

THE EPOCH TIMES

MIND &

BODY

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INNOVATIONS IN TREATMENT

Gold Nanoparticles for Cancer Treatment

A developing treatment using gold and infrared light can more safely treat cancer, complement other treatments



5,250

new cases of cancer will be diagnosed in the United States each day in 2022, for an estimated 1.9 million, according to the American Cancer Society.

JACQUELYN WATERS

There are many ways to treat cancer, and some of them are nearly as frightening as the disease itself. But today, researchers are beginning to unravel some new approaches, including one that comes from seemingly miraculous recoveries in cancer patients who experienced severe fever.

And the interesting part is that gold might be just the ingredient needed to take advantage of a weakness some cancers have to a sudden increase in our body temperature.

That's important, because cancer isn't going away.

In the United States, cancer is the second leading cause of death. The American Cancer Society estimates that in 2022, there will be 1.9 million new cancer cases and more than 600,000 cancer deaths.

That's the equivalent of 5,250 new cases of cancer each day. Cancer is an enormous health concern.

The leading treatment options for cancer aren't always successful and carry with them a slew of possible side effects such as nausea, vomiting, hair loss, increased risk of infections, and the possibility of secondary tumors.

Hyperthermia, also known as overheating, is a therapy that uses heat to kill cancer cells. It's best used alongside other therapies such as chemotherapy or radiation therapy.

One of the challenges to using hyperthermia to treat cancer is making sure the heat goes to the right place. That's where the gold comes in. Ongoing research reveals gold nanoparticles can be used to heat and kill tumor cells with great precision and minimal side effects. This form of hyperthermia is called photothermal therapy, and it has shown very promising results for a number of cancer types.

Cancer Is a Problem

Cancer is a serious health concern worldwide.

According to recent data by the American Cancer Society, U.S. females have a 38.5 percent chance of developing invasive cancer over their lifetime, while males have a 40.2 percent chance.

Cancer becomes invasive when it spreads beyond the layer of tissue where it developed and into surrounding healthy tissues and lymph nodes.

Continued on Page 4

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MINDSET MATTERS

Live With an Inner Scorecard and Become the Best Version of Yourself

MIKE DONGHIA

Would you rather live a life where everyone around you saw you as far more successful and generous than you really were or a life where your many accomplishments and good deeds were credited to others? What if those closest to you knew the real you?

If you would choose the path of higher achievement but less recognition, it's likely that you live by an inner scorecard rather than an external one. Instead of striving for the approval of others, you're driven to earn self-respect.

Research on the subject suggests that having an inner scorecard correlates with a happier life. Frequently comparing yourself to others, a by-product of having an external scorecard, is linked to having less self-esteem and lower life satisfaction.

Whenever I meet a person with an inner scorecard, I sense that they're completely at peace with themselves. They might have a great deal of ambition, but without the usual need to be seen and admired. Instead of seeking to prove their worth to the world, they operate with an inner fire, born with curiosity and a passion to make the most of their

lives.

To reach this place in your own life, it's important to understand why we compare ourselves to others in the first place and the ways in which this can be both helpful and harmful. We'll never completely leave this impulse behind (for good reason), but we can prioritize another measure of success that leads to a richer and more fulfilling life.

Continued on Page 6



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In the Chinese solar calendar, Summer Heat is the last solar term of summer and often a time of heavy rain and thunder.

CHINESE WISDOM FOR SEASONAL LIVING

The Healthiest Foods for Summer, According to Chinese Medicine

Solar Term: 'Major Heat' (July 23 to August 6)

MOREEN LIAO

A solar term is a period of approximately two weeks based on the sun's position in the zodiac. There are 24 solar terms in a year, which make up the traditional Chinese calendar system used to guide farming and everyday life. The calendar contributes to the ancient Chinese philosophy that living in accordance with nature will enable a harmonious life. This article series delves into each solar term and offers guidance on how to navigate the changes of season in order to live happier and healthier.

Solar Term: 'Major Heat'

2022 Date: July 23 to Aug 6

Characteristics and Meaning: Major Heat is the last solar term of summer, often accompanied by heavy rain and thunder.

The ancient Chinese saw summer as the peak of one's life, precipitating the decline in life at middle age and onward, in the same way that summer soon cools into autumn with winter proceeding. Knowing the solar terms allows one to live in harmony with the ways of nature. This is beneficial for our health and allows us to move in sync with the rhythms of the world.

Impact on People: There's an old Chinese saying: "The best time to fix winter diseases is summer, and the best time to treat summer diseases is winter." Winter disease is like extremely cold ice present inside our bodies; if we want to melt it away, we need to find a time when both the environment and our bodies are hot. Major Heat is such a time. The top Chinese doctors work with nature to treat diseases, so can we as individuals. We can help our bodies to recover from our old problems and prepare to transition into a safe winter if we take care of our bodies.

The zusanli acupoint helps to strengthen one's health and avoid disease. It is one of the foremost acupoints for longevity.

Sun Simiao, famous doctor in China's Tang Dynasty

Living in Harmony With the Season: Although it might be hard starting out, or a major change for some people, our bodies will appreciate it in the long run if we can avoid eating cold foods. Cold for this purpose means colder than our bodies' temperature. Especially food colder than room temperature should be avoided.

It's also good to avoid being caught in or soaked by the rain. And it's good to have your belly covered if you find yourself in an air-conditioned room. For those feeling hot, you may massage the back of your neck to reduce the feeling of heat. Anyone (even those not feeling hot) can massage the zusanli acupoint, as shown in the accompanying image. The famous doctor, Sun Simiao, in China's Tang Dynasty, lived to be more than 140 years old. He said the zusanli acupoint helps to strengthen one's health and avoid disease. It is one of the foremost acupoints for longevity. It helps to improve digestion, activate blood circulation, and repel humidity inside one's body, according to ancient Chinese medicinal theory.

Epoch Times contributor Moreen Liao is a descendant of four generations of traditional Chinese medicine doctors. She's also a certified aromatherapist, former dean of an Institute in Sydney, and the founder of Heritage Formulations, a complete solution for TCM professionals. Visit RootsTCM.com for details.



Massaging the zusanli acupoint can improve digestion and activate blood circulation, according to ancient Chinese medicinal theory.

MONIKA WISNIEWSKA/SHUTTERSTOCK



Foods to Eat

- Lamb
- Potato
- Yam
- Red sweet potato
- Cumin
- Pepper

Those who have excess body heat can eat:

- Tomato
- Eggplant
- Peach

Summer is a great time to eat lamb lagoto.

Enjoy plenty of potatoes during the heat.

PIXEL-SHOT/SHUTTERSTOCK

PIKANO/SHUTTERSTOCK

WOMENS HEALTH

IUDs: What to Know

One of the safest and easiest long-term forms of birth control

PETER WEISS

Amid all the furor about abortion and abortion laws, it seems relevant to discuss an often overlooked and relatively safe, long-term option to avoid the issue altogether. The intrauterine device (IUD) is a simple device that's placed into the uterus (womb) to prevent pregnancy.

There's no evidence of human use of an IUD before the 20th century. However, there are reports of ancient Middle East traders placing pebbles into the uteri of Camels to prevent them from getting pregnant during long treks across the desert.

The documented first human use of an IUD was in 1909, when Dr. Richard Richter described inserting a ring of silkworm gut into a woman's uterus to prevent pregnancy. In the mid-1920s, Drs. Karl Prust and Ernest Gräfenberg both developed similar devices. The latter wasn't terribly effective, according to the Museum of Contraception.

Gräfenberg wrapped silver around the silkworm threads, but women were found to absorb the silver and had their lips turn bluish-black. He later changed to a copper alloy mix, which is similar to the currently used copper IUD.

In 1962, a plastic device was developed, known as the Lippes Loop. This was created by Dr. Jack Lippes. At the time, it became the most popular IUD in the world. Dr. Jaime Zipper expanded on the idea and changed the form to that of a T and placed copper on the ends. Copper is a natural spermicide.

However, not all good things come from fast movement in the medical field. In 1971, the Dalkon Shield was introduced by A.H. Robbins Co. This IUD was very aggressively marketed but not thoroughly tested. It was cheap and mass produced. The Dalkon Shield had a design flaw that allowed bacteria to ascend the string attached and enter directly into the uterus. This caused a lot of damage to women, many of whom developed pelvic inflammatory disease, sepsis, and infertility. This was also in the days before invitro fertilization (IVF). There were hundreds of thousands of lawsuits that led to A.H. Robbins declaring bankruptcy, and the Dalkon Shield became an infamous example of poor product design. This led to a rapid decline in the use of IUDs through the 1970s and 1980s.

There have been great strides made in improving IUDs with very limited risks in the years since. In 1988, the copper T

(Paragard) was developed and is still used to this day. It's very effective and approved for 10 years of use. The progesterone IUD came about with the development of Mirena in 2001. This IUD has a levonorgestrel releasing intrauterine system, which has added benefits by reducing the amount of bleeding a woman experiences when she is on her period. There are now numerous progesterone-releasing IUDs, such as Skyla, Liletta, and Kyleena.

These options raise some questions, namely, who's a good candidate for an IUD, and what are the risks? IUDs are considered a long-term form of contraception. IUDs today are made of polyurethane and have a small string attached for easy removal later. IUDs can be painful to insert, and this must be done by a trained physician or nurse. I find that women report it's a lot less painful to insert an IUD when they're on their period. I also use an ultrasound to confirm that it's placed properly in the cavity of the uterus. There are now added benefits to the hormonal IUD than the copper one. They may be used to help alleviate menstrual cramps, reduce bleeding, and may help with endometriosis pain. The benefits of an IUD include long-acting, highly and quickly reversible few side effects, and it doesn't require taking a pill everyday. It's also a highly effective

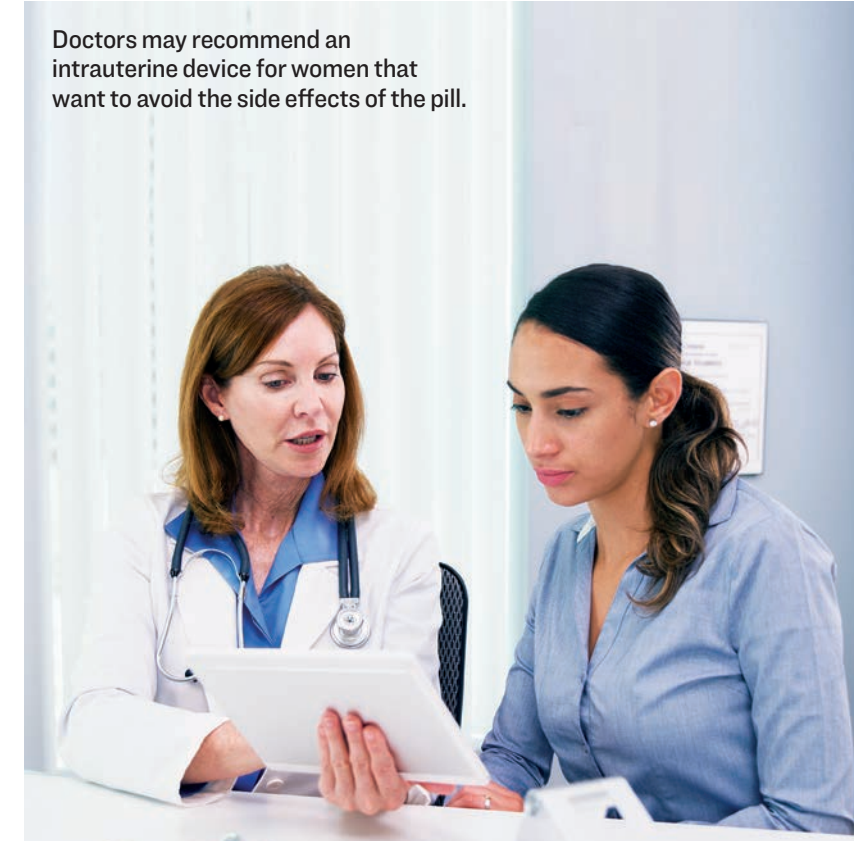


An intrauterine device, or IUD, is inserted into the uterus to prevent pregnancy. It offers long-term and reversible birth control.

99
PERCENT

The IUD is a highly effective form of birth control with a greater than 99 percent pregnancy prevention rate.

ALL PHOTOS BY SHUTTERSTOCK



Doctors may recommend an intrauterine device for women that want to avoid the side effects of the pill.

FOOD AS MEDICINE

Sauerkraut: Embracing the Sweetness of Sour Cabbage

LISA ROTH COLLINS

Sauerkraut is a seemingly simple classic German food, made from only two ingredients, but it's rich in health benefits and versatility. It's also one of the easiest and healthiest foods to make at home—and one that kids can help prepare. Are you ready to embrace sour cabbage?

What Is Sauerkraut?

Sauerkraut is a combination of shredded cabbage and salt that has been allowed to ferment. During the fermentation process, bacteria found in the cabbage and in the air, typically strains of *Lactobacillus* and *Leuconostoc*, transform this cruciferous vegetable into a great source of probiotics. Both the high nutritional value of cabbage and the presence of the beneficial bacteria make sauerkraut a food that can provide a wealth of health benefits.

However, it's important to note that not all store-bought sauerkraut is a source of this double-dose prize. To benefit from the probiotics (which are explained below), the sauerkraut you choose (or make yourself) must contain live microorganisms. You can get them in fresh, raw, unpasteurized sauerkraut, which is usually found in the refrigerated section of the market. The label may say "contains active cultures" or "contains live microorganisms." Pasteurization kills beneficial bacteria. Pasteurized sauerkraut can be found in cans or jars, and it's still a good source of vitamins and other nutrients, but the ones in the refrigerator section will have live cultures or microorganisms.

Health Benefits of Sauerkraut

Why should sauerkraut be on your menu regularly? Consider these reasons.

Boosts the Immune System

The probiotics found in sauerkraut can help keep your gut microbiome in balance. Research published in *Critical Reviews in Food Science and Nutrition* in July shows that probiotics can help with the development of the immune system, reduce inflammation, help regulate metabolism, and maintain intestinal balance.

Reduces Metabolic Disease Risk

The lactic acid bacteria found in sauerkraut with active microorganisms may result in positive changes in the gut microbiome that reduces inflammation, including inflammatory proteins associated with Type 2 diabetes. This indicates that eating sauerkraut and other fermented foods may help reduce the risk of diabetes and other chronic metabolic diseases, such as obesity, according to a Stanford University study.

Benefits Mental Health

Can sauerkraut really help mental health? Because of the vast amount of information that travels along the brain-gut axis, the health of the gut and brain are intimately involved. A balanced gut environment can translate into better brain and cognitive function. Studies have shown

that probiotics can affect behavior, mental outlook (e.g., anxiety, depression), brain function, and mood. Probiotics may even help reduce symptoms of obsessive-compulsive disorder and improve memory.

Improves Heart Health

The combination of high fiber content and probiotics makes sauerkraut a heart-friendly food. Fiber works to reduce cholesterol, and probiotics can also have this effect, as well as assist in lowering blood pressure in people with hypertension. Sauerkraut is also a good source of vitamin K2, a nutrient that may reduce your chances of developing heart disease because it prevents deposits of calcium from gathering in your arteries.

Good Source of Nutrients

Cabbage is a great source of vitamins and minerals, including vitamins C, K, B6, and folate, as well as iron, manganese, fiber, copper, and potassium. Two more bonuses: It's super low in calories and has zero fat. But sauerkraut also contains sulfur-based phytochemicals called glucosinolates, which break down into substances that have antioxidant and anti-inflammatory powers. One of those substances, sulforaphane, not only activates anti-inflammatory and antioxidant activity but may also have an antidiabetic effect.

Sauerkraut Buying and DIY Tips

Choose only unpasteurized, raw, fermented sauerkraut to ensure that you're getting viable microorganisms and thus the probiotic effects. You can find these products in the refrigerated section.

- Don't cook sauerkraut. This kills the beneficial bacteria. Add sauerkraut after the food has been cooked. Don't



NASTASSIA DILER/SHUTTERSTOCK

form of birth control with a greater than 99 percent pregnancy prevention rate. There's also some evidence that IUDs can reduce the risk of cervical cancer, endometrial cancer, and ovarian cancer. The mechanism of how IUDs can reduce cancer risk is unknown. The reduction of endometrial and ovarian cancer was found in a Finnish study, published in the *American Academy of Obstetrics and Gynecology journal Obstetrics & Gynecology*.

"Using the levonorgestrel-releasing intrauterine system for treatment of menorrhagia (heavy menstrual bleeding) during reproductive years was associated with a lower incidence of endometrial, ovarian, pancreatic, and lung cancers than expected. Levonorgestrel-releasing intrauterine system use was associated with a higher than expected incidence of breast cancer," the study reads.

It also noted a 50 percent reduction in endometrial cancer and a 40 percent reduction in ovarian cancer.

Contraindications for an IUD include an obvious one: pregnancy. Other contraindications are pelvic inflammatory disease, vaginal infections, and any abnormally shaped uterus that would block the introduction and placement of the IUD.

They're also not a good form of birth control if the woman is planning to get pregnant in the near future. Although they're fairly easily removed and the effects aren't long-lasting after removal, they aren't like a diaphragm or condom—IUDs are long-term contraception.

I have no real problem placing an IUD in a woman who hasn't had a child, although I do inform them that it's more painful for these women. In the United States, 14 percent of women who used contraception between the ages of 15 and 44 used an IUD between 2015 and 2017, according to a KFF analysis of the National Growth Family Survey from 2015 to 2017.

Overall the IUD is a safe and effective method of long-term birth control. It isn't for everyone, and you need to discuss all options of birth control with your physician or nurse to decide what's best for you. Always ask questions, and never assume you know the answer.

Dr. Peter Weiss is a nationally known physician and health care thought leader who has advised CEO's, and political leaders on current and future health care trends affecting our country. He was a national health care advisor for senator John McCain's 2008 presidential campaign and was an Assistant Clinical Professor of OB/GYN at UCLA School of Medicine for 30 years. Dr. Weiss is the co-founder of the Rodeo Drive Women's Health Center in Beverly Hills, Calif., and remains in private practice. He also spends part of his time writing and lecturing on health care in America.

buy sauerkraut made with vinegar. This product isn't fermented and thus doesn't provide probiotic benefits, although other nutrients are present.

- Try making your own sauerkraut. This can be fun for the entire family. Feel free to add other ingredients, such as turmeric, ginger, carrots, garlic, caraway seeds, or beets.

Ways to Enjoy Sauerkraut

- Add it to sandwiches. Although the Reuben is the sandwich typically associated with sauerkraut, try adding it to your favorites. Sauerkraut is great in a wheat pita packed with sprouts, cucumbers, shredded cabbage, and hummus, or add some to a grilled cheese and tomato sandwich.
- Top your salads with it. Sauerkraut provides the tangy vinegar taste to all types of vegetable salads.
- Put it in dips. Whether you like salsa, guacamole, or a zesty yogurt dip, sauerkraut provides a great low-calorie, high-flavor kick that goes with veggie sticks and crackers.
- Add it to soup. Remember, if you want the probiotic benefits, don't add the sauerkraut to your soup until you're ready to eat it. It tastes great in any vegetable soup.
- Add it to a burrito. Spread a few teaspoons of sauerkraut on a tortilla; add your favorite refried beans, lettuce, tomatoes, and cheese; and roll up the fun!
- Top baked potatoes and sweet potatoes with it. Who needs sour cream when you can perk up your potatoes with sauerkraut!

Bottom Line

Fresh, raw, unpasteurized sauerkraut is a zesty, healthy veggie to add to your menu. All you need is a few teaspoons of this yummy sour cabbage to add variety and health perks to your life.

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

INNOVATIONS IN TREATMENT

Gold Nanoparticles for Cancer Treatment

A developing treatment using gold and infrared light can more safely treat cancer and complement other treatments

Continued from Page 1

If untreated, cancer cells may enter the blood or lymphatic fluid and emigrate to other tissues or organs. This process of metastasis often results in secondary tumors in the body.

Leading Treatment Options for Cancer Aren't Ideal

Since cancer is so varied, there's no single, fully comprehensive approach to treatment. Leading treatment options include surgery, radiotherapy, chemotherapy, and immunotherapy.

While surgery is generally considered an effective therapy for early-stage cancers, it isn't ideal for metastatic cancers since the cancer cells have spread to other regions of the body. In some cases, even if surgery is done early on, the cancer can return.

Radiation therapy uses high-energy radiation to damage the DNA of cancer cells. This type of therapy often also damages surrounding healthy tissue. As with surgery, it is difficult to treat metastatic cancer with radiation therapy.

Chemotherapy can treat many different types of cancer, even if the cancer has metastasized. Unfortunately, chemotherapy drugs can be toxic to healthy, non-cancerous tissues of the body.

A significant problem with radiation therapy and chemotherapy is that both can cause cancer, making secondary cancer a serious possible side-effect.

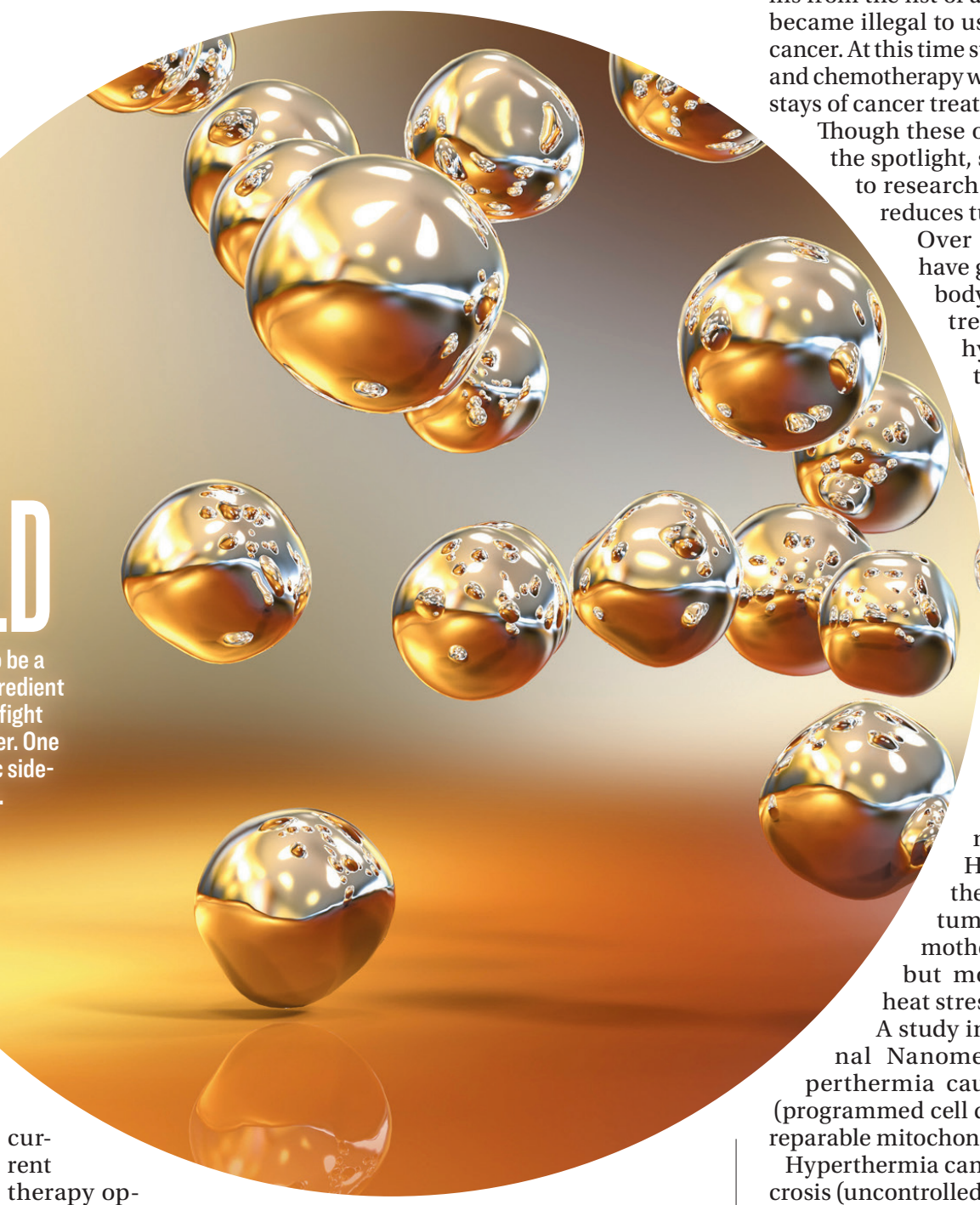
Immunotherapy is a cancer therapy that helps the immune system fight cancer. As a biological therapy, this treatment uses substances produced by other living organisms.

There are several types of immunotherapy treatments including T-cell transfer therapy, monoclonal antibodies, immune system modulators, treatment vaccines, and immune checkpoint inhibitors.

While side effects from immunotherapy typically aren't as troublesome as the side effects from chemotherapy, they can still occur.

Since the body's immune system has been amped up to fight against cancer cells, there may be some collateral damage to healthy cells, such as flu-like symptoms, heart palpitations, and organ inflammation.

A significant portion of cancer therapy research is dedicated to discovering therapies that can complement or replace



current therapy options with greater effectiveness and fewer side effects.

Hyperthermia as Approach to Cancer Treatment

In the 1800s, doctors began noticing a number of intriguing cases of cancer patients who, after suffering high fevers from contracting erysipelas, found their cancer symptoms decreased. Some patients experienced complete tumor regression.

Erysipelas is a skin infection caused by *Streptococcus* bacteria, typically *S. aureus* or *S. pyogenes*. A key feature of the infection is a fever, which may be very high.

One surgeon, Dr. William Coley, was fascinated by these case studies and in 1891 injected *S. pyogenes* into a patient's inoperable tumor to see if the infection would help shrink it.

The patient's body temperature rose to 105 degrees. Days after the fever began, his tumor started to shrink. Remarkably, within two weeks, the tumor was gone.

Coley spent years perfecting bacterial

injections to treat tumors. These formulations became known as Coley's toxins.

One pharmaceutical company created preparations of Coley's toxins from 1899 to 1951, making the treatment available to physicians in the United States and Europe.

The results varied on different cancer types, but The Iowa Orthopaedic Journal notes the treatment was especially effective on bone cancers and soft-tissue sarcomas.

Soft-tissue sarcomas are cancers that form in muscles, fat, nerves, the lining of joints, blood vessels, and tendons.

In 1962, the FDA removed Coley's toxins from the list of approved drugs, so it became illegal to use this toxin to treat cancer. At this time surgery, radiotherapy, and chemotherapy were becoming mainstays of cancer treatment.

Though these other therapies took the spotlight, scientists continued to research how hyperthermia reduces tumors.

Over the decades, they have generated a massive body of knowledge about treating cancer with hyperthermia. Let's take a quick look at some of the basics of the biology behind this therapy.

What We Know Now About Heat and Cancer

Tumors are generally more acidic than regular tissues and they often have regions of hypoxia (inadequate oxygen supply). A study in the International Journal of Hyperthermia notes these two factors make tumors resistant to chemotherapy and radiation, but more susceptible to heat stress.

A study included in the journal *Nanomedicine* found hyperthermia causes cell apoptosis (programmed cell death) by causing irreparable mitochondrial damage.

Hyperthermia can also trigger cell necrosis (uncontrolled cell death) by damaging the cell membrane and denaturing proteins, according to research published in *Cytometry Part A*, the journal of the International Society for Advancement of Cytometry.

Hyperthermia can initiate both of these cell death pathways in a single tumor simultaneously. The amount of necrosis versus apoptosis occurring in the tumor depends on several factors, especially the degree of heat applied.

Apoptosis is a much "cleaner" and more organized process than necrosis. Necrosis is destructive to surrounding tissue, so it's important for doctors to choose the intensity and duration of heat treatment carefully.

In their review article, "Gold Nanoparticles in Cancer Theranostics," authors note that malignant cancer cells tend to have diminished heat shock protection responsiveness, making them more susceptible to thermal stress.

Thermal stress makes tumors more vulnerable to radiation therapy, making this therapy more effective. This sensitization occurs through several cellular pathways

according to research published in the journal *Cancers*. Similarly, thermal stress makes tumors more susceptible to chemotherapeutics.

For instance, one in vitro study in the journal *Scientific Reports* found that when malignant melanoma was treated with hyperthermia and clinically relevant chemotherapy drugs, hyperthermia made more than one chemotherapy drug more effective. This is great news for treating tumor cells.

The question is, how do we directly target tumor cells with hyperthermia as so not to damage healthy tissue?

Some current methods are invasive, particularly if the tumor is deep. For many methods, the heating distribution often isn't uniform. In addition, these methods tend to be directed at the tumor based on what can be seen with scans and the human eye, but they aren't precise on a cellular level.

Nanoparticles

The trick to truly effective hyperthermia is to get the heat inside the tumor without heating all the tissue around it, and nanoparticles are key to that capability. Using nanoparticles and near-infrared light to generate heat in a tumor is minimally invasive, more uniform, and much more precise in targeting the tumor on a cellular level.

Nanoparticles are tiny, though they do vary in size from 1 to 100 nanometers (nm), though some scientists would argue nanoparticles can be up to 1000 nm in size.

If one of your hairs were blown up to be the size of a telephone pole, a nanoparticle would be a little dot with a diameter about as wide as the thickness of a piece of paper.

They are too small to be seen without an electron microscope, but they can exert a powerful effect depending on how they are used.

How Would Nanoparticles Get Into Tumor?

The blood vessels in tumors are different from the blood vessels in a typical organ. The tumor is not healthy, normal tissue, so the blood vessels that feed it aren't normal or healthy either.

Healthy blood vessels that bring oxygenated blood into tissues have small gaps between the endothelial cells which line the blood vessels. Imagine a tiny straw with little slits in it. These endothelial cells are surrounded by smooth muscle cells. Imagine another straw, which is much stronger and slightly larger, with the smaller straw inside.

In tumors, the inner straw has much larger holes and no strong outer straw surrounding it. The result is that tumors are fed by very leaky blood vessels.

Your body relies partly on the lymphatic system to clear out the waste of dead cells and other body processes. Imagine a system very much like all your blood vessels but with a different role.

In a tumor, lymphatic vessels are compressed, causing poor lymphatic drainage out of the tumor.

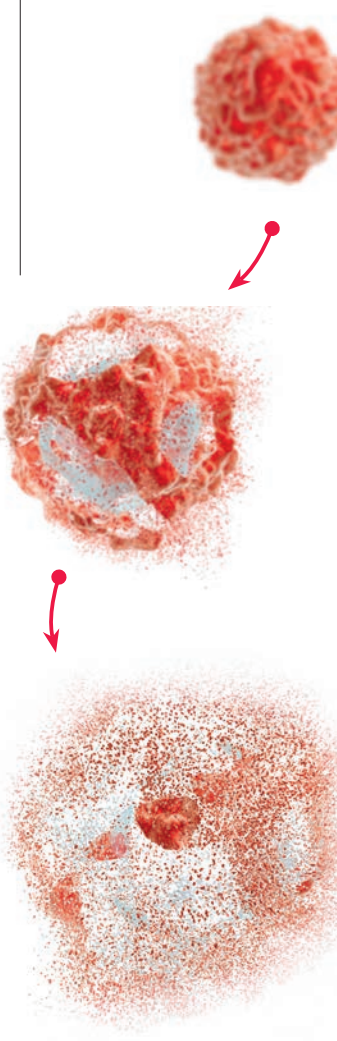
The leaky blood vessels and poor lymphatic drainage cause an effect that allows the nanoparticles to move from the bloodstream into the tumor and accumulate there, according to a review article published in the journal *Cancer* in 2020.

Gold Nanoparticles Ideal for Photothermal Therapy

Gold nanoparticles are an ideal candidate for photothermal therapy, which typically



Gold nanoparticles can absorb light energy to produce localized temperatures above 113 degrees.



A study included in the journal *Nanomedicine* found hyperthermia causes cell apoptosis (programmed cell death) by causing irreparable mitochondrial damage.

uses infrared light to heat tissues. This form of light can penetrate deep into the body. That's good, but even better if the heat is more intense in the area of the tumor. In that scenario, you don't have to risk damaging other tissues as much.

That's where gold becomes essential. Gold is fairly biocompatible as it is an inert metal. Gold nanoparticles can absorb light energy and heat up to above 133 degrees Fahrenheit.

Near-infrared (NIR) light in the range of 800 to 1200 nanometers can be directed into the body, where it hits the nanoparticles, which then heat up. Think of it like a microwave that heats your cold coffee but not your mug. Depending on size and shape, gold nanoparticles can absorb different frequencies of light and can be designed for maximum absorption of NIR light.

The size of the gold nanoparticles matter. In general, smaller metallic nanoparticles more efficiently convert light energy to heat energy than larger metallic nanoparticles do.

According to research published in the journal *Application of Nanomaterials in Biomedical Imaging and Cancer Therapy* in 2021, there are typically two methods for inducing hyperthermia in a tumor.

First, the gold nanoparticles can be heated to high temperatures (higher than 113 degrees Fahrenheit) for several minutes. This leads to cell death through thermal ablation. The downside is that this can trigger the blood to stop flowing through the tumor and the tumor may hemorrhage. This would inhibit further treatment with a secondary therapy.

A second method creates mild hyperthermia (107.6 to 109.4 degrees Fahrenheit) within the tumor. This triggers cellular damage and makes the tumor blood vessels more leaky. This method allows for a synergistic therapy such as chemotherapy to be used simultaneously.

Pair Photothermal Therapy With Another Therapy

Because the blood vessels that feed the tumor aren't healthy, there may be areas of a tumor that don't have good blood supply—this is why certain regions of a tumor may be hypoxic.

The nanoparticles may not accumulate in these regions since the blood supply is deficient, which means photothermal therapy alone may not destroy all the cancer cells in the tumor.

Importantly, research shows that surviving tumor cells exposed to heat can

quickly become resistant to thermal stress, resulting in recurrence and spread of the cancer (metastasis), according to findings in the review "Multifunctional Gold Nanoparticles in Cancer Diagnosis and Treatment."

The above two points reveal why it's important that in cases where photothermal therapy can't fully destroy the tumor, this therapy is paired with a secondary therapy such as chemotherapy, radiotherapy, or immunotherapy.

Conclusions

The National Cancer Institute notes that hyperthermia has been used to treat the following types of advanced cancers: appendix cancer, bladder cancer, brain cancer, breast cancer, cervical cancer, esophageal cancer, head and neck cancer, liver cancer, lung cancer, melanoma, mesothelioma, sarcoma, and rectal cancer.

As a type of hyperthermia, photothermal therapy used in combination with other cancer therapies has great potential in treating primary tumors or metastatic cancer for several different types of cancer.

A number of gold nanoparticle-based platforms have been assessed in clinical trials. While the results so far are mostly encouraging, the review "Multifunctional Gold Nanoparticles in Cancer Diagnosis and Treatment" notes many of these studies are still in early phase one or phase one clinical trials.

As researchers and clinicians perfect treatment with photothermal therapy, the hope is that one day it will become an available option for cancer patients everywhere.

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.



Starting in the 1800s, doctors noticed that some cancer patients recovered after having a fever.

FOOD AS MEDICINE

Science Confirms Turmeric as Effective as 14 Drugs

This thoroughly researched herb has garnered an incredible list of verified therapeutic actions

SAYER JI

If ever there were a spice that puts existential fear into the bottom line of pharmaceutical companies, it's turmeric. Turmeric is one of the most thoroughly researched plants in existence today. Its medicinal properties and components (primarily curcumin) have been the subject of more than 12,000 peer-reviewed and published biomedical studies.

In fact, GreenMedInfo (GMI) has run a five-year research project on this sacred plant and revealed more than 800 potential preventive and therapeutic applications, as well as 250 distinct beneficial physiological effects.

This entire database of 2,666 NCBI-hyperlinked turmeric abstracts can be downloaded as a PDF at GMI's Downloadable Turmeric Document page.

Given the sheer density of research performed on this remarkable spice, it's no wonder that a growing number of studies have concluded that it compares favorably to a variety of conventional medications.

Lipitor/Atorvastatin (cholesterol medication): A 2008 study published in the journal *Drugs in R & D* found that a standardized preparation of curcuminoids from turmeric compared favorably to the drug atorvastatin (trade name Lipitor) on

endothelial dysfunction, the underlying pathology of the blood vessels that drives atherosclerosis, in association with reductions in inflammation and oxidative stress in Type 2 diabetic patients.

Corticosteroids (steroid medications): A 1999 study published in the journal *Phytotherapy Research* found that the primary polyphenol in turmeric, the saffron-colored pigment known as curcumin, compared favorably to steroids in the management of chronic anterior uveitis, an inflammatory eye disease. A 2008 study published in *Critical Care*

Medicine found that curcumin compared favorably to the corticosteroid drug dexamethasone in the animal model as an alternative therapy for protecting lung transplantation-associated injury by down-regulating inflammatory genes.

An earlier 2003 study published in *Cancer Letters* found the same drug also compared favorably to dexamethasone in a lung ischemia-



Researchers found curcumin to be 500 times to 100,000 times more potent than the diabetes drug metformin.

VALENTYN VOLKOV/SHUTTERSTOCK

reperfusion injury model.

Prozac/Fluoxetine & Imipramine (antidepressants): A 2011 study published in the journal *Acta Poloniae Pharmaceutica* found that curcumin compared favorably to both drugs in reducing depressive behavior in an animal model.

Aspirin (blood thinner): A 1986 in vitro and ex vivo study published in the journal *Arzneimittelforschung* found that curcumin has anti-platelet and prostacyclin modulating effects compared to aspirin, indicating it may have value in patients prone to vascular thrombosis and requiring anti-arthritis therapy.

Anti-inflammatory drugs: A 2004 study published in the journal *Oncology* found that curcumin (as well as resveratrol) were effective alternatives to the drugs aspirin, ibuprofen, sulindac, phenylbutazone, naproxen, indomethacin, diclofenac, dexamethasone, celecoxib, and tamoxifen in exerting

anti-inflammatory and anti-proliferative activity against tumor cells.

Oxaliplatin (chemotherapy drug): A 2007 study published in the *International Journal of Cancer* found that curcumin compares favorably with oxaliplatin as an antiproliferative agent in colorectal cell lines.

Turmeric is one of the most thoroughly researched plants in existence today.

Metformin (diabetes drug): A 2009 study published in the journal *Biochemistry and Biophysical Research Community* explored how curcumin might be valuable in treating diabetes, finding that it activates AMPK (which increases glucose uptake) and suppresses

gluconeogenic gene expression (which suppresses glucose production in the liver) in hepatoma cells. Interestingly, they found curcumin to be 500 times to 100,000 times (in the form known as tetrahydrocurcuminoids) more potent than metformin in activating AMPK and its downstream target acetyl-CoA carboxylase (ACC).

Another way in which turmeric and its components reveal their remarkable therapeutic properties is in research on drug-resistant and multi-drug-resistant cancers. There are two sections on the GMI site dedicated to researching natural and integrative therapies on these topics, and while there are dozens of substances with demonstrable efficacy against these chemotherapy- and radiation-resistant cancers, curcumin tops both lists.

We have found no less than 97 studies indicating that curcumin can induce cell death or sensitize drug-resistant cancer cell lines to conventional treatment.

We have identified 28 studies on curcumin's ability to either induce cell death

or sensitize multi-drug resistant cancer cell lines to conventional treatment.

Considering how strong a track record that turmeric (curcumin) has, having been used as both food and medicine in a wide range of cultures, for thousands of years, a strong argument can be made for using curcumin as a drug alternative or adjuvant in cancer treatment.

Or, better yet, use certified organic (non-irradiated) turmeric in lower culinary doses on a daily basis so that heroic doses won't be necessary later in life after a serious disease sets in. Nourishing yourself, rather than self-medicating with "nutraceuticals," should be the goal of a healthy diet.

Sayer Ji is the founder of GreenMedInfo.com, a reviewer at the International Journal of Human Nutrition and Functional Medicine, co-founder and CEO of Systeme Biomed, vice chairman of the board of the National Health Federation, and steering committee member of the Global Non-GMO Foundation.

MINDSET MATTERS

Live With an Inner Scorecard and Become the Best Version of Yourself

It can be tempting to seek external validation, but we'll find more satisfaction if we hold true to ourselves.



Continued from Page 1

The Roots of Comparison

As social creatures, we can't help but look at others to see how we're different and similar. Comparing ourselves to others helps us form a self-identity. It's in others that we see vivid examples of the kinds of people we do or don't want to become.

The pursuit of well-earned recognition from those we admire can be a powerful and healthy motivator. If you surround yourself with people of similar values and goals, the feedback you get by comparing yourself to others can have a very high signal-to-noise ratio. In other words, you're likely to get useful insight without too much distraction or confusion.

But unfortunately, comparison has proven to be a great source of unhappiness throughout human history. There are at least three reasons for this:

We're more sensitive to loss than gain. We mostly compare ourselves to those who are better off. When we see something that someone else has that we want for

ourselves, it can motivate us to action. But if the goal is too far away or unrealistic, it can also lead to a sense of loss. The principle of loss aversion states that humans experience the pain of losing or not having something far more intensely than equivalent gains.

Comparison easily leads to envy. While some comparison can be healthy, investing too much of your energy in this area can create powerful desires for what others have. Instead of being able to enjoy what you already have and appreciate the success of others, your own unmet cravings can lead to resentment and bitterness.

We start living other people's values. Another powerful effect of our social nature is that our desire for approval can lead us to adopt other people's goals as our own. It's possible to get so caught up in achieving recognition and admiration from others that you realize, too late, that the goals you achieved don't align with your own values.

The Impact of Technology

Those who live with an external scorecard and a stronger impulse to compare have always run the risk of unhappiness and frustration. Warnings against envy and other fruits of comparison go back thousands of years, including the Book of Proverbs in the Christian Bible.

But recently, something has changed to upset the precarious balance between the benefits and drawbacks of comparison. In the past 20 years, social media use through-

out the world has skyrocketed. The average internet user now spends nearly two and a half hours per day on social media sites.

Social media use can be a wonderful tool, but it can also be a breeding ground for comparison, which has been linked to higher levels of depression. The content shared on these platforms highlights the coolest and most interesting examples of what life has to offer. In comparison, it's easy to feel that your life is dull and less successful.

Compounding the problem, screen time, which now eats up a large portion of our waking hours, displaces slower and more reflective activities, such as reading, writing, and time alone with your thoughts. If you've lost your inner scorecard, it may be because you're swimming in a sea of possibilities. Instead of deciding on the trade-offs

you're willing to make and the values that you want to guide your actions, you pursue what everyone else is doing. Self-reflection is much harder when your mind is constantly being fed examples of what other people are doing.

Cultivating an Inner Scorecard

It's possible to draw inspiration from others while still maintaining an inner scorecard, but in our modern environment, it won't happen by default. You'll need to push back against the instinct to compare and measure your life against others. Here's my simple framework for independently pursuing a meaningful existence:

Define your values. Think about where your deepest values come from—your sense of what makes life good, beautiful, and meaningful—and write down the

ones that you want to guide you. This will help you aim toward becoming the person you want to become.

Understand what you really want. Now, within the framework of your values, decide the kind of life you want to lead. How do you wish to use your time? Who do you want to surround yourself with?

Recognize the trade-offs. You can do almost anything you want with your life, but you can't do everything. Every decision to pursue one path will leave another untrodden. Don't fall into the youthful trap of thinking you can leave all doors open forever; a good life is forged by decisions and commitments.

Remember what you set out to do. Reflect on your values and goals regularly. Measure yourself against where you were yesterday or last year and not where others are in their journey today.

Turn down the volume. There's no use hiding from the world so that you won't be tempted to compare yourself. Instead, choose carefully the voices you allow to speak into your life and the people whose opinions you truly value. When it comes to everyone else, take their opinions lightly.

Ultimately, the optimal solution for maintaining an inner scorecard, while remaining a social being, is to prioritize your self-respect over the opinion of others. The applause of others is a sweet reward, but it fails as a guide to becoming the truest and best version of yourself.

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.

WISE HABITS

How to Tackle a Mountain of Tasks

A climb can be a challenging journey full of wonder, joy, and self-realization

LEO BABAUTA

I recently came back to my work after taking a full month off—I am a firm believer in taking time off and finding time for rest and replenishment.

After a month off, it turns out I have a pile of tasks, emails, and messages to go through.

It's daunting. It can be discouraging to face this overwhelming amount of things, and the tendency is to put it off. Find some distractions. Feel disempowered about it.

Long story short: I struggled a bit, but found a way to dive back in and feel incredible about it. I'm still working through the piles, but loving every moment. I feel alive with my work and what I'm creating each day.

I learned a lot in the past week about this kind of challenge—some of it was relearning things I've learned before, but some of it was new learnings. I'd like to share here for anyone who is facing a daunting, overwhelming, and discouraging mountain of tasks, messages, and emails. Let's dive in.

Why We Feel Daunted: It's an Impossible Task

We feel overwhelmed and discouraged because we look at the mountain of tasks and emails and think we have to do all of it. But we can't. There's no way to tackle a mountain in one go.

All of it gets grouped together in an impossible undertaking, but in truth, it's a series of undertakings. It isn't one thing, but it seems like it is. It's like looking at all the food we have left to eat in our lives, and thinking there's no way we can eat all of that. But in reality, we eat it one delicious bite at a time.

Separated, each task isn't that hard. We have to pick one thing off the pile and focus on that.

How to Start

You can't tackle everything at once. You just have to get started. What I've learned is that once you get started, and start having fun with it, you'll see some progress. This creates a snowball effect where you keep getting encouraged by your progress. So you just have to get the ball rolling.

Here's what worked for me:

- Start slowly. The first day back, I just dipped my toe in the water and tried to find a few things I could get done. I gave myself permission to not try to do everything that first day. If you aren't returning from vacation but are just facing a huge pile of things to do, give yourself permission to only do a few things so you can start making progress.
- Find small wins to start with. I looked for small tasks and messages I could reply to, in order to get some easy victories. These are encouraging and give you a sense of progress. So important!
- Start to triage. Start looking through the piles of tasks and emails, and see if there's anything that's more pressing. Pull those out and put them on a

separate list to focus on. You can get to the rest later.

- Get one thing done. That was my mantra—focus on getting one thing done. It could be small, medium, or large, but focus on one thing. I would get an easy thing done, then focus on another. And another. One at a time.

- Find more small wins. Once I started making progress, I really enjoyed finding the little things I could do to start making the pile smaller and to get more victories under my belt. So much fun!

- Turn it into a game. As you can see, I turned this mountain of tasks and messages into play by enjoying the progress. Enjoying each individual task. Putting love into every message, taking care of my life—it became like playing a game. I'm still playing it as I write this!

Don't worry about doing each of those ideas. You might find inspiration in one or two of the items above—give them a try.

How to Focus

It's one thing to get started, but how do you find focus so that you aren't thinking about the entire mountain of things to do?

I do three things.

First, I pick a handful of things to focus on today. Just three to five things. If it's more than five things, they better be small things, but I don't like having a long list because it's harder to focus. So I pick a short list. If I finish the short list, I allow myself to go do some more tasks.

Second, I pick one thing from the short list and I focus only on that. I put it into full-screen mode so there isn't any other thing to think about. I make it my whole universe.

What I've learned is that once you get started and start having fun with it, you'll see some progress.

Third, I think about why this thing in front of me is important to me. Why do I care about it? What makes me feel inspired by it, lit up by it? This helps me to fully pour myself into this thing.

How to Find Delight in Each Thing

Often, we relate to our tasks as things we "have to" do, as drudgery or chores or routine. No wonder we look at a mountain of tasks and feel overwhelmed and resistant.

What if we related to our tasks differently? Each email is a love note from a delightful person (yes, even spam!). Each task is a way to express ourselves, to express our love.

What if we brought play and wonder to every task?

If you can bring full appreciation to each moment of life, it becomes a moment of miracle. That's what we can bring to our tasks—a feeling of wonder, devotion, and joy.

It takes practice, but see if you can do that for your next task.

Change the Way We Look at the Mountain of Tasks

Coming back to work, I looked at my mountain of tasks and felt some dread. How hard! So much dull work to do.

But of course, that wasn't a helpful way to look at the mountain.

When I look at the mountains outside (you know, in the real world), I see incredible beauty and adventure. I feel a leap in my heart, a desire to explore, and a yearning for a journey.

What if the mountain of tasks and emails becomes this place of adventure, exploration, play, curiosity, learning, and joy?

That's how I choose to relate to my mountain. How about you?

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



Our mountain of tasks becomes manageable when we break it down into a series of smaller steps.



You may not have a team ready to help you tackle your load, but you do have the ability to divide and conquer your to-do list.

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150 minutes per week of moderate exercise are recommended by the Department of Health and Human Services.



DOTSHOCK/SHUTTERSTOCK

MADE TO MOVE

The Gains of Weekend Warriors

Extra exercise on the weekend gives the same result as a daily workout: study

AMY DENNEY

Skipping workouts Monday through Friday and working out only on weekends isn't just practical for those leading busy lives, it also works.

A new study of more than 350,000 adults comparing mortality rates in so-called weekend warriors to regularly active people found no significant differences. The study was published on July 5 in "JAMA Internal Medicine."

Previously, it's been unclear whether adults who exercise moderately for 150 minutes a week (or vigorously for 75 minutes a week) have similar benefits regardless of how they spread out their workout schedules.

It's great news for the clients of Tyler Todt, a certified American Council on Exercise (ACE) trainer, who are mostly busy men juggling professional jobs, families, and other responsibilities. Hitting the gym five times a week isn't always practical for some lifestyles, Todt said.

"I love that this study shows there's more than one way to do it," said Todt, who models family fitness among his large social media following with the help of his three young children, including two 1-year-olds. "You can find times that work for you and still hit your goals."

Specifically, the study explored whether one or two longer workouts compared favorably to three or more workouts for all-cause cardiovascular disease and cancer death. The statistical analyses were conducted this year after data were collected from 1997 through 2013.

The study concluded that "individuals

who engage in the recommended levels of physical activity may experience the same benefit whether the sessions are performed throughout the week or concentrated into fewer days."

Perhaps the results will motivate the 4 out of every 5 American adults who aren't meeting the Department of Health and Human Services' recommendation of 150 minutes of moderate exercise per week (or 75 minutes of vigorous activity, or a combination of the two).

The American Heart Association (AHA) advises that even a little activity can offset a sedentary lifestyle. It defines physical activity as anything that burns calories through movement, such as walking, climbing stairs, and stretching.

Moderate exercise is aerobic activity that raises the heart rate and makes breathing a bit more challenging. This includes brisk walking, bike riding under 10 miles per hour, dancing, water aerobics, gardening, and tennis doubles. You can still hold a conversation during a moderate workout.

Vigorous cardiovascular workouts include running, swimming laps, hiking uphill or

with a heavy backpack, heavy yardwork, biking faster than 10 mph, jumping rope, and tennis singles. The heart rate is higher, breathing is rapid, and sweating is common during intense exercise.

Knowing your target heart rate and monitoring it is the best way to ensure you're exercising safely and reaching your weekly goals. ACE has a calculator on its website, as well as more detailed descriptions of how it feels to exercise in various zones, and instructions for measuring your heart rate if you don't have an electronic monitor.

Besides living longer, decades of research have found that exercise contributes to a better quality of life.

Some of the outcomes of exercising, according to the AHA, include:

- Lower risk of heart disease, stroke, Type 2 diabetes, high blood pressure, dementia and Alzheimer's, several types of cancer, and some complications of pregnancy
- Better sleep, including improvements in insomnia and obstructive sleep apnea
- Improved cognition, including memory, attention, and processing speed

“If you can get a couple hours of movement every week-end, it counts. The best workout is the one you'll show up to consistently.”

Tyler Todt, certified American Council on Exercise trainer

- Less weight gain and obesity, and fewer related chronic health conditions
- Better bone health and balance, with a lower risk of injury from falls
- Fewer symptoms of depression and anxiety
- Better quality of life and sense of overall well-being.

The participants in the trial self-reported data over a decade and were classified by researchers as "weekend warriors" or "regularly active," according to their work-out patterns.

Todt said the study is a reminder that little things can add up in our favor.

"If you can get a couple hours of movement every weekend, it counts," he said. "The best workout is the one you'll show up to consistently."

It might also be helpful to ditch the perspective of working out as a "have to" on your task list, and shift your mindset to thinking of it as something you "get to" enjoy.

Besides doing activities you actually like, there are other ways to make it a lifestyle.

One tip might be fostering the right environment for you to exercise in—such as

moving outdoors if you enjoy nature, or creating a special space in your house that inspires you. It might mean paying more for a gym membership because of aesthetics, equipment, or offerings that you know will motivate you.

Consider, too, incorporating exercise with the people you love to spend time with. For instance, playing sports with your children or grandchildren, holding family jump-rope contests, or bringing stories and songs to life with movement. "The Wheels on the Bus" might bring more smiles, laughter, and lasting health benefits if it's acted out.

The National Institute on Aging has a great resource, "Fun Ways for Older Adults to Stay Physically Active," on its website with ideas that are a bit more outside the box. Finally, consider having a workout buddy or accountability partner, as that tends to lead to more lasting habits.

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.

MINDSET MATTERS

How to Stop Thinking the Worst Will Happen When You're Stressed

Here are 4 ways to put your imagination to better use than dreaming up future nightmares

PATRICIA RIDDELL

Imagine you have an interview for a new job tomorrow. Some people might think about what kind of questions they will be asked so that they can prepare, or imagine the interview going well. For others, the thought of an interview will cause them to toss and turn all night thinking of every worst-case scenario possible—no matter how outlandish these may be. If you're someone who has a tendency to do the latter, you are prone to catastrophizing.

Catastrophizing is a tendency to assume the worst will happen when imagining a future situation—even if you have evidence that this is not the most likely outcome. People who like to feel in control (and are therefore intolerant of uncertainty) are more likely to catastrophize. This has been linked to anxiety—suggesting that frequent catastrophizing may be a factor in developing certain mental health problems.

Catastrophizing comes from the belief that by imagining what might go wrong, we're better able to protect ourselves from harm—both physical and mental. However, this tendency is only helpful if you're able to correctly predict what will happen in a certain situation and how it will make you feel.

As we imagine future events, we experience an emotional reaction to the story we are creating, and we use this response to determine how we will feel in the future. But this way of predicting the future is often wrong since we're not able to imagine everything that might happen. This can lead us to create the wrong emotional response for future situations in our heads.

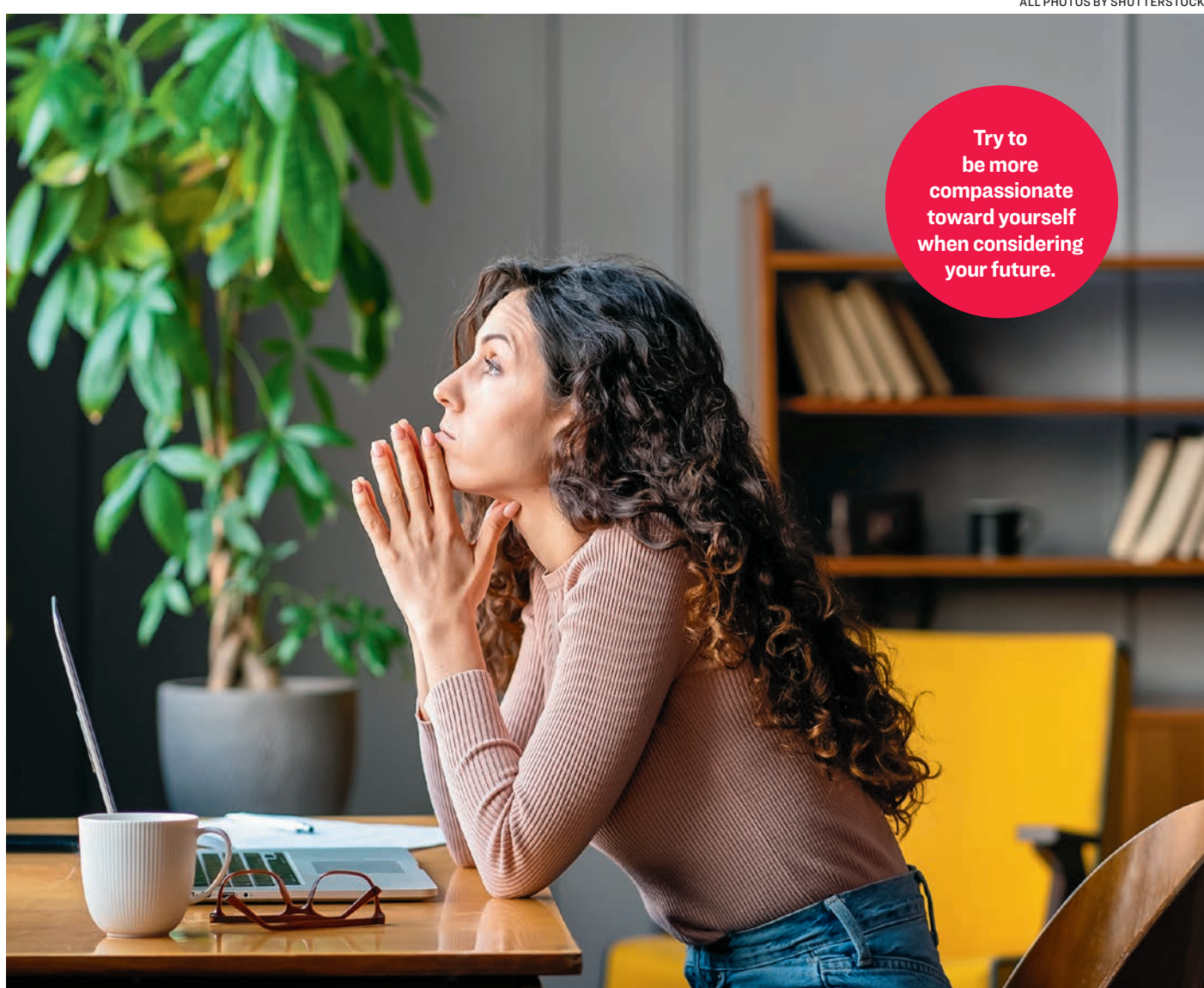
But our belief in what will happen in the future can have a big influence on our behavior. For example, people who are optimistic (or even realistic) about the future are more likely to be willing to try new things. They are also likely to notice what has gone well in new situations.

On the flip side, people who catastrophize about what might go wrong are less likely to try new things. And when they do try something new, they are more likely to notice what has gone wrong. This will be stored in their memory and will add to the reasons why they we shouldn't try new things in the future. As a result, catastrophizing can lead to undue stress and anxiety and may stop you from doing the things you might enjoy or learn from.

If you're someone who tends to catastrophize when stressed or anxious, there are a few things that you can do to help:

1. Make Decisions in the Morning

We often worry about the future at night. When we are asleep, activity in the rational part of our brain is reduced and activity in the more emotional part of our brain is increased. As a result, we tend to use our emotional brain to picture the future when we're awake at night. Lack of sleep can also make us more sensitive to things we see as threatening. This can lead us to focus more on what might go



ALL PHOTOS BY SHUTTERSTOCK



If you're imagining the worst, sit back, relax, and think of a better story.

If You're Prone to Catastrophizing:

1

Make decisions in the morning.

2

Teach your inner critic to be more compassionate.

3

Make up a better story.

4

Be kind to yourself.



Catastrophizing can lead to undue stress and anxiety and may stop you from doing the things you might enjoy or learn from.

wrong and make us more prone to catastrophizing.

It can be helpful to remind yourself that you aren't thinking rationally when you're lying awake worrying about something. It can also be useful to wait to make decisions until the morning, when your brain is rested.

2. Teach Your Inner Critic to Be More Compassionate

Catastrophizing can be driven by our inner critic, which may use harsh language that makes us emotional.

When this happens, try imagining your inner critic as if you were looking through someone else's eyes. What language do you use and would you use this language when talking about someone else in a similar situation? Is the language your inner critic uses helpful or justified? Often the answers to these questions will be no. Be conscious of the language your inner critic is using when you're worried or stressed. If it's overly harsh, try to switch to a kinder way of speaking to yourself.

3. Make Up a Better Story

Even if things have gone wrong in the past, this is unlikely to be the case in the future—despite what we might tell ourselves. If you have a tendency to catastrophize about future events, try to think instead about ways in which this event might go well, which may help you to feel less anxious.

Another strategy is to make up not just one, but a number of plausible stories about what might happen. This may help

to remind you that the stories you're telling yourself are just that—stories. Choosing to focus on the stories with a positive outcome might also help you to feel less worried or stressed.

4. Be Kind to Yourself

Try to be more compassionate toward yourself when considering your future. This is more difficult than you might imagine—even for people who are very compassionate and empathetic to others.

Compassion and empathy help us to interact well with others. As such, compassion and empathy may not seem like something to be used for yourself. But small things—such as asking what advice you might give a friend in your situation—can help you get in touch with your compassionate voice. Practicing this often may even help you to see solutions where you might otherwise have only focused on the problem.

Planning for ways in which things might go wrong in the future does serve a purpose—and that is to keep us safe. But if you often find that you catastrophize by thinking of all the worst case scenarios—especially to the detriment of your own mental health—it can be important to remind yourself that the things you're worrying about may never happen, and, if they do, they will probably turn out much better than you think.

Patricia Riddell is a professor of applied neuroscience at the University of Reading in the United Kingdom. This article was originally published on *The Conversation*.

MARIA EVSEYEVA/SHUTTERSTOCK



There are several reasons rainwater is more suitable for plants than tap water, but the most important is chemistry.

Mercury News

Rain barrels offer a fantastic way to collect clean water for the garden or survival.

How to Secure Your Water Supply for Emergencies

As we face runaway food prices and shortages of both food and energy, I'm advising everyone to stock up now

JOSEPH MERCOLA

Amid food inflation and shortages perhaps even more important than stocking up on nonperishable foods is to make sure you have a supply of potable water. Many are so used to having running tap water on demand that they forget that source can vanish overnight.

City water is typically pumped into a tall water tower. It's then distributed from the tower into your house by gravity. However, during a power outage, no new water can be pumped into the tower if the municipality runs out of fuel to run its backup generators.

That means the only water available for the area is what's in the tower. If the power failure continues for an extended period of time, the tank will be emptied and taps will run dry.

Apartment dwellers are even more vulnerable to power outages, as the water may be shut off immediately upon a power outage. This is because the water is pumped up into the apartments from the basement, and without electricity, that pump won't work unless there's a backup generator.

Continued on Page 12

The Critical Differences between A1 and A2 Milk

If dairy is a problem for you, you may be able to change to healthier but less available A2 milk

SINA MCCULLOUGH

Dairy is a common trigger for autoimmune and chronic diseases. Consequently, sometimes people reluctantly remove dairy from their diet in an attempt to heal themselves. I went dairy-free for roughly five years in order to reverse rheumatoid arthritis. I believe removing all dairy from my diet was a critical step in my healing journey. However, if you don't want to give up your cheese, there might be another option.

While milk contains a protein called casein, which can trigger autoimmune diseases such as multiple sclerosis, not all casein is the same. There are two known forms of casein: A1 and A2. One form of casein can trigger disease, while the other form may provide health benefits. The form of casein you consume depends on the milk you drink—either A1 or A2 milk.

What Is A2 Milk

Most milking cows in the United States produce a type of milk called A1 milk. They're



A2 milk is typically obtained from older breeds of cows, such as Jersey cows.

usually Holstein cows, which originated in Northern Europe and were brought to the United States predominantly for their high milk production.

A1 milk generally contains both A1 and A2 casein.

A1 casein has been closely associated with the development of autoimmune and chronic diseases. For example, a study published in 2017 in *Nutrition & Diabetes* concluded that A1 milk "is a primary causal trigger of type 1 diabetes." According to the researchers, removing A1 milk from the diet "may profoundly affect type 1 diabetes incidence."

Likewise, consumption of A1 casein was reported to increase mortality from heart disease, according to a study published in *Medical Hypotheses* in 2001.

A1 casein can also be problematic if you have gluten sensitivity or celiac disease because A1 casein looks structurally similar to gluten.

Continued on Page 11



One form of casein can trigger disease, while the other form may provide health benefits.

A Book That Has Inspired The World



"I have indeed experienced all the miracles. No matter what your experience or what background you have or what country you are born in, you will benefit from Falun Dafa."

Martin Rubenis
OLYMPIC ATHLETE

Zhuangzi is the main text of Falun Gong (also called Falun Dafa). The book expounds upon profound principles of Truthfulness, Compassion and Tolerance. It addresses the long-forgotten term "cultivation," the origins of illnesses, karma, the role of moral character on a path to spiritual perfection, and more.

The book was a national bestseller in China in the 1990s, and has been translated into over 40 languages. Find out why it has captured the hearts and minds of tens of millions of people in over 100 countries worldwide!

"What made Falun Gong stand out from other qigong exercises and meditation practices was a moral system—compassion, truthfulness, and forbearance—unmistakably Buddhist in origin."

Arthur Waldron
LAUDER PROFESSOR, UNIVERSITY OF PENNSYLVANIA

"Falun Gong has taught me how to be considerate of others and how to improve my relationships by handling conflicts constructively. [...] It has given me incredible relaxation, mental clarity, and freedom from stress."

Shiyu Zhou
PH.D., USA

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THE EPOCH TIMES



While some small boutique fish farms offer a safe and nutritious food, many industrial-sized fish farms sell drugged up, diseased, over-stressed fish.

The 5 Best Reasons to Never Ever Eat Factory-Farmed Fish

The fish-farming business is flourishing—and so are the industrial-sized problems that come with it

FRANK LIPMAN

While it may seem like a modern invention, “aquaculture,” has been around for ages—man has been “farming” fish in net enclosures, ponds, vats, urns, and even woven baskets for thousands of years.

More recently, though, especially within the last few decades, worldwide demand has exploded, and farming fish has grown just as rapidly, evolving into a multibillion-dollar industry.

This industry’s mission is to produce larger, cheaper fish evermore quickly to meet the insatiable demand for what once seemed a limitless and inexpensive source of protein and good fat. The extraordinary growth of the fish farm business has brought with it a number of industrial farming problems that concern me enough to advise all my patients to avoid factory-farmed fish. While there are some fish farmers producing eco-friendly and healthy fish, these producers are the exception, not the rule, so unless you’re able to purchase fish from those types of purveyors (usually smaller-scale, artisanal, or boutique-style fish farms), here are five simple reasons to say no to farmed fish.

1 There’s no such thing as a free-range, farmed fish. In fact, it’s quite the opposite, with fish farm enclosures packing the creatures in, well, like sardines, leaving little room for the fish to swim freely or to engage in their normal behavioral patterns.

The result? Stressed fish, like us, tend to get sick more easily when their defenses are down. With their immune systems compromised, the fish become more prone to illness, parasitic infections, and diseases, which can then spread quickly through their over-populated aquatic quarters.

2 Farmed fish are like really into drugs, dude. That’s because the sickened fish have to be made well again using drugs. To do this, farmed fish are fed antibiotics, antifungals, and/or pesticides—which means so are you, with every forkful. Hardly an appetizing thought.

As if that weren’t enough, farmed fish are often injected with booster shots of sex hormones. Turns out, captive fish populations tend to produce fewer offspring, so fish farms often enhance Mother Nature with fertility treatments (i.e., hormone shots, special feed, etc.) to stimulate offspring production and pump up the yield. With this in mind the question becomes, what are those fish hormones doing to our bodies? And is it worth the risk?

3 Their diet is simply revolting. As is the case with industrially farmed, land-based livestock, top quality, five-star feed isn’t on the menu. So what does the average farmed fish eat? Mostly fishmeal. Sound innocuous enough, that’s until you discover that fishmeal is made up mostly of smaller fish mixed

with (presumably genetically modified) soybeans, grains, and corn.

Possible GMO issues aside, the larger issue is that in order to make all that fishmeal, a tremendous amount of smaller fish are fished out of the sea—anywhere from three to six pounds of small fish are needed to produce just one pound of farmed fish. In addition to being an enormously wasteful process, it also leaves less food available for wild fish to feed on, which contributes to their population declines.

Oh, and what else do farmed fish snack on? The carcasses of deceased neighbors floating in or lying at the bottom of their tanks. It isn’t a pretty picture.

4 If you’re looking for nutrition, farmed fish falls short—even if you could overlook the drugs, hormone shots, and less-than-optimal diet.

Compared to wild fish, farmed versions can have as much as 20 percent less protein, twice as much inflammation-boosting omega 6 fatty acids, less usable omega 3s, and fewer nutrients overall. In short, wild is better.

5 Industrial fish farms pollute their surroundings. Numerous studies report that water quality suffers in areas where fish farms operate, creating something akin to the aquatic version of agricultural runoff.

Decaying fishmeal, diseased and dying fish, and their waste products combine

to create conditions that enable bacteria to flourish, polluting not only the fish farm waters, but seeping into and damaging neighboring wild fish habitats, marshes, and wetlands, either by accident, carelessness, or poor fish-farming methods. All this damage and pollution add a high ecological price for farmed fish-on-demand.

So, with all this in mind, what’s the alternative to farmed fish? The answer is wild fish, though the wild stuff isn’t without its own set of issues, including over-fishing, dwindling populations, and mercury concerns.

To help you make the best possible choices, when buying fish at the market or dining out, ask questions and find out where your fish is sourced, and if it’s fished sustainably. Before you buy, check your choices with the Blue Ocean Institute’s helpful “Guide to Ocean Friendly Seafood” (available on its website) or download printable lists of eco-friendly seafood recommendations from SeafoodWatch.org.

Dr. Frank Lipman is the founder and director of the Eleven Eleven Wellness Center in New York City. This article was originally published on NaturallySavvy.com



Fish grown in crowded tanks are more prone to stress and disease—and more likely to spread that disease.

The Critical Differences Between A1 and A2 Milk

If dairy is a problem for you, you may be able to change to healthier but less available A2 milk

Continued from Page 9

Through a process called molecular mimicry, the body gets confused and can’t tell the difference between A1 casein and gluten.

When that occurs, the body identifies A1 casein as a foreign invader, like it would gluten, which can initiate an inflammatory immune response in the body. Consequently, if you have gluten sensitivity or celiac disease and you consume A1 casein, it can trigger disease as though you had consumed gluten.

What Is A2 Milk?

A2 milk is typically obtained from older breeds of cows, such as Jersey cows. Contrary to the name, not all A2 milk contains only A2 casein. If the label claims the milk is “A2,” it can still contain both A1 and A2 casein. The label must claim 100 percent A2, or A2/A2, meaning the cow produced milk that only contained A2 casein.

A2 casein contains several benefits when compared with A1 casein. Unlike A1 casein, A2 casein doesn’t look structurally similar enough to gluten to elicit an immune response. While it’s theoretically possible for A2 casein to trigger an immune response through molecular mimicry, the chance is substantially lower compared with A1 casein. Therefore, people with gluten sensitivity might be able to consume A2 dairy.

Additionally, A2 milk doesn’t contain the same morphine-like compounds found in A1 milk. A1 casein contains a sub-protein known as casomorphin, which is released when A1 casein is digested by the body.

Just as the name sounds, casomorphin looks and acts like morphine by suppressing pain. Therefore, it can create a “feel good” response when you consume A1 dairy, which keeps you addicted—even if the milk is leading to inflammation in your body.

Furthermore, if A1 casein triggers inflammation that leads to pain, but the pain is masked by casomorphin, you may not know the offending food is dairy.

My husband is a perfect example of this phenomenon. He regularly consumed a nightly glass of A1 milk without any immediate or noticeable symptoms of an allergy or sensitivity. Over time, he developed lupus, and I suggested he remove dairy from his diet.

He was adamantly opposed to the idea because he didn’t have any obvious symptoms and he felt “good” after drinking his nightly glass of milk. Eventually, he reluctantly gave up dairy, along with other foods that were triggering inflammation, and the lupus reversed.

Instead of giving up all dairy, could my husband have simply switched from A1 to A2 milk and still healed? Possibly.

Can You Go A1 Dairy-Free and Still Eat Your Cheese?

A study published in 2021 in the International Journal of Environmental Research and Public Health reported that when A2 casein is digested, it forms completely different casomorphin compounds with different functions from the compounds formed when A1 casein is digested.

For example, digestion of A1 casein forms compounds that can contribute to disease and aging, while digestion of A2 casein forms beneficial compounds that contain antihypertensive and antioxidant properties.

According to a study published in 2016 in Nutrition Journal, when people consumed milk containing A1 casein, a specific type of casomorphin (beta-casomorphin-7) was produced, which lowered glutathione levels in the human gastrointestinal tract and in nerve cells.

Glutathione is a powerful antioxidant that plays a major role in numerous processes in the body such as gene expression, immune response, and defense against oxidative stress. Consequently, low levels of glutathione contribute to accelerated aging as well as the development and progression of conditions such as cancer, diabetes, heart attack, Alzheimer’s, and Parkinson’s disease.

In contrast, when people consumed milk containing only A2 casein, production of the antioxidant glutathione was increased. The researchers concluded “milk containing only A2 beta-casein and not A1 beta-casein has the potential to promote the production of the antioxi-

dant glutathione in humans.”

Another benefit of A2 dairy is the lower incidence of reported gastrointestinal issues compared with consumption of A1 dairy. For example, according to a study published in Advances in Nutrition, consumption of A1 dairy is associated with delayed transit time through the gastrointestinal tract, looser stools, and digestive discomfort that is correlated with inflammatory markers. In contrast, A2 dairy is reportedly easier to digest and, therefore, may reduce the incidence of gastrointestinal issues.

Interestingly, switching from A1 to A2 milk resulted in reduced gastrointestinal symptoms in preschoolers with a milk intolerance, which corresponded with “significant improvements” in cognitive ability, according to a study published in the Journal of Pediatric Gastroenterology and Nutrition.

When preschoolers consumed A1 milk, their levels of beta-casomorphin-7 increased along with an increase in inflammatory markers in the gastrointestinal tract. In contrast, when A2 milk was consumed, glutathione levels significantly increased, and improvements were measured in gastrointestinal function, such as higher fecal concentrations of short-chain fatty acids.

These results indicate improved colonic health, according to the researchers, because short-chain fatty acids “are fermentation products of gut microbiota, with reported anti-inflammatory properties, able to amplify colonic cell function.”

The researchers concluded that A1 milk induces “an inflammatory state that exacerbates symptoms associated with LI [lactose intolerance]. This exacerbation can be reduced by removal of A1 beta-casein (via replacement with A2 beta-casein), with subsequent improvement in gastrointestinal symptoms and aspects of cognitive function.”

And, yes, you can get A2 beta-casein cheese. In fact, it’s quite the trend.

The Bottom Line

A1 and A2 milk aren’t created equal. A2 milk is chemically different from A1 milk and, consequently, has different biological effects on the body.

Therefore, if casein is the only problematic component of dairy for you, A2 dairy might be a viable option if you don’t want to go 100 percent dairy-free. However, if you’ve had issues with dairy in the past or currently suspect you have issues, check with a health care practitioner before adding dairy to your diet.

Fortunately, as awareness spreads, A2 milk is becoming easier to procure from



A1 casein can also be problematic if you have gluten sensitivity or celiac disease because A1 casein looks structurally similar to gluten.

grocery stores and local farms. A2 milk can be obtained from goats and sheep, as well as cows with the A2/A2 genotype, such as Jersey cows.

Dr. Sina McCullough is the creator of the online program, “GO WILD: How I Reverse Chronic & Autoimmune Disease,” and author of “Hands Off My Food,” and “Beyond Labels.” She earned a Ph.D. in Nutrition from UC Davis. She is a Master Herbalist, Gluten Free Society Certified Practitioner and homeschool mom of three.

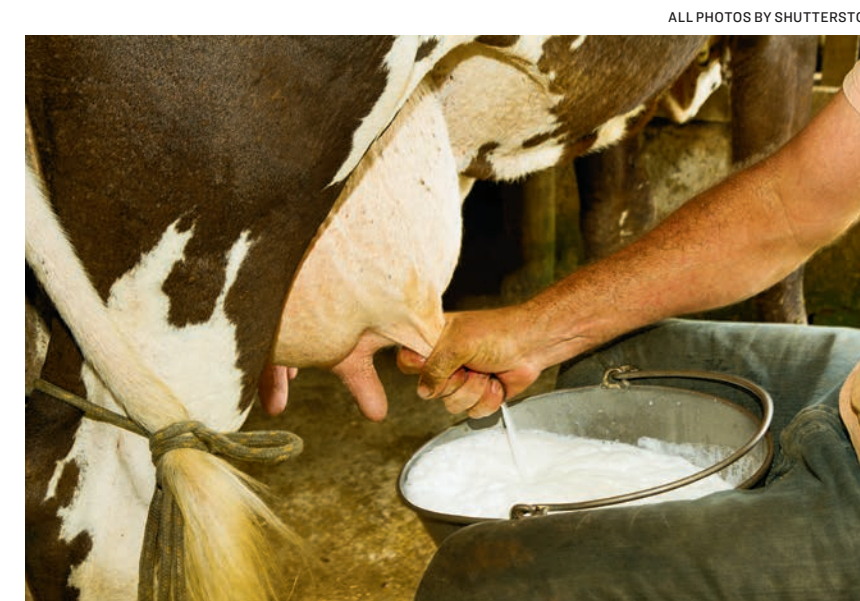
A1 milk can trigger inflammation.



My Personal Dairy Guidelines

Even though I’m healthy and disease-free, I still rarely consume dairy. However, if I do, I follow these guidelines:

1. The cow must be 100 percent A2, or A2/A2, meaning it only produces milk that contains A2 casein; it doesn’t produce A1 casein.
2. The animal must be 100 percent grass-fed, not grain-fed or grain-finished. A study published in 1987 concluded that, in humans, gluten proteins pass from the mother’s diet into her breastmilk. Therefore, while this phenomenon hasn’t been studied in cows, it’s possible that gluten may also pass into the milk of cows. If that occurs, it could elicit an immune response in the body. Consequently, I only consume milk from 100 percent grass-fed cows since I have gluten sensitivity.
3. The animal must be raised using organic or regenerative practices, which means the animal can’t be fed any genetically modified organisms or pasture that has been sprayed with pesticides or herbicides. In addition, no hormones can be administered, and most antibiotics must be avoided.
4. I only consume raw, unpasteurized dairy from local farmers I trust. My family no longer eats pasteurized dairy products because the “good” microbes (also known as probiotics) and other beneficial compounds, such as cofactors and digestive enzymes that help your body digest the milk and absorb nutrients, are largely destroyed during pasteurization. However, you need to make sure the farm is trustworthy. Visit the farm, ask questions, and watch the milking and storing process for yourself.



If you have the opportunity, it is a great idea to get A2 casein milk directly from a local farmer.



Healthier milk comes from healthier cows. It may cost more, but it’s an investment in your health.



How to Secure Your Water Supply for Emergencies

As we face runaway food prices and shortages of both food and energy, I'm advising everyone to stock up now

How are you going to provide safe drinking water for yourself and your family if the worst-case scenario becomes reality?

Continued from Page 9

Even then, the water will only flow for as long as the generator has fuel. People with well water are in the same situation. Most well pumps are powered by electricity, and when there's a power outage, you'll need a generator. If you have a well, it's imperative that you not only have a backup generator but a secondary pump or even two in case your primary pump fails.

If you live in a hurricane-prone area, you're probably used to the annual ritual of stocking up on bottled water. However, you can only store so many bottles, and if deliveries to your local grocery store are interrupted for a period of time—which at this point is a very real possibility—you'll eventually run out.

So with all those limitations and the prospect of rising energy costs, rolling blackouts, or perhaps even longer-term power outages, how can you make sure you'll have enough water to drink, cook, maintain hygiene, and water your garden with?

Rain Barrel Solution for Homes

The solution I'll focus on in this article involves installing one or more rain barrels. This won't work if you live in an

apartment, but if you have a home, it's an excellent long-term solution. BlueBarrel founder Jesse Savou explains how to set up a gravity-fed drip irrigation system for your garden using several rain barrels in a YouTube video.

The BlueBarrel rainwater catchment system includes a series of rain barrels set on top of a couple of cinder blocks to achieve a three-foot elevation. The barrels are connected with PVC pipe, and the barrel on one end is connected to a drip irrigation hose with a timer. The pipe is equipped with a fine-mesh filter to prevent debris from clogging the emitters.

The timer Savou uses is solar operated, so no electricity is required. It will also work with AA batteries if you don't have a lot of sunlight. The two types of driplines they sell with their kits are both nonpressurized and work by gravity alone.

"You don't want to use regular drip equipment or compensator lines," Savou said, "because you won't get good output."

If you don't have a garden—and despite looming food shortages don't want to start one—this water can save you if you lose your tap water. A system like this can provide a lot of peace of mind, as the water will be replenished indefinitely without

Diarrhea, vomiting, and dehydration caused by contaminated water could be a death knell in an already hazardous situation.

you having to do any work.

The only thing that will threaten your water supply is a persistent drought. That said, you do have to take precautions to keep the water in your barrels clean, which I'll review shortly.

This isn't the system I use. Since I have a full acre of land to grow food on I need loads more water, so I have a 5,000-gallon cistern that collects rainwater from the gutters on my roof. This serves to augment my irrigation system but is also a large emergency source of water.

Why Irrigate With Rain Water?

While we're on the topic of gardening, there are good reasons to install a gravity-fed drip irrigation system, even if you're not concerned about having a backup water supply, as rainwater benefits your plants in ways that tap water can't. As explained by Mercury News:

"You could deliver 14 inches of water ... through sprinklers or hoses or drip emitters and your plants would not look as good or be as healthy as when the same amount of water, in the form of rain, is heaven-sent.

"There are several reasons rainwater is

more suitable for plants than tap water, but the most important is chemistry. In tap water, chlorine is a necessary disinfectant and fluoride is added. ... Nearly all plants, however, are susceptible to chlorine toxicity, usually expressed in burnt leaf margins.

"Pines, yuccas, and fruit trees, in particular, are subject to fluoride toxicity as well, with symptoms ranging from burnt, discolored, or spotted leaves to stressed fruit that may become diseased."

Rainwater also has the following benefits over tap water:

- It contains far lower concentrations of minerals, such as calcium, magnesium, and sodium. Calcium and magnesium can leave white sediment deposits on plants, and sodium (used in water softeners) is toxic to plant tissue. Sodium also damages soil structure by dispersing beneficial aggregates, thereby causing the soil surface to crack.
- Rainwater pulls down elements of nitrogen (nitrate and ammonium) from the air, which are taken up by plants' roots and leaves. Air is 78 percent nitrogen, and nitrogen makes the plants greener. This is why a good rain makes greener pop with fresh color.
- Rainwater also contains higher concentrations of oxygen than tap water, which prevents root rot.
- It also brings down carbon dioxide, which is beneficial for plants. Carbon dioxide is what gives rainwater an acidic pH. In the soil, this acidic water releases important plant nutrients, such as zinc, manganese, copper, and iron, making it more available to your plants.
- Rainwater is distributed uniformly

across the garden, so the entire root zone is watered. Rain also helps flush salts that have been deposited by tap water away from the roots. These salts impede plant growth, and once flushed further down below, the root system will result in pronounced growth.

How to Keep the Water Clean

As mentioned, you do want to make sure the water in your barrels is as clean as possible. Basics include:

- Keeping trees away from the roof to prevent leaves and debris from collecting in your gutters. A leaf guard on your gutters would be helpful
- A metal roof is preferable if you have the option; shingles will require better filtering, as they can add petrochemicals from the roofing material into the water
- Always install a preliminary filter, such as a leaf diverter, plus a screen on the inlet going into the barrel
- Treat the water with bleach once a month. This will help prevent algae growth. All you need is a quarter teaspoon per gallon of water, or two to four tablespoons for a 55-gallon barrel. Beneficial microbes can also be used in lieu of bleach. One such product is Nutri-Life BAM
- Test the pH of your water once a month using a standard pH test strip. If the water is neutral or alkaline (aka "hard" water), add baking soda to bring back its acidity. For a 55-gallon barrel, you typically only need a couple of tablespoons to correct the pH balance. Vinegar is another option for lowering the pH

If the inside of the barrel gets slimy or visible algae is growing in it; if you notice waterborne insects, such as mosquitoes, breeding in it; or if the water smells bad, you'll need to flush and scrub the barrel.

Ideally, empty and scrub each barrel once per year before the heaviest rain season. Under ideal conditions, you may only need to scrub them every other year. For detailed instructions on how to clean the barrel, see Homestead in Hawaii's essential guide on keeping your rain barrels clean.

Are You Using a Toxic Hose?

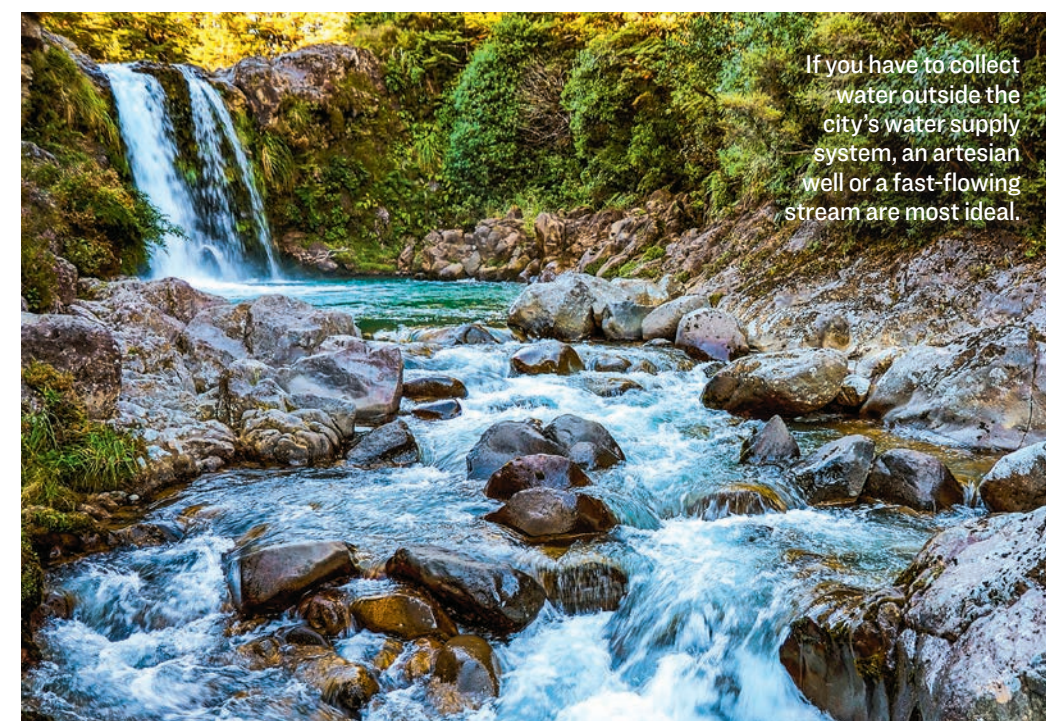
When you're at it, consider upgrading your garden hose to something that isn't chockful of toxic chemicals that will end up in your homegrown food every time you water.

Lead, bromine, antimony, phthalates, BPA, and flame retardant chemicals were all common culprits found in garden hoses during a 2016 test, and many of those chemicals were found in unsafe amounts in the water run through the hose.

As just one example, the U.S. Environmental Protection Agency's action level for lead in drinking water is 15 parts per billion (ppb), and lead-containing hoses resulted in the water having lead levels between 13 and 20 ppb. As noted by Gillian Miller, a staff scientist at the Ecology Center:

"Even if you actively avoid putting harmful chemicals into your yard or garden in the form of pesticides, you could still be adding hazardous chemicals into your soil by watering with one of these hoses. The good news is that none of these chemicals are necessary in garden hoses, and a number of safe hoses are available."

The safest hoses out of the ones tested were Big Boss AquaStream Ultra Light, Pocket Hose Dura-Rib II, Room Essentials Coil Hose with Multi Pattern Nozzle, and Water Right Professional Coil Garden Hose. For general guidance, read the label and look for a hose labeled "Drinking Water Safe" and "Lead-Free." Avoid hoses that have a Cali-



If you have to collect water outside the city's water supply system, an artesian well or a fast-flowing stream are most ideal.

ifornia Prop. 65 warning, as that means they likely contain cancer-causing chemicals.

Other ways to minimize chemical exposures include not letting the hose bake in the sun and letting the water run for at least five seconds or longer for long hoses, before watering your plants, to flush out chemicals that may have leached into the stagnant water. I recommend not drinking out of your garden hose, but if you're setting up a water collection system for drinking that requires the use of a hose, make sure it's nontoxic.

Water Purification Strategies

If you maintain a clean rain barrel setup and treat the water as recommended to kill off any pathogens, the rainwater will probably be safe to drink. I would still recommend putting it through additional filtration, however, just to be safe. Diarrhea, vomiting, and dehydration caused by contaminated water could be a death knell in an already hazardous situation.

Filtration systems such as the Berkey system that can filter out pathogens would be ideal. Also, be sure to stock up on extra filters. These kinds of filtration systems can also be used to filter other, far more questionable water sources, such as water collected from a lake or stream.

Even a small survival water filtration system, such as the LifeStraw, is better than nothing and will allow you to filter the water you're about to drink, no matter where you are. If you don't have a filtration system capable of filtering out bacteria, viruses, and protozoa, you'll need to filter out any debris first, then disinfect it using other means. Options include:

Boiling

- It won't remove debris, chemical contaminants, or other impurities, but it will kill bacteria, viruses, and protozoa that could make you acutely sick.
- To disinfect by boiling, start with water that has been run through some kind of filter. In a pinch, you could run cloudy water through a clean cloth or coffee filter. Bring the water to a rolling boil for at least 60 seconds. At altitudes above 5,000 feet (1,000 meters) water boils at a lower temperature, so you need to boil it for 3 minutes. A solar kettle can be a valuable backup system that will allow you to boil water during a power outage.
- Let the water cool and store it in a clean, closed container. To improve the taste, you can add a small pinch of salt per quart or liter of water. Other strategies that can help improve the taste of boiled water are to pour the water back and forth several times between two clean containers or stir it vigorously with a large spoon.

Liquid Bleach

• After filtration, add eight drops of 6 percent bleach per gallon of water, or six drops of 8.25 percent bleach per gallon. If the water is cloudy or miscolored, use double the amount.

• Stir and let it stand for 30 minutes before using. The water should have a very mild bleach odor. If it doesn't, repeat using the same dosage and let stand for 15 minutes. If the chlorine taste is too strong, pour the water between two clean pitchers several times or let it stand for a few hours before using.

• Only use regular, unscented chlorine bleach that's been stored at room temperature for less than one year. You'll need a medicine dropper to measure out the drops. Don't use bleach products that are scented, "color safe" or have added cleaners.

Iodine

• First aid iodine solution is another option if you can't boil the water and don't have bleach. Add five drops of 2 percent iodine tincture to each quart or liter of water. If the water is cloudy, add 10 drops. Stir and let it stand for 30 minutes or more before using.

Water Disinfection Tablets

• You can also purchase ready-made water disinfection tablets. For those, follow the instructions on the product label.

Conclusion

Hopefully, reality is starting to set in, and you've already begun considering your options. How are you going to provide safe drinking water for yourself and your family if the worst-case scenario becomes reality and there's no tap water and no bottled water being delivered to the store?

If you're not collecting rainwater and have no freshwater source on your property, be it a well, lake, or stream, you would be wise to plot out where your nearest water source is.

If you live in the United States, findaspring.com can help you locate freshwater springs, most of which are relatively pristine, that allow you to collect water free of charge or for a small fee. As long as you have water purification and disinfection supplies on hand, you'll be able to treat whatever water you're able to get your hands on.

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

Emergency Water Filtration Systems:

Here are a few simple, easy-to-implement ways to ensure a healthy and clean source of water when the tap water runs out.



Sawyer water filters are a versatile and inexpensive filtration system that can purify water of bacteria, chemicals, and other harmful particles, making most any water drinkable.



In a pinch, Brita water jugs can filter out impurities in water, offering a source of water in an emergency.



Many outdoor and sporting goods stores carry water bottles with water filters attached.

C. Difficile May Cause Colorectal Cancer

This problematic bacteria is now implicated in the uptick of colon tumors

AMY MONE

Clostridioides difficile, or C. diff, a bacterial species well known for causing serious diarrheal infections, may also drive colorectal cancer, research in mice has found.

The findings appear in the journal *Cancer Discovery*, and may expose another troublesome role for this microbe, which causes approximately 500,000 infections a year in the United States—many of which prove incredibly difficult to clear.

"The uptick of individuals under age 50 being diagnosed with colorectal cancer in recent years has been shocking. We found that this bacterium appears to be

a very unexpected contributor to colon malignancy, the process by which normal cells become cancer," said Cynthia Sears, professor of cancer immunotherapy and professor of medicine at the Johns Hopkins University School of Medicine.

Several years ago, researchers in Sears's laboratory discovered that more than half of patients with colorectal cancer had bacterial biofilms—dense collections of bacteria on the colon surface—whereas 10 to 15 percent of healthy patients without tumors displayed biofilms.

However, when the researchers infected mice with biofilm samples derived from individual people with colorectal cancer, one sample caught their attention because it markedly increased colorectal tumors in the mice. Whereas in most controls, less than 5 percent develop tumors, this slurry induced tumors in 85 percent of mice.

In additional work, the team identified a patient sample without a biofilm that simi-

Additional experiments at Vanderbilt University showed that C. difficile brought about a range of changes within colon cells that made them vulnerable to cancer.

larly increased colorectal tumors in the mice. Although several bacterial species have been linked with colorectal cancer—including enterotoxigenic *Bacteroides fragilis*, *Fusobacterium nucleatum*, and a specific strain of *Escherichia coli*—these microbes were either absent in the tumors of these two patients (*B. fragilis* and *E. coli*) or didn't successfully colonize the mice (*F. nucleatum*), suggesting that other bacteria were responsible for promoting the colorectal cancer cascade.

To determine which bacteria may be causing tumors in the mice, Sears and colleagues performed additional experiments to see if a single bacterial species or a community of bacteria were promoting tumor formation in the mice. They noted that toxigenic C. difficile, the type of C. difficile that causes diarrhea, was absent in the samples that didn't cause tumors but was present in the samples that caused tumors in mice. When the researchers added this bacterium to the samples that originally didn't cause tumors, it induced colon tumors in the mice. Further testing

showed that C. difficile alone was sufficient to prompt tumor formation in the animal models.

Additional experiments at Vanderbilt University showed that C. difficile brought about a range of changes within colon cells that made them vulnerable to cancer.

Cells exposed to this bacterium turned on genes that drive cancer and turned off genes that protect against cancer. These cells produced reactive oxygen species, unstable molecules that can damage DNA, and they also prompted immune activity associated with harmful inflammation.

A toxin produced by this bacterium—known as TcdB—appears to cause most of this activity, the researchers say. When they used genetically engineered C. difficile strains that contained inactivated toxin genes and/or released a related C. difficile toxin called TcdA, the mice in-

fectured with the TcdB-inactivated microbes produced far fewer tumors than those with TcdB-active ones, while TcdA made by C. difficile wasn't sufficient to cause tumors.

To date, there is limited epidemiological data linking C. difficile with colorectal cancer in humans, but if further research shows that a connection exists, it could lead to screening for latent C. difficile infection or previous infection as a risk factor for cancer, said co-author Julia Drewes, assistant professor of medicine at Johns Hopkins.

Since lengthy exposures to TcdB may increase colorectal cancer risk, an important prevention effort could include heightened efforts to eradicate this pathogen quickly

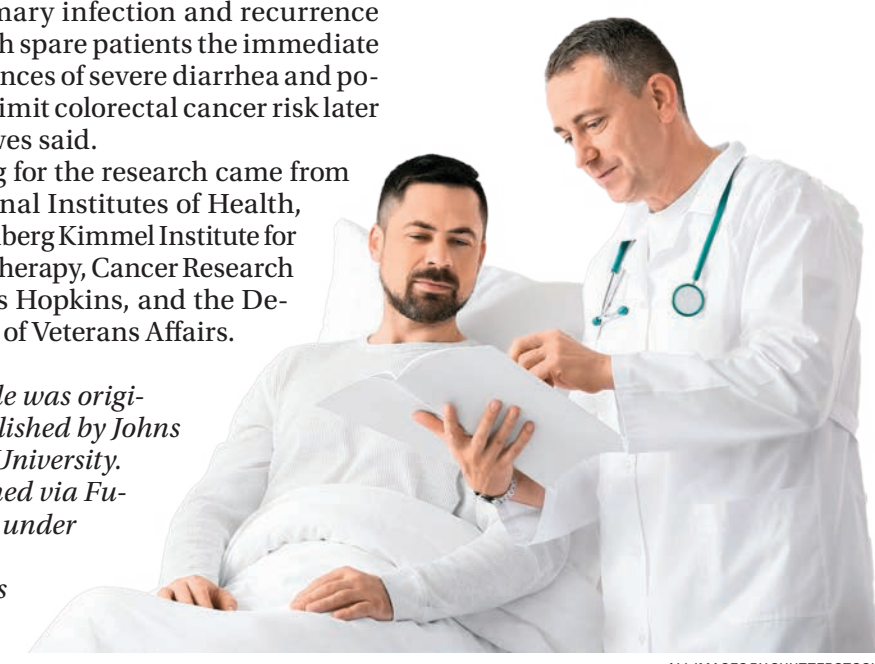
and effectively, which recurs—often repeatedly—in 15 to 30 percent of infected patients after initial treatment, including in pediatric patients.

"While this link between C. difficile and colorectal cancer needs to be confirmed in prospective, longitudinal cohorts, developing better strategies and therapeutics to reduce the risk of C. difficile primary infection and recurrence could both spare patients the immediate consequences of severe diarrhea and potentially limit colorectal cancer risk later on," Drewes said.

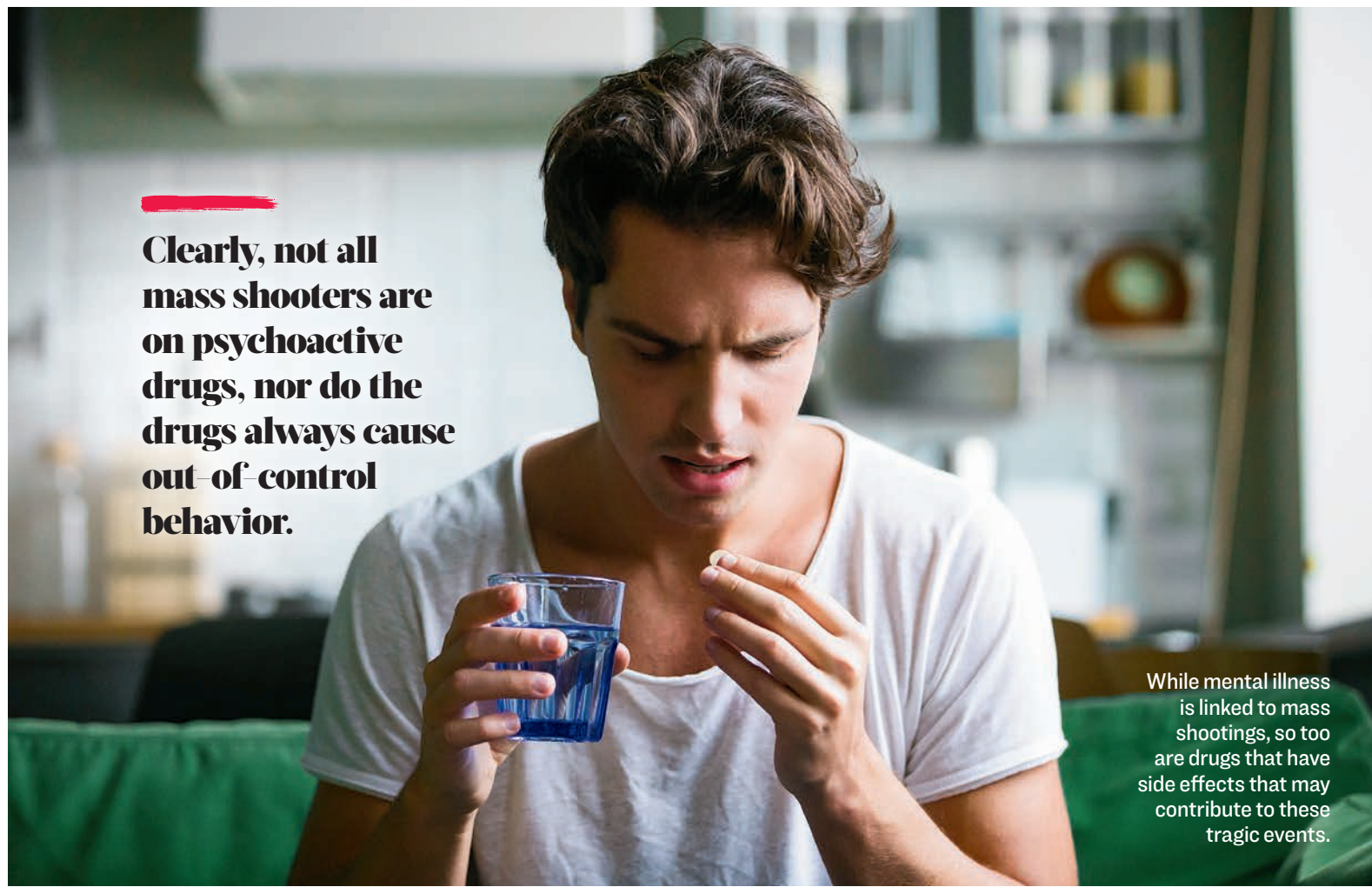
Funding for the research came from the National Institutes of Health, the Bloomberg Kimmel Institute for Immunotherapy, Cancer Research UK, Johns Hopkins, and the Department of Veterans Affairs.

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Effective treatment of a C. difficile primary infection may reduce colorectal cancer risk later on.



ALL IMAGES BY SHUTTERSTOCK



While mental illness is linked to mass shootings, so too are drugs that have side effects that may contribute to these tragic events.

Clearly, not all mass shooters are on psychoactive drugs, nor do the drugs always cause out-of-control behavior.

Psychoactive Drugs Often Linked to Mass Shootings

The effects of psychoactive drugs should be part of mass shooting discussion

MARTHA ROSENBERG

We don't know if Robert Crimo III, the confessed attacker in the mass shooting at a Fourth of July parade in a Chicago suburb, was on psychoactive drugs when he acted but we do know that police were called to his home in 2019 for suicidal behavior and that he was remanded to the psychiatric system.

Mass shooters in the United States tend to be young, obsessive, male loners and many have been prescribed psychoactive drugs. For example, Eric Harris, one of the two shooters at Columbine High School in Columbine, Colorado, in 1999—which ushered in the current spate of mass shootings—was on the psychotropic drug Luvox. Prescribing information for the antidepressant says, “Close supervision of patients and in particular those at high risk should accompany drug therapy.”

Jeff Weise, who fatally shot his grandfather, his grandfather's girlfriend, and then seven others at the Red Lake Senior High School in Minnesota in 2005, was on the well-known antidepressant Prozac.

Two years later, Cho Seung-Hui, who perpetrated the Virginia Tech mass shooting, also was found to be on psychoactive antidepressants.

“We urgently need a national debate about guns. But we also urgently need a national debate about the epidemic of mood-altering drugs being prescribed to young Americans,” Arianna Huffington wrote in 2007 after the Virginia Tech killer shot 32 people and then himself.

The following year, in 2008, another univer-

sity was targeted. Steven Kazmierczak fatally shot seven at Northern Illinois University. He had also been prescribed Prozac, which he had recently stopped taking.

BBC Questions Another Mass Shooter's Medication

Few can forget the “Batman” shootings at an Aurora, Colorado, movie theater in 2012. James Holmes, the gunman who fatally shot 12 and wounded scores, was on antidepressants. The suspicion among some reporters and doctors that the antidepressants explained the rampage was so strong that the BBC created an in-depth report titled “The Batman Killer - a Prescription for Murder?” in 2017.

“Why else would a clever, shy guy with no history of violence, from a loving home, carry out such a heinous attack?” except for the effect of the psychoactive drugs, BBC's Shelley Jofre wrote in the report. “He had no enemies, no terrorist ideology to drive him on.”

Dr. David Healy, a psychiatrist and psychopharmacologist who has written books about the risks of antidepressants, studied Holmes' case and interviewed him in prison.

“These killings would never have happened had it not been for the medication James Holmes had been prescribed,” he concluded.

Dr. Wendy Burn, president of the Royal College of Psychiatrists, on the other hand, is cited in the BBC report as disagreeing and doubting Healy's pronouncement.

“In all treatments—from cancer to heart disease—medicines which do good can also do harm,” she said. “Current evidence from large-scale studies continues to show that for antidepressants, the benefits outweigh the risks.”

Attack Spawnd by Racial Hatred

Dylann Roof's fatal shooting of nine congregants at Charleston's Emanuel African Methodist Episcopal Church in 2015 showed racism and gun violence at its worst. While the United States has seen other racially motivated and church shootings, the cold-blooded calculation of Roof's murders brought the nation to a new level of outrage and horror. Two years later, 19 documents unsealed by U.S. District Judge Richard Gergel revealed that Roof, too, was on antidepressants.

Two other mass shootings had preceded Roof's slayings. In 2013, Aaron Alexis fatally shot 12 people at the Washington Navy Yard in southeast Washington, where he had security clearance. Less than a month before the killings, Alexis was prescribed the antidepressant trazodone.

The following year, Army Specialist Ivan Lopez, fatally shot four people on the Fort Hood military base near Killeen, Texas, after a highly publicized Fort Hood shooting in 2009. According to The Washington Post, Gen. Mark A. Milley, who was then the base's commander, said Lopez “had behavioral health and mental health issues” and was taking antidepressants.

Sixty-four mass shootings have occurred in the United States since Lopez's rampage eight years ago, including the recent Fourth of July shooting in Highland Park, Illinois, according to a gun violence database.

Disturbing Psychoactive Drug Side Effects Are Well-Known

Awareness of these unpredictable medications is not new. Four days after the Sandy Hook Elementary School shooting in 2012, when awareness of mass shootings reached a peak, Geoffrey Ingersol of Business Insid-

er wrote that psychoactive drugs “the FDA pumped out [had] an ability to exact the opposite desired effect on people: that is, you know, inducing rather than inhibiting psychosis and aggressive behavior.”

Antipsychotic drugs, which the Sandy Hook shooter was originally—and mistakenly—thought to have taken, “are not the only ones that can cause the opposite of their desired effect,” Ingersol noted. “Several antidepressant medications are also restricted to adults, for the depression they inspire in kids rather than eliminate.”

Ingersol is likely referring to the warning about paradoxical and dangerous drug effects in young people that appears on the labels of most psychoactive drugs. For example, prescribing information for Prozac includes a boxed warning—the FDA's strictest—that reads “WARNING: SUICIDAL THOUGHTS AND BEHAVIORS. Increased risk of suicidal thinking and behavior in children, adolescents, and young adults taking antidepressants. Monitor for worsening and emergence of suicidal thoughts and behaviors.”

Psychoactive Drugs Often Behind Mass Shootings

Many and perhaps most health care professionals dispute a link between mass shootings and psychoactive drugs.

“I do not know of any research linking medications to mass shootings and, in fact, there is some work showing benzodiazepines decrease violence,” Michael Rocque, associate professor of sociology at Bates College, told WUSA9. “In other words, I would not be confident linking the medication to violence, let alone mass shootings.”

Some worry that such a link would eclipse the need to stop killers from getting guns or would stigmatize the mentally ill.

Yet, writing in the journal *New Male Studies* a few years ago, Jeanne Stolzer, associate professor of child and adolescent development at the University of Nebraska-Kearney, observes that “despite the multitude of international drug regulatory warnings on all classifications of psychiatric medications citing adverse reactions such as suicidal ideation, homicidal ideation, violence, and psychosis, not one local, state, or federal commission has investigated the correlation between the mass shootings in America and the use of psychiatric medications.”

Clearly not all mass shooters are on psychoactive drugs nor do the drugs always cause out-of-control behavior. On the other hand, a 2019 article on the website *Thought Catalogue* lists and documents 37 mass shooters who were on psychoactive drugs when they committed their spree—a fact that should make public health and law enforcement officials take notice.

News reports following a mass killing seldom include information about shooters' psychoactive drug use and we likely won't know about the psychoactive drug status of the Fourth of July attacker. Still, along with discussion of gun laws, mass depression and anxiety, and violent movies and video games, the effects of psychoactive drugs should be part of the mass shooting discussion.

Martha Rosenberg is a nationally recognized reporter and author whose work has been cited by the Mayo Clinic Proceedings, Public Library of Science Biology, and National Geographic. Rosenberg's FDA exposé, “Born with a Junk Food Deficiency,” established her as a prominent investigative journalist. She has lectured widely at universities throughout the United States and resides in Chicago.



WISE HABITS

How to Have a Powerfully Effective Day

Set your goals, create a focus habit, lighten it up—and live a little

LEO BABAUTA

Many people I talk to are unhappy with their ability to get stuff done in their lives. They feel they're wasting a lot of time, never really getting anything important done.

What I like to play with is the idea of having a “powerfully effective day.”

It's a big topic, probably worthy of a whole book, but in this article I'm going to lay down some of the key principles and tactics.

If you can follow these—imperfectly, and with practice—you'll transform how effective you are in your life. These principles and tactics are simple and powerful, but they require your wholehearted devotion to them.

Let's dive in.

Principle 1: Align Your Targets

You can't be effective if you're working on unimportant stuff. You have to work on the stuff that matters. But how do you know what matters?

The tactic is to pick one to three tasks a day that align with your targets. Here's how it works:

1. Set medium-term goals for yourself—six months to a year. What do you want to create in your life and in the world? These can be purposeful work goals, personal goals, etc.
2. Set monthly targets that align with the long-term goals. Then weekly targets that align with the month. This requires a monthly review/planning session, and a weekly one. Set reminders.
3. Every day, pick one to three tasks that align with your weekly targets.

It's a pretty simple system, not revolutionary, but what it means is that every day, you're moving yourself closer to what matters most. Every day, you're knocking out tasks that are meaningful and effective.

The daily, weekly, and monthly sessions only have to take five minutes, once you get into the swing of it. The yearly or six-month sessions might take a little longer, because you want to give some thought to what you really want.

Today, you can just set a monthly goal for yourself and a weekly target that aligns with that goal. Then pick one task that will help you

move toward that weekly target.

Principle 2: Create the Focus Habit

Once you know what you need to focus on, it's a matter of actually focusing. But this focus habit doesn't only apply to the one to three tasks that move you toward your targets—if you use this habit everywhere, you'll create a powerfully effective day. I use the task with email, messages, writing this very blog post, recording videos for my courses, reading books, and doing workouts.

Here's how it works at a tactical level:

1. Pick one thing to focus on. This is a really important first step, because most people don't ever do this.
2. Go full-screen mode. Make this the only thing in your world. Devote yourself to this one task.

Those are the only steps. If you do this with everything you do, relentlessly, you'll be powerfully effective. Especially if you're doing one to three tasks a day that align with long-term targets.

Most people will ignore this tactic, but don't. It's the key to the whole simple system.

That said, don't ignore the next section either!

Principle 3: Lighten Up Every Focus Session

Once you're in the focus session for a particular task, you might have the tendency to try to get it over with. There's a sense of doing what you're “supposed” to do, doing a chore, maybe a sense of burden.

Who wants to do something like that? No wonder we procrastinate and go to distractions. That's boring.

Instead, I suggest finding a way to lighten up the focus sessions. Make them come alive.

That means bringing a different, more alive approach to every task. Some ideas:

- Play—how could this be fun?
- Ease—how could this be useful?
- Curiosity—how could you learn something as you do this?

Our precious time and energy can get lost in the churn of daily life. Make something of your moments with a bit of intention and some solid steps.

These principles and tactics are simple and powerful, but they require your wholehearted devotion to them.



A fundamental sense of well-being is essential to an effective day. Find ways to bring inspiration and energy to your day.

- Wonder—how amazing is this miracle we call life?
- Service—how is this serving people you care about?
- Love—how is this an expression of your love?
- Connection—how is this task connecting you to others?
- Creation—how can you bring the joy of creating something to this?

Other ideas: dance, music, spaciousness, peace, compassion, and abundance.

Or come up with a different approach that lights you up. Bring a sense of experimentation and curiosity to finding the approaches that work for you.

Principle 4: Create a Sense of Aliveness to Your Day

These principles/tactics are great for when you're focusing on something, but our days are more than tasks. There's life that's being lived, all day long.

So I find it important to not only focus on individual tasks, but on your experience of the whole day—a unifying approach to having a powerful day. And for me, that approach is wonder and aliveness.

Many people will ignore this because they don't understand how it makes you more effective. We can't let ourselves forget the power of feeling a sense of well-being, feeling inspired, feeling connected to others, and feeling connected to a sense of meaning. Do these things make us more effective?

So ask yourself:

1. Do you have a fundamental sense of well-being? If not, what would you need to do to get there? Sleep, movement, some whole foods, self-care, and a little meditation?
2. Do you feel meaning and purpose in what you do? If not, how can you find the meaning in what you do, or shift to doing something that feels more meaningful?
3. How connected do you feel to others in your life whom you care about? If that's lacking, can you take steps to increase connection? Either way, can you feel more connection to others as you do your meaningful work?
4. How inspired and alive do you feel throughout the day? How could you bring more of that into your day, if it's lacking?

For me, after making sure the first three things on this list are taken care of—my fundamentals—I focus on the fourth item. This is where I can get the most return on my investment of effort. If you're lacking in the first three areas, focus on those first, because they'll give you the most return.

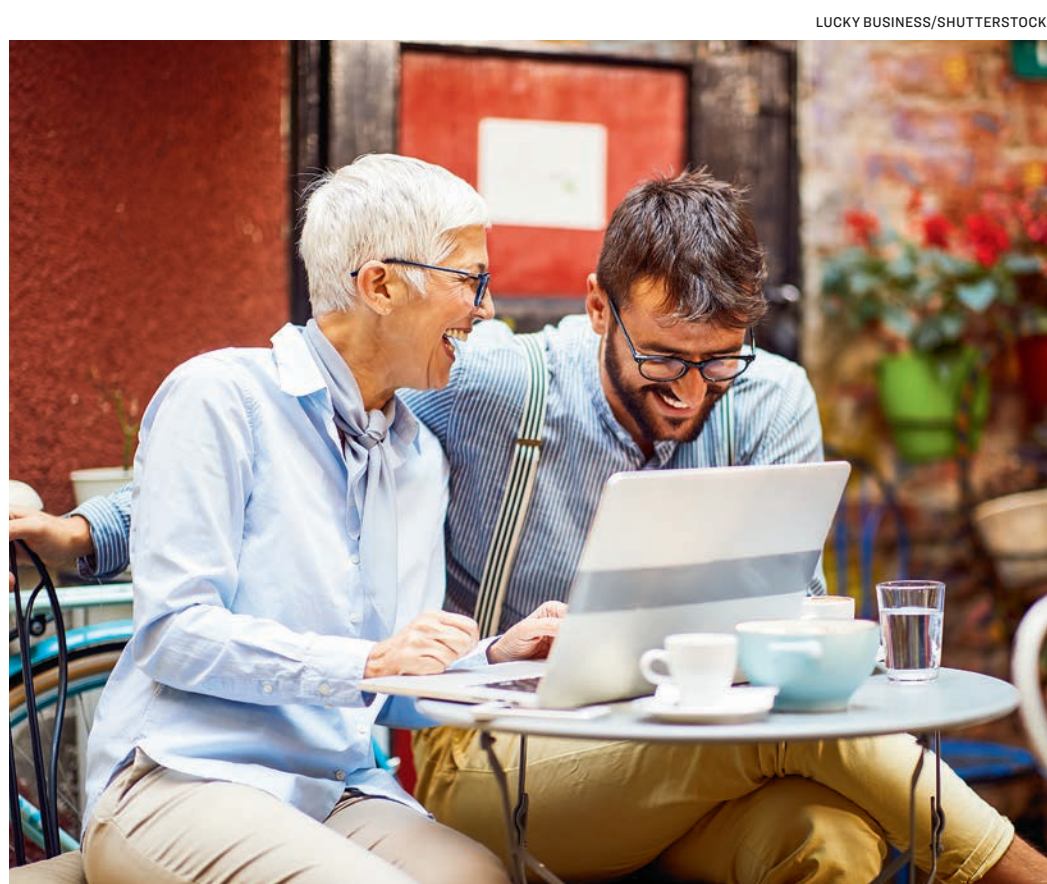
How can we feel more inspired and alive during the day? For me, I play with these practices:

- Wonder—how can I see wonder in everything?
- Curiosity—how can I learn something from every moment?
- Love—how can I bring love into everything I do?
- Aliveness—how can I feel lightened up about my life?

These four things are my favorites. But I play with other things as well: adventure, play, expansiveness, and joy. It's all powerful!

How alive would you like to feel today? And how could that contribute to a powerfully effective day for you?

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



What might seem like a small gesture on your part can make a significant impact on another. So look for opportunities to brighten someone else's day.

15 Simple Ways to Brighten Someone's Life Today

These simple, quick, and memorable gestures can create delightful memories for those around you

JOSHUA BECKER

Last December, I attended a large event in Phoenix—a thousand people or so.

During one of the breaks, I happened upon the organizer of the event in a hallway. He didn't know me, and we had never met—I only knew him from seeing him on the stage.

I shook his hand and thanked him for the lovely time I was having.

He looked me straight in the eyes and replied, “I am really glad you are here.”

The sincerity in his voice and expression was obvious. It felt like love.

The conversation took less than 30 seconds, and yet it changed my entire day and evening. I felt welcomed and appreciated. My life was brightened.

In fact, here I am, more than six months later, still talking about the effect that short conversation had on me.

As Brennan Manning once said, “In every encounter, we either give life or we drain it.”

In a world so desperately in need of life and love, let's be intentional in giving it.

And as proven to me yet again six months ago, these life-giving interactions don't have to be long and time-consuming. Sometimes they can be incredibly simple. In fact, here are 15 that you can probably complete by the end of the day:

15 Simple Ways to Brighten Someone's Life Today

1. Offer a compliment. Compliment someone on their work, their smile, or that enviable quality you've seen in them

over the years.

2. Send a loving note, message, or text. A kind word sent via private message takes less than 60 seconds but communicates significantly a powerful message that can last a lifetime.

3. Leave an extra \$5 tip. If you don't typically leave a tip, brighten someone's day by leaving one. If you usually do, randomly add to it for a job well done.

4. Say ‘I love you’. The old adage about not saying “I love you” enough has remained relevant because it's true (unfortunately). Your parents, your spouse, your kids—remind them again today.

5. Pay for a stranger's coffee or meal. When my wife and I were dating, an unknown couple in an Applebee's restaurant randomly and anonymously paid for our bill. It was a simple gesture that we bring up almost every time we eat in an Applebee's—literally 25 years later.

Want to brighten someone's day and give them a story to tell everyone they meet for the rest of the day? Pay for the coffee of the

customer behind you in line at the drive-thru.

6. Remember to ask your friend or co-worker about something important in their life. The next time your friend or co-worker tells you about an upcoming appointment or event, make a mental note to ask them how it went the next time you see them.

In a world so desperately in need of life and love, let's be intentional in giving it.

7. Come home early from work. If you have kids, they won't live at home forever. And it's always a fun surprise to have mom or dad come home early from work—especially during the summer.

8. Offer a meal to a family in need. That family from your neighborhood fighting cancer or with a newborn or working hard as a single parent—offer to bring them a home-cooked meal or a restaurant gift card. The gift provides both time and

money. But even more, it reminds people that they aren't alone.

9. Bring a treat. Doughnuts for the office or a favorite dessert for the family. Either one is sure to brighten someone's day.

10. Offer to take someone's picture at a well-known attraction. The next time you're at a well-known attraction or witnessing a couple or family trying to take a selfie, offer to hold the camera and take it for them. The simple gesture usually takes less than a few seconds but provides a lifetime of memories for the people in the photo—especially if they're trying to capture a moment in the background.

11. Hold the door open for someone. For some reason, in our post-pandemic world, this simple gesture seems to carry even more significance. If you've already touched the handle, go the extra step, and hold it open for the next person so they don't need to.

12. Tell a friend you were thinking about them. If something in your day caused you to think of a friend, tell them. “I just watched _____ and it made me think of

you because you were the first to tell me about it.” “I just ate at _____ and it made me think of you because I know you like that place.”

13. Laugh at your friend's joke. Go ahead—even if it's not that funny. If someone took the time to try and make you laugh, the least you can do is reward them for it.

14. Tell someone how they've changed your life. If someone's actions, words, or life has inspired you and changed you for the better in any way, take the time to let them know that.

15. Say ‘it's really good to see you’. And say it with sincerity and honesty. You never know how much of an effect that simple sentence can have. Who knows, it just might inspire an article read by hundreds of thousands of people months later.

A brighter, simpler world? Yes, please.

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

ILONA KOZHEVNIKOVA/SHUTTERSTOCK

4 Techniques to Create a Better Future

Psychologists have traditionally focused on the past but what if that's all wrong?

Psychologists have long directed people to dig into their past, but the path to a better life is better directed from the present—into the future.

change was noted three months later, when they reported increased calmness and enthusiasm for the future. The image of them on their 80th birthday stayed with them, and they wanted to ensure they contributed to their friends, family, and society just as they'd planned.

4 Techniques to Create a Better Future
Your “best retired self,” or a more generic “best possible self,” is just one of many activities you can engage in to help you to create a more positive future to look forward to. Other activities include:

- **Anticipate Savoring:** Consider small and more significant things happening in the near or distant future. Imagine what it would be like if everything went well for you. Enjoy the positive feelings that follow.
- **Develop Hope:** Hope is about finding the will and the way toward accomplishing something we want in our lives. Try to identify what you would like your future to be, and reflect on how to get there. Without a pathway, you may feel helpless about your situation.
- **Imagine Your Problems Are Solved:** Project yourself into a time when all the issues you're struggling with today will be resolved. Now describe in detail how you achieved this.
- **Develop Goals:** Come up with a list of goals you would like to achieve. Now complete the Values in Action survey of character strengths at viacharacter.org, and identify how your strengths can help you to achieve your meaningful goals.

Focusing on the future offers us choices and acknowledges that we have free will, and we aren't just a product of our childhood or other adverse life events. We have no say in our past, but we can create a better future if we choose to face it and enter it with confidence.

This doesn't mean we should live in denial. In fact, the opposite is true. We acknowledge that bad things have happened, but we also acknowledge that we want a promising future for ourselves and choose to focus our attention on creating it—seeing it is a starting point to making it happen.

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JOLANTA BURKE

For more than a century, psychologists such as Sigmund Freud and Carl Rogers focused people's attention on the past. And so when Mary struggles to maintain romantic relationships, she blames her past boyfriends for it. When Chris battles with addiction, he digs into his memories from childhood when he first felt humiliated. And when Saoirse doesn't want to settle down, she attributes her free-spirited nature to being the youngest child in her family.

But what if these psychologists got it wrong? What if it isn't the past but how we view the future that holds us back, preventing us from becoming the best versions of ourselves?

Psychological research has become obsessed with searching for the causes of mental ill health. However, an increasing body of research suggests that focusing on the future may protect us from depression and help us to cope with stress more effectively. Sometimes, instead of dissecting the negative memories, we need to focus on a better understanding of how we view our future.

Many veterans, refugees, and other people who have experienced trauma and have mental health issues spend little time thinking about the future. Instead, they're narrowly focused on the negative past.

However, people who have experienced trauma and developed a healthy future perspective report being better at coping with life, having fewer negative thoughts about the past, and getting better sleep compared with those who have a negative future perspective. So, instead of dwelling on the past, people who have suffered trauma should be encouraged to think about the future and set goals that help them to develop hope for a good life.

Reflecting on a positive future can help us to develop healthy relationships with the days to come and be more open to life and its opportunities. With this in mind, Julie Round (a qualitative researcher) and I have experimented with a small group of newly retired women, some of whom felt anxious when thinking about their future. They wondered what to do with the rest of their lives. Some even questioned their

usefulness in this world, making them feel worse about themselves. When we asked them how they felt about setting goals, they had mixed emotions.

We began gently by helping them to create a more positive future. Every day for four days, they wrote for 20 minutes about their “best retired self.” They imagined their dreams coming to fruition. Then, they explored the building blocks (such as home, family, and leisure) to reaching their best future selves. They imagined that everything went according to plan, and were encouraged to think about what life would look like five years from now.

On the last day of the study, they imagined their 80th birthday using their senses. For example, they imagined what it might smell like and who was there with them—including people they hadn't yet met. Then, we asked them to set goals for their lives ahead.

A week after the activity, they continued to experience mixed emotions. They needed time to process their future—all the things they looked forward to and the things they feared. However, a positive



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