Film

The cornea and sclera make up the outer covering of the eyeball. The cornea is a transparent dome covering the front surface of the eye. Light must travel through the cornea to enter the eye, where it will be focused on the back of the eye in a region called the retina.

The sclera is the white outer layer of the eye. It's continuous with the cornea. This area is protected by a somewhat three-layered structure of fluid known as the tear film.

The tear film provides lubrication and hydration for the cornea and sclera. It also provides oxygen, antimicrobial enzymes called lysozymes, and antibodies. The antibodies fight against bacteria, viruses, and parasites.

Normal tear film has three layers: an outermost lipid layer, a watery middle layer, and a mucous inner layer.

The outermost lipid layer of the tear film is made of oily secretions from the meibomian glands, which are little oil glands located along the margins of the eyelids. The margins are the edges that touch when you close your eyes.

As oil is less dense than water, it floats to the surface of the tear film and provides a key barrier to the evaporation of water from the tear film.

The aqueous, or watery, middle layer of the tear film is just under the oily layer. It's

When the eyes lose the ability to maintain an adequate film of moisture at this surface, pain, irritation, and other symptoms occur.

produced by secretions from the lacrimal gland, located superior and lateral to each eye. In addition, there are many accessory lacrimal glands in the conjunctiva—the clear tissue overlaying the white part of the eye—which contribute water to the aqueous portion of the tear film.

The innermost mucin layer is made predominantly by goblet cells in the conjunctiva. This mucous portion of the tear film interacts with the surface of the cornea to allow the tear film to spread uniformly across the cornea with each eye blink.

Regular blinking spreads the tear film over the ocular surface and renews this protective layer, even as it flushes out foreign bodies such as bacteria.

Aqueous Deficiency in Dry Eye Disease

Aqueous deficiency is a type of DED resulting from a decreased production of the watery portion of the tear film from the lacrimal glands. It represents only 10 to 15 percent of DED cases.

Sjogren's syndrome is an autoimmune disorder that can cause the lacrimal glands to produce less fluid for tears. Other pathologies that may cause aqueous deficiency include hepatitis C, HIV infection, sarcoidosis, hemochromatosis, and lymphoma.

Meibomian Gland Dysfunction and Dry Eye Disease

Most cases of DED are due to meibomian

Dry eye disease can leave people constantly feeling like something is stuck in their eyes.

gland dysfunction (MGD) and problems with the oily lipid layer of tear film they produce. Meibomian glands are the sebaceous (fat secreting) glands located along the margin of the eyelids. They secrete meibum, which is made of phospholipids, cholesterol, wax esters, and other lipids, forming the oily outermost layer of the tear film.

If the proper lipid components in the tear film aren't present, the tear film may evaporate too quickly and cause DED.

While that sounds straightforward, the underlying etiology of MGD is a tremendously complex pathology with interplay between multiple biological pathways at the ocular surface.

In a collaborative review article published by the British Journal of Ophthalmology representing researchers from six different countries, Christophe Baudouin and his peers describe the pathogenesis of MGD and DED as a "vicious cycle." They delineate five distinct pathophysiological mechanisms that may contribute to MGD: microbiological changes, eyelid inflammation, conjunctival inflammation, corneal damage, and DED resulting from unstable tear film.

These researchers describe how they think the cycle begins: Microbiological changes cause meibomian gland blockage. If untreated, the glands may atrophy and become unable to produce adequate, if any, meibum. The resulting tear film becomes unstable, as it lacks the proper components of the lipid layer, and DED ensues.

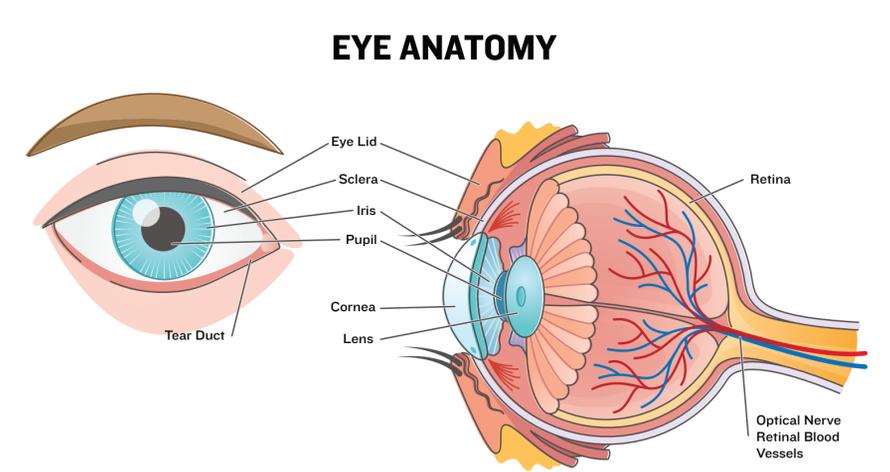
The inflammation associated with MGD and DED exacerbate both situations, leading to more biochemical pathway dysfunction. In a sense, it's a cascade of dysfunction that continues to get worse and worse if left untreated.

Aqueous deficiency can trigger MGD; thus in some individuals, both conditions exist together.

Lid margin inflammation, called blepharitis, is a cause of, and an effect of, MGD. Seborrheic dermatitis, rosacea, staphylococcal infections, and Demodex folliculorum mites may be causative factors of the blepharitis, or secondary (and exacerbating) factors due to blepharitis being present and the health of the eyelid margin being compromised.

Other factors can affect meibomian gland function. For instance, androgens, generally stimulate the secretion of meibum. Individuals in androgen-depleted states have altered meibomian gland secretion. Furthermore, it's been known for 30 years that 13-cis-retinoic acid (Accutane), is linked with severe meibomian gland atrophy).

Eating fatty acids improves the quality



EYE ANATOMY

TEAR FILM

of meibum in those suffering from MGD. Omega-3 fatty acids, especially, are linked to decreasing the saturated fat content of meibum, which is important for a less viscous lipid layer and for decreasing inflammation at the ocular surface.

Where to Go From Here

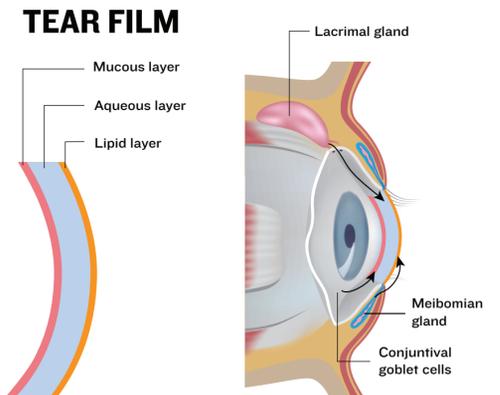
Aside from the (sometimes severe) irritation and pain of DED, there's the risk of corneal damage. All light coming into the eyeball needs to pass through the cornea for vision to ensue. The cornea is an extremely delicate tissue that can be greatly damaged by MGD and DED.

When the cornea begins to scar, from ongoing inflammation and mechanical damage, such as may occur when the tear film is unstable, it loses its transparency and smooth surface, resulting in cloudy and distorted vision.

Your eyes are incredible organs that allow you to view the world around you. It's vital that you invest in protecting your eyes.

There are numerous treatment options for those with DED, but it can take time to figure out which treatment works best for your specific situation. There are many factors that play into ocular surface disease and more than one biochemical pathway is typically dysregulated.

Dr. Laura M. Periman is a board-certified ophthalmologist, fellowship-trained cornea and refractive surgeon, and ocular surface disease expert. She has treated



Dry eyes are frequently sensitive to light and for some individuals, bright light may feel unbearable.

Dry eye disease can have complex causes so it is wise to tend to overall health, including nutrition, hydration, sleep, exercise, and mindfulness.

many patients with DED and emphasizes that dry eye is a multifactorial disease.

She states: "Dry Eye Disease is like a giant circus tent with about 30 different animals inside running amok and the lights are off. The challenge for the clinician is to identify which animals are creating the most mischief and address them as directly as possible."

Individuals with dry eye symptoms may need to visit a few ophthalmologists to find one who really understands DED. The key is persistence and a willingness to try recommended procedures and treatments until you find the one that works best for your eyes.

Periman's advice to any person suffering from DED is simple, but important: "Pay consistent attention to the five pillars of wellness: nutrition, hydration, sleep hygiene, exercise, and mindfulness."

Taking her advice seriously is the first step in treating your dry eye symptoms and protecting your incredible eyes.

Jacquelyn Waters writes about health, science, and medicine. She has particular interest in all things neuroscience—from molecular neuroscience to psychology. She has 8 years of experience teaching college biology and received her Master's degree in biomedical sciences with a specialization in neuroscience from Vanderbilt University.

FOOD AS MEDICINE

It's Aloe Vera Season: Celebrate Your Health

This healing plant offers some much needed nutritional and digestive support



Aloe vera has long been treasured for healing properties that medical researchers continue to affirm.

LISA ROTH COLLINS

As we enter the last few months of the year and the first few of the next, several things come to mind: holidays, parties, cold weather, and cold/flu season. A little aloe vera can go a long way to help ensure you enjoy the best of the season and sail through the rest.

Why Aloe Vera

This hardy, versatile succulent is perhaps best known as a natural remedy for sunburn, minor cuts and scrapes, and insect bites, but it's much more. In fact, its medicinal uses go back millennia and have survived the test of time.

Aloe vera is available as a gel, liquid, powder, and ingredient in various cosmetics and personal care products, such as lotions, creams, mouthwashes, and shampoos. The plant is easy to grow on

your windowsill or patio, so you can easily have aloe vera at your fingertips for topical use. However, when consuming aloe vera, it's recommended to choose commercial brands that have removed the aloin, a bitter and toxic compound found between the outer leaf and inner gel.

Aloe Vera and Immune Function

As colder weather moves in, kids go back to school, and people tend to stay indoors more than at other times of the year, we are all exposed to an increased risk of cold, flu, and other infectious possibilities. One way to ward off these risks is with aloe vera.

The results of a randomized control trial published in 2021 evaluated the impact of an aloe vera gel on 100 healthy individuals who received an influenza vaccine. Half of the participants received the aloe vera gel. Four weeks after receiving the vaccine, the

authors noted a reduced number of upper respiratory tract infections among those who received aloe vera compared to the control group.

Several other studies have shown the potential healing power of aloe vera. These studies have been conducted primarily in laboratories and in animals and demonstrated this plant's antibacterial, antiviral, and antifungal properties. It's also a good source of antioxidants.

The many anti-inflammatory factors in aloe vera may all combine to ease digestive issues.

Aloe Vera and Stomach Issues

It can be challenging to resist a second piece of your favorite aunt's cherry pie during the holidays or to walk past the cookie trays, assorted nuts, eggnog, and festive punch bowl. So you may tend to overindulge a bit—or a lot—and regret it within hours or the next morning.

Aloe vera gel or juice can ease the dis-

comfort and pain of overindulgence. The many anti-inflammatory factors in aloe vera may all combine to ease digestive issues. Research has shown that drinking aloe vera juice can facilitate digestion and intestinal transit and prevent stomach ulcers. Its many compounds, including anti-inflammatory and antioxidant factors, may contribute to the digestive benefits.

For example, aloe vera contains amylase and lipase enzymes; the former metabolizes sugars, starches, and fats. Aloe vera also has acemannan, a polysaccharide found in the plant's inner leaf that helps with digestion. Be sure to buy products containing aloe vera's inner leaf to reap the digestive benefit. Also, look for aloe vera products that contain herbal digestive aids, such as peppermint, ginger, slippery elm, fennel, and chamomile.

Aloe Vera Festive Drinks

These aloe vera festive drinks do it all: They taste great, won't cause a hangover, provide immune system support, are easy to make, and could possibly make you the best host of the season.

Bottom Line

Aloe vera can be a part of your cold weath-

er and holiday season plans. Use aloe vera to brace yourself against immune system assaults and those from overindulgence. Also, enjoy aloe vera in your festive beverages for a healthier indulgence.

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

CITRUS AND HERB IMMUNITY MOCKTAIL

Every ingredient in this holiday beverage packs immune support, plus you have the addition of digestion help from aloe vera. Thanks to Lily of the Desert for the recipe.

- 8 ounces lemonade (unsweetened)
- 8 ounces blood orange juice
- 1 tablespoon honey
- 4 tablespoons aloe vera juice
- Sprig of rosemary
- Lemon or orange slices for garnish

Place all ingredients except garnish into a jar or shaker with a tight lid and shake until well blended. Pour into frosted glasses and serve with garnish.

PINEAPPLE-ALOE COCKTAIL

A delicious blend of sweet, sour, and tart will be good for digestion and immune function.

- 2 ounces pineapple juice
- 4 to 6 ounces aloe vera juice
- 2 tablespoons unsweetened cranberry juice
- 1 tablespoon honey or agave nectar, optional

Combine all ingredients in a jar or shaker with a tight lid and shake until well blended.

Aloe vera is a popular beverage ingredient in many cultures and is catching on in the West.



AUTOPHAGY

I Did a Horrible 3-Day Water Fast—and I'd Do It Again

Continued from Page 9

Among other things, studies show that fasting slows the growth of cancer cells, can help reverse diabetes and other lifestyle-induced health disorders, is especially helpful for patients struggling with obesity, has cognitive benefits, and even increases a healthy lifespan.

Since my husband and daughter were traveling, I didn't have to cook for anyone. So I was excited to try it. I talked to Lynn on Oct. 29, and I ate my last meal on Oct. 30 at 2 p.m.

To do a three-day water-only fast, I would have to eat nothing and drink only water until the afternoon of Nov. 1.

The 1st Day

Skipping dinner on Oct. 30 was easy. The first 24 hours, which were so hard on Lynn that she caved and ate dinner, were a piece of cake (if you'll permit me the expression). Probably because I've done my own version of intermittent fasting-lite for several years. I don't usually eat breakfast. When I feel like I'm over-eating or eating too many unhealthy foods, I'll sometimes skip dinner, breakfast, or both.

I actually got into this healthy habit of allowing longer intervals between meals after embarking on a weight loss journey in September 2015. Back then, it took me 10 months to lose 15 pounds.

I'm an omnivore. I've eaten everything from chicken feet to fried crickets (a delicacy in Niger, West Africa, where my family and I spent a year in 2006). But I credit the weight loss mostly to dietary changes.

For me, switching to a more plant-based diet (I still eat meat, but in small amounts and not every day), made the difference. I slowly lost an additional 20 pounds. I'm 5'5" (and shrinking) and weigh about 130 pounds, although that fluctuates.

Monday Misery

But I'm sorry to report that the feeling of ease and heightened energy that I woke up with early on Oct. 31 changed abruptly after I had done three hours of writing.

"I'm hungry," I texted Lynn at 8:35 a.m. She wrote back, "Good grief, it's been five minutes."

I wrote, "Starving, wasting away." She replied, "I'll call the coroner."

Lynn gave me a stern pep talk. She told me to take off my baby pants, put on a GI Jane cape, and drink as much water as I



CLEANSING THE BODY

When the body runs out of nutrients, the body's cells consume harmful bacteria, viruses, and junk cells to survive. This process is called autophagy, and it may start anywhere from 24 to 48 hours during a fast.

could every time my stomach rumbled.

Inspiration From Dr. Jason Fung

I spent the morning at the office but started to feel very grouchy at about 11 a.m., 19 hours into the fast. I submitted my articles at roughly 1 p.m.

Feeling good again, I bicycled 10 miles to Lynn's house, which took me about an hour. Lynn (whose husband was also out of town) and I spent the rest of the day watching lectures by Dr. Jason Fung, a Canadian nephrologist who champions fasting (both intermittent and long-term) for weight loss and diabetes. We binge-watched, chugged filtered water with fasting salts in them, and rested. I'm not a napper, but I dozed off a couple of times.

As Fung pointed out in a 2019 lecture that has been viewed by 7.7 million people, most conventionally trained medical doctors (whose "anti-logic" approach to human health never ceases to astound him) know very little about fasting. Sadly, many allopathic physicians usually aren't interested in educating themselves.

But, he argued, despite this institutional close-mindedness, fasting is an effective weight loss technique and good for the body in many other ways as well. It works much better than the conventional advice to reduce calories and increase exercise, which leads to more weight gain over time, according to Fung. The Biggest Loser contestants don't hold reunions because most have gained back all of the weight they lost, he pointed out in the 2019 lecture.

Fung also mentioned that some elite athletes—who have no weight to lose—also fast because it gives them a competitive edge. Would you rather be a hungry wolf or a sated lion, he asked the audience rhetorically.

Tuesday Feels Worse

All this theory sounded great, but after I heaved my bicycle into the back of Lynn's car and she drove me home, I realized that my legs were aching and that I was exhausted.

"I'm so flicking hungry," I text Lynn at 10:58 a.m. on Nov. 1.

Despite another productive and energetic early morning, I finally have the caffeine-withdrawal headache I thought I had dodged, and honestly, I hurt all over.

"Why is today harder?" I wrote.

Lynn texted back, "Because it's not tomorrow yet."

I responded, "When will it be tomorrow?"

Lynn called me.

"Focus on the autophagy," she scolded. "Your body is currently busy doing a miracle. It's taking apart old broken things, like the rusty components of a car, and building it back shiny and new. It's magic."

Autophagy is how cells deal with broken parts or a lack of food. Each cell contains organelles, which are like a cell's organs. When a cell runs out of food or when one of these organelles stops functioning properly, the cell breaks it down and turns it into essential nutrients to build new organelles or to create energy for the cell to keep living. When we eat

food, cells need to process it and do various other jobs, so they can only engage in autophagy properly when we don't eat. If cells are little factories, autophagy is how they keep all the machinery in top shape and running smoothly.

Unfortunately, thinking of autophagy didn't make me feel better.

Even though I still had work that was incomplete, I was really and truly miserable. I gave up trying to write, and instead, I sat outside on a wicker chair in a patch of sunlight. It felt healing and restorative, like my body was eating the sun's rays. I stayed outside until the sun dropped below the rooftop.

Things went from miserable to disconsolate. I started feeling nauseous. I went to the bathroom a thousand times, I had been sweating on and off, and my head still ached. It was so bad that I could no longer drink water because even a small sip made me feel sick. By then, all I could do was lie on the couch. I was too miserable even to check Facebook.

I video-called Rick Kirschner, a naturopathic doctor based in Sandpoint, Idaho, who has done many fasts in his life, to ask him if I was going to die. He and his wife are both in their 70s, hale, thin, and energetic.

If the proof of good health is in pudding, Ricky and Lindea are walking talking testaments to the benefits of fasting and healthy eating. Lindea even once did a fast for 20 days, Ricky told me, something he doesn't recommend.

Ricky scolded me for biking, popping a dried pear in his mouth. Watching him eat made my stomach roar.

"You need to rest," he said. "A slow walk is fine but a 10-mile bike ride? That was stupid, kid."

Tuesday Night

As soon as it was dark, I headed upstairs to bed. I fell asleep right away but woke up to stumble to the bathroom. My head was still pounding, and I had new aches to add to my list of woes: a tooth that was once cracked but healed itself in my lower jaw was throbbing, and my psoas muscle in my left hip was also killing me—a basketball injury from ages ago.

Earlier that day, Lynn read me something that explained that once your body is engaging in autophagy and you've put no food in your system for a while, your cells will revisit and repair old wounds. The medical literature confirms that this is true for skin and eye wounds, although scientists writing in the journal *Biomedicines* said that the "mechanism is not yet clearly understood."

There must have been some serious healing going on in the left side of my skull. Every time I woke up, I talked to my head-ache. Still, despite all the discomfort, I felt oddly relaxed and at peace. I had no desire to read or look at my phone, and I wasn't stressed out about not sleeping. It's like I had entered a Zen state. I just existed, there in the dark. In fact, I was so calm and centered that I fell back asleep each time. So even though I must have woken up nine times on Nov. 1, in the morning, I felt much better. And the nausea, blissfully, was completely gone.

Benefits to Fasting

Fung has written several books about fasting, including the bestselling "The Complete Guide to Fasting: Heal Your Body Through Intermittent, Alternative Day, and Extended Fasting."

According to Fung, there are many benefits to a multi-day fast:

- It's free
- It's convenient
- It adds time to your day (because you aren't cooking, eating, or cleaning up after meals)
- It's not predicated on making dietary changes
- It helps you lose weight
- It lowers your blood glucose levels
- It reduces your dependence on medication
- It has positive cognitive benefits, making you feel more aware and clearer-headed



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“Hunger goes away, and you develop superhuman senses. Sight, smell just get super intense. You don't sleep, and you have more energy than you've ever had.”

Dan

Besides multi-day fasts, many people also appreciate the benefits of intermittent fasting, which is limiting your daily eating window so your body has a longer stretch without food.



Day 3

When you tell people that you're water fasting, you find out that many others do it, too. My friend Dan, who owns a construction company in the East Bay, California, texted me that he has been fasting a few times each year for two to three days each time. And Dan's even done a seven-day fast a couple of times.

"Hunger goes away, and you develop superhuman senses," Dan said. "Sight, smell just get super intense. You don't sleep, and you have more energy than you've ever had."

But, he noted, "Day 3 is the worst. By a lot."

Everyone's experience is different. Although my biking legs were still aching and I wasn't getting any of the promised benefits of mental clarity or extra energy, there was something empowering about knowing that I was in the home stretch. Day 3, with its reward of food in the afternoon, proved to be a thousand times easier than Day 2.

I made a big pot of organic vegetable broth, and the house was filled with the

cozy tangy smell of onions, carrots, garlic, and scallion tips simmering on the stove. I fantasized about drinking a cup of broth—which Ricky suggested I do when I was feeling so sick the day before. All I could think about was eating the potato I had cooked in it, along with an organic salad. I kept looking at my watch and counting how many hours were left on my fingers.

A friend once told me that she wasn't afraid of the pain of natural childbirth. She knew it was finite, and she knew she could withstand it because it would end. But even though I was fantasizing about food, the hunger was miraculously gone. I felt obnoxiously proud of

myself. A small part of me was grateful to be alive. When I first heard about long-term fasting, I thought it sounded deadly and potentially lethal.

Lynn checked in to confess that she had broken her fast again—she also ate dinner on Day 2. But, she said, she didn't have any sugar, which is something she struggles with. The inflammation in one of her legs had gone down so much that it no longer hurt her, and she was starting to feel good.

The church bells chimed at 2 p.m., which meant that I was allowed to eat. But I waited a little longer anyway. The food was delicious, every bite a burst of flavor. I was so grateful—to Mother Nature, God, and the universe—that I was practically in tears. Dan was right: The sun looked more radiant, and the neighbors I passed on the street more looked kindly.

Lessons Learned

Later I learned that I made several mistakes with this fast. One metabolic specialist told me that I should've had water with fasting salts all three days, not just at Lynn's.

Another medical doctor who's a proponent of fasting said I should've taken activated charcoal when I started to feel really sick. The theory there is that toxins are being released and the charcoal helps absorb them and flush them out of your system.

I also shouldn't have been so physically active right at the beginning. And I probably should've taken Ricky's advice and had some bone broth instead of suffering so stubbornly.

The fast was miserable. A day later, I felt like a million bucks. It's too soon to know if I reaped any long-term health benefits. Still, I can't wait to do it again.

Jennifer Margulis, Ph.D., is an award-winning journalist and author of "Your Baby, Your Way: Taking Charge of Your Pregnancy, Childbirth, and Parenting Decisions for a Happier, Healthier Family." A Fulbright awardee and mother of four, she has worked on a child survival campaign in West Africa, advocated for an end to child slavery in Pakistan on prime-time TV in Paris, and taught post-colonial literature to non-traditional students in inner-city Atlanta. Learn more about her at JenniferMargulis.net



"Life in the Fasting Lane: How to Make Intermittent Fasting a Lifestyle—and Reap the Benefits of Weight Loss and Better Health" by Dr. Jason Fung, Eve Mayer, and Megan Ramos (2020).

INTENTIONAL LIVING

The Anti-Complacent Life

Break out of your complacency and live a more interesting life

MIKE DONGHIA

Every choice we make in life can be placed on a scale. At one end is comfort and at the other end is growth.

When we choose comfort we're choosing what is safe, secure, and easy. And when we choose growth we are moving towards what is risky, unknown, and challenging.

For most of us, comfort-seeking has become the default—even those of us who fancy ourselves adventurous people. But too much comfort ultimately leads to boredom and complacency. There's got to be more to life than just feeling good, right?

Comfort Abundance

First, a confession: I'm not against comfort. I think comfort is a legitimate source of happiness in many seasons of life. It's a gift that should be received with grati-

ty that American adults are less happy and less satisfied with their lives than previous generations.

Fortunately, there are ways to improve our lives beyond pulling harder and harder on the lever of comfort.

By moving in the opposite direction—adding back the right dose of uncertainty, challenge, and adventure—we can restore an equilibrium to our lives that is likely essential to human flourishing.

Maybe that doesn't sound appealing to you right now, but remember, comfort has a way of lulling us to sleep. We lose a sense of what's possible and settle for what's in reach. We replace a sense of purpose with the constant drip of pleasure.

It's possible to break yourself out of your complacency, and imagine new horizons of possibility for your own life. Not only is the journey more exciting, it can be more rewarding, too.

Instead of passively watching movies about other people going on adventures and becoming heroes, you can make your own real world life the kind of story that is filled with possibility and intrigue.

The Anti-Complacent Life

If the kind of life I'm describing sounds desirable to you, it's because we were made for more than the maximization of physical comfort and security. There is a part of each of us that wants to fling

off the complacency of modernity and do hard things just to know we can.

How do we get started? The key ingredients are uncertainty, challenge, and adventure in doses as large as you can handle. In every way you can imagine, just start pushing back against the status quo in your life and attempt to discover new and better ways of living.

Comfort has a way of lulling us to sleep.

In a future article, I will go into even more detail about how to live an anti-complacent life. But for now, I'll leave you with a short list of places to begin. Each of these changes on their own might be small, but collectively they represent an entirely new mindset. They are the seeds of a whole new way of being.

Respond with urgency. Find a problem you've been avoiding and attack it with an unusual sense of urgency and determination. Demonstrate to the world and to yourself that you can leave a mark.

Resist the algorithm. Algorithms give us more of what we want or have already seen. Instead, seek out a wider variety of

inputs to your life. Read unusual novels, get your news from diverse sources, pick up a new magazine—you never know what you may discover.

Explore faith. The modern age is increasingly one of unbelief. Re-enchant your world by taking a new look at faith. If you're already a believer, explore another tradition within your own religion and incorporate new insights into your own belief.

Talk to more people. Complacency pushes us to hang out with the people we already know or who are most like us. But an exciting world of new possibilities emerges when people with different worldviews begin exchanging ideas. Put yourself in places where you can meet new people, and be bold in striking up conversations when the opportunity arises.

Travel widely. Taking a vacation off the beaten path or striking out on a road trip are timeless ways to shake up the status quo in your life. Not only will you be challenged physically, but you will be exposing yourself to new ideas, customs, and perspectives—far more vividly than if you had read about them in a book.

Shape your physical environment. Winston Churchill once said "We shape our

If you're feeling stuck, going on a vacation or taking a road trip can help you shake things up.



buildings; thereafter they shape us." It's a powerful reminder that we aren't stuck with the world we inherit, but can form it into something new. Start with a single room in your house and make it as beautiful or as striking as you can.

Get physically fit. High rates of obesity and sedentary lifestyles are perhaps the most obvious evidence of complacency in our society. Push back against the status quo and become strong and aerobically fit. This is something like a super power in our modern age.

ALL IMAGES BY SHUTTERSTOCK



Try new foods. One simple way to fight the status quo is to experiment with new cuisines. When you're out to eat, try a dish that is unlike anything you'd normally order. Use this as a launching point to learn about a different culture.

Say 'yes' more often. I've noticed that comfortable people cling to their comfort, and are more likely to turn down new opportunities. It's as if being open to new experiences is a skill that atrophies without practice. At least for a season, let your default answer become yes and see what happens.

Embrace serendipity. So many of our experiences are now planned or tailored to our preferences. This means a smoother, more predictable ride through life, but also removes some of the wonder and mystery which can infuse the ordinary with meaning. Try traveling with only very broad plans. You might even experiment with making more life decisions by the flip of a coin.

Mike (and his wife, Mollie) blog at *This Evergreen Home* where they share their experience with living simply, intentionally, and relationally in this modern world. You can follow along by subscribing to their twice-weekly newsletter.

There are many ways to break yourself out of your complacent state and discover new challenges.

POPCORN AND INSPIRATION

Are You Living or Merely Existing?

RUDOLPH LAMBERT FERNANDEZ

Director Penny Marshall's "Awakenings" champions the purposeful act of living over the submissive state of merely existing. Marshall's film, based on Steven Zaillian's screenplay, hints that if humans are denied humane treatment, they'll wilt as plants do. Then, it doesn't matter whether doctors try a new drug or up its dosage.

The film is based on Dr. Oliver Sacks's heroic attempts in the 1960s to cure a malignant form of sleeping sickness that traps otherwise active minds within lifeless (or rebellious) bodies. Sacks refused to see patients as mere necks, torsos, and limbs, and pioneered use of the then untested L-DOPA drug.

'Awakenings'

Introverted and socially awkward Dr. Sayer (Robin Williams), who is more at home with plants than people, is thrust into a literal forest of folk in a ward for catatonic patients. That it's called the Garden Ward does little to ease his awkwardness.

Nurse Eleanor (Julie Kavner), who warms to his kindness, reassures and roots for him. The indifference of both the doctors and staff is as much the villain as the disease itself.

Sayer consults a senior researcher, Dr. Ingham (Max Von Sydow), who'd diagnosed the elusive illness years ago but lacked solutions at the time. Both men look at Ingham's long-forgotten patients captured on film, their gnarled limbs and contorted faces flickering on the screen. Each patient stares vacantly, open-mouthed. It's like they're screaming to be freed from their fortress-like bodies.

Sayer wonders what such patients are thinking. Ingham dismisses the very idea that they can think at all.

Sayer persists: Ingham's so certain "because?" Ingham shudders, "because the alternative is unthinkable!" And Sayer grasps how horrifying it is for a mind that's alive to be caged in a deathly body.

Sayer's eventual therapeutic tactics are intuitive, rather than taught. He's spent much of his life studying plants, and wonders that if sunlight, water, air, and soil nutrients nourish wilting plants, what "missing link" can nourish withering humans. When cared for, plants grow, flower, and become

trees, offering shade to other plants. Sayer infers, why not humans?

All ward patients get the medicine they need; they're bathed, clothed, fed, and kept occupied. But some, abandoned by families, are robbed of a crucial nutrient: love. So Sayer reminds work-worn colleagues that patients are not animal-subjects in a lab; they're individuals with unique needs. Some don't start their game of cards unless a nurse throws the first card, while others don't respond to music unless their favorite band performs.

Sayer's excited when patients respond to a tossed ball or dropped pen, but their animal-like reflexes don't satisfy him. He wants them to live purposeful lives instead of just existing. He wants to see self-awareness in their eyes and warmth in their smiles, which is why he risks his reputation and administers L-DOPA when no one else dares.

Ward inmate Leonard Lowe (Robert De Niro) has been trapped in near-paralysis for 30 years. Leonard becomes a test case for Sayer's idea: incremental doses of L-DOPA. Leonard's doting mom, Mrs. Lowe (Ruth Nelson), visits regularly to offer a maternal touch that ward nurses clearly lack.

Due to the drug, Leonard comes to life again and is intelligent and sociable. He eyes a pretty girl, Paula (the lovely Penelope Ann Miller), who frequents the ward to read to her near-paralyzed father. Touchingly, Paula accepts Leonard as he is, even when he despises himself for his lack of muscular control.

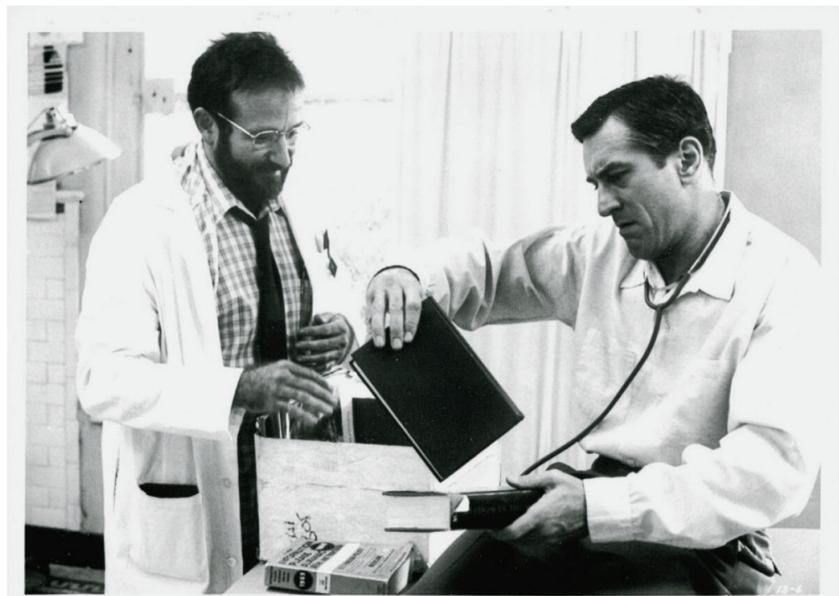
But, of course, the drug is experimental.

Sensitive Direction, Superb Cast

For an actor so used to over-the-top comedy, Williams is uncharacteristically subdued, only rarely allowing the humor of his character's social bungling to shine.

De Niro doesn't merely act like Leonard, he becomes him, mirroring Leonard's pendulum-like swing between his command over his bones and muscles and his powerlessness over either. Even in close-ups of near-total stillness, he conveys shades of feeling: hope, despair, anger, humiliation, impatience, condescension, compassion, delight.

In one magical scene, Penelope as Paula



AWAKENINGS

MOVIESTILLSDB

Robin Williams is uncharacteristically subdued.

'Awakenings'

Director: Penny Marshall
Starring: Robin Williams, Robert De Niro, Penelope Ann Miller, Ruth Nelson, Julie Kavner
MPAA Rating: PG-13
Running Time: 2 hours, 1 minute
Release Date: Dec. 20, 1990

★★★★★

embraces Leonard in what's nothing short of an acting masterclass. She wordlessly conveys that she's the one embracing him, and he conveys that he's one being embraced.

Marshall's execution is superb. Her lighting matches story moods. Sunny outdoor shots, frequent in the first half, turn scarce in the second. Close-ups of the lab weigh-scale and Sayer's face show his desperation to pump Leonard with L-DOPA; he's second-guessing, hoping for a miracle. As Leonard (convinced he's better) tries to escape, a tracking shot, for just a few seconds, shows the bright hospital front door seemingly flee backward as we and Leonard are pulled into the darker ward corridor. And several of Marshall's shots are from behind metal bars, and on doors and windows.

Marshall's film suggests that when we're locked within ourselves due to a catatonic illness or are withdrawn or uncaring because we fear rejection or failure, it is love, not medication alone, that can free us.

Rudolph Lambert Fernandez is an independent writer who writes on pop culture.

A lobby card showing Dr. Sayer (Robin Williams, L) on his rounds visiting an improving Leonard Lowe (Robert De Niro), in 1990's "Awakenings."



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