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2018

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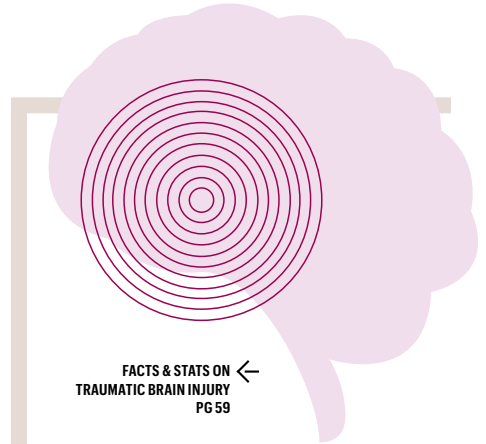
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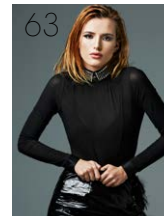
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PHOTOGRAPHY BY:
KATHRYN GAMBLE



FROM THE WEBMD TEAM

WHO IS YOUR HEALTH HERO?



It's always an honor for us to recognize our **WebMD Health Heroes**, and this year we had the special pleasure of hosting the winners in person at WebMD. Comedian Jim Gaffigan and his wife Jeannie, featured on the cover of this issue, were among the guest presenters at the awards ceremony.

So many examples of Health Heroes are among us every day—people who face challenges and give back to others. We asked some of our staff to share the heroes in their own lives.

Kristy

Kristy Hammam
Editor in Chief
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John Todd, WebMD art director



My personal health hero is my friend Caryl Haddock, for living an even fuller life after beating cancer twice, running in annual fundraisers for cancer research, and teaching kids Taekwondo, all while holding down her own business."

Stephanie Snipes,
WebMD vice president,
editorial development



A personal health hero of mine is my co-worker Beth Passehl. She is the definition of lead by example—but doesn't sacrifice things she loves. Plus, she always has a great yoga move to help whatever ails me!



Arefa Cassoobhoy, MD, MPH, WebMD senior medical director

My personal health hero is Rashida Campbell, my sister-in-law. I've watched her fight the relentless progression of scleroderma over the past 15 years. Whether she is in pain from an ulcer on her finger or short of breath because of the disease, she won't stay home and miss out on the fun around her. Rashida's humor and optimism keep all of us around her smiling and inspired to make the most of every day.

Congratulations to all the WebMD Health Hero winners! On Jan. 22, our four 2017 winners received their awards at the WebMD offices in New York City. Three of the Heroes are under the age of 21 and were honored in three categories: Advocate and author, Chloe Fernandez, 11, for her work raising awareness about a rare genetic disease; Inventor Kavya Kopparapu, 17, for creating a device and mobile app to diagnose eye diseases; and Investigator Lauren Singer, 18, for her autism research. In a fourth category, Medscape Mentor of the Year, Donna Magid, MD, MEd, won for her leadership of the next generation of medical professionals.



Left to right, WebMD CEO Steve Zatz, Jeannie Gaffigan, Donna Magid, Chloe Fernandez, event host journalist, author, and fitness expert Jenna Wolfe, Kavya Kopparapu, and Jim Gaffigan.

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FACTS & STATS

A Healthy Combo

For better health, should you focus on diet—or exercise? Both, it turns out. Nutrition and fitness yield optimal results when combined. People who get the recommended aerobic exercise and simultaneously eat more fruits and vegetables and less saturated fat reach their goals faster than those who tackle nutrition and fitness individually.

22%

Percentage of American adults who get the government's recommended 150 minutes of moderate aerobic exercise and two sessions of strength training weekly.

3 hours

Time needed for a 155-pound person to walk off a fast-food double cheeseburger.

87%

Percentage of Americans who don't eat the recommended 2 to 3 cups of vegetables daily. 76% skimp on fruit.

5 years

How much longer women might live if they exercise regularly and practice other healthy behaviors. Men could add six years to their lives doing the same.

IN THE NEWS

The Power of Respect



COLLEEN PARETTI
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A picture may be worth a thousand words, but numbers can tell a pretty powerful story, too. Exhibit A is **"Overcoming Bias" (page 41)**, which highlights some key findings in a recent special report from WebMD, Medscape, and STAT, the online health news website.

The report surveyed doctors, nurses, and other medical professionals as well as patients about a little-discussed topic: bias in health care. Though rarely surfaced, the issue is very real and can seriously affect the quality of care medical experts deliver and that patients receive. "Health care isn't different than other domains of life and service where these types of experiences are unfortunately part of our everyday lives," says one doctor, who talks about the bias he has encountered. Patients have their own stories to share.

But solutions exist—for both medical professionals and patients—to make sure everyone in the health care world receives fair and respectful treatment. We offer some starting places and talking points. Let me know what you think. — *Colleen*



2.5%

PERCENTAGE

of children who are allergic to peanuts.
That's a 21% increase since 2010.

SOURCE: American College of Allergy,
Asthma, and Immunology

Pesticides, Produce, and Pregnancy

Trying to get pregnant? Ditch the pesticides on your produce. Researchers studied the diets of 325 women who were having fertility treatments. Compared with women who ate less than one serving per day of fruits and vegetables with high levels of pesticide residue, women who ate more than two servings per day were 18% less likely to have a baby.

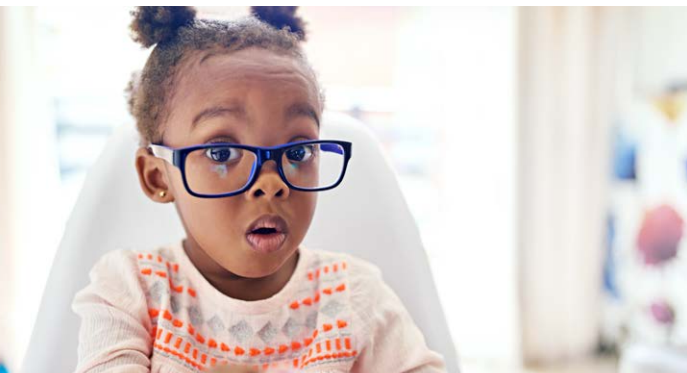
SOURCE: JAMA



TOO TAN

One in five women ages 18 to 30 shows signs of addiction to indoor tanning, which include euphoria after tanning, feeling unattractive or anxious when not tanning, and believing that benefits outweigh the risks.

SOURCE: Cancer Epidemiology,
Biomarkers and Prevention



The Power of Glasses

Farsighted children are more likely to have attention problems, says a study of 500 preschoolers. These problems were resolved after wearing glasses for six weeks.

SOURCE: Optometry and Vision Science

YOGA + AEROBICS = GOOD HEALTH

Aerobic exercise can help reduce risk for heart disease. Yoga can, too. Do both, and you can get twice the benefits, says a three-year study of 750 adults with heart disease and diabetes. Researchers split the adults into three groups: aerobic exercise-only, yoga-only, and aerobic exercise plus yoga. Both the aerobic- and yoga-only groups cut blood pressure, cholesterol, and waist circumference and lost weight. But the aerobics-and-yoga group lowered their blood pressure, cholesterol, and body mass by twice as much as the others did. Their heart function, chest pain, and overall fitness improved, too.

SOURCE: American College of Cardiology



THE CASE FOR PLAIN GLASSWARE

Drinking glasses decorated with enamel paint may be harmful to your health. When researchers tested 72 glasses for the presence of dangerous metals, 70% tested positive for lead and cadmium. Many contained far more than what's considered safe. Treat all decorated glassware with caution, researchers say.

SOURCE: Science of the Total Environment



50
million

AMERICANS

who have springtime allergies.

SOURCE: Asthma and Allergy Foundation of America

SPANKING RAMIFICATIONS

Spanking may be a more traumatic experience for children than researchers previously believed. In a study of 8,316 adults, those who were spanked as children were more likely to abuse alcohol and illegal drugs and attempt suicide as adults.

SOURCE: Child Abuse and Neglect

ROSACEA CULPRIT

Facing rosacea flare-ups? Alcohol could be to blame. Researchers tracked the rosacea cases and drinking habits of 82,737 women for 14 years. The more a woman drank, the more likely she was to develop rosacea. Those who drank .03–.14 ounces of pure alcohol per day—a “standard” drink has .6 ounces of alcohol—were 12% more likely to develop the skin condition than those who never drank. Women who had 1.05 ounces a day—just shy of two drinks—were 53% more likely to get rosacea.

SOURCE: *Journal of the American Academy of Dermatology*



SLEEP SIGNALS

Long before a person shows any signs of Alzheimer’s disease, a plaque called amyloid can build up in the brain and spinal fluid. However, doctors don’t just test otherwise healthy people for amyloid buildup. Poor sleep might be a tipoff that the plaque is accumulating. Researchers studied 101 adults around age 63 who had normal thinking skills. Those who reported poor sleep quality, sleep problems, and daytime sleeping had higher levels of amyloid in their spinal fluid than their sound-sleeping peers. Nipping sleep problems in the bud might help slow or halt the progress of Alzheimer’s disease.

SOURCE: *Neurology*

70%

PERCENTAGE

of adults who do not know alcohol consumption increases risk for cancer. Up to 6% of new cancers and cancer deaths are alcohol-related.

SOURCE: *American Society of Clinical Oncology*



SKIN CARE

If you have melanoma, have it removed sooner than later. Waiting more than 30 days after diagnosis to have stage-I melanoma removed increases risk of death by 5%. Sixty days increases the risk by 16%.

SOURCE: *Journal of the American Academy of Dermatology*

Toy Tip

Bring your own books and toys to the pediatrician. A new study found high levels of microbes, such as staph, on surfaces in the pediatrician’s waiting room, including books and children’s tables and chairs.

SOURCE: *Pediatric Infectious Disease Journal*



SURPRISING NEWS ABOUT ECZEMA

The family dog could protect your kids against eczema. Babies born to moms who had a dog during pregnancy are less likely to develop eczema before age 10, says a study of 782 mother/baby pairs.

SOURCE: American College of Allergy, Asthma, and Immunology



CANINE COMMUNICATION

You were always convinced your dog could talk to you. Well, you might be onto something. Dogs produce more facial expressions when someone is watching them, says a new study. And it's not just because they're excited. In the study, dogs didn't make facial expressions when they saw tasty food. This suggests that canines use their faces to communicate, the researchers say.

SOURCE: *Nature*

THE DANGERS OF YO-YOING

You know the dangers of carrying too much weight. Taking it off, putting it on, and taking it off again isn't so good either. In a study that followed 9,509 adults for five years, people whose weight fluctuated were more likely to have any type of heart or cardiovascular problem, including heart attack, heart failure, chest pain, stroke, and sudden death, than those whose weight held steady. The ones whose weight yo-yoed the most had more than a 100% greater risk of heart attack, stroke, and sudden death than their stable-weight peers.

SOURCE: *New England Journal of Medicine*



Every Step Counts

Doctors want you to get two-and-a-half hours of moderate physical activity per week, but it's not an all-or-nothing recommendation. Even a little walking—less than two hours per week—can increase your lifespan. Researchers followed 140,000 older adults for 13 years. Those who routinely walked for up to two hours per week were 14% less likely to die during the study period. Those who walked two-and-a-half hours or more were 20% less likely.

SOURCE: *American Journal of Preventive Medicine*

48

MINUTES

per day that children under age 8 spend on a mobile device. That's up from five minutes per day in 2011.

SOURCE: Common Sense Media



THE DRINK YOUR LIVER LOVES

The pro-inflammatory “Western diet”—rich in red meat, saturated fat, processed snacks, and refined sugar and low in fruits, vegetables, and fiber—can stiffen the liver, a possible precursor to cirrhosis. Coffee might help. When researchers measured liver stiffness in 2,424 older adults, they found that those who drank the most coffee had the lowest rates of liver stiffness. Almost 8% of non-coffee drinkers had liver stiffness. Almost 7% of those who drank one to three cups a day had the condition. But among those who drank more than three cups a day, only 4% showed this early sign of liver trouble.

SOURCE: *Journal of Hepatology*



CUT OUT CO-SLEEPING

About 3,500 infants die from sleep-related injury every year. Bed-sharing raises that risk. Education at the hospital isn't always enough to deter new parents from bringing their baby into the bed with them, especially among breastfeeding mothers.

But when a Philadelphia hospital sent new moms and dads home from the hospital with cardboard bassinets, they saw co-sleeping rates drop significantly. Bed-sharing fell by 25% overall and 50% among breastfed infants.

SOURCE: Temple University Hospital



Meditate for Memory

IN OLDER WOMEN WHO PRACTICE YOGA, the brain is thicker in areas related to memory and cognition, which could mean the ancient practice helps preserve these functions.

SOURCE: *Frontiers in Aging Neuroscience*

A GOOD NIGHT'S SLEEP

Trouble sleeping could be a red flag in young adults who are at risk of suicide. Researchers interviewed and monitored the sleep of 50 university students who'd made previous suicide attempts. Those who fell asleep at different times each night, had insomnia, or had nightmares were more likely than others to have suicidal thoughts during the three-week study. Variable sleep-timing, the strongest predictor of suicidal thoughts, was a better predictor than even symptoms of depression. Treating sleep disturbances could help reduce the risk of suicide.

SOURCE: *Journal of Clinical Psychiatry*

GET MOVING

Walk On

To reap the many health benefits of walking, you need no training, no gym membership, no special equipment—just a decent pair of shoes. Now, research suggests that you don't even need much time.

YOU'VE LIKELY HEARD IT BEFORE: To live a longer, healthier life, exercise at least 150 minutes each week. Yet only 49% of American adults meet that goal, and that number drops further with age. Walking may be the solution. In a study of nearly 140,000 people, walkers who clocked fewer than two hours a week were less likely to die early than people who never left the couch. Longer walks led to even better health. Previous studies have linked walking with reduced risk of heart disease, diabetes, and some cancers. So, lace up your shoes and take a short, brisk stroll. It will do you good. —MATT McMILLEN

MEN'S HEALTH

Get in the Game

Want to keep fit and active as you age? Team up with friends—or make some new ones—and play ball. Sports offer lifelong benefits, both physical and mental.



→ **Competitive Edge**
Play a sport you enjoy so you stick with it.

And, says Jonesco, you can't slack: "At the gym, you may be less likely to push yourself than when you're up against your peers."

What sports should you play? Ones you enjoy. You won't stick with sports you don't like, says Jonesco. "Whatever you like and whatever your body can tolerate: That's what makes it sustainable."

He also advises that you—and your doctor—consider your current health. If you have bad knees, for example, sports where you run and jump, like basketball, may not be right for you. Also to be considered: overweight or obesity, your family's history of heart disease, and diabetes.

Jonesco also recommends that you supplement sports workouts with yoga and other exercises that build muscle, core strength, and flexibility. Do 20 to 30 minutes once or twice a week, and you will improve your game and reduce your risk of injury on the court or field.

Finally, sports can boost your mental and emotional health. "The real benefit of sports," says Jonesco, "comes from the social interaction, the stress reduction, the communication, and the competition that playing sports provides."

IN A RECENT STUDY, BRITISH RESEARCHERS SHOWED THAT MEN WHO PLAY sports and exercise in midlife continue to be more active as they get older compared to middle-aged men who prefer less strenuous pastimes. The benefits of sports may also surpass a run on the treadmill or another gym-based exercise.

Gym workouts boost cardiovascular health. Sports do that and more, says Michael Jonesco, DO, a sports medicine specialist at the Ohio State University Wexner Medical Center. Because they require you to act and react at a moment's notice, sports like tennis, basketball, and soccer can help you improve your hand/eye coordination, fine motor movements, adapting and changing direction, and balance.

4 Tips

MICHAEL JONESCO, DO,
EXPLAINS HOW TO PLAY
SPORTS FOR MAXIMUM
HEALTH BENEFITS

EAT WELL

"Vigorous sports demand more and better food to fuel yourself. If you want to get serious, consult a sports nutritionist."

DRINK PLENTY OF WATER

"Don't wait until game day to boost your water intake. Start hydrating three to four days in advance."

BE A BUDDY

"Play with friends and you'll likely keep playing. You'll have more fun, and they will hold you accountable if you're a no-show."

KNOW YOUR LIMITS

"Play too hard and for too long and you risk injury. Schedule breaks and, if necessary, reduce your time in the game."

FITNESS SMARTS

Spinsters

Next time you drive to work, scan the bike lane. You may notice commuters pedaling to work on an electric bike. These nifty bikes are popular for saving energy, but can “pedelecs” improve your fitness, too?



IN PARTS OF EUROPE AND ASIA, ELECTRIC-ASSIST BIKES, OR PEDELECS, ARE ALL the rage. Now they're catching on here, especially with Americans who want to reduce their carbon footprint or squeeze in exercise on the go.

Electric bikes look like regular bicycles, but they have a small motor that kicks in when you need assistance. You can switch the motor on whenever you like—to help you up a steep hill, for example, or to keep

you from breaking a sweat on your way to work. Other electric bikes are more like motorized scooters—they do all the work for you.

No matter how fit (or not) you are, pedelecs make it easy to be active throughout the day, says Ainslie MacEachran, a professional cycling coach and personal trainer. “You don’t have to be in really great shape to ride into town, to the grocery store, or even up a mountain.”

A recent study in the *European Journal of Applied Physiology* suggests swapping your car with an e-bike makes a difference in your health. A group of out-of-shape commuters rode pedelecs to work—at a moderate pace—for 40 minutes or longer. After one month, they had better cardio fitness and blood sugar control.

But can you get an intense workout with a pedelec?

“Yes,” says MacEachran. Riding an electric bike isn’t just aerobic exercise; it also strengthens your quadriceps, hamstrings, glutes, and calves. “If you keep the assist to a minimum, it requires more effort. You can also ride longer, which stretches out your workout,” he says.

Of course, you’re in the driver’s seat. “Comparatively, riding an e-bike can be significantly easier,” says MacEachran. “These bikes give you the ability to do as much or as little as you want to. So it’s really what you make of it.”

Want an Intense E-Bike Workout?

USE YOUR E-BIKE MOTOR TO CRANK UP YOUR FITNESS WITH THESE TECHNIQUES FROM PROFESSIONAL CYCLING COACH **AINSLIE MacEACHRAN**

TRY TIME INTERVALS

“Alternate between high effort and low effort every minute. Ride without the motor for one minute, then with the motor the next minute. Repeat.”

TRY DISTANCE INTERVALS

“Switch the motor on and off every mile, kilometer, or lap. Power your bike without help for one mile, then take it easier the next mile.”

TRY GOING HARDER

“Flipping on the motor doesn’t have to make things easier. Instead of taking a break while it’s on, try pedaling super-fast.”

TRY GOING LONGER

“Use the motor to help you go farther than you normally do. Turning it on when you’re tired saves energy, so you’ll last longer.”

→ Search for the article [What Tiny Telomeres Tell Us About Aging](#) at [WebMD.com](#).

WORK IT OUT

Run Faster, Age Slower

Want to slow the aging process by a whopping nine years? It's possible if you work out long and hard enough.



IS THERE ANYTHING THAT EXERCISE CAN'T DO? IT KEEPS YOUR muscles strong, your heart healthy, your weight down, and, according to some studies, your mind sharp and your mental health stable. But how exactly does a run in the park or a spin on your bike do all that?

By literally slowing down the biological aging process, says

new research in the *Journal of Preventive Medicine*. In a study of 5,823 adults in the National Health and Nutrition Examination Survey, those who got the most exercise—that means the most minutes at greatest intensity—aged at a pace that was nine years slower than their more sedentary counterparts.

TRACKING THE SPEED OF AGE

Researchers measured the length of people's telomeres as an indication of their biological age. Telomeres are protective caps of DNA and protein on the ends of your chromosomes. Every time your cells divide to create new cells—which is what cells do over and over from the day you're born until the day you die—the DNA in your chromosomes is copied and a bit of the chromosome is lost. If it weren't for telomeres, entire genes—units of DNA that contain the assembly instructions to make you look and function as only you do—might be lost instead. Through this repeated process, your telomeres shorten as you age.

"Telomeres are an index of cell aging," says Larry Tucker, PhD, professor of exercise science at Brigham Young University and author of the study. "Someone who's 50 has shorter telomeres than someone who's 40. There's an extremely strong correlation between telomere length and age."

That's not to say that every 40-year-old has telomeres of the same length. Other factors besides cell division can shorten telomeres, too. Just as some people may show the visible signs of aging sooner than others, telomeres can vary in length among people of the same age. "Many other lifestyle factors—smoking, diet, stress—influence telomere length," Tucker says.

So, it makes sense, Tucker adds, "that

evidence suggests people with longer telomeres live longer and have fewer common chronic diseases.”

STAYING YOUNG WITH EXERCISE

People who exercise regularly also tend to live longer and have lower rates of chronic disease. How much should you exercise? Standard guidelines suggest that adults get 150 minutes per week of moderate aerobic activity, such as brisk walking, or 75 minutes a week of vigorous activity, such as running.

If you're looking to slow aging and keep your telomeres nice and long, however, you'll need to opt for the more vigorous activity or at least longer sessions of the moderate stuff. In the study, neither light nor moderate physical activity correlated with longer telomeres compared to those of sedentary people. Those who had notably longer telomeres exercised for at least 1,000 of what's called “MET-minutes” per week.

A MET-minute accounts for both how long and how intensely you exercise. One minute of sitting at rest equals one MET-minute. A minute of walking, which burns three times as

many calories as sitting, equals three MET-minutes. A minute of running at a pace of 10 minutes per mile equals 9.8 MET-minutes. So, you could stroll for 333 minutes per week or run for 102 minutes a week to reap the same age-slowness rewards. In the study, those who exercised for 1,000 MET-minutes a week had a nine-year advantage over their sedentary counterparts in terms of telomere length.

Slowing the aging process could reduce the risk for numerous health problems. Telomere length is associated with risk for diabetes, depression, and heart disease to name only a few—all conditions that can potentially be improved or prevented at least to some degree with exercise.

So, how exactly does exercise maintain telomere length? “The most common theory of aging is that our body gradually deteriorates due to oxidative stress,” says Tucker. Another word for inflammation, cumulative oxidative stress pulls the trigger on many diseases of aging. “People who exercise regularly,” he says, “have significantly lower oxidative stress.”

THE ROAD TO 1,000 MET-MINUTES

MOST PEOPLE WORK OUT FAR LESS THAN 1,000 MET-MINUTES PER WEEK. BUILD UP SAFELY. HERE'S HOW.



DON'T TRY TO GET TO 1,000 MET-MINUTES ALL IN YOUR FIRST WEEK. Increase gradually with each additional workout.

KNOW THE SIGNS OF INJURY.

Muscle soreness the day after an intense workout is normal. Pain that starts during or immediately after your workout or lasts more than a week could be something more serious.

TRY TO GET YOUR 1,000 MET-MINUTES THROUGH A COMBINATION OF ACTIVITIES AND INTENSITIES. Too much repetitive activity, such as running or swimming, can cause wear, tears, pain, and injury.

How Many MET-Minutes?

MET-MINUTES ARE A MEASURE OF EXERCISE TIME AND INTENSITY. MULTIPLY THE NUMBER OF METS IN AN ACTIVITY BY HOW MANY MINUTES YOU EXERCISE TO GET THE MET-MINUTES YOU EARNED. (METS X MINUTES = MET-MINUTES.) HERE ARE THE METS IN ONE MINUTE OF SOME COMMON PHYSICAL ACTIVITIES.

RUNNING

15-minute mile =
6 METs

11.5-minute mile =
9 METs

8-minute mile =
11.8 METs

CONDITIONING

Exer-gaming (such as Wii) =
3.8 METs

Boot camp class =
5 METs

Stationary bike (moderate) =
6.8 METs

WALKING

Slow walking =
2.5 METs

Hill climbing =
6.3 METs

Race-walking =
6.5 METs

➔ Search for the slideshow [Natural Ways to Calm Anxiety](#) at [WebMD.com](#).

REVIEWED BY *Brunilda Nazario, MD*
WebMD Lead Medical Director



MIND MATTERS

Peace of Mind

Yoga and meditation may do more than just relax you. They could stop and reverse the effects of stress on your genes and prevent sickness and disease.

HAVE A HEADACHE? OR BACK PAIN? YOGA AND MEDITATION ARE THE NEW go-to recommendations for almost anything that ails you. True, these practices can deliver benefits for people with diabetes, elevated heart-disease risk, irritable bowel syndrome, depression, and many other seemingly unrelated conditions. But how exactly do these activities help the body in ways that can prevent or improve all these illnesses?

The relaxation that mind-body practices bring could reverse the damaging effects of stress on your genes, says a new analysis in *Frontiers in Immunology*.

Researchers analyzed 18 studies of the physiological effects of yoga, meditation, Tai Chi, Qigong, deep breathing techniques, mindfulness-based stress reduction, and active relaxation. What all these practices had in common was that people who took part in them regularly produced less of a protein called nuclear factor kappa B.

“Your body produces nuclear factor kappa B when you’re under stress,” says Ivana Buric, MSc, author of the study and a researcher in the Brain, Belief, and Behaviour Lab in Coventry University’s Centre for Psychology, Behaviour, and Achievement. This protein increases the activity of genes related to inflammation. “In people who are under chronic stress,” says Buric, “the protein is secreted all the time and the inflammation caused by those genes is activated all the time.” This constant state of stress and inflammation can increase the risk for certain diseases.

People who meditate or practice yoga or other mind-body activities, on the other hand, seem to run low on this stress protein. “So, it won’t activate the genes related to inflammation as it does in people who don’t practice these activities,” says Buric.

It isn’t about getting more exercise. Both the physically active practices, such as yoga and the sedentary ones, like meditation, bring the same biological benefits, according to the study. What’s more, it doesn’t take long to reap these rewards, says Buric: “It can happen in as little as eight weeks.”

3 Tips

WANT TO TRY A MIND-BODY PRACTICE, SUCH AS YOGA OR MEDITATION, BUT DON’T KNOW WHERE TO START? RESEARCHER **IVANA BURIC** OFFERS SOME TIPS FOR BEGINNERS.

EXPLORE

You can reap benefits from virtually any type of mind-body practice, such as yoga, Tai Chi, or mindfulness meditation. Try out several to find the one that you like the most.

GO TO A CLASS

Find an instructor you like and let him or her know it’s your first time. “It’s better to first go to a teacher and learn the basics with a group than to try to learn from a book or an app,” says Buric.

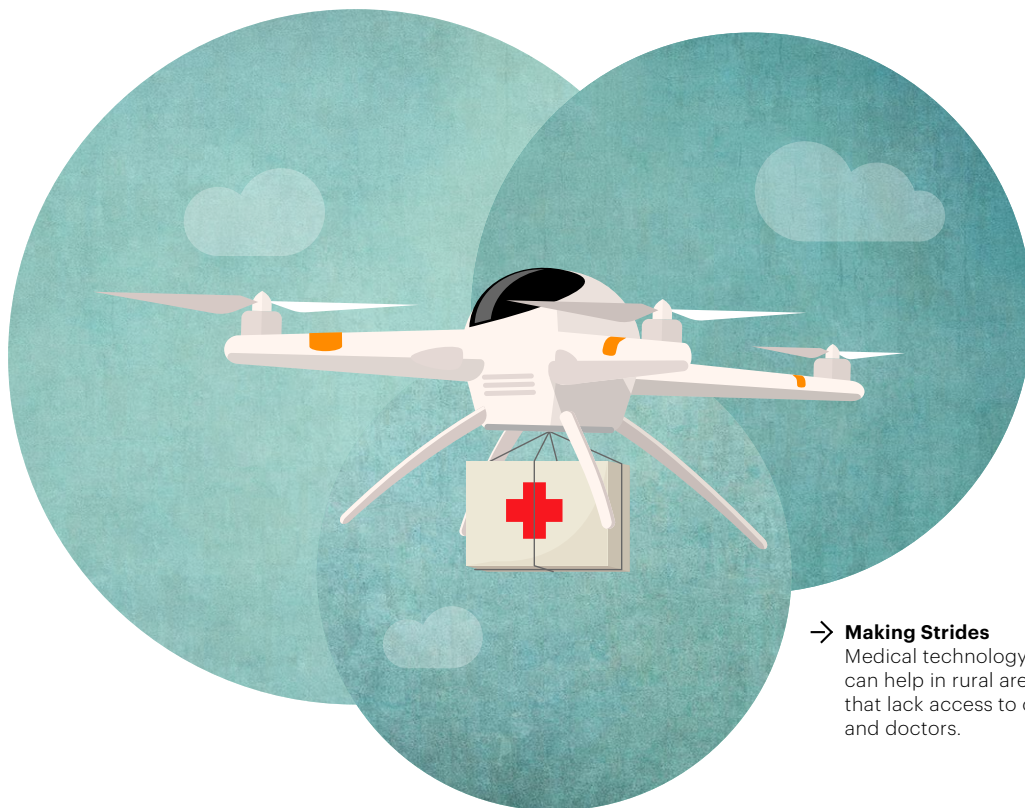
BE CONSISTENT

Set aside a time, at the same time, each day for your mind-body practice. “Sometimes we choose to skip these self-care practices, but they actually create more time by helping us to be more productive and feel more at peace.”

CUTTING EDGE

Med Tech

From a defibrillator that lands at your door to smartpills and microchip-size organs, here's a roundup of new approaches to medical care



➔ Making Strides

Medical technology can help in rural areas that lack access to care and doctors.

WHAT IF GETTING A FLU SHOT WERE AS SIMPLE AS APPLYING A BAND-AID THAT you receive in the mail? Sound like a fantasy? It could soon be a reality.

Read on for a rundown of some innovative approaches that scientists are applying to a few of medicine's biggest problems.

MICRONEEDLES

In clinical trials, vaccination by microneedles was as safe and effective as a regular syringe. More than one-third of people who don't normally get flu shots said they would get one if a patch were available. "This would translate into tens of millions of additional people getting vaccinated against flu in the United States," says Mark Prausnitz, PhD, director of Georgia Tech's Center for Drug Design, Development, and Delivery and developer of the microneedle. Prausnitz is also chief scientific officer of Micron Biomedical, the company that aims to bring microneedles to the market in three to five years.

More than just eliminate the pain or inconvenience of vaccines, the

technology could also make vaccines easier to transport around the world, store, and administer.

ORGAN-ON-A-CHIP

It takes about \$2 billion to \$4 billion and 12 to 14 years to bring a new drug to market. This keeps drug prices high. Many new drugs sail through pre-clinical trials—where they're tested on animals or on cells in a petri dish—without a hitch. When the drugs are finally tested on humans, researchers might discover that the medications make people sick. By testing experimental drugs on tissue that more accurately represents human

organs, researchers could avoid unpleasant surprises in human trials.

Scientists at the National Institutes of Health are engineering tissue chips that could behave just like a human organ. “Pharmaceutical testing [to test the effects of a drug on the liver] currently uses only liver cells, but the liver consists of many other types of cells,” says Danilo Tagle, PhD, associate director for Special Initiatives in the National Center for Advancing Translational Sciences at the National Institutes of Health. Tissue chips contain all the different cells found in that organ. “The features you would see in the human organ, you would see [in the tissue chip]: muscle contraction, fluid flow, digestion of food,” says Tagle.

If researchers can cut time, cost, and the number of human lives put at risk in drug development, “that would be a game changer,” Tagle says.

RESCUE DRONES

Only about one in 10 people who go into cardiac arrest—a sudden stopping of the heart—outside of a hospital survives. The problem is how long it takes to get a defibrillator to the scene. Drones might be the answer.

Researchers at the Center for Resuscitation Science in Stockholm sent a drone equipped with a defibrillator from a fire station to sites where cardiac arrests had occurred. They compared the drone’s travel time to the time it had taken an ambulance. Drones were dispatched three seconds after the emergency call. Ambulances took three minutes to be dispatched. Drones arrived five minutes later. Ambulances took 22 minutes. Now researchers need to study whether untrained bystanders can use a defibrillator with the help of a telephone dispatcher.

“This could one day be useful in rural

The FDA recently approved the first drug containing a sensor—the size of a grain of sand—that tracks when you take a pill.

areas where patients don’t have the same access to care and doctors don’t have the same access to technology,” says Tiffany Wilson, CEO of the Global Center for Medical Innovation in Atlanta.

PILLS THAT TALK TO YOUR SMARTPHONE

Can’t remember to take your medication? The FDA recently approved the first drug containing a sensor—the size of a grain of sand—that tracks when you take a pill. When the sensor reaches your stomach, digestive acids activate it to signal a wearable patch that pings your mobile app. With your authorization, the app can share information with your doctor and other caregivers. After the tracker has done its work, your stomach digests and eliminates it.

The drug is aripiprazole, a medication for schizophrenia, bipolar disorder, and depression. “If you don’t take your medications for schizophrenia, for even a few days, it can

have a very negative impact,” says Timothy Aungst, PharmD, assistant professor of pharmacy practice at Massachusetts College of Pharmacy and Health Sciences.

The technology could one day be useful for other conditions, too. “For example, with some infectious diseases, such as tuberculosis, you have a high risk of reinfection or build up resistance against the medication if you miss a few doses,” says Aungst.

ELECTRO-ACUPUNCTURE FOR OPIOID WITHDRAWAL

More than 20,000 people died from prescription opioid overdose in 2015. Health care providers are desperate for better ways to treat withdrawal symptoms to help people fighting addiction transition into life without opioids. A battery-operated nerve stimulation device might help. The Bridge—recently FDA-approved to treat opioid withdrawal symptoms—fits behind the ear like a hearing aid. Four wires with tiny needles at the ends are taped to specific spots on the ear to stimulate several cranial nerves in the brain’s pain complex.

Within 30 minutes of activating the device in clinical trials, people in the study reported a 31% reduction in withdrawal-related pain and discomfort. “We think the Bridge works by changing the way you perceive painful stimuli,” says Carrie Peterson, MD, who is running a clinical trial at Froedtert Hospital in Milwaukee to test the device’s ability to relieve post-surgical pain. It might not be that the device stops the pain, but rather that the pain doesn’t matter as much.



WORK WISE

The Trauma of Job Loss

Being unemployed means more than simply losing your professional life. Your health also is at risk.

low self-esteem, malnutrition, cardiovascular conditions—especially heart attacks—as well as alcoholism, increased smoking, and generally poor physical health.” Pew Research indicates this group is also at greater risk for drug abuse, engaging in criminal activity, and marital stress.

In fact, even considering losing your job, Leahy says, can negatively affect cardiovascular health: “The threat of unemployment—thinking you may become unemployed—leads to increases in cholesterol levels.”

Most alarming? “Unemployment eventually kills some people,” he warns. “Long-term mortality rates are higher for people who have been previously unemployed.”

He points to two recent studies. The first, from the University of Helsinki, shows mortality for the previously unemployed is 2.5 times higher than for people not previously unemployed.

The second study from the Karolinska Institute in Stockholm, Sweden, followed 20,632 twins in Sweden from 1973 to 1996 and “found unemployment increased mortality over this period of time, with significant increases in suicides, injuries and accidents, and higher mortality rates” in this group. Even after considering unrelated health and demographic differences for the unemployed, the increase in mortality is a startling 47%.

For suggestions on how to react positively to unemployment if it happens to you, see Leahy’s tips below.

→ **All In Your Head**
Even the thought of being unemployed can lead to increased cholesterol levels.

ACCORDING TO THE AMERICAN INSTITUTE OF STRESS, LOSING A JOB IS one of life’s most traumatic events, after death, major illness, divorce, or detention in jail. In fact, research suggests those who undergo long-term unemployment have poorer health across a wide range of medical and psychiatric issues, as well as higher mortality and suicide rates.

“Unemployment is not simply a statistical figure,” says Robert Leahy, PhD, clinical professor of psychology, department of psychiatry, Weill-Cornell University Medical College, New York-Presbyterian Hospital. “It’s about human beings, their families, and their future. And the facts are not comforting.”

Citing numerous recent studies, Leahy says the unemployed have greater risks for developing “depression, insomnia, anxiety, feelings of helplessness,

4 Tips

TO BEST PROTECT MENTAL AND PHYSICAL HEALTH DURING PERIODS OF UNEMPLOYMENT, **ROBERT LEAHY, PhD**, OFFERS THE FOLLOWING COPING TIPS

REJECT SHAME

“Normalize unemployment,” Leahy advises. “It can happen to anyone. It’s not a crime or a failing. If you ask around, you’ll find a lot of people you respect who’ve been unemployed.”

CHALLENGE HOPELESSNESS

“Being out of a job doesn’t mean you’ll always be out of a job. Don’t ruminate and dwell. Schedule 20 minutes each day for worry,” he advises, leaving the rest of the day to focus.

HAVE A DAILY PLAN

Plan activities with your free time. Make looking for a job your current job. “But also exercise,” says Leahy, “and see friends and family, do household chores, and enjoy recreation. Think of this as a sabbatical.”

BE FLEXIBLE

“Consider acquiring new skills that could lead to a different job,” Leahy says. “Don’t be anchored to the past. And give yourself the time you need to find out what you want to do.”

TOOL SMARTS

Brush Up

You know how to apply blush for the perfect glow and mastered contouring before it was cool, but are you cleaning your brushes properly (or at all)? Pro makeup artist Emanuela DeFalco reveals the dos and don'ts of blasting bacteria from your beauty tools.

DON'T APPLY AND RUN. If you use the same brushes all the time, make sure to give them a spritz or two of brush cleaner after each use. Then gently wipe them on a clean towel. This will prevent the bacteria build up that can lead to breakouts.

DO DEEP CLEAN YOUR BRUSHES. Once a week or every other week, use baby shampoo to deep clean your brushes. Swirl them onto a clean rag in a circular motion until they rinse clear in water.

DON'T FORGET TO LET YOUR BRUSHES DRY. After cleaning, hang them upside down so the water does not seep into the handle, causing icky fungus.

—AYREN JACKSON-CANNADY

BEAUTY SMARTS

Thinning Hair? Five Reasons Why

Alarmed by strands clogging the drain or on your pillow? Find out what experts say causes most hair loss.

FROM SAMSON TO RAPUNZEL TO MEDUSA, HAIR HAS A LONG HISTORY of possessing mythical, mysterious power. Your color, length, cut, and texture are undeniably eye-catching characteristics, which makes it all the more frustrating when hair sheds, breaks, or thins—seemingly for no reason.

“We normally shed about 100 strands a day,” says Ella Toombs, MD, a dermatologist in Washington, D.C. But “losing hair should be a concern if you notice a change from what is normal for you, or if you see bald patches or a rash.” Our experts explain how to treat and prevent hair loss.

REASON 1: STRESS

If you notice a sudden, dramatic hair loss, think back to what was happening about three months ago. “If you experienced a traumatic event like a divorce, a major surgery, a new job, or childbirth, stress could be causing your hair loss,” says Elizabeth Houshmand, MD, a dermatologist in Dallas. This is called telogen effluvium. Doctors believe the condition is a result of trauma causing the follicle to stop growing and prematurely shed hair. However, “for most, the hair grows back normally once stress is reduced,” Houshmand says.

REMEDY: The most important treatment is to lower your stress levels. Be gentle with your hair while the follicles are growing new strands—the less manipulation and styling you do, the better. You

want to avoid causing further stress, damage, or breakage.

REASON 2: STYLING HABITS

“Over-processing is the worst thing you can do to your hair,” says Jennifer Krejci, MD, medical director of the Limmer Hair Transplant Center in San Antonio and an assistant professor of dermatology at the University of Texas Health Science Center in San Antonio. “Coloring, dying, blow drying, hot ironing, curling, and relaxing all damage the hair,” Krejci explains. “The more of these things you do on a regular basis can lead to very unhealthy and damaged hair.”

Also wearing your hair in the same style can stress your roots. “Tight braids, ponytails, or extensions can damage the hair follicles over time,” Houshmand says. “One tight hairstyle won’t harm your hair, but after many years you could see permanent hair loss.”

Aisle Do

FROM ULTRA-BRIGHT BLONDE TO BOLD BRUNETTE, YOU’LL KEEP YOUR NEW HAIR HUE TRUE WITH THESE PRO COLORIST GO-TO PRODUCTS

THE OPINIONS EXPRESSED IN THIS SECTION ARE OF THE EXPERTS AND ARE NOT THE OPINIONS OF WEBMD. WEBMD DOES NOT ENDORSE ANY SPECIFIC PRODUCT, SERVICE, OR TREATMENT.



PRODUCT PICK

WHITE SANDS Orchid Bliss Shampoo (\$13)

“Show your color-treated hair some TLC with this extra-gentle cleanser. It’s free from sulfates that can fade color, but full of plant extracts, amino acids, and proteins that boost moisture levels and strengthen strands.”

Laurie Heaps
professional colorist, Hollywood

PRODUCT PICK

ORIBE Beautiful Color Glaze (\$58)

“Infused with crushed pearls of pigment to create shine and conditioning dimethicone, this high-gloss top coat, which you can use once a week, leaves color treated hair with a non-greasy sheen.”

Sheenon Olsons
creative director, Atma Beauty, Miami

PRODUCT PICK

SHEAMOISTURE Raw Shea Butter Restorative Conditioner (\$8.69)

“Three powerhouse ingredients are in this conditioner—shea butter and argan oil provide intense moisturization for overprocessed hair, and sea kelp offers thermal, photo, and hair color protection.”

Courtney Hixon
cosmetic chemist, Houston

REVIEWED BY *Brunilda Nazario, MD*
WebMD Lead Medical Director

REMEDY: “I like to suggest a ‘hair diet’ to help relieve stress,” Krejci says. Her prescription: Wash hair only two or three times a week; limit the number of times you use hot tools; and use a couple drops of a serum containing a silicone to help seal the hair and protect it. Houshmand advises patients to wear ponytails and buns in different positions so they don’t strain the same area of the scalp over and over.

“Keep in mind that hair becomes less tolerant as we age,” Krejci says. So the things it can withstand in your 30s may cause breakage in your 50s.

REASON 3: DIET

“A healthy, balanced diet is the key to everything—including healthy hair,” Houshmand says. When you lack vital nutrients, hair growth can be affected. “Protein and iron are essential,” Houshmand says. Plus, deficiencies in zinc, fatty acids, vitamin D, vitamin E, folic acid, biotin, and antioxidants may contribute to thinning hair.

REMEDY: If poor diet is your issue, you can usually reverse hair loss by balancing your food intake and adding more biotin (a B vitamin) or protein, Houshmand says. Krejci agrees: “Protein and biotin are part of the building blocks of hair synthesis and can help strengthen hair.” Consuming meat, milk, nuts, eggs, grains, and beans will ensure your diet is rich in both nutrients. Iron (found in red meat), lentils, and green vegetables like spinach are also essential for encouraging hair growth, she adds.

Many hair supplements contain vitamins essential for hair synthesis, Krejci says. The

supplement Viviscal has clinical proof that it can benefit hair growth. But taking too much of any supplement is cause for concern. For example, vitamin A can stimulate hair growth, but too much can cause hair loss. An excess amount of iron can cause liver disease or heart failure. Hair supplements may also interact with prescription medications. Bottom line: Consult your doctor before taking anything new.

REASON 4: MEDICAL CONDITIONS

Several health conditions can also contribute to hair loss. Autoimmune diseases like lupus cause the body to attack its own healthy cells, including skin and scalp, Houshmand says. As a result, hair falls out. A surge in the hormone dihydrotestosterone (DHT) can result in thinning hair. And hormonal imbalances due to a thyroid problem are also a potential culprit. Some prescription drugs that treat arthritis, depression,

→ Hair Diet

To avoid stressing your roots, wash hair only two or three times a week.

and high blood pressure may cause hair to fall out as well, Toombs says.

REMEDY: A conversation with your doctor is in order. If your lifestyle habits don’t seem to be connected with hair loss, a dermatologist can do tests to see what medical issues could be the source.

REASON 5: HEREDITY

In many cases you can blame your genes for a thinning hairline. About half of men and women—about 80 million people—will be affected by pattern hair loss by age 50. Alopecia or hereditary hair loss usually involves thinning for women and a receding hairline on the sides with thinning at the temples and crown for men, Toombs explains.

REMEDY: Visiting your doctor as early as possible will help limit loss, Toombs says. He or she may suggest an over-the-counter treatment to stimulate hair growth like Minoxidil, a laser comb, or a prescription medication like Finasteride, which stops the body from making a hormone that leads to hair loss. Another prescription option is a corticosteroid to stop a form of scalp inflammation that disrupts hair growth. When in doubt, visit a medical professional to save all the strands you can.

Dirty Secret

I USE COTTON SWABS TO CLEAN MY EAR WAX—EVEN THOUGH THE PACKAGE SAYS NOT TO

PROCEED WITH CAUTION

“I see patients almost every day who have caused an ear drum perforation, ear blockage, ear infection, or chronic itching due to their cotton swab habit. Wax is anti-microbial and helps prevent infection. So the average healthy person doesn’t need to interfere. You should never put more

than the cotton-covered bulb inside your ear.”

DON’T MAKE IT WORSE

“Worst case, you risk pushing the swab through the eardrum, which will require surgical repair. You can damage your hearing as well. More likely you’ll push earwax further in, causing blockage rather than removing one.”

HELP FOR TOO MUCH WAX

“For those with excessive wax, I recommend filling the ear canal with hydrogen peroxide 10 minutes before taking a shower. This will dissolve the wax and drain out in the shower. If you can’t avoid scratching the itch, drop olive, mineral, or baby oil into your ear to moisturize.”

—Bruce Brod, MD, clinical professor of dermatology, University of Pennsylvania Perelman School of Medicine

➔ Search for the slideshow **Worst Shoes for Your Feet** on WebMD.com

REVIEWED BY *Karyn Grossman, MD*
WebMD Medical Reviewer



EXPERT PICKS

Bare Your Soles

Spring—and sandal season—is right around the corner. Put your best foot forward with these pedi products approved by Rhonda Klein, MD, a dermatologist in Norwalk, Connecticut.

1. DOUBLE DUTY Carpe Antiperspirant Foot Lotion (\$15)

"This unique foot lotion moisturizes while also minimizing foot sweat and smells."

2. STOMP OUT DRYNESS Urea 40 Cream (\$10)

"This prescription-grade product is the ultimate dry skin weapon. The greaseless, non-staining, soothing formula provides almost-instant relief from redness, itching, and scaling."

3. HEEL YES Amlactin Foot Repair Cream (\$10)

"If a dry, cold season left you with thick, flaky heels, you'll get a fast fix from this lactic acid-based foot cream that exfoliates while promoting natural skin cell renewal."

4. TRIED AND TRUE Bag Balm (\$8)

"This old school product that was initially used to soften cow udders (really!) works great to moisturize feet. Bonus: It also combats odor thanks to its antiseptic properties."

→ Search for the video [The Basics: Rosacea](#) at WebMD.com.

DERM Q&A

Stop the Red

Does your face tend to get red or flush—and stay that way? Rosacea may be the reason. Our expert sheds light on this common skin condition.



EVEN THOUGH SOME 16 MILLION AMERICANS HAVE ROSACEA, 95% know almost nothing about it until their doctor gives them a diagnosis. Rosacea is a skin condition that can make your face red or flush, says **Margarita Lolis, MD**, a cosmetic and medical dermatologist in Hackensack, New Jersey. But not everyone gets redness. You may notice small bumps that look like insect bites or acne. “This is called papulopustular rosacea, and it’s

common,” Lolis says. Rosacea can’t be cured but it can be managed, as she explains.

Q How did I get rosacea?

LOLIS Research is still being done to find an exact cause, but there are common links. Genetics has a lot to do with it. It’s hereditary and women get it more than men do. Everyone is different, but common things that may aggravate or bring on rosacea are exposure to sunshine or excessive heat, wind, or cold; certain makeup or skin-care products; and stress.

Q When should I see a doctor?

LOLIS Do so as soon as you see an abnormal skin issue that’s painful and doesn’t go away, goes away and returns, or itches and flakes and doesn’t go away after a few days.

Q How is rosacea treated?

LOLIS Dermatologists may treat rosacea with antibiotics or topical creams. I’d start with a topical, which addresses bumps and breakouts or reduces redness. Antibiotics soothe irritation because they’re anti-inflammatory. But you may have side effects like gastrointestinal upset. Note that no treatment is a cure but a way to manage your symptoms.

Q What can I do at home?

LOLIS Cleanse your skin twice daily with a very gentle cleanser that doesn’t contain soap. Follow it up with a moisturizer that has hyaluronic acid. Use non-comedogenic (non-pore clogging) makeup. At night, remove all your makeup. Gently wash your face—no scrubbing.

4 Tips

TRY THESE TIPS TO KEEP FLARE-UPS AT BAY, SAYS DERMATOLOGIST **MARGARITA LOLIS, MD**

STAY COOL WHEN YOU WORK OUT

Avoid overheating. Exercise when it’s cool outside. After workouts, put a damp towel around your neck, have a cold drink, or suck on ice chips.

KEEP A DIARY

Pinpoint what triggers redness. For each flare-up, take note of common triggers like sun exposure, stress, exercise, weather, and certain foods or drinks. Then avoid them.

KEEP APPLYING CREAM

One study found that people who kept using topical medication even when symptoms cleared up were less likely to have a flare-up.

KEEP ALLERGIES AT BAY

Your body’s reaction to allergies can trigger rosacea symptoms. Try to identify allergens and avoid them so you can prevent future flare-ups.

ANATOMY OF...

Hair Color

The colorful story behind permanent hair color and home hair dyes

SHADY START

People have been coloring their hair as far back as the ancient Egyptians. Ingredients included metallic compounds, quicklime, wood ash, birch bark, saffron, myrrh, turmeric, henna, and even lead.

COLORFUL PAST

An English chemist trying to create quinine to treat malaria accidentally created mauve, the first synthetic dye, in the mid-1800s, which led to the color-changing molecule called para-phenylenediamine (PPD). Based on PPD, the first safe commercial hair dye was manufactured in 1909 and remains in many dye formulas today.

DO OR DYE

The two main chemicals used to color hair are hydrogen peroxide, which helps color develop, and ammonia, which helps lift the cuticle (the outer layer of the hair) so dye molecules can penetrate. The pigments are usually amino compounds or metal oxides like titanium dioxide or iron oxide.

FRESH ROOTS

Your roots and ends should not be treated equally. To make sure your color evenly deposits, apply color to the new growth at your roots first. Your ends have already been chemically processed and have already absorbed dye, so you color those last.

SKIN SAVER

To avoid staining your skin hairline, apply a thin layer of petroleum jelly or even lip balm to your skin. If you do end up with discoloration, gently rub the area with olive oil or baby oil to remove the color.

COLOR GUARD

One of the biggest enemies of hair color is water—it lifts the cuticle, the protective outer layer of the hair. This swells the inner core of the hair and allows color molecules to escape. Protect your color and extend the time between washes with a dry shampoo. Always wash with a color-safe shampoo with the coolest water you can tolerate.

TEEN DRIVERS

Focus, Focus

Sending a teen out on the road and want to lower their risk? Have a conversation.

DISTRACTED DRIVING IS A LEADING cause of traffic deaths worldwide. Who's most distracted behind the wheel? Young men, says a survey of Norwegian adults and teenagers of both sexes. Radio dials were by far the biggest attention-suckers, followed in order by eating, using car equipment, reaching for things, answering calls, prolonged eye contact with passengers, making calls, using a GPS, reading texts, and writing texts. Simply raising awareness of the dangers of this risky behavior, the study suggests, reduced how often it occurred.

—SONYA COLLINS

PREGNANCY

The Truth About Alcohol

Does an occasional glass of wine or beer really hurt? Our expert weighs in on current recommendations about drinking while expecting.



THINK YOU MIGHT BE IN THE CLEAR TO HAVE AN ALCOHOLIC DRINK WHEN you're expecting? **Whitney You, MD, MPH**, an assistant professor, obstetrics and gynecology in the division of maternal-fetal medicine at Northwestern University, clarifies what the data have to say.

Q Is it okay for moms to drink a little while pregnant?

YOU No. There's no amount the American College of Obstetrics and Gynecology can say is safe during pregnancy. I tell my patients to completely abstain from alcohol. Alcohol is a teratogen, a substance that causes birth defects. Everybody metabolizes alcohol differently, and every fetus metabolizes alcohol differently. So even if we could do

a big epidemiologic study and could say that it was safe for most people, we can't ever know for each individual woman and each individual fetus.

Q Are some alcoholic drinks safer than others?

YOU No. It doesn't matter if it's coming from a gin and tonic, a glass of wine, or beer. Every molecule of alcohol has the same potential effect.

Q What are the risks to the baby if mom drinks during pregnancy?

YOU We know it's associated with mental impairment, learning disabilities, attention deficits, hyperactivity, and problems with impulse control and memory, social skills, and language. What we don't have is data that look at these kids when they're 20. We don't know the long-term effects of light or even heavy drinking

during pregnancy. Even if problems are not evident when a child is 2, we don't know if problems at age 18 might be evidence of alcohol exposure in utero.

Q Can a mom drink if she's breastfeeding?

YOU I tell my patients to abstain. Some women might have a drink and then wait at least two hours before they breastfeed. But again, we just don't have the research to know that it's safe.

Q What if a woman is pregnant but can't stop drinking?

YOU Number one, tell your doctor. Being open and honest is best. At the end of the day, your doctor just wants to have a healthy mom and a healthy baby. Being dishonest and ashamed and fearful doesn't help you and doesn't help your baby. Your doctor can connect you with resources to help.

BY THE NUMBERS

1 in 10

Number of pregnant women in the United States who report drinking alcohol.

100%

Percentage of fetal alcohol spectrum disorders that are preventable.

40,000

Estimated number of children born annually with fetal alcohol syndrome disorders.

up to 1 in 20

Number of U.S. school children who may have a fetal alcohol spectrum disorder.

BABY

Fit for Two

No time to workout? Bring baby on board with your exercise routine.



CPT, a master fitness instructor with the National Academy of Sports Medicine (NASM) who works with new moms at her studio in Johns Creek, Georgia.

The easiest mommy-and-me workout is to put baby in a stroller and walk around your neighborhood. Start with 10 to 20 minutes a day, and lengthen your walks as your energy level and strength return. “If you want to increase your cardio, find some hills,” Malaythong suggests. “Put baby on your chest in a carrier or in the stroller and walk up and down those hills. It’s going to kick your butt.”

Once you feel stronger, incorporate stabilization and strengthening exercises, using your baby as added resistance. “You can bear hug or cradle them, and you can do squats with them,” Malaythong says. Get down on the floor with him and do planks or bridges to re-strengthen your core.

If it’s been a while since you last worked out, or you had a C-section delivery, get advice from a certified personal trainer and your doctor (always check with your doctor first before doing any new fitness routine after delivery). A trainer can show you how to ease back into fitness and perform each exercise safely to avoid injury.

Always check with your doctor before doing any new fitness routine after delivery.

YOUR BODY HAS SPENT THE LAST NINE-OR-SO MONTHS readying your baby for delivery. Now it’s time to get back into shape.

Not sure how to squeeze workouts into around-the-clock feedings, diaper changes, and the other new-parent tasks that have suddenly taken over your life? Incorporate baby into your routine to maximize the time you have for exercise—and sneak in more moments with him.

“When you’re a new mom, it’s bonding time more than anything. But it also gives you the time to be active with your baby and start new routines,” says Annie Malaythong,

4 Tips

LEARN HOW TO JUGGLE FITNESS WITH NEW MOTHERHOOD WITH THESE TIPS FROM **ANNIE MALAYTHONG, CPT**

TAKE A CLASS

Bonding time with other adults is important, too. Take a mommy-and-me fitness class to learn new routines and meet other moms in your area.

SCHEDULE ‘ME TIME’

While you attend to your baby’s needs, don’t forget to carve out time for yourself. Enlist your partner or get a sitter and sneak away for a yoga or fitness class on your own.

GET DAD INVOLVED

Moms aren’t the only ones who need to stay fit. Your partner can also walk or do squats with the baby—and give you a break in the process.

GO SLOW

Don’t push yourself to fit back into your pre-baby jeans. It took your body nine months to get to this point. Give yourself at least that long to recover.

KIDS' HEALTH

Bench Youth Athlete Injuries

Football isn't the only risky youth sport. Injury in many sports are increasing. What can you do to keep your child safe?



FROM BLOWN-OUT KNEES IN PEE WEE FOOTBALL PLAYERS AND HIP cartilage tears in pre-teen gymnasts to debilitating elbow injuries in Little League pitchers, youth sports injuries are becoming more common and more serious. These injuries raise concerns that parents and coaches are pushing kids too hard.

"We are seeing a disturbing professionalization of the youth sports arena," says Brooke Pengel, MD, medical director of the Rocky Mountain Youth Sports Medicine Institute in Denver. "It is no longer about going out and having fun; it's often about getting to the next level. It is becoming a pressure cooker, and kids are getting hurt and burned out."

One recent study published in the journal *Pediatrics* found that the number of kids landing in the emergency room with soccer injuries each year has risen 111% since 1990. Another found a five-fold increase in serious elbow and shoulder injuries among youth baseball and softball players since 2000. Meanwhile, the number of anterior cruciate ligament (ACL)

→ Jill-of-All-Trades

Playing multiple sports throughout the year helps kids work different muscle groups and possibly avoid injury.

tears—a serious knee injury once seen almost exclusively in adults—

has risen 2.3% annually for two decades among children.

Increased participation is partially driving the trend, notes Pengel. Sixty million youth ages 6 to 18 participate in organized sports today, compared to about 45 million in 1997.

But other factors also contribute. "Kids are starting to play at higher levels of competition at younger ages, and they and their parents think they need to be specializing in one sport and playing it year-round to get that scholarship someday," says John Polousky, MD, chief of pediatric orthopedics at Children's Health Andrews Institute for Sports Medicine in Plano, Texas.

Polousky notes that an entire industry has grown up around sports performance training for kids, with traveling club teams, off-season training camps, and weekend showcases. Coaches also put the pressure on, with one study showing that

one-third of athletes ages 7 to 18 have been told by a coach not to participate in other sports.

That strategy can backfire, doctors say.

In 2016, the American Academy of Pediatrics issued a warning that specializing in one sport (which about one-third of kids do) and playing it year-round significantly boosts risk of overuse injuries like elbow and shoulder injuries in baseball players or knee and heel pain in soccer players.

While most overuse injuries are treatable, suffering an acute injury—like a bone break or an ACL tear—at an age when growth plates and joints and ligaments are still developing can have life-long consequences, research shows. Overtraining likely boosts risk of those kinds of injuries, too.

“When an athlete is fatigued they are more likely to get hurt,” Pengel says.

Another disturbing trend: 70% of kids who start youth sports drop out of them entirely by age 13, many due to burnout. Their top three reasons: adults, coaches, and parents.

“There isn’t a day that goes by in my office where I don’t have a kid whose parents are saying, ‘Hey, the

colleges are looking at him, what can you do to get him back on the field,’” she says.

But all this early sports specialization rarely leads to scholarships or professional careers (only 1% of high school athletes receive a collegiate sport scholarship). And mounting evidence suggests that being a multi-sport athlete at a young age improves performance and boosts chances of playing in college or going pro. One survey of 322 college athletes invited to a National Football League scouting event found that 87% had played multiple sports in high school.

The takeaways for parents: Encourage your kids to try out a variety of sports throughout the year, which can give particular muscle groups a break while engaging others. If your child wants to specialize intensely in just one, hold off until high school, when they’re past puberty and less vulnerable to injury. Allow for two rest days per week and a few months per year of playing no organized sports at all.

And don’t lose sight of the fun factor, says Pengel. “In the end, we want kids to love sports and be in it for life.”



Tips for Parents

MIX IT UP

Help your child choose sports that exercise different muscle groups throughout the year. For instance, a swimmer could run cross country. A baseball player could play soccer.

DIVERSIFY EARLY, SPECIALIZE LATER

Studies show youth who wait until after 16 to specialize minimize risk of injury and boost chances of athletic success.

TAKE A BREAK

If you and your child opt to specialize, have him or her take three months off (not necessarily in consecutive order) of a chosen sport per year.

KEEP PRACTICE HOURS IN CHECK

The number of hours your child is practicing a sport should not exceed his age. For instance, a 10-year-old should not practice more than 10 hours per week. In high school, the number of hours should not exceed 16.

AVOID THE ER

Visits to emergency rooms due to sports injuries skyrocket in the fall when kids who have been inactive all summer return to school and ramp up their training.

BY THE NUMBERS

3.5
million

Number of kids under the age of 14 who receive medical treatment for sports injuries each year.

2million

Number of sports injuries high school athletes suffer each year.

28%

Percentage of football players ages 5 to 14 who have been injured while playing the sport. Some 25% of baseball players, 22% of soccer players, 15% of basketball players, and 12% of softball players have been injured.

3% to 11%

Percentage of high school athletes who go on to compete at the college level. Some 1% get scholarships; .03 percent go pro.

➔ Search for the article **Mood Control**
Goals: **How to Teach Your Kids at**
WebMD.com.

REVIEWED BY **Roy Benaroch, MD**
WebMD Medical Reviewer

PARENTING

Raise Kids Who Bounce Back

Children today face all kinds of challenges. To help them thrive, don't shelter them—let them step up.



NO MATTER HOW MUCH WE MAY TRY TO SHIELD THEM FROM THE WORST OF life's hard knocks, kids will go through their share of tough times, from small stuff like losing the big game to traumatic experiences like a divorce or the death of a loved one. To give them the tools to bounce back from these blows, a new study from researchers at Yale University says the best thing parents can do is encourage volunteer work, extracurricular activities, and working for pay.

The investigators found that those children who flourish in the face of adversity were significantly more likely to be involved in building skills and experiences outside the home. They defined "flourishing" as showing interest in learning new things, staying in control when faced with a challenge, and following through on tasks and assignments.

"Positive social connections appear to help youth define individual identities, provide them with a sense of belonging and attachment, and offer important opportunities to learn healthy adaptive responses to adverse experiences," says lead author Tammie Kwong, MPH, a fourth-year medical student at Touro College of Osteopathic Medicine in New York.

In working with underserved communities at hospitals in Harlem and on Long Island, Kwong says she frequently sees examples of this. "Kids who may be having trouble at home build a positive sense of identity through things like volunteering at the library, where they meet mentors they look up to who can teach them positive coping skills."

These findings make sense to Michael Ungar, PhD, Canada Research Chair in Child, Family, and Community Resilience at Dalhousie University in Canada. Working or volunteering offers a sense of identity, control, and belonging to kids and teens who may be feeling powerless to change the circumstances of their lives, Ungar explains. "While we may think of children as self-centered, that's actually not how they're wired. From a very young age, kids want to help, and children under stress do better when they are given the opportunity to make a genuine contribution."

Pitching in for All Ages

MICHAEL UNGAR, PhD, OFFERS TIPS FOR BUILDING RESILIENCE BY GIVING KIDS A SENSE OF CONTRIBUTION AT HOME AND BEYOND

5-YEAR-OLDS

"At home, they can help sort the laundry and clean the car. Help them raise money to buy backpacks or school supplies for other children by doing a lemonade stand."

10-YEAR-OLDS

"Make it their job to organize and maintain their gear for activities. Outside the home, they can volunteer to help an elderly neighbor with carrying groceries or raking leaves."

13-YEAR-OLDS

"Kids can begin to earn their own money through jobs like babysitting and mowing lawns. Crafty kids 13 and up can sell their wares online with parental permission."

16-YEAR-OLDS

"Teens can organize bigger projects, like starting their own school chapter of Habitat for Humanity, or volunteer with the nearest Special Olympics program."

PETS

Chew This, Not That

Chewing is a canine instinct—as natural as barking and tail-wagging. You can't put a stop to it, but you can redirect it.



HAS THIS EVER HAPPENED TO YOU? YOU COME HOME FROM WORK TO FIND YOUR puppy staring up at you—with those eyes—and the strap of your favorite sandal is hanging out of his mouth or clumps of pillow stuffing are on the floor behind him.

Wait. Don't yell.

Some chewing is part of being a dog, and some is a sign of a bigger problem. How you should handle it depends on the cause.

"Puppies chew. It's how they explore, just like human babies," says Brian Collins, DVM, a veterinarian at Cornell University Companion Animal Hospital. Older dogs do it, too. "They may do it just to pass the time," he says. Dogs also gnaw to keep their teeth clean and their jaws strong.

But something may be eating at your pup. Beware of other signs of stress besides just chewing. "Digging, howling, and barking are clinical signs of distress," Collins says. "Ripping up lots of things, pulling things off tables, breaking screen doors—these things indicate the dog just isn't happy." He could be anxious or bored, for example.

Normal or not, eating your shoes or un-stuffing your throw pillow is unacceptable. Gnawing things that he shouldn't isn't good for him either. When canines get their jaws around things that aren't meant for them, they can break their teeth or swallow

something that can get stuck in their gastrointestinal tract. Both puppies and adult dogs can learn from obedience training, whether it's through a private trainer, classes at the local pet supply store, or techniques you pick up from a book or video. This will help when you begin to teach him what he can and can't sink his teeth into.

While you teach your pup what's okay to chew, keep forbidden items out of reach and toys in plain sight. "It's not always

→ **Toy Time**
Leave three to five toys out to keep your dog entertained.

convenient, but it's for a relatively short time," Collins says. If you don't want him

to eat up your clothes, make all clothes off limits. Don't give him an old T-shirt just because you don't want it anymore. He can't tell the difference.

Don't punish. Just take the object away, replace it with a toy, and reward the good behavior. "Positive reinforcement is the most effective and humane approach to addressing behavior issues," Collins says.

Provide enough toys to entertain your pooch, but not so many that it's hard for him to learn what's a toy and what isn't. Leave out about three to five at a time. Switch them out sometimes, so your dog doesn't get bored and go back to work on the coffee table.

Make sure your dog gets plenty of exercise and playtime, so he doesn't have as much energy for chewing. "If they have lots of pent-up energy because they're not exercising, it can certainly make any behavior problem worse," Collins says.

If you suspect the chewing is a sign of distress, it could be separation anxiety. "For whatever reason, early on in life, some dogs don't get accustomed to being alone," Collins says. This type of dog needs more company. "You could get dog walkers, come home at lunch, or find a dog day care," he says. "You drop the dog off on the way to work and let him have a fun day and come home tired."



TEEN HEALTH

Slow Movers

Research shows the physical levels of American 19-year-olds are on decline. Could additional sleep help turn around this unhealthy trend?

A NEW STUDY TRACKING PHYSICAL ACTIVITY LEVELS IN 12,529 AMERICANS ACROSS all ages shows more than half of the late-adolescent teens who participated are as sedentary as 60-year-olds. And routine sleep deprivation likely makes the problem worse, at least one expert believes.

The health implications of such behaviors are a concern, says head researcher Vadim Zipunnikov, PhD, assistant professor in the Bloomberg School's Department of Biostatistics. "Children require a minimum of 60 minutes of moderate to vigorous exercise every day," he says, citing the World Health Organization's recommendations. "Most get nowhere near that."

Circadian rhythms—the biological process that sets our bodies to a 24-hour cycle, even in the absence of light—and early-morning school cycles may jointly contribute to an uptick in sedentary behavior, Zipunnikov explains.

"We cannot talk about low levels of physical activity in adolescence without talking about sleep problems," he adds. "Children, starting around age 11, go through hormonal changes that affect the circadian system for years, making them want to go to bed later and later. Yet they still must get up early for school. Age 19 is the time when this hormonal change stabilizes and kids go back to 'normal' sleep cycles. When children are sleep-deprived, they don't possess enough energy during the second half of day" for optimal physical activity.

Once hormones steady in the early to mid-20s, "a return to a normal circadian rhythm happens," too, translating into earlier bedtimes, additional sleep—and a measured increase in daily, vigorous activity, the data show.

The researcher cites the epidemic of obesity in teenagers in the U.S., as well as associated, long-term health conditions—type 2 diabetes, cardiovascular issues, depression, and substance abuse—in young and middle-age adults as reasons to support the growing trend in the U.S. to delay start times in middle and high schools.

"Give kids a chance to wake up later," he says, so they're rested enough to engage in vigorous physical activity the next day.

4 Tips

BASED ON THE DATA HE'S ANALYZED, **VADIM ZIPUNNIKOV, PhD**, SUGGESTS YOUNG PEOPLE NEED TO SLEEP MORE TO MOVE MORE—AND IMPROVE THEIR HEALTH

WEAR 'EM OUT

Low activity doesn't cause insomnia—changing hormones do, Zipunnikov asserts—but sedentary behavior definitely doesn't help. "If they've been active, they'll need rest," says Zipunnikov.

COMBAT MOOD ISSUES

In addition to obvious problems like excess weight gain, low levels of physical activity are associated with a higher risk of depression and related substance abuse, he adds.

STUDENTS, DON'T SIT STILL

"Prolonged sitting is bad for the cardiovascular system. Schools should consider 10-minute brisk walks for students throughout the day, in addition to daily P.E. classes," says Zipunnikov.

WILL THE PROBLEM GROW WORSE?

Zipunnikov studied data collected in the mid-2000s "before the rise of smartphones." He expects to find higher sedentary levels after new data are released in 2018.



LAST YEAR COMEDIAN
JIM GAFFIGAN
AND HIS WRITER WIFE, JEANNIE,
FACED A **HEALTH CRISIS THAT**
NEARLY ENDED HER LIFE,
DERAILED THEIR FAMILY, AND
HALTED HIS CAREER. BUT
INNOVATIVE TECHNOLOGY—
AND A LOT OF HUMOR—
GOT THEM THROUGH.



No joke

By **Lauren Paige Kennedy**
Reviewed by **Arefa Cassoobhoy, MD, MPH**
WebMD Senior Medical Director

yes, Dad's a famous comedian. But ignore his film work, late night appearances, and standup gigs, and the Gaffigan family is like any other loving, if slightly frantic, large clan. Jim and partner Jeannie (in marriage and material—she's a writer, producer, and his frequent collaborator) together juggle five young children,

joke-making, and insane schedules. And they do their best not to drop any balls—least of all when it comes to their health.

So when Jeannie developed crushing headaches, frequent falls, and severe fatigue in the final months of 2016, she chalked it up to, well, life. The busy mom thought, *I don't have time for this!* “I figured I had the flu,” she says.

It was her kids’ Manhattan-based pediatrician who first raised a red flag during a routine visit—that is, if you deem “routine” a single appointment last April with all five children—two daughters and three sons (now) ranging in age from 4 to 13—in tow.

After noting her rattling cough, the doctor switched focus from the Gaffigan brood to their mother, who couldn’t hear much out of her left ear, either. An impromptu examination showed no obvious signs of inflammation, so she suggested Jeannie immediately see an ear-nose-throat (ENT) specialist.

She complied. And didn’t think much of it. She certainly never imagined she’d find herself about to be wheeled into major surgery a few days later, a frightened Jim at her side.

It all happened so fast: The ENT ordered an MRI scan of Jeannie’s head, which revealed a 6-centimeter tumor the size of a tennis ball growing within the tightly contained space of her brain stem. While it eventually tested benign, its dimensions and location were particularly dangerous. Had it gone unchecked for even a short time longer, she would have developed cognitive impairment and paralysis, and very likely would have died, according to her physician, Joshua Bederson, professor and system chair, neurosurgery, Mount Sinai Hospital, New York.

“We did tell our two older children what was happening, because we knew the household was about to be disrupted dramatically,” Jim says in a phone call from his hotel room just a few hours before he performed a comedy set in New Orleans. “So, we did to them what the doctors did to us—presented the information with a positive, glass half-full approach”—even if his true

level of anxiety, he admits now, was off the charts.

TUMOR HUMOR

Both Gaffigans subdued their fears through countless prayers, an action plan that included checking into Mount Sinai’s emergency room after learning top surgeon Bederson worked there, and staying true to their shared modus operandi—being funny.

“Jeannie came out of the MRI machine with new material, saying, ‘Hey, Jim! Write this down,’” the *Cinco* comedy special star recalls, his



tone relaxed with hindsight.

His wife, a Milwaukee native, agrees. "I asked the technicians what would happen if I screamed in there," she says, "and they were, like, 'Oh, that's OK. We can't hear you, anyway.'"

MRI machines can be cramped, coffin-like spaces that emit loud, whirring noises as they produce detailed magnetic imaging, inducing panic in some patients who suffer from claustrophobia. Bederson ordered Jeannie to undergo an additional seven hours of these and other imaging tests in the days before her surgery to produce what he calls "a 3-D virtual reality simulation of her brain." This "cutting-edge, augmented reality technology" enabled him to remove the tumor with a high degree of precision "not possible even a year or two ago," he says. (See sidebar for more on computerized innovations now revolutionizing difficult surgeries.)

Despite their daunting situation, the Gaffigans kept searching for the joke. "That's the way we deal with life—with humor," says Jeannie of herself and

her husband of 14 years. "Fight or flight—we went with fight. The fight was using humor to cope with tragedy."

Fans of *Late Night with Seth Meyers* sampled this in Jim's updated act, now replete with brain tumor jokes that were co-written by the patient himself.

"It was really scary for a while," Jim told Meyers last June, just weeks after the operation, his deadpan expression and tone giving nothing away. "There were moments when I was like, 'Oh, my gosh. If anything happens to my wife . . . those five kids are going to be put up for adoption.'"

Kidding aside, Jim is the first to emphasize just how gutted he'd be without his other beloved half. He's been known to call her his "secret weapon" for helping craft such punch lines, often inspired by funny moments pulled from family life.

Still, it was tough to find the funny once reality set in. "Obviously, I selfishly wanted my wife to be OK because I love her. But I was also concerned about my children. It's one thing for them to go from super

mom to klutzy dad. Then there were moments when I was like, 'Oh. No. This might be it.' And if things went further south, the priority would be for me to be the continuity in my children's lives. I knew I couldn't do that and tour as a comedian and be an actor in films," says Gaffigan, who next appears in the big screen drama *Chappaquiddick* in April. "When we finally got out of the woods, my obvious gratitude was about Jeannie. And, also, it was: 'OK. I could have lost this whole thing.'"

He and his wife are both devout Catholics who don't shy away from using the word "miracle" when it comes to Jeannie's eleventh-hour diagnosis and subsequent survival. Jim says he's been irrevocably "changed by the experience. The writing we do, there's been a shift. The simple process about talking about it all in a humorous manner has been cathartic for me, but I think it's cathartic for others to hear about it, too. There's not a single person out there who hasn't lost, or almost lost, an important person in their lives."

POST-OP PERSEVERANCE

Papilloma of the choroid plexus is a rare and benign lesion that grows within the brain stem, a crucial cranial region that controls the flow of messages between the brain and the rest of the body, as well as basic bodily functions such as swallowing, heart rate, blood pressure, consciousness, feelings of sleepiness, and even breathing.

"The brain stem is what we call high-price real estate in neurosurgery," Bederson says. "It's chock-full of critical structures." Patients with Jeannie's condition generally have pneumonia first, he explains, because they have difficulty swallowing saliva and food, which aspirates into the lungs. Other symptoms include "loss of cranial nerves, speech issues, respiratory

BIG HAPPY FAMILY

Jeannie and Jim Gaffigan posed with their kids for Jim's 2013 book *Dad Is Fat*.

depression, loss of balance and functionality, painful headaches, debilitating fatigue, and weakness”—all of which Jeannie had.

It's unusual for someone Jeannie's age to be diagnosed with this type of mass—the condition is more common in children and represents only 2% to 4% of all tumors in adults—but what made her growth so remarkable, Bederson says, was its “huge” size, a factor that immediately suggested it was likely not cancerous but still destructive.

After seeing her first scan from the ENT, “I couldn’t believe she was able to walk into my office by herself, much less care for five children,” he says. Which is why he cleared the deck for her immediate treatment.

The surgery went well. Jeannie even posted a photo on Instagram

of herself kissing one of her young sons from her ICU bed, captioning it, “I’m still alive!”

Recovery, however, didn’t go quite so smoothly. The writer’s brain stem had endured so much compression from the tumor that her ability to swallow was still seriously compromised. The night following the operation, “I aspirated my saliva and developed double-lung strep pneumonia,” she says, which compelled Bederson to perform a tracheotomy to her neck to open up her airways, followed by the insertion of a feeding tube into her naval cavity. She relied upon both for months as she battled back from illness.

Once stabilized about two weeks post-surgery, Jeannie returned home

to the Gaffigans’ Manhattan apartment to convalesce.

“Our youngest sons dressed up like doctors to care for her,” says Jim. “They showed so much compassion.” He chokes up a bit when describing how family members flew in from the Midwest “without hesitation” and how so many “amazing” friends from all walks of life appeared to help with the kids as she began speech and swallowing therapy and other rehabilitative work to restore her brain functionality, body strength, and balance.

Jeannie still struggles with roughly 50% hearing loss out of her left ear and is only now, many months later, graduating from a liquid diet. But “her 60% is my 110%,” Jim told the *San Francisco Chronicle* last September of her rebound.

He saves special (comic) praise for Bederson. “He’s the best,” Jim insists in all seriousness before musing, “I don’t how they determine who the ‘best’ brain surgeon is. Maybe there’s a competition—you know, ‘America’s Got Tumors’ or something. And why does someone have to be the best brain surgeon? Isn’t it enough that he’s a brain surgeon?”

Bederson is equally effusive about the Gaffigans—his recent patient in particular. The neurosurgeon sees her rapid improvement as nothing short of astounding. “Have you met Jeannie?” he asks. “She’s such a trooper.”

STAND UP

Jim Gaffigan performing during a stop on his “Contagious” tour.



SCREEN TIME
Jim Gaffigan appears in *Chappaquiddick*, due out this spring.

BOTTOM LEFT: CLAIRE FOLGER; TOP CENTER: GETTY IMAGES

HIGH-TECH SURGERY

Jeannie Gaffigan secured the services of Joshua Bederson of Mount Sinai Hospital, who co-directs the Neurosurgery Simulation Core, one of the first academic neurosurgery simulation research centers in the world. Bederson and his colleagues use innovative technology that “creates a GPS for the brain,” allowing them to see—and, most important, avoid—critical brain structures with 3-D computerized imaging as they remove a tumor. This virtual reality technology, now available at some top hospitals in the U.S., first entered surgical theaters in 2015. **Here’s how it works:**

➔ Search for the slideshow
Guide to Brain Cancer at
WebMD.com.

“FIGHT OR FLIGHT.

WE WENT WITH
FIGHT.
THE FIGHT
WAS USING
HUMOR TO
COPE WITH
TRAGEDY.”

PHOTOGRAPHY: KATHRYN GAMBLE

LAYERED IMAGING

“Think of the movie *Avatar*,” Bederson says, “in which we create a virtual reality simulation of a [specific] case based on multiple information sources including MRI, CT scan, and angiogram. We co-register and segment them, meaning we color them, make them transparent,

and attach different properties to each different type of tissue—cranial nerves, blood vessels, brain stem, cerebellum, and bones. Each tissue has its own appearance, and [is] overlapping and integrated [on a computer screen]. It’s like a 3-D virtual reality scenario, but based on [an individual’s specific] anatomy and pathology.”

BETTER PRECISION

“We have an instrument that knows where my [surgical] instruments are in relation to the patient’s anatomy,” he says. “We track the microscope’s movement and where the focal point of the microscope is—so the computer knows where my eyes are looking and where my eyes are focused.

“If I want to know where the brain stem is when I’m working on a tumor, normally I wouldn’t be able to see it because the tumor’s [in the way]. Now you have control over the simulation. You can see around corners.” This provides neurosurgeons like Bederson a level of exacting precision and safety previously more difficult, if not impossible, to achieve.



OVERC BIAS

Sachin Jain, MD, was finishing up his residency at a Boston hospital in 2012 when he encountered a patient who was upset that the hospital's pharmacy didn't stock his brand of insulin.

When Jain tried to offer a solution, the man yelled, "Why don't you go back to India?" Jain, who was born in New York, said he "exited the room in a cold sweat" and transferred the patient to another doctor.

"I think medicine is a profession that requires you to give your soul and develop a therapeutic bond with someone," he says. "If someone has a hateful perspective toward you, it naturally gets in the way of your ability to deliver that kind of care, because you're not necessarily able to develop that therapeutic bond."

A majority of health care professionals—including doctors, nurses, and physician assistants—say patients have

made offensive comments to them based on their age, gender, ethnic background, race, weight, or other personal traits. And nearly half have had a patient request a different doctor in the last five years because of characteristics like these, according to a recent WebMD/Medscape survey done in collaboration with the health news website STAT.

The survey, "Patient Prejudice: When Credentials Aren't Enough," gathered responses from nearly 1,200 doctors and other health care professionals and more than 1,000 patients.

Most of the bias toward health care professionals documented in the survey was based on visible features, such as age, gender, ethnicity, race, and weight.

Experts say that bias in hospitals and clinics isn't isolated or unique. "Health care isn't different than other domains of life and service in which these types of experiences

AMONG DOCTORS

In the survey "Patient Prejudice: When Credentials Aren't Enough":

- + **Women** (41%) were far **more likely** to encounter **bias** about their gender, compared with their male counterparts (6%).
- + **Women** were also **more likely** to hear comments about their **age** (36% vs. 23% of men) and **weight** (15% vs. 9% of men).
- + **Doctors** younger than **age 34**—both men and women—were **more likely** to hear negative comments about their **age** (54%).

OMING

BY STEPHANIE WATSON

REVIEWED BY AREFA CASSOOBHOY, MD, MPH
WEBMD SENIOR MEDICAL DIRECTOR

A recent survey shows that credentials and experience don't shield doctors, nurses, and other health care professionals from bias. It also affects patients and their care. But solutions can help.

are unfortunately part of our everyday lives,” says Jain, who is now a practicing physician and an adjunct professor of medicine at Stanford University.

Yet when it happens in a medical setting, the consequences can be more serious. Jain stresses that most patients never express biased views or behaviors. “But over long careers, these types of episodes do happen,” he says. “And they sit with doctors for a long time.”

Those experiences also stay with the nurses who encounter them—including Valda Boyd Ford, a registered nurse.

Ford says that on her first day of work at a Jacksonville, North Carolina, hospital, a patient told her to “get my black a-- out of his room. It felt ugly,” she says, “but I didn’t have a choice. I had to go back in there. That particular day, we were swamped. Even though I wanted to cry . . . I had a job I had to do, and I did it.”

Nurses may be even more vulnerable to abuse than doctors because of the extra time they spend with patients. “The doctors may be in the room for three to five minutes. The nurses can be in there for an hour or more,” says Ford, who is founder and CEO of the Center for Human Diversity in Omaha, Nebraska, which aims to improve communication between people of different racial, ethnic, social, and cultural backgrounds.

Incidents of bias in health care settings have also attracted attention thanks to social media. Last summer, a video circulated on the internet of a woman demanding a “white doctor” for her son at a Canadian walk-in clinic. The woman asked an employee, “Can I see a doctor please that’s white, that doesn’t have brown teeth, that speaks English?”

Security escorted the woman from the building, and a doctor treated the child.

- + **African-American** (70%) and **Asian doctors** (69%) were **more likely** to hear **biased comments** from **patients**.
- + **Male doctors** most often reported hearing **biased remarks** about their **ethnicity** (24%) and **age** (23%).
- + **Male doctors** were also **more likely** to hear remarks about **religious bias** (15%) than female doctors (8%).



Tamika Cross, MD, an African-American doctor who volunteered to help a sick patient on a flight, says a flight attendant told her they were looking for “actual physicians or nurses.”

“Whether this was race, age, gender discrimination, it’s not right,” Cross wrote in a Facebook post detailing the incident.



THE FLIP SIDE OF THE COIN: PATIENTS' STORIES

Bias can go both ways.

According to the same survey, 11% of patients who had visited a health care professional in the past five years said they had heard offensive remarks. While that percentage is much lower than for health care professionals, the two don't provide an accurate comparison. That's because most doctors see hundreds of patients during five years, while most patients may see only a small number of doctors.

A Medscape survey out last year found that 50% of doctors said they had biases toward specific groups of patients. Korean, Vietnamese, and Japanese doctors were most likely to say they had biases. Among doctors who admitted bias, the most common were about overweight patients, those with perceived emotional problems, and those with perceived low intelligence.

Patients also admitted in the WebMD/Medscape survey that they had expressed bias in their choice of doctor or other health care professional. Nearly one-third (29%) said they would be inclined to avoid a health care professional based on personal characteristics. When choosing

a primary care doctor, women (28%) are more likely than men (12%) to say they prefer a woman like themselves. After gender, patients say they are more likely to prefer a primary care doctor with the same:

- Sexual orientation (11%)
- Ethnicity (8%)
- Religion (7%)
- Political views (6%)
- Race (5%)

BIAS—OR PREFERENCE?

What appears on the surface to be a case of bias might just be a poorly explained personal preference. For example, a woman could ask for a female gynecologist because she's more comfortable having a doctor of the same gender perform her pelvic exam. An African-American or Hispanic patient might request a doctor of the same ethnic background because he or she had negative experiences with doctors of other ethnicities in the past.

Jain says a big challenge in health care is “the notion that all patients and physicians are right for each other.”

In a medical journal article called “The Prejudiced Patient,” he wrote that patients may naturally be more comfortable with someone of their own race. Is that bias, or is having a doctor with a shared

BIAS TOWARD PATIENTS

In the survey “Patient Prejudice: When Credentials Aren't Enough”:

- + **24% of doctors have documented an incident of bias on a patient's medical record.**
- + **10% have reported the bias to their administration or other authority.**
- + **9% have refused to care for a patient who expressed bias toward them.**



connection valuable? He cites research showing that patients who have doctors of the same race find their visits more satisfying and are more likely to use health care and seek preventive care.

“If medicine is to truly embrace patient-centered care, we must try to match patients with the physicians with whom they will forge the strongest relationships and attain the best health outcomes,” he wrote.

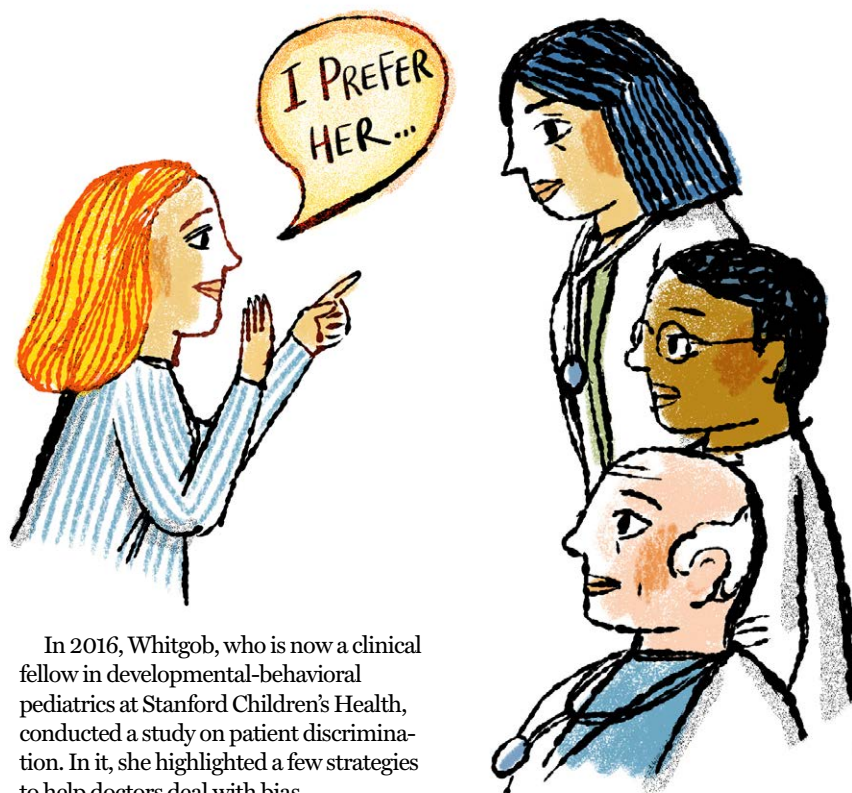
When patients request another doctor based on personal characteristics, most of the doctors surveyed (72%) say they comply. Yet the doctor that patients end up with might not have the ideal expertise to treat their condition.

When Leon McDougle, MD, was a resident with the Naval Hospital Camp Pendleton's obstetrics unit, he was asked to care for a woman in labor. As he entered the room, “the husband informed me that he didn't want me taking care of his wife. And it was based on race,” says McDougle, who is African American. “What the father didn't know was that out of all 12 interns, I had received the most obstetrical education as a medical student.”

Doctors who encounter bias are often caught off-guard because they haven't been taught how to deal with this issue. “It's not a typical part of medical training to know how to respond to hate speech or hateful rhetoric from the patients we serve,” Jain says.

McDougle says when an incident does happen, “you have to take those extenuating circumstances into account when the discussion takes place. Typically it's going to involve a neutral person coming in and talking to that patient and trying to decide the motivation for the request,” says McDougle, who is a professor of family medicine and chief diversity officer at the Ohio State University Wexner Medical Center.

Four years ago, Emily Whitgob, MD, MEd, was a resident supervising interns at Lucile Packard Children's Hospital Stanford. A patient's father told one of her interns that he didn't want a Jewish doctor treating his child. The intern wasn't Jewish, but Whitgob is. “I felt unsettled, and I think a lot of it was because it wasn't addressed in the moment. It was a busy clinical setting. There were no protocols for how to handle it,” she says. “It made me realize this is something we need to study.”



In 2016, Whitgob, who is now a clinical fellow in developmental-behavioral pediatrics at Stanford Children's Health, conducted a study on patient discrimination. In it, she highlighted a few strategies to help doctors deal with bias.

First, she recommends that doctors evaluate the patient's medical needs. A critically ill patient might not have the luxury of demanding another doctor in a busy or understaffed emergency room.

If the person is stable, Whitgob recommends that doctors try to build a bond. "Sometimes the intention isn't cruel. It's more the fear of the unknown," she says. Asking why the person has asked for a different doctor could build understanding and trust and diffuse the situation.

Whitgob says better training in medical

school could prepare doctors to handle discrimination when they encounter it. "If you've role-played through what you can do in this setting, when it does happen, you're able to talk to your supervisor, tell the higher-up what happened, and decide what you want to do."

THE GOAL: FAIR TREATMENT

The American Medical Association Code of Ethics says doctors have the right to "terminate the patient-physician relationship with a patient who uses derogatory

language or acts in a prejudicial manner only if the patient will not modify the conduct. In such cases, the physician should arrange to transfer the patient's care."

Yet the medical association acknowledges that doctors' rights are often a sticky issue. "These can be complex situations given the health system's focus on soliciting and honoring patient preferences—a core tenet of patient-centered care," says Robert Mills, an American Medical Association media representative.

Jain says bias has no place in a medical setting, whether from doctor to patient or patient to doctor. "Unfortunately, they are a reality for both," he says. He adds that health care delivery organizations need to build guardrails that protect both patients and physicians against bigotry.

He believes doctors shouldn't have to put up with racist or bigoted behavior under any circumstances. "There's a view that the patient is always right," he says. "And in these situations, that's not always right. I think doctors have the right to work in situations where they feel respected and supported."

Just as hospitals have a patients' bill of rights—a document that guarantees them fair treatment by medical staff—Whitgob says doctors should have their own bill of rights ensuring fair treatment by their patients: "It's two-way respect. You expect good care and respect. We expect respect in return."

➤ This story is part of an in-depth **Special Report on WebMD.com**, which includes a video, survey data, and related articles. Find it at [WebMD.com/patientprejudice](https://www.webmd.com/patientprejudice).

PREVENTING BIAS IN YOUR CARE

Avoid becoming a recipient—or perpetrator—of bias when you get medical care. Some tips:

+ Consider your reasons.

If you'd prefer not to see a particular doctor, think about the reason. Is it because of their expertise, or due to factors like their race, gender, or age? If it's the latter, you might be cheating yourself out of the most qualified doctor unless you reconsider.

+ Talk about it.

Have an open, honest conversation with the doctor in question. You might find that his or her responses calm your worries.

+ Rely on your primary provider.

When you have concerns about a new doctor, ask your primary care provider to act as a go-between. He or she already knows you well, and may be able to explain the reasons why you'd prefer to see a different doctor.

+ Ask for a supervisor.

Take this step if you feel like a doctor has expressed bias against you. Find out whether the hospital or clinic has a policy on bias, and if the behavior in question goes against that policy.



BY MATT McMILLEN
REVIEWED BY HANSA BHARGAVA, MD
WEBMD SENIOR MEDICAL DIRECTOR

SALT

IS SALT AT FAULT FOR WEIGHT GAIN?

Conventional wisdom has long held that salty foods boost your thirst and lead you to drink more water. But can salt also prompt you to eat more as well?

Researchers have begun to explore salt's previously unknown role in hunger and the potential connection to weight gain. Several recent studies shed light on why salt may encourage overeating.

"Until now, we have always focused on the effect of salt on blood pressure," says Jens Titze, MD, associate professor of medicine and of molecular physiology and biophysics at Vanderbilt University in Nashville.

"We have to expand our conceptions of salt and diet."

Salt and space

Titze is the lead researcher on a new study challenging the notion that salty foods make people thirsty. Instead, he found that those who eat high amounts of salt drink less water than those who have smaller amounts of salt in their diet. They also become hungrier. Over the long term, that boost in appetite could lead to overeating and weight gain.

For the study, Titze and his colleagues gained access to a unique group of subjects: 10 Russian astronauts—or cosmonauts—preparing

for the rigors of space travel to Mars. The space flight simulation, which lasted for months, provided a stable environment for the researchers to study how salt affected them.

Throughout the study, the cosmonauts' diet did not vary except in one key way: The researchers changed the amount of salt in their food. The cosmonauts started on a diet that included 12 grams of salt per day. That's about twice the amount recommended by U.S. dietary guidelines. After several weeks, researchers reduced the amount to 9 grams per day, and then to 6 grams daily during the final third of the study period.

What happened upended the researchers' expectations: The cosmonauts drank more water as their salt intake dropped.

"We simply could not understand it," says Titze.

Titze describes another surprise. The cosmonauts complained of hunger while on the high-salt diet.

"We said, you can't be hungry, you're

of sodium per day. That's about a teaspoon of salt. According to the American Heart Association, the ideal target for most adults is no more than 1,500 milligrams daily.

Most adults, however, get far too much. The CDC estimates that the average American adult eats 3,400 grams every day.

In the last several years, scientists have investigated whether salt affects obesity.

In 2015, British and Chinese researchers reported that body fat increased for children and adults on high-salt diets. Eating an extra gram of salt each day increased the risk of obesity in children by 28% and in adults by 26%. The study authors said they don't know why salt has this effect, but other studies suggest that it may change the way the body burns fat.

An Australian study published last year linked high-salt diets with a 23% increased chance of obesity in schoolchildren. The children may have eaten more because salt makes food taste

happen. More research needs to be done to fully understand salt's role.

Lori Roman, president of the Salt Institute, said in an email that her non-profit trade group "continues to follow the science closely as it develops."

She says research shows that cattle ranchers use salt to cut their animals' appetites and limit how much feed they eat. "This longstanding research and other research on humans would lead us to question any claims that salt might increase obesity," Roman wrote. She added that Americans eat in the "normal range" when it comes to salt.

Salt and mice

In the space flight simulation study, the authors did not understand why the cosmonauts drank less and became hungrier on the higher-salt diet, so they turned to mice to find out.

This study revealed that when mice ate a high-salt diet, their livers produced a substance called urea, which helps keep the body's water in balance. But producing urea requires lots of energy, says Titze. In other words, it requires food, specifically protein. And that need could be what caused the astronauts' hunger.

"The fact that they didn't drink more but wanted to eat more was interesting," says Vijaya Surampudi, MD, assistant professor of medicine and assistant director of the weight management program at UCLA. "It means that there are mechanisms at work that we don't yet understand."

Mark Zeidel, MD, says the study raises important new questions and may shed light on what drives peoples' appetite.

"What this study makes clear is that we need to better understand how things like appetite and thirst are controlled," says Zeidel, a professor of medicine at Harvard Medical School and chair of medicine at Beth Israel Deaconess Medical Center in Boston. "The control of appetite is very, very complex."

Future research will tell more about Titze's findings. In the meantime, he offers this advice: "If you're on a diet and trying to reduce the amount of food you eat but you always feel hungry, start thinking of salt. Perhaps reducing it may help you."

**"IT MEANS THERE ARE
MECHANISMS AT WORK WE
DO NOT UNDERSTAND."**

getting the same amount of food," says Titze. "The only thing that's changed is the amount of salt."

Salt and health

Sodium, the main ingredient in salt, is an essential part of people's diet, and not just for flavor. It keeps muscles and nerves working properly, and it helps the body maintain the proper balance of fluids.

But when sodium levels rise too high, blood pressure often goes up as well. Over time, high blood pressure can have serious, life-threatening consequences, leading to stroke, heart attack, kidney disease, and other health problems.

To protect against high blood pressure, U.S. dietary guidelines recommend less than 2,300 milligrams

good, the study authors suggest. They also speculate that when the children get thirsty after a salty meal, they reach for easily available high-calorie sodas.

Another Australian study from 2016, led by Russell Keast, PhD, tied salt to an 11% rise in the amount of food and calories that adults take in. The authors say salt improves the flavor, and that likely tempts people to eat more.

Keast, a professor of food science and head of the Centre for Advanced Sensory Science at Deakin University, says he believes salt encourages people to eat more.

While these studies show a link between salt and body fat, increased eating, and obesity, they don't prove that salt makes any of those things

CUT IT OUT!

Lowering how much salt you eat can be tough, says **Lauren Blake**, a registered dietitian at Ohio State University's Wexner Medical Center. She has a few suggestions:

- ▮ Focus on whole foods and prepare them at home. Processed foods and restaurant meals have lots of added salt.
- ▮ Season your food with fresh or dry herbs, plus garlic and black pepper. The more flavor you add, the less salt you'll need.
- ▮ Go easy on condiments like salad dressing, ketchup, and soy sauce, which are loaded with sodium. Look for low- or no-salt varieties.
- ▮ Taste your food before you grab the saltshaker. You may not need to add more.
- ▮ Cut back on salt gradually so your taste buds can adapt. If you go cold turkey, your food will taste bland and unappetizing.



GOOD FOR YOU

Best of the Bunch

Bananas are one of the world's most popular fruits for good reason. Easy, inexpensive, and kid-friendly, these tropical gems may also play a role in healthy digestion and weight loss.

THE SWEET, CREAMY BANANA IS A SIMPLE SOLUTION FOR CHAOTIC mornings. Easy to eat and available in its own convenient yellow wrapper, one banana provides several nutrients, including 22% of an adult's daily value of vitamin B6 (which might help prevent depression in older adults), 12% of potassium (key for healthy blood pressure), and 12% of fiber (which benefits digestion and heart health). Scientists also believe underripe, green bananas contain resistant starch, a type of fiber that quashes hunger and fuels beneficial gut bacteria. Eat bananas sundae-style with plain yogurt, a sprinkle of granola, and a drizzle of honey. Place slices on top of peanut butter toast. Or whirl frozen bananas in the blender to make silky vegan ice cream. Go bananas! —ERIN O'DONNELL



3 WAYS

Omelet

An easy way to make a healthy meal in minutes, protein-rich eggs serve as the perfect backdrop for vegetables, fruit, and other tasty super foods.



➔ **Salmon-Asparagus Omelet**
Allow the eggs to sit at room temperature for 30 minutes before cooking to yield a fluffier omelet.

1

THE BRUNCH ALL-STAR

Salmon-Asparagus Omelet

This flavorful omelet features smoked salmon—a brunch favorite—and asparagus, in season now. It tastes best if you use just the tender tips of the asparagus.

→ THE MIX

Eggs + asparagus tips, red onion, fresh dill, smoked salmon, lemon zest, black pepper, goat cheese crumbles



MAKE IT Sauté asparagus tips and chopped red onion in a nonstick skillet until tender; remove from pan and set aside. Melt 1 tsp unsalted butter in pan. Add 2 eggs, beaten, with fresh dill and 1 tbsp water. Cook 4 to 6 minutes or until set, using a spatula to gently lift omelet and cook any liquid until done. On one half of omelet, place asparagus mixture, 2 tbsp smoked salmon, lemon zest, black pepper, and goat cheese crumbles. Fold omelet in half. Garnish with fresh dill. **SERVES 1**

PER SERVING (1 OMELET) | 243 calories, 18 g protein, 3 g carbohydrate, 17 g fat (8 g saturated fat), 417 mg cholesterol, 1 g fiber, 2 g sugar, 473 mg sodium. Calories from fat: 63%

2

THE PANCAKE ALTERNATIVE

Fruited Omelet Crepe

A sweet take on the traditional omelet, this crepe is a gluten-free alternative to pancakes. Try it with berries and bananas, or a combination of your favorite fruit.

→ THE MIX

Eggs + milk, vanilla, berries, banana, Greek yogurt, honey, cinnamon



MAKE IT Whisk two eggs with 1 tbsp milk, ½ tsp vanilla extract, and a pinch of salt. Heat a 10-inch nonstick pan over medium heat. Pour in egg mixture and cook 4 to 6 minutes. Flip to cook other side. Slide omelet onto a plate. Top half the omelet with berries and sliced banana. Fold omelet over. Serve topped with more fruit, a dollop of Greek yogurt, honey, and cinnamon. **SERVES 1**

PER SERVING (1 CREPE WITH 1 CUP FRUIT) | 273 calories, 20 g protein, 28 g carbohydrate, 10 g fat (3 g saturated fat), 371 mg cholesterol, 5 g fiber, 18 g sugar, 265 mg sodium. Calories from fat: 34%

3

THE SIMPLE SUPPER

Spanish Omelet

This substantial potato omelet, known in Spain as a tortilla, makes a simple but hearty dinner when combined with a salad and crusty bread. Serve it warm, at room temperature, or chilled.

→ THE MIX

Eggs + onion, red pepper, olive oil, red potatoes, fresh rosemary, shredded Monterey Jack cheese



MAKE IT In a nonstick pan, sauté finely diced onion and red pepper in 1 tsp olive oil until just soft. Add two shredded red potatoes and cook 5 more minutes. Beat 4 eggs with chopped rosemary, salt, and pepper. Pour over veggies in pan. Cook until bottom is golden and eggs are almost set. Add ¼ cup shredded cheese and cook until set. Cut in wedges. **SERVES 2**

PER SERVING (½ OMELET) | 382 calories, 21 g protein, 41 g carbohydrate, 16 g fat (6 g saturated fat), 406 mg cholesterol, 5 g fiber, 6 g sugar, 284 mg sodium. Calories from fat: 37%

➔ Search for the video [The Truth About Bread](#) at [WebMD.com](#).

REVIEWED BY [Hansa Bhargava, MD](#)
WebMD Senior Medical Director



OFF THE MENU

Build a Better Loaf of Bread

Flour, water, salt, yeast: Learn to combine these four simple ingredients, and you can create a delicious, nutritious loaf of bread

GOOD BREAD REQUIRES PRACTICE AND PATIENCE. THAT'S ESPECIALLY TRUE IF YOU FOCUS YOUR efforts on sourdough breads. And you should! Though the full flavors that sourdoughs offer do take some time and commitment, says pro baker **Sarah Owens**, author of *Toast and Jam* and the James Beard Award-winning *Sourdough*, "the result is pure magic, whether you're a beginner or an experienced baker." Follow her tips and get baking.

MAKE IT

- Sourdough breads begin with a mix of flour and water, called a starter, where yeast and bacteria develop. To begin, choose a simple starter recipe that relies only on flour, water, and time. Skip recipes that call for store-bought yeast.
- For your first loaf, pick an easy recipe and make it several times. This will teach you the process and build your baking confidence.
- Use your hands to learn the nuances of how your dough feels at each stage of development.
- Buy unbleached bread flour, preferably organic. Its higher protein content will help your dough stretch and trap the gases produced by yeast, which causes the dough to rise.
- Choose nationally available flour brands, like King Arthur, Gold Medal, or Bob's Red Mill—especially if you're a novice baker. They produce more consistent results than locally grown flours.
- For whole-grain flours, select stone ground. In addition to the fiber-rich and flavorful wheat germ and bran, you'll also get nutritious germ oil.
- Use a kitchen scale to measure ingredients. It's more precise than measuring cups, and you'll have less to clean.
- For a thick, glossy crust, bake your bread in a heavy duty Dutch oven.
- Take a class. Local bakeries often offer introductory classes that will get you started and introduce you to fellow bakers.
- Find friends, inspiration, tips, tricks, recipes, and more on Instagram and online bread baking forums like The Fresh Loaf ([thefreshloaf.com](#)).

Viva Veggie Juice!

REGISTERED DIETITIAN **KERI GANS, MS, CDN**, AUTHOR OF THE *SMALL CHANGE DIET*, RECOMMENDS FIVE NUTRITIOUS JUICES TO HELP YOU GET YOUR DAILY VEGGIES



V8 ORIGINAL LOW SODIUM

"This tried and true standby boasts more than just rich tomato-forward flavor. It packs in potassium and a good amount of fiber."



R. W. KNUDSEN VERY VEGGIE LOW SODIUM

"This organic juice blend—6 ounces equals a serving of vegetables—is well-rounded with a little bit of everything, including potassium, vitamin A, and vitamin C."



LAKEWOOD ORGANIC SUPER VEGGIE LOW SODIUM

"Not from concentrate, this juice blends 14 vegetables and also stands out for its fiber content—at least 50% higher than other juices."



BOLTHOUSE FARMS DAILY ROOTS

"Loaded with colorful beets, carrots, sweet potatoes, and other vegetables, this purple-hued beverage outshines the others in calcium as well as protein."



EVOLUTION EMERALD GREENS

"High in vitamin K, its short list of good-for-you ingredients pairs dark leafy greens like spinach and kale with cucumber and apple and hints of citrus."

THE OPINIONS EXPRESSED IN THIS SECTION ARE OF THE EXPERTS AND ARE NOT THE OPINIONS OF WEBMD; WEBMD DOES NOT ENDORSE ANY SPECIFIC PRODUCT, SERVICE, OR TREATMENT.

FOOD 101

Go Nuts

Nuts come in many shapes and sizes but they all have three things in common: flavor, crunch, and nutrition

PROTEIN, FIBER, VITAMINS AND MINERALS, AND HEALTHY FATS LIKE omega-3s—nuts have it all. As Susan Herrmann Loomis, author of *Nuts in the Kitchen* and founder of the French cooking school On Rue Tatin, says, “They’re miracle foods, I’m convinced, and incorporating them into daily eating is so easy and so good for us.” These are five of her favorites.

1. BRAZIL NUTS

Boasting an earthy flavor that gives way to creaminess, they shine in everything from soup to pesto to sweet baked treats. Or simply toast and add to a nut mix.

2. ALMONDS

Creamy with an intense yet subtle flavor, raw almonds belong in granola or trail mix. Grind almonds to make a great nut butter or to thicken a sauce for goat or lamb.

3. HAZELNUTS

Roast them to bring out their crunch and deep caramel flavor. Add them to breads and cakes, or enjoy a small handful as a snack with a touch of salt.

4. CASHEWS

Luxurious with an almost sweet, citrusy flavor, puree them with lime juice and bell peppers to sauce poultry or fish, or roast them with salt for an easy, satisfying snack.

5. WALNUTS

Gently flavored and mildly crunchy when raw, they explode with flavor when toasted. A great snack on their own, they enhance savory sauces as well as cakes and cookies.

SNACK SMART

Exercise, Eat, Repeat

Get the most out of your workout by refueling your body with the right combination of carbohydrates and protein



YOU KNOW THAT DIET AND EXERCISE GO HAND-IN-HAND. AND TO BOOST the benefits of a workout, you should refuel with the right combination of food.

“Nowadays people go to the gym and think, *protein, protein, protein*, and they have a bar or shake,” says registered dietitian Nancy Clark, MS, a Boston-area sports nutritionist and author of *Nancy Clark’s Sports Nutrition Guidebook*. “But after you work out, your muscles need carbohydrates to refuel and protein to build and repair. And you actually need three times more carbohydrates than protein.”

The reason carbohydrates are so important is that they get stored as glycogen in the muscles. During exercise, you burn through these glycogen stores to give you energy. When you don’t have enough glycogen, you’re not only more tired and less effective during a workout, you also can actually lose muscle mass as your

body starts to break down muscles to use for energy.

So instead of focusing on protein shakes and bars, you need to make sure you’re getting carbohydrates, as well as protein. You might think a chicken Caesar salad sounds like a complete meal, but it’s really just a protein/fat meal, says Clark. Instead, she says, you’d be better off eating a sandwich.

And while you may have heard that it’s important to eat within a half hour after working out, that’s only partly true. “Your muscles are most receptive after a workout, but they keep refueling for 24 to 48 hours. Rapid refueling is most important for those who are working out again within the next six hours,” according to Clark. Depending on the timing of your workout, you might not even need a snack, per se, and can just refuel with your next meal.

As for what to drink during exercise, or with your snack, water is probably all you need. “The average person isn’t getting dehydrated during exercise,” says Clark. And while you do need to replenish electrolytes that you lose through sweat, “food is a powerful source of electrolytes—bananas have potassium; cheese and crackers have sodium.”

So after your next sweat session, eat carbs and protein, and try to get them from whole foods. “There should be more banana peels in your wastebasket than wrappers,” says Clark.

4 Snacks

TRY THESE POST-WORKOUT SNACKS THAT DELIVER PROTEIN AND CARBS, SAYS NUTRITIONIST **NANCY CLARK**

APPLE + NUTS

Apples deliver healthy carbs; nuts deliver protein and fat.

PROTEIN BAR + BANANA

Pairing a bar with fruit ensures you get enough carbohydrates.

CHOCOLATE MILK

Better than a sports drink, chocolate milk delivers protein, carbs, and sodium.

FRUIT SMOOTHIE

Put down the protein shake and make a smoothie with Greek yogurt and fruit.

1 TOOL, 5 MEALS

Casting Call

THE ONLY PAN YOU TRULY NEED MAY ALREADY BE IN YOUR KITCHEN. THE STURDY CAST-IRON SKILLET HOLDS HEAT EVENLY AND CAN GO FROM STOVETOP TO OVEN. AND THE MORE YOU USE IT AND PROPERLY CLEAN IT (DON'T YOU DARE SOAK THIS BABY), YOU'LL ACHIEVE A NONSTICK FINISH. RETHINK CAST IRON AND USE IT EVERY NIGHT THIS WEEK.

MONDAY**ROASTED CHICKEN THIGHS**

Brown bone-in chicken thighs on both sides in a medium-hot pan. Set aside. Add cubed root vegetables and herbs to the pan, toss with olive oil, then place chicken thighs over them. Transfer the pan to a preheated 450°F oven and cook for about 20 minutes, until thighs are 165°F.

TUESDAY**SHAKSHUKA**

Sauté diced onion, sweet pepper, and crushed garlic in olive oil over medium heat. Add crushed tomatoes, large pinches of cumin, coriander, and paprika, plus salt and pepper. Make wells using the back of a wooden spoon. Crack eggs into wells and bake at 375°F for 7 to 10 minutes, until eggs are set. Sprinkle with chopped parsley and serve with toast.

**WEDNESDAY****VEGGIE POT PIE**

Sauté chopped onion with cubed butternut squash and celery in olive oil until soft. Add torn kale and cook until wilted. Sprinkle with 1 tbsp flour, stir, and cook for a couple minutes. Add a cup of vegetable broth and a can of rinsed chickpeas. Top with biscuit dough and bake at 400°F until filling is bubbling and biscuits are cooked, about 15 minutes.

THURSDAY**CORNBREAD**

Baking cornbread in cast-iron gives it an extra crispy crust. Use your favorite cornbread recipe, pour into a greased cast iron pan and bake in a 350°F oven for 20 minutes or until the center is firm. Serve with chili or beans and greens.

FRIDAY**DEEP-DISH PIZZA**

Heat skillet over medium-high heat, then sprinkle with cornmeal. Place rolled-out pizza dough in the pan, carefully pressing it up the sides. Cook until the dough starts to bubble. Brush with sauce, cover with toppings, then bake in a 500°F oven for 10 to 15 minutes until dough is cooked through and toppings are sizzling. Serve with a green salad.

→ Shakshuka

This dish tests the cast-iron skillet's ability to go from stovetop to oven.



CUTTING EDGE

Parkinson's disease is a brain condition that develops slowly over many years.

People with Parkinson's can have tremors, slow movement, stiff limbs, and problems with walking and balance. They might also have depression and sleep problems, lose their sense of smell, and develop dementia.

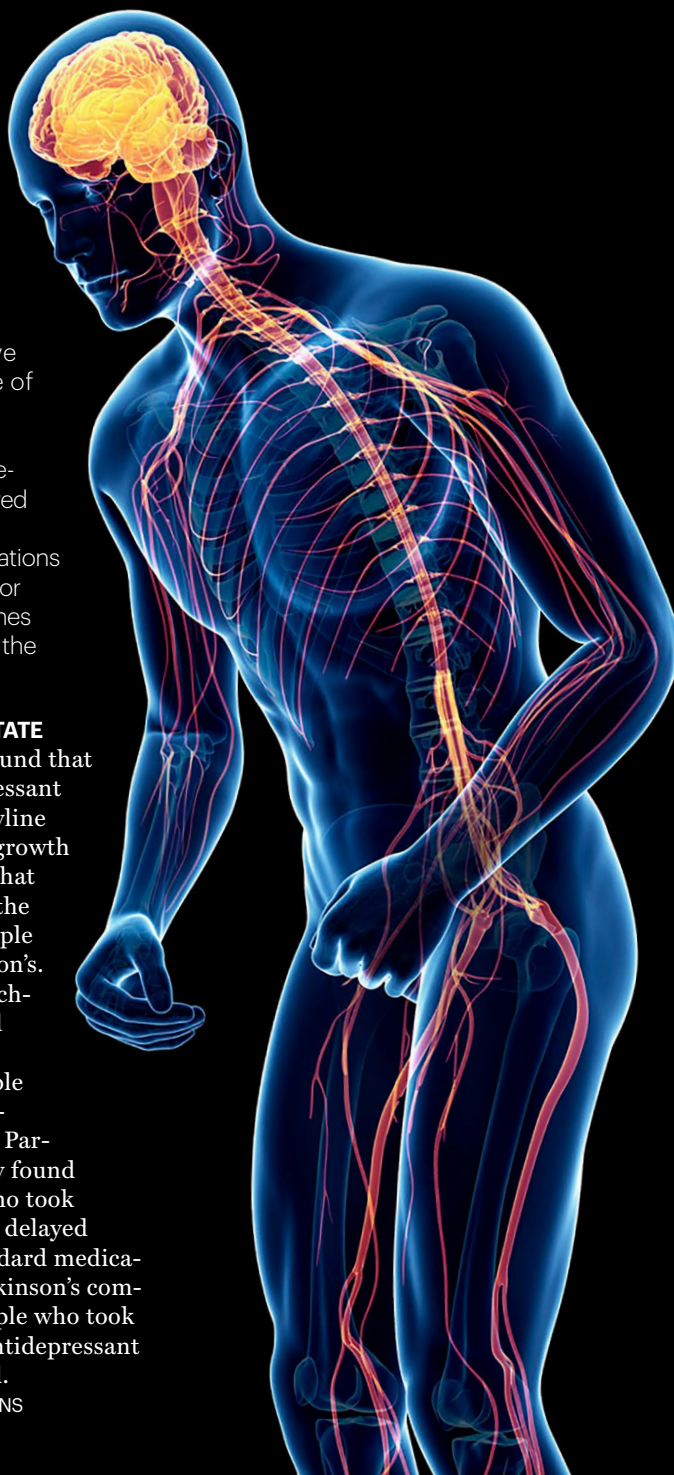
Scientists know that people with Parkinson's have a severe lack of dopamine—a chemical in the brain involved with movement control. The brain cells that produce dopamine die in people who have Parkinson's. Medications can treat Parkinson's symptoms; however, none slow or reverse the disease's course. Current research examines the role of dopamine and treatments that might stop the progress of the disease.

A COLUMBIA UNIVERSITY study found that the immune system attacks dopamine-producing brain cells that accumulate an abnormal protein called alpha-synuclein in those who have Parkinson's disease. Immune-suppressing medications might one day protect these brain cells.

OXIDIZED—OR CORRODED—dopamine could also be part of the problem. Northwestern University researchers found that oxidized dopamine accumulates in the brains of people with Parkinson's, slows down some brain activity, and leads to the death of brain cells, which causes more oxidation. When the researchers treated brain cells with antioxidants, it stopped the process that led to cell death and oxidation.

MICHIGAN STATE University found that the antidepressant drug nortriptyline stopped the growth of a protein that builds up in the brains of people with Parkinson's. When researchers examined medical records of people with both depression and Parkinson's, they found that those who took nortriptyline delayed starting standard medications for Parkinson's compared to people who took a different antidepressant or none at all.

—SONYA COLLINS



➔ Search for the slideshow [Tests and Treatments for Multiple Myeloma](#) at WebMD.com.



DOCTOR Q&A

Multiple Myeloma

Our expert answers questions about this blood and bone marrow cancer

NEW THERAPIES HAVE DRAMATICALLY IMPROVED THE OUTLOOK FOR PEOPLE with multiple myeloma—the second most common type of blood cancer.

Jacob Laubach, MD, clinical director at the Jerome Lipper Multiple Myeloma Center, Dana-Farber Cancer Institute, explains the risks and treatments and predicts whether we're likely to see a cure anytime soon.

Q What is multiple myeloma?

LAUBACH Multiple myeloma is a blood and bone marrow cancer caused by the growth of abnormal plasma cells in bone marrow, which affects normal blood cell production. As a result, you can have decreased levels of the main types of blood cells—red blood cells, white blood cells, and platelets. Anemia—a low red blood cell count—is most common in people with myeloma.

Other signs of the disease are bone lesions, kidney problems, and high levels of calcium in the blood.

Q What symptoms does it cause?

LAUBACH People with anemia feel fatigued and short of breath on exertion—for example, if they climb a flight of stairs. Less common, when the white blood cell count is low, patients will have an increased risk of infection. People with bone lesions may have pain.

Q Who is at risk?

LAUBACH For a very small percentage of patients, myeloma is hereditary. Others have been exposed to environmental toxins such as high doses of radiation or to Agent Orange during the Vietnam War. Most of our patients, however, don't have a family history or known environmental exposures.

Q How do doctors diagnose multiple myeloma?

LAUBACH Key elements are a bone marrow biopsy, lab studies to check for things like abnormal blood counts, and imaging tests to look for bone lesions or tumor growth in bones.

Q How are these cancers treated?

LAUBACH We use chemotherapy regimens that incorporate two or three drugs. One of the most common treatments used in the U.S. is a three-drug regimen with the targeted drug bortezomib (Velcade), the immune-modulating drug lenalidomide (Revlimid), and the steroid dexamethasone.

Q What about a cure?

LAUBACH When these drugs work well for a patient, they can turn multiple myeloma from a very serious disease with a poor prognosis into a chronic illness that people can live with and have a good quality of life. As better treatments become available over time, life expectancies will further improve, and we may get to the point where we can cure this cancer.

BY THE NUMBERS

1.8%

Percentage of all cancers that are multiple myeloma.

1 in 143

Lifetime risk of getting this cancer.

70
years

Average age at which people are diagnosed.

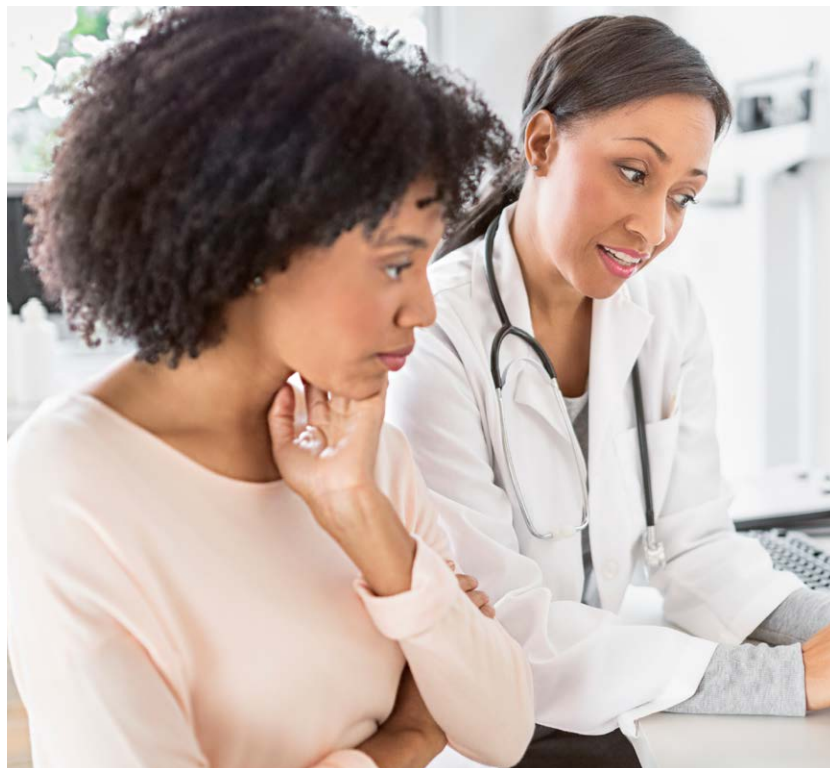
30,000

Number of people in the U.S. who will be diagnosed with multiple myeloma this year.

EXPERT Q&A

Clinical Trials 101

Our expert explains what you need to know



PEOPLE VOLUNTARILY PARTICIPATE IN CLINICAL TRIALS EVERY DAY. SOME DO SO because none of the approved treatment options work for them. Others join because they want to help advance medical knowledge. **John Whyte, MD**, director of professional affairs and stakeholder engagement at the FDA, answers some frequently asked questions.

Q What is a clinical trial?

WHYTE It's a voluntary research study conducted with people and designed to answer scientific questions to find better ways to prevent, screen for, diagnose, or treat a disease. While the FDA does not conduct clinical trials, the agency works to protect and ensure patients have reliable information before deciding whether to join a clinical trial.

Q Are clinical trials safe?

WHYTE Drugs being tested may be new and have side effects researchers do not expect. Many side effects don't last long and go away when treatment is stopped. In rare cases, side effects can be serious or even life-threatening. If the medication you receive in the clinical trial turns out to be harmful, the trial is stopped. Before you choose to volunteer, make sure you understand the risks explained during the informed consent process.

Q What should I ask before participating?

WHYTE Because every clinical trial is different, the informed consent process provides an opportunity for the researcher and patient to exchange information and ask questions. Discuss your concerns with members of the health care team conducting the trial and with

your health care provider to determine if the trial is a good option for you. Be sure you understand:

- What happens during the trial
- The type of health care you will receive
- Any related costs once you are enrolled in the trial
- The benefits and risks associated with participating

Q Can I be reimbursed for reasonable travel and logistic expenses?

WHYTE Yes. Any costs should be explained in the informed consent document. These may include reimbursement for reasonable travel expenses to and from the clinical trial site and associated costs such as airfare, parking, and lodging. An institutional review board makes sure these are not incentives to inappropriately influence a person to participate in a trial.

BY THE NUMBERS

Nearly
260,000

Number of clinical trials in the U.S. and in 200 countries.

80% vs 18%

Percentage of people surveyed who say they've heard of clinical trials compared to the percentage of people who have participated or know a family member who has participated in one.

Nearly
9 in 10

Number of Americans polled who agree that discussion of clinical trials should be part of standard medical care.

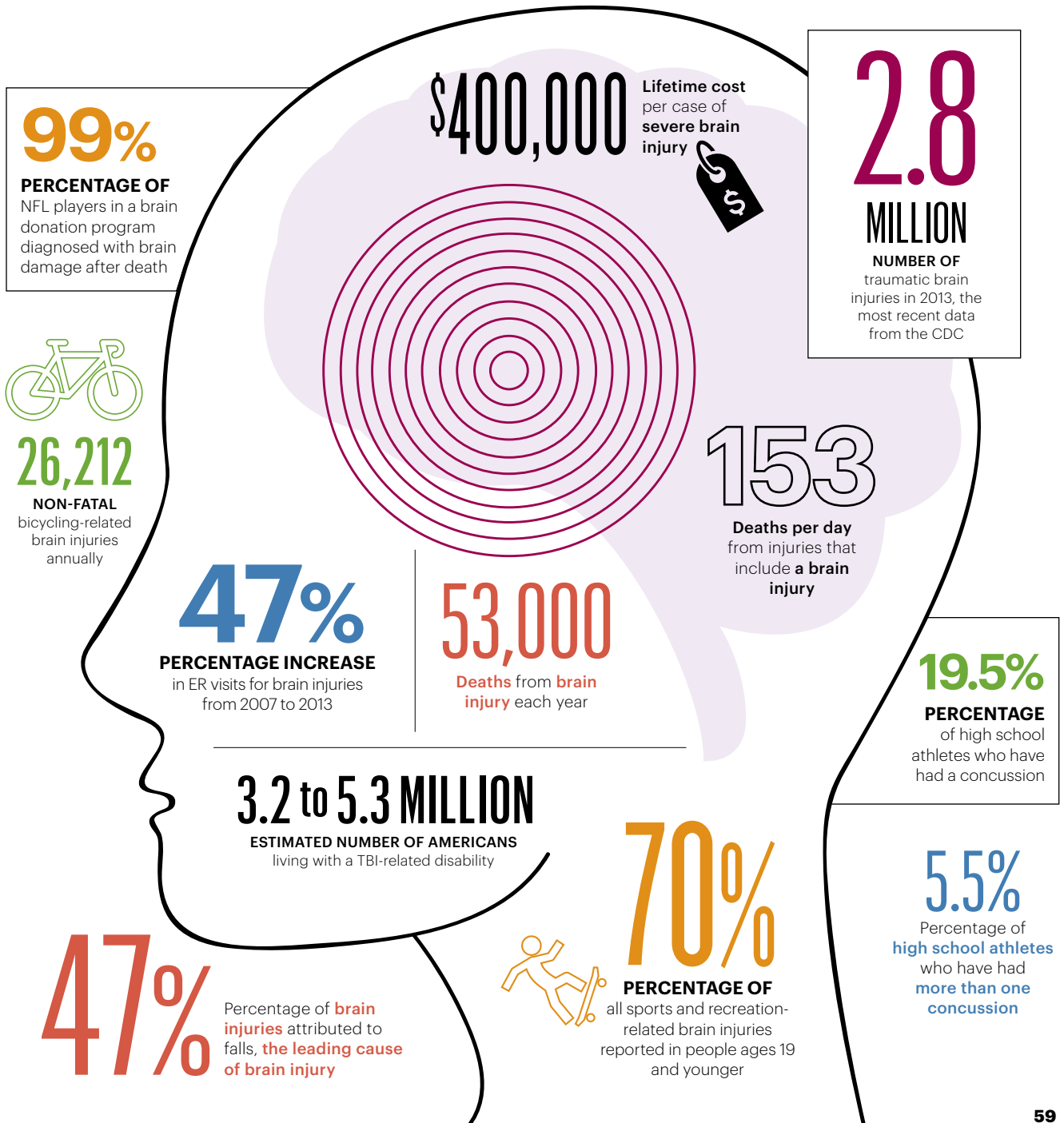
75%

Percentage of people surveyed who believe that participating in clinical trials brings as much value to the health care system as giving blood.

➔ Search for the slideshow **A Visual Guide to Concussions and Brain Injuries** at WebMD.com.

Traumatic Brain Injuries

BY THE NUMBERS: Facts and Stats on Trending Health Topics



LIVING WELL

Emotional Toll

How hearing loss can result in social frustrations



→ **Conversation Cues**
Face-to-face activities provide a better opportunity to pick up on visual cues.

THE EFFECTS OF HEARING LOSS GO BEYOND MAKING IT HARDER TO UNDERSTAND what people say. “People with hearing loss tend to bluff their way through social interactions, pretending to hear conversations,” says Fred Britten, PhD, CCC-A, professor of communication sciences and disorders at Fort Hays State University and Fellow of the American Speech-Language-Hearing Association. “As it gets more frustrating, they tend to go out less often and become more withdrawn.”

Hearing loss is linked with loneliness, avoidance of social situations, social rejection, stress, and depression. One study found that the more advanced

the hearing loss, the more severe the psychosocial symptoms.

However, strategies can help people adjust to hearing loss and prevent it from affecting relationships, work, social activities, and self-esteem, Britten says.

Choose quiet settings, move closer to the speaker, and concentrate on the conversation, he says. One-on-one interactions may be easier to navigate than group settings. Make plans with one friend and choose a situation that will allow for face-to-face interaction—it’ll be much easier to spot visual conversation cues over coffee than during a walk in the park.

Since hearing loss is an invisible diagnosis, others won’t know you’re having trouble hearing unless you tell them. That may be a challenging conversation to have, but it will mark the start of living better with hearing loss.

Let others know what makes it easiest for you to hear them. Ask people to speak up or to repeat themselves when you’re struggling to hear. Suggest that they maintain eye contact, speak clearly at a moderate pace, and use visual cues like facial expressions and hand gestures.

Despite the best efforts, hearing loss can also take a toll on relationships. The biggest issue, says Britten, is that loved ones feel like they are being ignored.

“Try the phrase, ‘What you have to say is important to me; here are some ways you can help me hear you,’” Britten advises.

Make an appointment with an audiologist to talk about treatment options for hearing loss. Support groups can also help you deal with its emotional effects; the Hearing Loss Association of America maintains a list of support groups on its website, hearingloss.org.

“Hearing loss doesn’t have to affect your sense of identity,” Britten says. “There are things you can do to help you adjust and live well.”

ASK YOUR DOCTOR

Q How does hearing loss affect communication?

Understand how your ears work to make hearing possible—and how hearing loss happens.

Q What strategies can help me better hear and understand others?

Talking isn’t the only way to communicate. Consider texting, using a tablet or computer screen, or even pen and paper.

Q Do I need to see a specialist?

An audiologist can explain options such as hearing aids, implantable devices, surgery, and more.

Q Could I benefit from a support group?

Hearing from others with similar challenges and learning how they solved them could help you.

➔ Search for the slideshow **Famous Faces of Multiple Sclerosis** at WebMD.com.

HEALTH HIGHLIGHTS

Manage Multiple Sclerosis

This condition can impair memory, concentration, vision, balance, and movement, and it often causes extreme fatigue. Take action to keep symptoms under control.



10 Ways to Cope

1. WEIGH IN

Extra pounds add to fatigue, so set—and stick to—realistic weight loss goals.

2. DON'T STOP TREATMENT

Keep up with your medications even when you are symptom-free.

3. REDUCE STRESS

To feel better and boost energy, try meditation or other relaxing activities.

4. WORK OUT.

Exercise regularly to reduce MS-related fatigue and maintain optimum health.

5. WATCH YOUR MOOD

MS increases your risk of depression, so talk to your doctor if you feel down.

6. DRESS FOR COMFORT

Choose loose-fitting, lightweight clothes that you can easily slip into and out of.

7. GET PLENTY OF SLEEP

Establish and stick to a bedtime schedule and routine that works for you.

8. STRETCH YOUR LEGS

Avoid leg stiffness with stretching exercises that boost flexibility.

9. SET PRIORITIES

Identify what's most meaningful to you and spend your energy accordingly.

10. JOIN OTHERS

Find a support group—online and/or in person—and engage with an MS community.

EXPERT TIPS

“Diets high in fatty and sugary foods will worsen MS fatigue. Instead, focus on fruits and vegetables, lean sources of protein like fish and skinless poultry, whole grains, nuts, legumes, and low-fat dairy products.”

DHANASHRI MISKIN, MD

neurologist and multiple sclerosis specialist,
Lenox Hill Hospital, New York City

“When heat worsens your symptoms, follow these strategies to cool down: Turn on the air conditioning or oscillating fan, do daily chores during cooler parts of the day, take a cold bath, and slip on a cooling vest and neck wrap.”

MENA KANNAN, MD

neurologist and multiple sclerosis specialist,
Ohio State University Wexner Medical Center,
Columbus, Ohio

“You will feel better if you maintain a healthy MS lifestyle, so make good dietary choices, keep yourself adequately hydrated, establish and stick with an appropriate exercise program, minimize alcohol, and quit smoking.”

DANIEL KANTOR, MD, FAAN

director, division of neurology, Florida Atlantic University; president emeritus of the Florida Society of Neurology; and founding president of the Medical Partnership 4 MS, Coconut Creek, Florida

➔ Search for the slideshow **14 Reasons**
Your Stomach Hurts on WebMD.com.

QUIZ

Digestive Troubles—Which Is Which?

Digestive disorders have similar sounding names, and some have virtually identical symptoms. Test your smarts.



1

This digestive disorder causes inflammation in the intestines.

- IRRITABLE BOWEL SYNDROME (IBS)
- INFLAMMATORY BOWEL DISEASE (IBD)

2

This condition can affect the entire gastrointestinal (GI) tract.

- CROHN'S DISEASE
- ULCERATIVE COLITIS

3

This condition causes frequent or severe heartburn.

- ACID REFLUX
- GASTROESOPHAGEAL REFLUX DISEASE (GERD)

4

In this condition, small pouches in the intestines become inflamed or infected.

- DIVERTICULOSIS
- DIVERTICULITIS

5

This autoimmune disorder produces symptoms like diarrhea and fatigue when a person eats gluten.

- GLUTEN INTOLERANCE
- CELIAC DISEASE

6

This condition causes inflammation in the gallbladder.

- CHOLECYSTITIS
- CHOLANGITIS

Answers

1. IBD stems from inflammation that damages the intestines. It can cause bloody diarrhea, weight loss, and anemia. For IBS, the cause is unclear but may include a combination of problems with muscle, nerve, and immune cells. Symptoms include diarrhea, nausea, abdominal cramps, and constipation.

2. Crohn's can affect the entire GI tract. Ulcerative colitis inflames just the lower part—the colon. Both conditions trigger symptoms like abdominal pain, gas, bloating, and diarrhea.

3. The terms acid reflux and GERD are often used interchangeably. In acid reflux, acid leaks out of your stomach and up the esophagus, producing the burning in your chest called heartburn. Episodes of acid reflux and heartburn more than twice a week may indicate GERD.

4. Diverticulosis causes small pouches (diverticula) to form in the lining of your large intestine. When the pouches get infected and inflamed, it's known as diverticulitis.

5. In celiac disease, your immune system attacks your intestines after you eat foods containing gluten and can cause weight loss and anemia. Gluten intolerance (also known as non-celiac gluten sensitivity) may cause similar symptoms—like diarrhea and fatigue—but it's not an autoimmune disease.

6. Cholecystitis is inflammation of the gallbladder often caused by gallstones. Cholangitis is an infection of the bile ducts—tubes that carry digestive fluid from the gallbladder to the small intestine.

ASK YOUR DOCTOR

Q Which gastrointestinal (GI) condition do I have?

It's hard to tell which digestive disease you have from symptoms alone. See your doctor for a diagnosis; you may need to be referred to a gastroenterologist—a specialist in GI conditions.

Q What tests are needed to reach a diagnosis?

Blood, stool, and imaging tests help your doctor diagnose these conditions. An upper or lower endoscopy examines the top or bottom of your GI tract.

Q Which treatments can help my symptoms?

You might have to avoid certain foods and take drugs to manage symptoms like diarrhea, constipation, abdominal pain, bloating, or heartburn.

Q Is my condition long-term or is it curable?

Crohn's disease, ulcerative colitis, and celiac disease are chronic. Their symptoms come and go but aren't curable. Medicines and other treatments can help you manage flare-ups.

Take 10

Bella Thorne

Actor, musician, 20, Los Angeles

1

What appealed to you about playing the character Katie in your new movie, *Midnight Sun*?

I have quite a bit in common with the character, considering that her parent is a widow. So is mine. [Bella's dad died in a motorcycle accident.] I definitely feel the pain that Katie goes through with wanting her dad to get out there and make more out of his life when she's gone. I've felt that feeling many times with my mom . . . I love that Katie has it very rough in this movie and she still keeps a smile on her face. I think that's the strongest way to go through pain.

2

How did losing your father affect you?

Sometimes I'm okay and other times I'm a mess. I'm pretty much ready to burst into tears a good amount of the day—happy tears, sad tears, angry tears. Tears come for me often.

3

Katie has xeroderma pigmentosum (XP), a disease that causes extreme sun sensitivity. What was the biggest challenge in playing a sheltered girl like Katie?

Scott [Speer, the director of *Midnight Sun*] always told me when he'd give me direction, "Now remember, your girl has never done anything that you've ever done in your whole life." I've never had to play such a different character like that before. And I'm glad that I did it going into *Famous in Love*, because my character Paige is pretty similar to Katie in a lot of ways. So it definitely gave me a good starting point.

4

Being in movies and on TV, do you feel extra pressure to be in good shape?

I do. When I know I have a scene coming out where I have to be in my underwear or a bathing suit, I'm like, "Oh, great. Now I have to do this, and I'm not in shape." But sometimes I am in shape and I'm like, "Yeah! Get me into that bathing suit. I'm ready! Put it on me!"

5

With such a busy work schedule, how do you find time to exercise?

I'm exhausted, so I'm constantly fighting with my own brain, making appointments to go to the gym and then wanting to cancel them because it's my only time to sleep. It's very irritating. [But] when I'm in my rage mode gym time, I do Pilates, hot yoga, weightlifting, and boxing.

6

What's the best health advice anyone has ever given you?

I can tell you the worst advice I've gotten: "Don't go to the doctor," which is what my mother said. I think it's because she's had a very negative experience with doctors.

7

What do you do to relax?

I literally do nothing. The other day, I had such a great day. I cancelled everything that I was doing that day. I didn't have to leave the bed at all. And I just watched TV! It was beautiful.

8

What do you hope to be doing in 10 years?

I've always wanted to go the Oscars. I've always wanted a film I'm in or something I've directed to be nominated. I know those are big dreams, but I feel like I could see it happening.

9

What other projects do you have coming up?

There's another film I have with the same director, called *Break My Heart 1,000 Times*. I think it's my favorite film that I've ever done. It's really great. I have other projects coming out, too. But I'm more focused on singing. I have a lot of music coming out.

10

What makes you happy?

My cats make me really happy—whenever I'm around my cats and get to see them. I've got 12 cats.

—STEPHANIE WATSON



"I'm more focused on my singing. I have a lot of music coming out."