

AI'S IMPACT ON MEDICINE PAGE 30

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**GYM TECH
TO BOOST YOUR
WORKOUT**
PAGE 13

INNOVATION SPECIAL

FEATURING AUTHOR
MALCOLM GLADWELL

**+TOP EXPERTS ON THE
FUTURE OF HEALTH**

SANJAY GUPTA
MICHIO KAKU
ERIC TOPOL
J. CRAIG VENTER
JENNIFER DOUDNA
AND MORE
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PHOTOGRAPHY BY: LAURA BARISONZI

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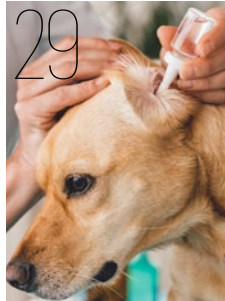
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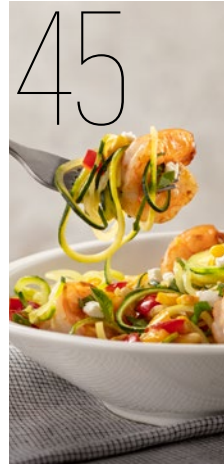
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News about heart disease, sleep issues, stress, and more



In this midst of a time some are calling a revolution in health care, we bring you this special issue of *WebMD Magazine* focused on innovation. We are witnessing new ways to access care, new interfaces and devices, as well as the rapid advance of medical technology as the health care landscape quickly evolves. In this issue, today's top thought leaders share their vision for the future. We also asked our staff here on this page which of these new developments excites them most.

Kristy Hammam
Editor in Chief
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FROM THE WEBMD TEAM

What excites you the most about an upcoming health innovation?



AREFA CASSOOBHOY, MD, MPH
WebMD Senior Medical Editor

I'm excited by how artificial intelligence (AI) is transforming health care. AI is much more than robots and robotics. It encompasses sophisticated data analysis to provide insights and also includes computer voice and language processing. The possibilities are impressive for AI's future impact on clinical care, medical research, and public health.

I'm fascinated with what we are learning about gut bacteria and the microbiome. The idea that thousands of tiny organisms may be affecting your metabolism, your mood, and your immune system takes the phrase "you are what you eat" to a whole new level.



VALARIE BASHEDA
WebMD Director, News and Special Reports



BRENDA GOODMAN
WebMD Senior News Writer

I'm most excited by the idea that individuals have some control over their risk for memory loss. Recent research suggests that about one-third of dementia cases could be prevented by lifestyle changes, including doing what you can to control high blood pressure, diabetes, and obesity; not smoking; and getting enough exercise. It is also important to maintain healthy friendships and, if you live with depression or hearing loss, to treat those conditions, since they take a toll on brain health.



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ON THE HORIZON

Future Medicine

TECHNOLOGY HAS TRANSFORMED MEDICAL CARE. TODAY “THE DOCTOR WILL SEE YOU” COULD MEAN THAT A ROBOT COULD ASSIST WITH YOUR EXAM, TEST, OR SURGERY. THESE ARE SOME OF THE LATEST INNOVATIONS IN HEALTH CARE.



7
million
Estimated number of patients who used telemedicine—receiving care from a distance via the use of technology—in 2018.

1.2 seconds
Time it took artificial intelligence to identify conditions like stroke and bleeding from brain CT scans—150 times faster than doctors.

33%
Percentage a five-minute virtual reality session reduced pain in people with chronic pain.

877,000
Estimated number of robotic-assisted surgeries performed in 2017.



**COLLEEN
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A Peek at the Future

One is a pioneer in human genome research. Another directs studies in regenerative medicine. Others focus on health care data, drug development, artificial intelligence, and individualized medicine. They are doctors, investigators, entrepreneurs, and authors. Collectively, they are laser-focused on the future of health—not only for the exciting innovations ahead for the sake of advancing human knowledge, but for improving every day health for you and me. Check out **“Cascade of Innovations” on page 40** for a fascinating look into the not-so-distant future of health. —*Colleen*



REFERRAL TIME

Want to get the cancer screenings you need? See your doctor early in the day. In a review of screening referrals at 33 different clinics, doctors were less likely to refer patients for screenings as the day went on.

SOURCE: JAMA

LESS ANGER, BETTER HEALTH

The life changes that go along with aging can make some people angry. But anger may be more harmful to your health than sadness. In a small study of 226 older adults, people older than age 80 who felt angry every day had higher levels of the inflammation that can lead to diseases including heart disease, arthritis, and cancer. They were also more likely to have these or other long-term diseases. Sadness didn't have the same effect. Older adults who feel constant anger might benefit from therapy to help them learn healthy ways to cope.

SOURCE: Psychology and Aging

LADIES, YOU SNORE, TOO

In a study of adults who saw a doctor for sleep problems, 88% of women snored—though only 72% knew it or admitted to it. Snoring can be a sign of sleep apnea, a condition in which people stop breathing in their sleep. Untreated, it can lead to serious health problems.

SOURCE: Journal of Clinical Sleep Medicine



1 in 9

Number of U.S. women who drink during pregnancy—despite known risks for the baby.

SOURCE: CDC



A MOTHER'S LOVE

Moms: The caring relationships you build with your children yield benefits that last a lifetime. Researchers surveyed nearly 4,000 adults about their childhood interactions with their mothers. They asked questions including how much their mothers enjoyed talking to them and how often they hugged them. The researchers kept track of the adults for 18 years. People who had positive childhood experiences with their mothers were more likely to go on to college and be happy in their marriages and less likely to be depressed and suffer from memory loss as they got older.

SOURCE: *Journal of Marriage and Family*

PARKINSON'S AND YOUR APPENDIX

In early Parkinson's disease, a protein called alpha synuclein accumulates in the gastrointestinal tract. This has led researchers to zero in on the organs of the digestive system for clues about how the disease develops. One finding is a potential link between the appendix and Parkinson's. In a review of 62,218,050 adults' medical records, researchers found that people who had an appendectomy at any age had almost a 1% chance of developing Parkinson's later in life. Those who had an appendix had a 0.3% chance. The researchers do not know why.

SOURCE: Case Western Reserve University

PINK TAX

Women pay a whopping \$3.09 more per ounce for facial moisturizers marketed to them compared to the same ingredients packaged for men.

SOURCE: *Journal of Cosmetic Dermatology*

THE CURSE OF SWEET DRINKS

Diet drinks aren't saving kids any calories. In a study of 7,000 children, researchers found no difference in total daily calorie intake between kids who drink low-cal beverages and the ones who drink full-sugar versions. The diet drinkers make up the calories somewhere else. Kids who drink water take in up to 450 fewer calories a day. For a healthy alternative to sweet drinks, the researchers suggest carbonated water with just a splash of 100% fruit juice.

SOURCE: *Pediatric Obesity*



WASH UP

One in five hospital patients has drug-resistant bacteria in their nostrils, on their hands, and on the things they touch. If you visit a hospital, wash your hands before you touch your face.

SOURCE: *Clinical Infectious Diseases*

TEEN SLEEP

Many teens have trouble falling asleep early enough to get the whopping nine-and-a-half hours of sleep that their bodies need. More physical activity could bring immediate results. In a study of 417 15-year-olds, for each additional hour of physical activity the teens got on any given day, they fell asleep 18 minutes faster, slept 10 minutes longer, and were more likely to stay asleep throughout the night. The opposite was true for teens who were more sedentary than usual during the day. They fell asleep later and slept less throughout the night.

SOURCE: *Scientific Reports*



ON THE RISE

Energy drink use has increased among young adults in the last 15 years. Caution: Too much caffeine—more than 400 mg a day—can cause heart problems.

SOURCE: *American Journal of Preventive Medicine*



MORE REASONS TO WALK

At least half of women with heart disease don't move enough. Their activity levels continue to drop as time goes on. Not only does that lead to worse health, but health care costs much more for people who don't get enough exercise. Adults need at least a brisk 30-minute walk five days a week.

SOURCE: JAMA

E-CIGARETTES AND PREGNANCY

One in 14 women uses e-cigarettes before, during, or right after pregnancy. While e-cigarettes might be less harmful than regular ones, there's no evidence that they are safe. Doctors don't yet understand all the risks of the relatively new technology. Early research in pregnant mice suggests it can damage the lungs of the fetus.

SOURCE: JAMA



BULLIED KIDS TAKE MORE PAIN RELIEVERS

In a survey of 10,000 sixth, eighth, and 10th graders, bullied kids took more pain medicine, such as acetaminophen and ibuprofen, than other kids. They also reported more episodes of pain, including headache, stomach ache, and back ache, than other kids. But the additional pain wasn't enough to account for the additional medicine. The finding might also point to a tendency for bullied kids to experiment with substances to soothe themselves. Habitual use of pain medications today raises risk for chronic pain, especially migraine, a decade from now.

SOURCE: *Acta Paediatrica*

PROSTATE PREDICTIONS

Up to 90% of prostate tumors grow so slowly that the risks and side effects of treatment would outweigh the possible benefits. Doctors have to make their best guess which tumors they can safely watch rather than treat. But researchers may have uncovered a better way to make that prediction. When they analyzed tumor tissue from 89 men who had their prostate removed because of cancer, they found a specific protein on the edges of the tumors that had ended up spreading. This discovery could lead to a test that helps determine which prostate cancers will advance.

SOURCE: *The American Journal of Pathology*

THE STATUS OF STATINS

Statins are some of the most prescribed drugs in the U.S. New research shows that they may do more than lower cholesterol. In a review of 14 studies that included nearly 131,000 people, those who were taking statins during treatment for colorectal cancer were less likely to die prematurely from the disease. The new finding could mean that the pills improve response to certain cancer drugs.

SOURCE: *Cancer Medicine*



POT-IMPAIRED DRIVING WITH KIDS

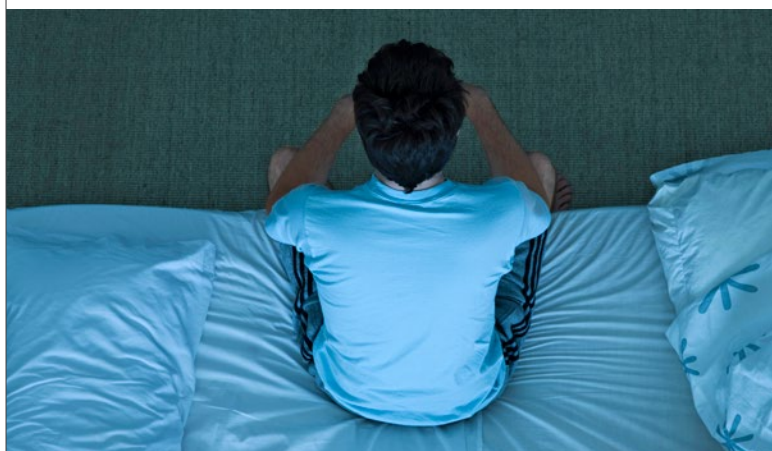
Every year, 200 children die in car accidents with a drinking adult. Some 4,000 more are injured. But alcohol isn't the only substance that puts children in danger on the road. In a roadside survey of 2,056 drivers, those driving children were just about as likely to test positive for cannabis as those without child passengers. Though about one in seven people drive under the influence of marijuana, most people believe that it could greatly interfere with their ability to drive.

SOURCE: *Journal of Studies on Alcohol and Drugs*

STRESS AND SLEEP PROBLEMS

If you've got high blood pressure, it's time to get your job stress and your sleeping habits under control. In a study that followed 1,959 workers with high blood pressure for 18 years, those who had high stress or trouble sleeping had a higher risk of death from heart disease. Poor sleep and high stress combined raised risk more. If you have trouble sleeping or feel you're always under stress, ask your doctor for help.

SOURCE: *European Journal of Preventive Cardiology*



55%

Percentage of Americans who feel stress during most of the day. That's the highest stress level in the world.

SOURCE: Gallup

0

Number of minutes of screen time babies under age 1 should get each day.

SOURCE: World Health Organization

3 IN 10

Number of Americans who put off getting health care because of the cost.

SOURCE: Gallup



HEALTHY HABITS

Small Steps

NEW RESEARCH SUGGESTS SLIGHT CHANGES IN ACTIVITY GO A LONG WAY

EVEN A SMIDGE MORE EXERCISE MAY HELP YOU LIVE LONGER. New research from the European Association of Preventive Cardiology suggests moving more—no matter how little exercise you get now—can lower your risk of cardiovascular events and premature death. Scientists found that men and women who improved their fitness even a little saw a big change in their VO₂ (maximal oxygen uptake), which is tied to lower risk. Don't like the gym? That's OK. Stepping up your daily activity can help get the job done. Try taking the stairs, biking to work, or getting off the train early to walk. —KARA MAYER ROBINSON

Take a Break

MORE THAN HALF OF AMERICANS FEEL BURNED OUT AT WORK, BUT MANY LEAVE PERSONAL DAYS AND PAID VACATION ON THE TABLE

BY Sonya Collins REVIEWED BY Brunilda Nazario, MD, WebMD Senior Medical Editor



Search for the article **10 Tips to Manage Stress** at WebMD.com.



ARE YOU BURNED OUT AT WORK? MOST AMERICANS ARE. Yet, not all of us use the tools we have to relieve burnout. Last year, more than one in three left paid vacation days unused. Workers don't take advantage of personal days to ease burnout, either. About two-thirds of employed people take days off for physical health, only one-third do so for mental health.

"People need to take time off from work—whether it's a day here and there or a full week vacation or longer—time off from thinking about work in order to recover from stress so it doesn't lead to burnout," says David Ballard, PsyD, who heads the Center for Organizational Excellence at the American Psychological Association. The center studies psychologically healthy workplaces.

ISN'T BURNOUT JUST PART OF THE JOB?

Don't confuse a little day-to-day stress with a bad case of burnout. Stress, at the right dose, has a purpose. It can give you the boost you need to stay focused and get the job done. But when you're always stressed—maybe because you

never stop—it can cause burnout, which has the opposite effect.

"When you're burned out," says Ballard, "you're exhausted and unmotivated, and you can feel cynical and negative. You may even have difficulty thinking, so you have a harder time solving problems, which means job performance can suffer."

WON'T TIME OFF FROM WORK JUST ADD TO MY STRESS?

People who avoid time off often say it's because they've got too much to do—it's natural to worry that walking away from your desk to lie on a beach for a week may not be very relaxing. But, in fact, you might make up for lost time with the increased drive you bring back.

When people take time off, according to a national survey, they return to work with more energy and motivation and less stress. They're more productive and their work is better. "In short, people say it's difficult to take the time off," says Ballard, "but when they do, they benefit—and so does the organization."

BY THE NUMBERS

KNOW THE SIGNS THAT YOU NEED A BREAK. ACCORDING TO A NATIONAL POLL, PEOPLE WHO REPORT JOB BURNOUT OFTEN HAVE THESE SYMPTOMS:

68%

Percentage of people with burnout who also have fatigue.

65%

Percentage who feel job-related anxiety.

53%

Percentage who feel anger about their job.

48%

Percentage of people with burnout who are also depressed.

Next-Gen Gym Workouts

NEW INNOVATIONS IN TECHNOLOGY AND EQUIPMENT ARE HELPING
GYMS FIND NEW WAYS TO BOOST YOUR WORKOUT

BY Kara Mayer Robinson REVIEWED BY Michael W. Smith, MD, CPT, WebMD Chief Medical Editor

READY TO ELEVATE YOUR GYM ROUTINE? Many fitness clubs are taking exercise to the next level with innovative technology.

“It’s a great time to be a club-goer,” says Meredith Poppler, a vice president at the Health, Racquet & Sportsclub Association. “Clubs and equipment manufacturers are embracing new technology across the board. It’s affecting everything—from how you check into the club to how you track your progress and use equipment.”

SMART TRACKING

Many gyms use smartphone apps and in-house equipment to help you set goals, track workouts, and see how far you’ve come.

You can track personal details such as weight and body fat as well as workout details including heart rate, how long you exercise, and how many reps you do.

Some gyms use smart machines with Bluetooth technology to sync your workout and transfer details automatically to your smartphone. Some sync with apps like Fitbit and MyFitnessPal, so all your info is in one place.

INSTANT MOTIVATION

Many clubs now use fitness trackers to track your heart rate, VO2 max (maximal oxygen uptake), and other biometric data as you work out—and motivate you by making it public.

At Orange Theory, your heart-rate monitor broadcasts your circuit-training performance on a public board. The friendly competition may be the juice you need to push harder. At Swerve, your stats

are added to your team’s performance. If you do well, so does your team. If you don’t, well ...

SOCIAL ENGAGEMENT

Fitness clubs are cashing in on the power of community for encouragement, support, and motivation. At Retro Fitness, you can join member challenges and connect with fellow exercisers in over 150 gyms. “SoulCycle, Barry’s Bootcamp, Cyclebar, and CrossFit are just some examples of fitness organizations that use social media to connect users to one another,” says ACE-certified health coach Ilya Fishman. Some, like SoulCycle, use social media to connect you with instructors, who often post song recommendations, schedule changes, and fun personal details.

VIRTUAL REALITY

Many gyms are embracing smart screens, headphones, and high-tech glasses for a fun, immersive experience. Cardio machines have screens that turn dull workouts into engaging, imaginative experiences. “Instead of looking at a blank screen, you can see yourself on a track racing against zombies,” says Poppler.

Smart screens are popular in group classes. Some gyms pair them with headphones to stream music or your instructor’s voice. Others give you virtual reality glasses to transport you to another dimension.

“Right now, digital transformation is huge in the fitness realm,” says Laura DiBlase, a specialist at Perfect Gym Solutions. As technology continues to advance, you can expect more realistic, fun games that are actually intense workouts.

TECH TIPS

TRY THESE TIPS FOR SAFE, HAPPY, HIGH-TECH WORKOUTS FROM ACE-CERTIFIED COACH ILYA FISHMAN.

1. BE MINDFUL

A machine can’t tell you how you feel. Pay attention to your body. If something doesn’t feel right, stop.

2. LOW-TECH IS FINE

Technology is an add-on, not a be-all, end-all. If you love your low-tech routine or you forget your high-tech equipment, it’s OK to exercise without it.

3. ENJOY THE RIDE

Don’t let numbers stress you out. Use technology to keep you on track, but don’t let it squash your fun.

4. PAIR TECH WITH FRIENDS

Sharing and comparing your workouts via social media is great for motivation. Organizing a gym meetup via a group text can get you to the gym when you don’t feel like going.



In Your Bones

OSTEOPOROSIS MAY BE MORE COMMON IN WOMEN, BUT 2 MILLION MEN HAVE IT—AND MILLIONS MORE ARE AT RISK

BY Matt McMillen REVIEWED BY Michael W. Smith, MD, CPT, WebMD Chief Medical Editor

THROUGHOUT LIFE, YOUR BODY DISCARDS OLD BONE AND REPLACES IT WITH NEW BONE IN AN ONGOING PROCESS OF RENEWAL. Eventually, however, bone loss may begin to outpace the creation of new bone. That causes bones to become brittle and boosts the risk of breaks—but often causes no symptoms.

In fact, “you could have osteoporosis for quite a while without realizing it,” says Timothy Miller, MD, an orthopedic surgeon and sports medicine specialist at The Ohio State University Wexner Medical Center in Columbus. “Unfortunately, it’s usually diagnosed only after a fracture.”

The bones most likely to break are the spine, the wrist, and the hip. According to a 2018 study, the risk of premature death jumps 33% among older men who break a hip bone.

But you can protect your bone health, says Miller, especially if you start early. “You should be thinking about it by your 40s and 50s,” he says. “Beyond that, it will be difficult to maintain or increase bone mineral density.”

Miller says men should focus on exercise and nutrition, both of which support bone health. But first, if you’re a smoker, this is another reason to quit. “Smoking is one of the biggest risk factors for loss of bone mineral density,” says Miller.

What you eat plays a critical role in keeping your bones strong and healthy. That means

following a diet that gives you plenty of calcium. Don’t limit yourself to dairy products like yogurt, milk, and cheese—canned salmon with bones packs a lot of calcium, and fish in general has more calcium than meat, Miller notes.

Also, be sure to eat your veggies, especially calcium-rich leafy greens such as spinach, collards, and mustard greens. Miller’s favorite: broccoli. “It has so many different vitamins and minerals that you can’t go wrong by eating a lot of it,” he says.

You also need adequate vitamin D to enable your body to absorb calcium. Fatty fish, fortified foods like milk and yogurt, and supplements can provide it.

Another must: exercise—particularly activity that puts some stress on your bones. Known as weight-bearing exercises, they include running, stair climbing, tennis, and walking.

“If you’re not on your feet very much, your bones won’t be challenged,” says Miller. “They need exercise like walking to stimulate remodeling and repair, which will increase their density over time.”

Strength training builds more than muscle; it benefits your bones as well. And a gym isn’t required, says Miller, who recommends light dumbbell lifts, as well as squats, lunges, calf lifts, and other bodyweight exercises.

“Exercise is medicine,” Miller says, “but start slowly and build up gradually.”

ASK YOUR DOCTOR

Q Am I at higher risk of osteoporosis?

A family history of osteoporosis, low testosterone, excessive alcohol consumption, and certain chronic diseases, such as inflammatory bowel disease, can increase your risk.

Q What exercises are right for me?

Your current health and level of physical activity will help determine a safe and effective workout that will support your bones.

Q Do any of my current medications affect my bone health?

Some medications that treat acid reflux make it harder for your body to absorb calcium. Corticosteroids such as prednisone cause a loss of bone mineral density over time.

Q If I have osteoporosis, what treatment will I need?

Treatment plans may include medications, calcium and/or vitamin D supplements, and an exercise program as well as addressing any underlying causes, such as low testosterone.



The Pain Connection

NEW RESEARCH POINTS TO A LINK BETWEEN MENOPAUSE SYMPTOMS AND CHRONIC PAIN

BY Gina Shaw REVIEWED BY Brunilda Nazario, MD, WebMD Senior Medical Editor

IF YOU'RE GOING THROUGH MENOPAUSE, have you noticed that along with the hot flashes, night sweats, and mood changes, you also feel a lot more pain? It's not just your imagination. A new study has found that women with menopause symptoms are nearly twice as likely to have chronic pain diagnoses, such as fibromyalgia, migraine, and back pain.

"Chronic pain is a huge issue across the United States, but not a lot of attention is paid to the fact that it's particularly acute for women in midlife," says author Carolyn Gibson, PhD, MPH, a clinical research psychologist with the San Francisco VA Medical Center.

She analyzed the medical records of more than 200,000 female military veterans for the study, published in *Menopause: The Journal of The North American Menopause Society* (NAMS). "Many women are having a tough time in menopause, and we found that those most affected by those symptoms were far more likely to have chronic pain."

The relationship between menopause and increased pain levels is not well understood, says NAMS executive director JoAnn Pinkerton, MD, professor of obstetrics and gynecology and director of midlife health at the University of Virginia Health System. "Estrogen and other hormones have complex interactions with pain sensitivity," says Pinkerton. "But whether you're developing a chronic

pain condition for the first time or having flares of a pre-existing condition, these changing hormone levels affect both the symptoms of chronic pain and how you experience it."

Other symptoms and "side effects" of menopause may also worsen chronic pain, including:

- Weight gain
- Sleep disruption
- Mood disturbances, such as depression and irritability

This increase in chronic pain puts women in menopause at particular risk for dependency on pain medications such as opioids, says Pinkerton. She advises women to seek care from a team of experts that includes a menopause specialist who understands the effect of hormonal fluctuations on pain conditions and avoids opioids.

"They should focus on other therapies like non-steroidal anti-inflammatory drugs, heat treatment, electronic stimulation, and prescription drugs like gabapentin (Neurontin), which interferes with pain reception but is not addictive," she says.

"Don't suffer in silence," says Gibson. "Even if the symptoms can't be completely fixed, they can still be made much better." Some 42% of women in a national survey say they've never discussed menopausal symptoms with a doctor. Choose to speak up.

4 TIPS

JOANN PINKERTON, MD, SUGGESTS WAYS TO MANAGE CHRONIC PAIN IN MENOPAUSE:

1. PRACTICE RELAXATION TECHNIQUES

Try yoga and mindfulness meditation.

2. STAY ACTIVE

"Even on the days you have pain, set minimal goals for activity, like walking 3,000 steps each day," Pinkerton says. "If you sit on the couch you become deconditioned and the pain gets worse."

3. SAY NO SOMETIMES

Stress increases your perception of pain. It's OK to say no to this committee or that extra project if it will add unnecessary stress.

4. PROTECT YOUR SLEEP

Lack of sleep makes pain seem worse, and research has found that making sleep a priority leads to longer and better sleep even for those with chronic pain. Limit caffeine and alcohol consumption in the evening, turn off those glowing screens, and keep the bedroom cool and dark.



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SPOTLIGHT

A Healthy Foundation

PLAN NOW FOR YOUR FUTURE HEALTH NEEDS

BY Matt McMillen REVIEWED BY Neha Pathak, MD, WebMD Medical Editor

MONEY CAN'T BUY YOU GOOD HEALTH, BUT IF YOU PLAN YOUR FINANCES WELL, YOU WILL BE BETTER ABLE TO MEET THE COSTS OF CARE.

Such planning not only provides future benefits, it may also help you feel more at ease right now.

"Having insufficient finances can be really stressful when people think about their health care needs," says Jeffrey Kullgren, MD, MS, MPH, an associate professor of internal medicine at the University of Michigan Medical School in Ann Arbor.

In a 2018 study, for example, researchers reported that people who lost most of their financial security had a 50% higher risk of dying prematurely compared to those who maintained steady financial footing. Another study, published in 2014, found that employees who prepare for their future by contributing to their 401(k) retirement plan also were more likely to show improvements in health and report a drop in the number of sick days they took. Neither study could show cause and effect, but they both suggest that financial security and planning may impact our health.

"The biggest risk of poor planning: being unable to afford the care that you need when you need it," says Kullgren.

For Kullgren, the most critical financial decisions people will make involve their health insurance choices. He says it's easy to focus on the cost of a policy's monthly premium to the exclusion of other factors that will affect how much you spend, such as deductibles, co-pays, and out-of-network

costs. Those costs can add up and take a significant toll on your bank account.

"People often are really surprised at how much they have to pay, even when they have a policy," says Kullgren.

So how much money will you need to pay for health care after you retire? A 2018 study by HealthView Services predicts that a 65-year old-couple who retires today will spend \$363,946 on medical expenses during their remaining years. But because Medicare will only cover an estimated 51% of those costs, about half of those costs will fall to them. Also, Medicare currently does not cover long-term care, such as assisted living facilities, the average cost of which is approaching \$4,000 a month. That makes health care an essential part of financial planning, yet the AARP estimates that only slightly more than half of those who consult a financial planner include health care costs in those discussions.

"More and more people are having to figure out how to manage the costs of their health care," Kullgren says. A financial planner with expertise in health care expenses can help you understand what to expect and how to pay for it. "Then you'll know in advance that you can afford that deductible if an unexpected health issue comes up."

Kullgren also advises that you consider your future health when weighing your coverage plan and its costs. "Have a good understanding of any health conditions you now have and what they may require in the future," Kullgren says.

4 TIPS

JEFFREY KULLGREN, MD, OFFERS TIPS TO MAKE SURE YOUR FINANCIAL SITUATION IS AS HEALTHY AS IT CAN BE.

1. SPEAK UP

Talk to your doctor about your financial situation and concerns. A frank discussion will help your doctor steer you toward effective yet affordable health care options.

2. DISCUSS YOUR PLAN

This will help guide decisions that you make together, such as when it makes the best financial sense to have a necessary but non-emergency procedure.

3. START SAVING EARLY

To meet the costs of health care after retirement, start funding your plan now. A financial planner can review your options, such as health savings accounts, your 401(k), and individual retirement accounts (IRA).

4. DON'T WAIT

Make financial decisions about your health care while you are healthy. Don't wait until you have a health emergency, when you won't be able to think things through thoroughly.

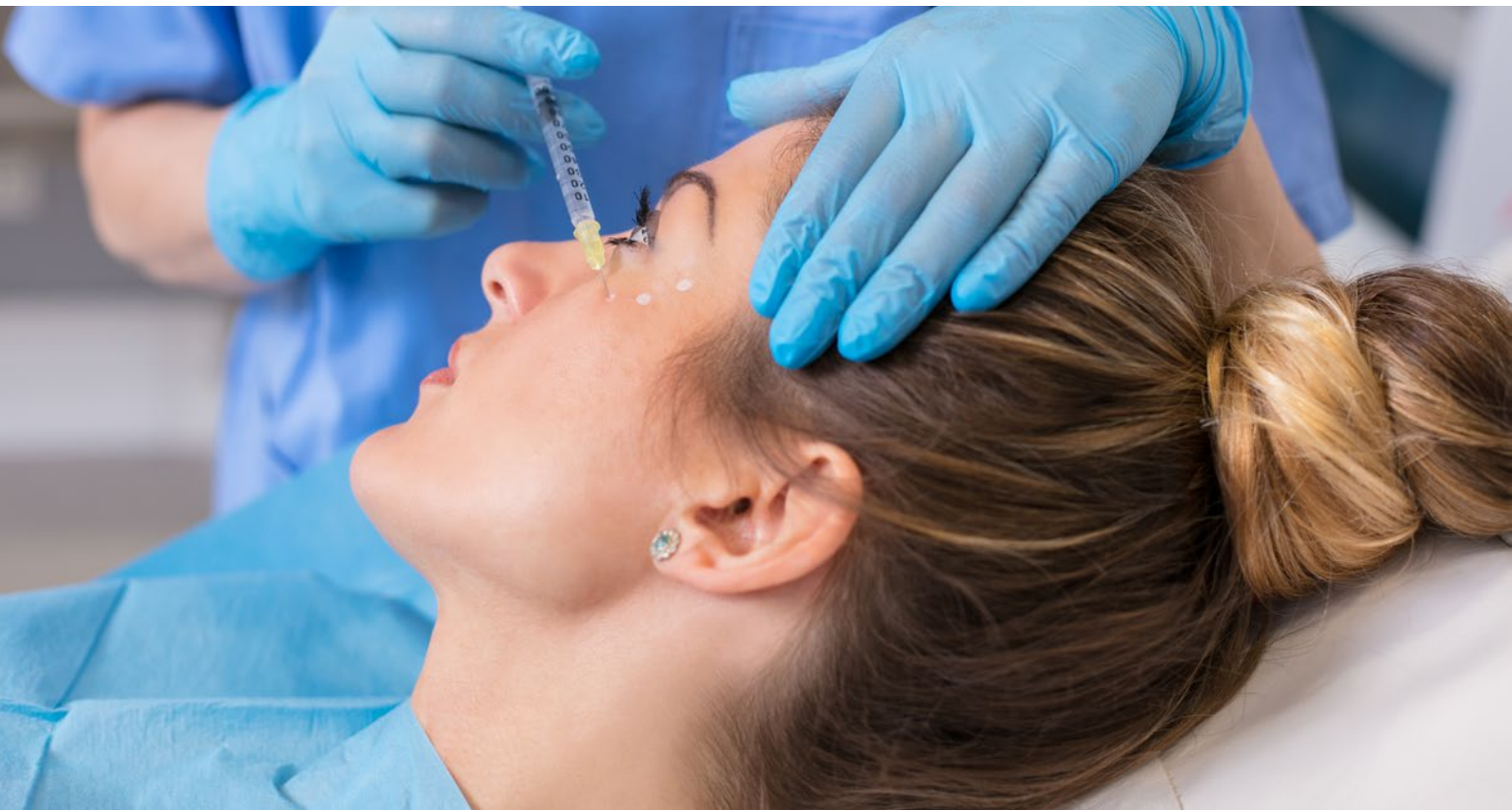


SKIN CARE

Fall Fix

TREAT THE EFFECTS
OF TOO MUCH
SUMMER SUN

THERE'S A FINE LINE BETWEEN SUN-KISSED SKIN AND SUN-DAMAGED SKIN, says Adarsh Vijay Mudgil, MD, a New York City dermatologist: "The key really is preventing the damage in the first place by wearing at least an SPF 30 daily." But summertime slip-ups do happen. When they do, there are a few ways to reverse effects such as hyperpigmentation, fine lines, and rough texture. "Most sun-damaged complexions are surface dry," says Laura Cummins, an esthetician and spa educator. Start with a good exfoliator that sloughs away skin while it hydrates. Look for one that contains lactic acid, a powerful (yet gentle) acid that's derived from milk and comes with some great moisturizing components. Next, apply a face mask with ingredients that address hyperpigmentation and brighten skin, such as licorice, azelaic acid, or vitamin C. These two steps can be repeated until your complexion renews its natural, ready-for-fall glow. And don't forget to be sun-smart year-round by slathering on that sunscreen. —AYREN JACKSON-CANNADY



BEAUTY SMARTS

Are Injectables Right for You?

HERE'S WHAT YOU NEED TO KNOW ABOUT HOW NEUROMODULATORS AND FILLERS WORK—AND WHAT RESULTS YOU CAN ACHIEVE WITH THESE IN-OFFICE PROCEDURES

BY Liesa Goins REVIEWED BY Mohiba K. Tareen, MD, WebMD Medical Reviewer

IF THE IDEA OF PLASTIC SURGERY CONJURES MAJOR SURGICAL PROCEDURES WITH DRAMATIC BEFORE-AND-AFTER PHOTOS, THINK AGAIN. Some of the most popular options in cosmetic enhancement are injectables—precisely because they don't require an operating room and the results are subtle. According to the American Society for Aesthetic Plastic Surgery, the popularity of neuromodulators (also known as neurotoxins) and hyaluronic acid injectables has steadily been on the rise for the last five years, with people collectively spending nearly half a billion dollars on each category.

"I like that using injectables does not require surgery," says Kate Zibilich Holcomb, MD, a dermatologist in New Orleans and an assistant clinical professor of dermatology at Tulane University School of Medicine. "They are largely reversible if you do not like the result, and, if done well, they make people look like a refreshed version of themselves."

The ability to target some of the most visible signs of aging without the commitment of surgery makes them an appealing option for doctors, too. "There are three components to facial aging: skin tone and texture, wrinkles from facial expression, and volume loss," says Joshua Zeichner, MD, a dermatologist in New York City and the director of cosmetic and clinical research in dermatology at Mount Sinai Hospital. "There are some issues that require more than just a

cream to achieve noticeable improvements. Injectables like fillers and neurotoxins are non-invasive, minimally uncomfortable, have little downtime, and are cost effective."

If the idea of injectables piques your interest, our experts explain the art and science of these popular treatments.

WHAT'S THE DIFFERENCE BETWEEN A NEUROMODULATOR AND A FILLER? In the simplest terms, fillers support and fill while neuromodulators weaken the contraction of muscles that lead to a wrinkle, says Holcomb. More precisely, a neuromodulator interrupts the signal between the nerve and the muscle, causing it to relax. Neuromodulators, commercially known as Botox, Dysport, Jeuveau, and Xeomin, address dynamic wrinkles that are caused by

the flexion of muscles, says Anthony Youn, MD, a plastic surgeon in Troy, Michigan: "Neuromodulators weaken these muscles, causing them to contract less and the wrinkles to smooth out." The effects last from three to four months.

On the other hand, "a filler simply adds volume," says Robert Anolik, MD, a dermatologist and a clinical assistant professor of dermatology at the New York University School of Medicine. "As we age, we lose supportive fat pads and supportive bone structure that make our face look younger. Injecting a filler allows a doctor to recreate what was there in the past and correct volume changes related to age."

Fillers can include a range of substances. "Restylane, Juvéderm, and Belotero are all hyaluronic acid fillers, which are natural sugar chains that are already found in the skin," Anolik says. "I use them the most because if there's ever a concern with the outcome, I can easily dissolve it if necessary." Other dermal fillers include Radiesse, Sculptra, and Bellafill.

WHAT AREAS CAN YOU TREAT WITH NEUROMODULATORS? "The most commonly treated dynamic wrinkles are frown lines, crow's feet, and forehead lines," Youn says.

For people who complain of prominent bands of tissue on the side of the neck called the platysmal bands, injections can relax that tissue for a softer look.

In addition, Anolik says he will often inject patients in the jaw. "Some people grind their teeth and that thickens the muscle and squares the jaw," he explains. Injecting a neuromodulator at the jawline can reduce the size of the muscle.

Doctors may inject at the top of the nose to prevent creases or "bunny lines" and at the base of the nose to help prevent the tip from turning down.

In the lip area, a small amount of neuromodulator can relax the superficial muscle fibers and reduce the visibility of vertical lip lines, Anolik says. And the injectable can also weaken the upper lip muscle to prevent the exposure of gums and create a less gummy smile.

When patients complain of orange peel or dimpled skin, Youn says he can inject small amounts in the mentalis muscle to gently relax it and smooth the area.

"Sometimes the undereye muscle can thicken and bulge," Anolik says. "We can put a drop of neuromodulator below the eye to relax that muscle and make the undereye bag look less prominent." That subtle change can make the eye look more open and refreshed, he explains.

WHAT AREAS DO FILLERS TREAT? For the most part, filler is used to reduce the appearance of moderate to severe wrinkles and folds, so it's useful on many areas on the face, like the nasal labial folds, Anolik says. He says it's common to define the cheekbones, fill

the temples, and define the jaw. "Figuring out which filler will give the most effective outcome for each patient is part of the challenge and fun of using them," Holcomb says. "The lips are an important place to choose your filler wisely. There is no specific filler for every lip—it depends on the patient's specific needs." Holcomb also says that the results can be more subtle than many social media and reality stars may have led you to believe.

Another area in which fillers can have a major effect is in the tear trough. "There's a fat pad under the eye that tends to move down with age," says Papri Sarkar, MD, a dermatologist in Brookline, Massachusetts, and president of the New England Dermatological Society. "When this happens, the area looks hollow, and we can fill that and reduce the appearance of dark circles or prominent veins."

Hands also lose plumpness, causing veins, bones, and tendons to be more apparent, Sarkar says, making them another area that responds well to fillers. "The results are instantly obvious, which patients really like," she says.

"With filler, what's surprising to some is that I can address an earlobe that's losing its volume and causing earrings to pull down," Anolik says. He will inject filler around a sagging piercing and earrings will sit higher.

Non-surgical nose jobs have also become a popular use of fillers. In this procedure, a doctor injects fillers in the bridge to even out bumps and even lift the tip to alter the shape

Continued on page 20

THE SCOOP



GETTY IMAGES

A CUT ABOVE IF YOU NEED A HAIRCUT BUT ARE SHORT ON TIME OR MONEY, CONSIDER DOING YOUR OWN TRIM. HERE ARE THE AT-HOME TRICKS THAT EXPERTS SAY ARE FOOLPROOF.

- USE SUPER-SHARP SHEARS** Kid craft scissors just aren't going to cut it. In fact, their dull blades could lead to extra split ends, says Virginia Erwin, a San Francisco-based stylist. Stick with styling shears for pro-like precision.
- TRIM DRY HAIR** For a DIY cut that's not disastrous, Erwin suggests waiting for hair to dry completely before snipping into it. Cutting dry hair results in more accurate length, shape, and control. Also, if you have curly hair, try to avoid using too much tension on the hair as you cut.
- DO NOT CUT HAIR STRAIGHT ACROSS** Avoid the hair walk of shame by using the tips of the shears to notch into the ends, a technique that's more forgiving than just slicing a chunk of hair all at once.
- LEAVE YOUR HAIR A LITTLE LONG AND STYLE AS USUAL** If you often throw your hair into an updo, be conservative with your cut. That way you can trim a little and then put your hair up to see how it looks. "This provides a 'real life' view of what you've cut," says Erwin.

Continued from page 19

of the nose, Sarkar explains: "This area, the tear troughs, and the nasal labial folds are the most risky areas to inject, so it is imperative that you only see someone who is an expert at these procedures. I generally recommend physicians who are board-certified in dermatology or plastic surgery in particular."

The most important factor in all these procedures is finding the right doctor.

Make sure you discuss expectations and look at before-and-after pictures of their work.

"The use of fillers is an art," says Zeichner. "Everyone uses the same tools, but the outcome is directly related to the skill and taste of your injector. For example, both Monet and Van Gogh used paint, but their paintings turned out quite different."

DIRTY SECRET

"I never wash my face with soap. That's good, right?"



WHAT KIND?

"Yes—though it depends on how you define 'soap.' If you're talking about old-school alkaline bar soap, that's something you should absolutely avoid using on your face. Those formulas are harsh and strip your skin of protective oils and disrupt your skin's microbiome. That 'squeaky' clean feeling means you've washed away essential lipids and oils and altered the healthy pH of your skin."

TRIGGER AGENT

"True soap will aggravate any condition that is triggered by inflammation, namely acne, rosacea, eczema, and even aging. The alkaline nature of soap kills the good bacteria that can help fight inflammation and boost the body's own ceramide and collagen production."

WHAT TO LOOK FOR

"When it comes to cleanser, the gentler the better. There are soap-free bar formulations that are actually very gentle. Look for options that are hydrating or pH-balanced."

END RESULT

"When you cleanse, your skin should feel hydrated and moisturized after, not tight or squeaky."

—Whitney Bowe, MD, dermatologist, Briarcliff Manor, New York, and New York City, and author of Dirty Looks

AISLE DO

NAILED IT

EVER WONDER WHAT THE PROS USE TO UP THE ANTE ON THEIR AT-HOME MANICURES? WONDER NO MORE.



PRODUCT PICK

GERMANIKÜRE GLASS CUTICLE STICK (\$15)

"This ethically made, etched-glass cuticle stick gently and effectively pushes cuticles without any damage. It gives me a perfectly clean edge to polish with minimal effort."

Julie Kandalec
celebrity manicurist,
New York City



PRODUCT PICK

DEBORAH LIPPMANN CUTICLE OIL (\$20)

"Cuticle oil is the most important product to use to help extend the wear and performance of a manicure. It helps to waterproof the manicure, as water is the enemy of the nail plate and can contribute to early chipping."

Dave Crisalli
founder of PROSE
nail salon, Phoenix



PRODUCT PICK

MANIGLOVZ (\$24)

"UV radiation from the sun causes premature aging and skin cancer, but you can also get that radiation from other sources, such as the lights used with gel manicures. Protect your hands with these UV and sun-blocking gloves."

Deanne Robinson, MD
dermatologist in
Westport, Connecticut

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DERM Q&A

Keep the Glow

OUR EXPERT HAS HEALTHY OPTIONS TO GET YOUR GLOW ON—NO SUN REQUIRED

BY Kara Mayer Robinson REVIEWED BY Mohiba K. Tareen, MD, WebMD Medical Reviewer

NOT READY TO SAY GOODBYE TO YOUR SUMMER GLOW? With today's sunless tanning options, you don't have to. And by stepping out of the sun and into a sunless routine, you'll do your skin a big favor.

"Fundamentally, a tan is the sign of your skin trying to protect itself, trying to prevent skin cancer development," says **Patrick Blake, MD**, a dermatologist and clinical instructor at UC-San Diego. "Many people find a tanned look more attractive. To get that look, go for sunless tanner." Blake answers your burning questions.

Q What types of over-the-counter tanners are safe and effective?

BLAKE One option is bronzers, which are water-soluble products that darken your skin, last about 24 hours, and wash off. Another is longer-lasting sunless tanners, which are usually made with dihydroxyacetone (DHA) and react with the amino acids in your skin. The color is "fixed" to the top layer of your skin, so the color stays until the skin sloughs off.

Q Are spray tans safe and effective?

BLAKE Spray tans provide more even coverage than self-tanning lotions or creams. They also use DHA, and appear to be safe when applied to the skin. Far and away, the most important issue is that your eyes, nose, and mouth are protected. Safety regulations vary from city to city, so choose a salon that can clearly show how they protect you.

Q Is there a downside to self-tanning?

BLAKE Both spray tans and self-tanners provide very little sun protection, so they're not adequate for protecting your skin. They're temporary and can be costly. Another issue is some people who spray tan also tend to use indoor tanning booths, which are associated with a huge increase in risk of skin cancer, particularly melanoma.

Q Are there products I should avoid?

BLAKE Avoid any oral tanning or injectable supplement. The health risks of these products are unclear.

Q How can I get the best results?

BLAKE Exfoliate your skin thoroughly, especially thicker skin on your elbows, knees, ankles, and knuckles. Dry your skin thoroughly. Wait at least 10 minutes to put clothing on and at least three to four hours before exercise. For topical self-tanners, wear gloves and apply in sections with a circular motion. To get a natural appearance, you want a thinner layer as you move toward your hands and feet and over thicker-skinned areas.

Q What can I do when it starts to fade?

BLAKE Don't just re-apply. Exfoliate slowly with a scrub or body brush and then apply a body polish or oil. Applying another layer too early can leave blotchy patches that are hard to fix.



Search for the article
**Can You Reverse Sun
Damage?** at [WebMD.com](https://www.webmd.com).

4 TIPS

AS TEMPERATURES DIP AND THE AIR GETS DRIER, KEEP YOUR GLOW ON WITH THESE SUGGESTIONS FROM BOARD-CERTIFIED DERMATOLOGIST **PATRICK BLAKE, MD**.

1. ADOPT A HEALTHY LIFESTYLE

Basic health habits always pay off. Get adequate sleep, stay hydrated, and take time to create habits that reduce stress.

2. HYDRATE YOUR SKIN

Avoid hot water and harsh soaps. When temps drop, try a humidifier in your bedroom.

3. CHOOSE PRODUCTS WITH BONUS INGREDIENTS

Some, like topical vitamin C, may help even out skin tone. Others, like squalane and ceramides, create a helpful skin barrier.

4. AVOID SUN DAMAGE

Wear sunscreen every day. Go for a broad-spectrum sunscreen with an SPF of 30 or higher.

EXPERT PICKS

Shower Power

TAKE YOUR SHOWER TO THE NEXT LEVEL WITH THESE DERMATOLOGIST-APPROVED FINDS FROM **FRAN E. COOK-BOLDEN, MD**, NEW YORK CITY DERMATOLOGIST AND COSMETIC SURGEON

BY Ayren Jackson-Cannady

REVIEWED BY Karyn Grossman, MD, WebMD Medical Reviewer

SMOOTH AS SILK

Mary Kay Satin Body Butter Scrub Gel, \$18

"This helps to buff flakes away from dry skin. And I love its white tea and citrus scent."

HAIR GOALS

Scruples Moisture Bath Shampoo and MoistureX Conditioner, \$33/for both

"Use these in-shower hair products to ward off dryness and split ends. Together they clean, repair, hydrate, and condition."

SCRUB-A-DUB-DUB

Josie Maran Argan Sugar Balm Body Scrub, \$38

"A blend of argan oil, coconut oil, shea butter, and super-fine sugar granules, this shower scrub exfoliates while keeping skin—especially knees, elbows, and feet—conditioned."

PASS THE BAR

Olay Ultra Moisture Shea Butter Bars, \$6/6 bars

"This long-time favorite is still great and gets the job done. It's economical, lathers well, and is not drying or irritating to sensitive areas."





HEALTHY SPACES

Green Zone

THE MORE TIME CHILDREN SPEND AROUND TREES AND GRASS, THE BETTER THEIR MENTAL HEALTH IN ADULTHOOD

CHILDREN WHO GROW UP NEAR GREEN SPACE HAVE UP TO 55% LESS RISK OF DEVELOPING MENTAL HEALTH PROBLEMS AS THEY AGE. Danish researchers studied 1 million people, looking at satellite images of the areas where they lived as children, along with health data. They found that the less vegetation around children's homes, the more likely they were to develop problems such as eating disorders, depression, and substance abuse as adults, even when the scientists controlled for parents' income and family history of mental disorders. It's unclear exactly how natural areas benefit the brain, though researchers suspect they help by offering space to socialize and exercise and by decreasing noise and air pollution. While scientists sort this out, give your family time to go green most days of the week. —ERIN O'DONNELL

Remedy Risks

THINKING ABOUT TRYING HERBAL SUPPLEMENTS TO RELIEVE MORNING SICKNESS OR PREVENT STRETCH MARKS? AN OB/GYN EXPLAINS WHY THESE NATURAL PRODUCTS MIGHT NOT BE AS SAFE AS THEY SEEM.

BY Stephanie Watson REVIEWED BY Nivin C. S. Todd, MD, WebMD Medical Reviewer



CENTURIES BEFORE DRUGSTORES POPPED UP ON EVERY CORNER, women relied on herbal remedies to get them through the discomforts of pregnancy. They'd eat ginger to ease morning sickness or drink raspberry leaf tea to shorten labor.

Herbal remedies might seem like a better option than medicines because they're derived from plants. But just because they're natural doesn't mean these products are safe for you and your baby. A review of 74 studies on herbal supplement use in pregnancy found concerning side effects from some remedies. Ginger was associated with heartburn, belly pain, and nausea. Almond oil, which is used to prevent stretch marks, was linked to preterm birth. And raspberry leaf was associated with an increased likelihood of C-section delivery.

Compared to medications, a lot of unknowns surround supplements. "In order to get FDA approval, medications need to undergo rigorous studies," says Shivani Patel, MD, assistant professor of obstetrics and gynecology at UT Southwestern Medical Center in Dallas. "Supplements have not undergone that process, so there's no way to know that they're truly safe."

The most commonly reported side effects in the study were GI complaints like nausea, vomiting, and diarrhea, which could dehydrate a pregnant woman. "She could have contractions, which could potentially put her into preterm labor," Patel says.

It's hard to predict which side effects a supplement might cause, or even to know exactly what's

in the bottle. When Canadian researchers analyzed the DNA in 44 herbal products, they found that most contained genetic material from plant species not listed on the labels. Some herbal products are laced with chemicals, pesticides, or other dangerous contaminants.

Science doesn't offer women much guidance, either. As the authors of the review acknowledged, many of the studies they analyzed weren't of high quality. It's hard to prove that herbal remedies—and not other factors—caused the side effects documented in the studies.

Until we know more about the risks of herbal supplements, don't use them without medical advice. "If you're considering taking a supplement, talk to your doctor about it," Patel says.

Some herbs, such as ginger, may be helpful if you take them in the right dose and form. "Ginger does treat nausea very well, but if you take too much it can cause heartburn," says Patel. Ginger ale and ginger candies may be easier on your stomach than straight ginger.

One supplement you definitely do want to take is a prenatal vitamin. It contains folic acid, which helps prevent neural tube birth defects such as spina bifida, and iron, which helps your baby grow and develop normally. Ideally, you should start taking a prenatal vitamin before you conceive and continue taking it throughout your pregnancy.



Check out the [Pregnancy Message Board](#) at WebMD.com.

BY THE NUMBERS

15%

Percentage of pregnant women who said they used herbs and supplements.

25%

Percentage of pregnant women who don't tell their doctor about their herbal supplement use.

79%

Percentage of herbal supplements tested that didn't contain the plants listed on the product label.

400
MICROGRAMS

How much folic acid pregnant women should get each day from foods or supplements.



PARENTING

High Anxiety

IF YOUR CHILD STRUGGLES WITH ANXIETY, EXPERTS WARN THAT YOUR NATURAL PARENTING INSTINCTS COULD MAKE IT WORSE

BY Colleen Oakley
REVIEWED BY Roy Benaroch, MD, WebMD Medical Reviewer

YOU TAKE YOUR DAUGHTER TO THE PLAYGROUND, BUT SHE DOESN'T WANT TO LEAVE YOUR SIDE. Or maybe your son asks you endless worry questions: Are you going to get cancer? Are you going to get a divorce? Is the sun going to burn out? Or perhaps your child's bedtime routine includes checking all the locks—twice—and spending 20 minutes looking under the bed and in the closet for monsters.

Anxiety is the leading mental health issue among American kids, which means these scenarios are all too common for many families. And research suggests it's on the rise—the "Children's Mental Health Report" found a 17% increase in anxiety disorder diagnoses in the past decade.

While that increase could be due to a greater awareness of the problem, it could also be due to the changing environment kids are growing up in. "With social media, kids don't get time off from social interactions the way they used to," says Eli Lebowitz,

PhD, director of the program for anxiety disorders at the Yale University Child Study Center. "There's also more access to information. It can be difficult for children to understand the impact of negative events around the world in their own lives. They often overestimate the risk."

When that happens—a child with an anxiety disorder sees a news story about a terrorist attack, for example, and is worried that a terrorist attack will happen in their town—recent research suggests the way parents react is crucial. And nature may work against you.

"Parents are biologically hardwired to protect their kids, to pick up on their cues of being scared or stressed or anxious and then helping to soothe or regulate those

feelings," says Lebowitz. Parents typically calm anxious children one of two ways: By reassuring the child that everything is OK and that there is nothing to be scared of, or by making accommodations to protect the child.

For example, if your son wants to ask a librarian where to find a book for school, but speaking to adults makes him nervous, you may step in and ask for him.

But experts say these natural parental instincts are not helping. "The problem is, while those actions may decrease anxiety in that moment, what we've found is that it doesn't lead to reduction in anxiety the next day or the next, so the problem isn't resolved," says Lebowitz. And in some ways, it could be making it worse.

"What parents are essentially doing is unwittingly sending the message to their child that the only way they can ever feel better is if their parents rescue them, and that they can't cope with anxiety on their own," says Lebowitz.

ILLUSTRATIONS: JAMES STEINBERG

3 QUESTIONS

EVERYBODY HAS ANXIETY—IT'S AN EMOTION JUST LIKE SADNESS, FEAR, OR HAPPINESS. SO HOW CAN YOU TELL WHEN YOUR CHILD'S ANXIETY MIGHT BE A PROBLEM? LOOK FOR THESE THREE SIGNS, SAYS ELI LEBOWITZ, PhD.

Q Is it persistent?

"Normal worries and fears come and go," says Lebowitz. For example, the first day at a new school, most children will feel some anxiety—they might keep to themselves or have trouble separating from their mom or dad. But if your child still struggles a week later or a month later, that's a sign that help may be warranted.

Q Does it affect day-to-day life?

Is your child avoiding social interactions? Or is their anxiety affecting the lives of others in the family? "Maybe they sit alone at recess or don't want to go to birthday parties," says Lebowitz. Or perhaps they are crankier or angrier more often than usual, or you have to spend an inordinate amount of time calming your child down.

Q Do you notice physical symptoms?

"Anxiety disorders can manifest into real physical symptoms, like chronic stomachaches and headaches," says Lebowitz. Is your child eating well? Sleeping well? If you see changes in your child's typical behavior, it could be a sign of a more significant anxiety issue.

But a recent study led by Lebowitz at Yale found that teaching parents the tools to help their children with anxiety can be as effective as therapy for children.

The first thing for parents to understand is that anxiety by itself isn't dangerous. "It's not bad or physically unhealthy for a child to feel anxious some of the time," says Lebowitz. Even a panic attack, which seems frightening, takes no worse a toll on your body than running a short sprint. Once you understand that, you can rewire your response to your child's anxiety by following these three steps:

Practice acceptance. When your child is anxious, instead of saying "It's not scary," which denies what they are feeling, say, "I understand you're scared." It's important to acknowledge that this emotion is very real to them, says Lebowitz.

Show confidence. Let your child know you believe in their ability to handle their anxiety. For example: "I know this is hard for you right now, but I believe you can handle it and you will be OK." "Confidence is key," says Lebowitz, "Acceptance without confidence won't work."

Reduce your accommodations. Think about how you're behaving differently with your anxious child compared to other children. Maybe he sleeps in your bed at night because he doesn't want to be away from you. Or you come home from work earlier because he's nervous if you're late, or maybe you've stopped inviting people over because social situations make him anxious.

"Rather than trying to stop all of the accommodations you've been making at once, just pick one specific thing to stop doing to show your child you have confidence in their abilities," says Lebowitz. Explain to your child that you don't think this one thing is helpful to him so you're

not going to do it anymore—and be consistent about it.

"It's amazing after just a few days to see how children's perception of themselves quickly changes from 'I'm weak and vulnerable and can't cope' into a growing sense of confidence," says Lebowitz.



BY THE NUMBERS

1 in 3 The ratio of children who have an anxiety disorder.

80% The percentage of kids with a diagnosable anxiety disorder who don't get treatment.

6 The median age when anxiety disorders can begin.



Pouch Problems

BABY-FOOD POUCHES OFFER CONVENIENCE AND AN ARRAY OF FLAVORS FOR ON-THE-GO FAMILIES, BUT CHILD HEALTH EXPERTS WARN THAT OVERUSING THEM COULD POSE RISKS

BY Lisa Marshall REVIEWED BY Hansa Bhargava, MD, WebMD Senior Medical Editor

WALK THE BABY FOOD AISLE AND YOU'LL QUICKLY NOTICE that those miniature glass jars of baby food from your childhood are being overtaken by squeezable, suck-able, disposable pouches.

A decade after they hit the shelves, billed as a mess-free portable option for on-the-go families, the puree-filled packages now make up more than a quarter of baby food sales in the United States. Nearly a third of 2-year-olds' packed lunches at daycare contain at least one pouch, one recent University of Texas Austin study found, and some toddlers are getting more than half of their midday calories in pouch form.

That concerns child health experts who say that while the pouches are fine as an occasional snack, their overuse could potentially breed poor eating habits and stunt development of feeding skills and motor coordination at a critical stage of life.

"Many of us in the medical field have a love-hate relationship with pouches," says Kara Larson, a speech language pathologist and feeding specialist at Boston Children's Hospital. "They're convenient and travel well and are often a better choice than cookies or chips. But parents need to use them in moderation."

For infants and toddlers, Larson notes, eating serves as an important learning experience. Scraping a spoon across a bowl and lifting it to the mouth develops motor coordination. Plucking cut-up bits of banana from a high-chair tray develops grasping skills. And unlike sucking from a pouch—which requires a front-to-back tongue motion—chewing soft foods requires a child to develop side-to-side tongue motions needed for eating and speech later in life.

"If children are just sucking from a pouch all the time, we worry that some of that tactile experience with food might be lost," says Larson.

Parents often gravitate toward pouches for their wide variety of seemingly healthy flavors, ranging from quinoa and kale mixtures to organic vegetable blends. But experts warn that the actual taste of those vegetables and grains is often masked with sugar, which could pose dental problems and breed picky eaters.

"Children at this age are developing taste preferences that will follow them throughout life," says Courtney Byrd-Williams, PhD, a behavioral scientist at UTHealth School of Public Health in Austin, Texas. "If they are used to eating overly sweet fruit or aren't exposed to plain vegetables, they are less likely to like them as adults."

Byrd-Williams also worries that, because pouches are far easier to suck down quickly, they might encourage children to keep eating, even when they're already full—a bad habit that could cause problems in adulthood.

All that said, Larson and Byrd-Williams see no harm in offering babies six months or older and toddlers an occasional pouch—in the grocery store, in the car, at big-brother's soccer game—when sitting down for a snack isn't practical. Just don't exceed one or two pouches per day, look for low-sugar/high-fiber options, and don't let convenience trump health.

"When we consider what convenience-food has done to adult health, there are plenty of reasons to pause before passing your child another pouch," says Byrd-Williams.

BY THE NUMBERS

28%

Percentage of daycare lunches for children 6 months to 3 years old that contain at least one pouch; 10% contain two or more pouches. In 4%, half of lunchtime calories came from pouches.

0

Number of packed-lunch pouches that contained purely vegetables.

12 GRAMS

Average amount of sugar in a single pouch.

25%

Percentage of the total baby food market made up of pouches in 2018, according to Nielsen Total Food View.



The Youth Crisis in the ER

WHY ARE SO MANY MORE TEENS AND KIDS WITH MENTAL HEALTH PROBLEMS SHOWING UP IN EMERGENCY ROOMS?

BY Katherine Kam

REVIEWED BY Hansa Bhargava, MD, WebMD Senior Medical Editor

Search for the article **Preventing Teen Suicide** at WebMD.com.



IT'S 1 A.M. AND YOUR TEENAGER IS DISTRAUGHT AND THREATENING SUICIDE. Terrified, you rush her to the nearest emergency room to get help fast. Such scenarios are now more common in the nation's emergency departments. Growing numbers of children and teens show up with mental health problems, ranging from acute anxiety and psychosis to addiction and bipolar disorder. In a 2018 study, researchers at Children's National Health System studied data from more than 45 hospitals across the country and found that from 2012 to 2016, ER mental health complaints among people 21 and younger jumped by 55%. The increase was greatest among minority youths.

"We've seen a steep increase in the number of pediatric patients with urgent mental health issues. You almost can't be in the emergency department without recognizing what's going on," says Hamad Husainy, MD, an emergency physician at Helen Keller Hospital in Sheffield, Alabama. "What we're seeing the most is suicidality. I think the world of social media has not helped us. I'm not giving causation or blame, but so often, what we're seeing are young people—whether it be bullying or something said

on social media or on the internet—young people saying, 'I want to kill myself.' It's so common to hear that phrase now that it's hard to decide who's really suicidal. That's become the job of the emergency health care system in a lot of places.

"We're also seeing a number of 17- to 20-year-olds getting caught up in methamphetamines and opiates," he adds. "These kids get hooked, and then they get in trouble with the law, their parents, or their job or they get kicked out of school. They're looking at their futures as lost. They're in a bad place. Then they convey thoughts of suicidality or depression."

To probe for any sense of hopes and dreams, Husainy asks them a simple question: If you could leave problems behind and travel anywhere with a million dollars, what would you do? "I've heard people say they want to go skydiving or go to Florida to go fishing or they want to go to Australia because of the cool accents. I love hearing it," says Husainy.

"Rarely, probably 10% to 15% of the time, I get someone who says, 'I don't want any money, I don't want to go anywhere, I just want to kill myself. I'm so depressed that nothing would make me happy,'" Husainy says. "Those teens, I get really concerned about."

WHEN A CHILD IS SUICIDAL

Anytime your child or teen says, "I want to die" or "I don't care anymore," take it seriously. Don't shrug it off as exaggeration. Many youths who have attempted suicide had told their parents repeatedly that they wanted to end their lives.

Other phrases that are red flags:

"Nothing matters."

"I wonder how many people would come to my funeral."

"Sometimes, I wish I could just go to sleep and never wake up."

"Everyone would be better off without me."

"You won't have to worry about me much longer."

While it's hard to hear such words, try not to react with shock or disapproval. Try to console your child, perhaps by saying, "I see. You must be really hurting inside." Don't wait to call your pediatrician, according to the American Academy of Pediatrics. Instead, find a local counselor who works with children and teens to have your child evaluated quickly. If you believe that your child is in danger of self-harm or is actively suicidal, go to an emergency room.

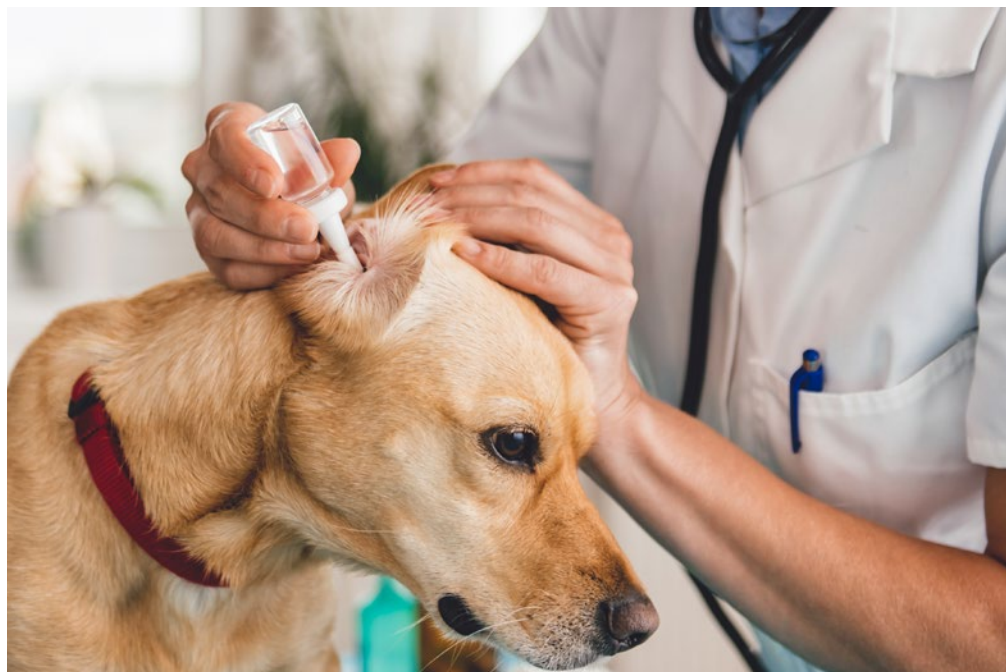
Dog-Eared

CHRONIC EAR INFECTIONS ARE A PAIN FOR DOGS. TALK TO YOUR VETERINARIAN TO GET TO THE BOTTOM OF THE PROBLEM.

BY Jodi Helmer REVIEWED BY Will Draper, DVM, WebMD Medical Reviewer



Search for the article **6 Most Common Dog Health Problems** at [WebMD.com](https://www.webmd.com).



4 QUESTIONS

TALK TO YOUR VET ABOUT YOUR DOG'S EAR HEALTH, SAYS **IRA ROTH, DVM**.

Q Should I clean my dog's ears?

You might be tempted to remove any gunk in the ears with a cotton swab, but Roth cautions against it. "You could do more damage," he says, "especially if something is lodged in their ear." Leave the treatment to the vet.

Q Do I need to see a specialist?

A veterinary dermatologist can help identify the underlying causes of chronic ear infections and develop a tailored treatment plan, says Roth.

Q Are ear infections contagious?

In a word, no, but Roth warns that parasites and ear mites can jump from one dog to another and may cause a reaction that leads to an ear infection. Keeping your dog on preventive parasite treatments can help.

Q Can cats get ear infections?

"Ear infections are not as common in cats," Roth says. If your cat has pain, swelling, or discharge in the ears, make an appointment with your veterinarian to rule out ear infections.

IF YOUR DOG PAWS AT HER EARS, REPEATEDLY SHAKES HER HEAD, OR HAS A FOUL ODOR OR DISCHARGE IN HER EARS, SHE COULD HAVE AN EAR INFECTION.

Chronic ear infections are one of the most common reasons dogs see the vet, according to Ira Roth, DVM, veterinarian and director of the community practice clinic at the University of Georgia College of Veterinary Medicine. Roth also calls ear infections "one of the most frustrating conditions to manage," because the causes are often unclear.

Breeds with floppy ears or hairy ear canals—we're looking at you, cocker spaniels, golden retrievers, and poodles—are more prone to ear infections because the shape and texture of their ears block airflow. Tumors and foreign bodies lodged in the ear can also cause infections and might be to blame if your dog has an infection in only one ear.

If your vet suspects an ear infection, he or she will use a cotton swab to collect a sample and view it under the microscope for signs

of common microbes, ticks, or ear mites that could trigger the painful condition, says Roth. Medication to treat the parasites will clear up the infection.

Bacterial infections are harder to manage. (One study found that bacteria caused almost half of ear infections in dogs.) Roth notes that medications will clear up the infections, but they are likely to recur if the underlying cause isn't addressed. Yeast (fungal) infections are also a common culprit.

Issues ranging from environmental allergies to food sensitivities can also trigger ear infections. Keeping a symptom diary to determine if ear infections are worse during certain times of the year can help identify potential allergens; a strict hypoallergenic diet can help with food sensitivities.

In both cases, Roth says, "Figuring out what's causing the problem can help avoid the need for drug therapies that can cause side effects and keep your dog from having chronic, painful ear infections."



INNOVATIONS IN HEALTH

THE FUTURE OF HEALTH IS PAVED WITH INNOVATIONS, FROM CUTTING-EDGE TECHNOLOGY that detects, treats, and cures disease to making sure your next doctor's appointment is the best it can be. The hope shared by the many experts you'll meet on the following pages is that technology will ultimately enhance health and well-being and lead to longer and better lives.

Start with an insightful interview with best-selling author Malcolm Gladwell about his latest book and his thoughts on the future of health, followed by an in-depth profile of his life and work.

Next, explore top thought leaders' predictions about what's next for innovations in health and medicine. One says, "I believe we stand on the threshold of a new revolution in medicine." You won't want to miss how each expert defines what that means for the near future.

Finally, for a glimpse into how artificial intelligence has the potential to improve health, turn to the last page of this issue for an interview with Eric Topol, MD, whose new book explores how technology can fold empathy back into health care.

We hope you are as inspired as we are about this glimpse into innovations in health.

GETTY IMAGES

EDITOR'S NOTE

In anticipation of Malcom Gladwell's new book, *Talking to Strangers: What We Should Know About the People We Don't Know*, coming out this month, WebMD CEO Bob Brisco spoke with the

author about the difficulty of assessing strangers, how this affects doctors and their patients, and how technology may help improve these interactions—and ultimately our health.



WITH MALCOLM GLADWELL

BY BOB BRISCO, WEBMD CEO

I MUST ADMIT I'M PRETTY JEALOUS OF MALCOLM GLADWELL. He created a dream job. He interviews brilliant people, generates powerful insights, writes like an angel, and has earned a massive and admiring audience. He has a keen eye and a witty flair and he's one of the best observationalists of a generation. Gladwell is a big-picture thinker who helps us make sense of the human condition. Most enviable of all, he is able to run the mile like a gazelle. Darn you, Malcom Gladwell.

Gladwell's writings have influenced me: I've embraced the 10,000-hour rule, reflected on my occasional blink-like intuition, and become bolder in tackling Goliaths. I'm also training hard to try to hang onto him in the mile.

Humbly, I threw these questions his way.

WHY DO YOU THINK IT'S HARD FOR US TO TALK TO STRANGERS AND REALLY UNDERSTAND WHAT'S GOING ON WITH THEM?

Our experience is with friends and family. Our most typical and most successful interpersonal relationships are with people with whom we have history, for whom we have context. In those kinds of situations, [using] shorthand when you make sense of people can work. ... Without thinking, we just sort of extrapolate from our experiences with people who we are intimate with to people who we are not, and that can get us in trouble.

IMAGE PROVIDED (BOB BRISCO), MIKE MCGREGOR / GETTY IMAGES (MALCOLM GLADWELL)

WHAT'S UNDERNEATH THAT? IS IT A LACK OF CONTEXT? IS IT FEAR?

When it comes to strangers, we're looking for shortcuts. The signature story of my book—the story of Sandra Bland [a 28-year-old African American woman who in July 2015 was pulled over, arrested for failing to signal a lane change, and found dead in her jail cell three days later]—is the story of a shortcut. It's the story of a police officer who wanted to make sense of someone without taking the time to make sense of that person. The whole encounter between him and Sandra Bland was two minutes. He thought he could make sense of a stranger in two minutes, but you can't.

DOES THAT CONCEPT TRANSLATE TO THE DOCTOR/PATIENT RELATIONSHIP?

Absolutely. If you talk to doctors, their number-one frustration is that the economic model of modern medicine has given them less and less time. ... You cannot have a system where you are asking physicians to make very complicated, difficult decisions with people who are usually strangers and simultaneously limit the time.

DO YOU THINK TECHNOLOGY MIGHT ASSIST IN THESE INTERACTIONS?

Technology might make some aspects of the immediate encounter between the physician and patient more efficient. The question is, what is it doing to the larger issue of the legitimacy of medicine? Because the legitimacy of medicine is ultimately the sum total of the millions of interactions between patients and physicians. And when the sum total of those interactions is positive, when people feel they're getting something of value from that human encounter, then the system works and people trust what their doctors have to say.

DOES ALL THE DIGITAL INFORMATION AVAILABLE TO PEOPLE COMPLICATE THIS RELATIONSHIP?

When the patient is coming in with a set of independently gathered opinions, facts,

and maybe also some misapprehensions, it makes the interaction between the physician and the patient more valuable, more complicated, and it requires even more time, because now you have to gently correct whatever assumptions ... the patient is bringing into the room.

HOW DO YOU CHOOSE WHAT TO WRITE ABOUT?

It's very whimsical. There's no system. This book came out of the fact that I was, like everyone, very disturbed by this rash of incidents. ... It occurred to me that they were all versions of the same problem, which is the fact of strangers not knowing how to talk to each other.

HAS WRITING THIS BOOK MADE YOU MORE CONSCIOUS OF YOUR OWN INTERACTIONS?

Writing this has made me slow down in my assessment of people. It's made me aware of how hard it is to understand a stranger and to appreciate their complexity. And I've tried to delay reaching conclusions about people until I see them in more context.

HOW DO YOU THINK OF A NEW NARRATIVE THAT YOU WANT TO PURSUE? DO YOU FIND IT, OR DOES IT FIND YOU?

As a journalist, you build up a store of interesting bits of information. ... I have this bucket of things I can rummage through at any given time, looking for things that match. ... I don't think it's any different from what happens in medicine. That's exactly what a diagnostician is doing. They've got a big box of observations over the years, and that helps them enormously as they get into more and more difficult cases.



TALKING TO STRANGERS

THAN FICTION

**BEST-SELLING AUTHOR AND PODCASTER
MALCOLM GLADWELL DOES IT AGAIN,
TURNING RESEARCH INTO SOCIAL THEORY
THAT CHANGES THE WAY WE VIEW THE
WORLD—AND OUR OWN HEALTH**

BY LAUREN PAIGE KENNEDY
REVIEWED BY AREFA CASSOOBHOY, MD, MPH,
WEBMD SENIOR MEDICAL EDITOR

TALKING TO STRANGERS IS SOMETHING
AUTHOR, JOURNALIST, AND PODCASTER
MALCOLM GLADWELL DOES ALL THE TIME.

His job is to ask questions—lots of them—to people he's never met before. Gladwell's brand, after all, is built upon interviewing scientific minds and mining academic data, then spinning research into best-selling gold. His popular and acclaimed books include *The Tipping Point*, *Blink*, *Outliers*, *What the Dog Saw*, and *David & Goliath*.

In 2005's *Blink*, Gladwell largely argued that the unthinking, unconscious mind makes snap judgments that can provide us with fairly accurate insight to help us read situations and assess danger levels. He also presents the downside of leaping to conclusions, such as racial and gender discrimination.

In many ways, his latest effort, *Talking to Strangers: What We Should Know About the People We Don't Know*, is that book's logical follow-up. What happens, he questions, once the rational mind kicks in and applies its own internal presumptions to evaluate an unknown person? Can we accurately judge a stranger by what we think we already know?

PHOTOGRAPHY BY: LAURA BARISONZI

The answer is “no,” according to the research he cites in his book.

“I’m particularly interested in the ideas of the brilliant psychologist Timothy R. Levine,” Gladwell says. Levine is a distinguished professor and chair at the department of communication studies at the University of Alabama at Birmingham. His research is called the Truth Default Theory (TDT) and reveals how “our operating assumption is that the people we are dealing with are honest.”

Repeated studies by Levine show how humans do much better than average at guessing when people are being truthful—and much, much worse when attempting to identify liars.

Gladwell explains why.

“We’re programmed to take people at face value because it’s incredibly useful if you’re trying to construct a civil society that functions,” he says. “It leaves us at risk of occasionally being schemed, yet that risk is small and worth taking. It means on occasion someone like Bernie Madoff comes along and takes advantage of us.”

Think about how things might work—or wouldn’t work—otherwise. “How many people did you have to trust to make this interview possible?” Gladwell asks. “You had to trust my assistant was who she said she was, that I was sufficiently interested that I’d call you, and that I’m sufficiently organized to call you on time. I could go down the list. You’ve never met me, yet you decided to take all my claims at face value. And it worked out.”

This, he says, is the human default to truth. And the whole world operates on it.

In addition, facial cues and body language, which most of us think of as transparent clues into a person’s character and state of mind, are not universal—not across eras and not across contemporary cultures. According to multiple studies and expert anthropologists Gladwell cites, one tribe’s smile is another’s grimace. One group’s look of anger is another’s sad face.

And that is precisely why even cops, judges, and CIA agents often overlook con artists and spies in their midst and sometimes misread innocence for guilt. “You cannot make sense of a stranger in a hurry,” Gladwell says, no matter how tempting it is to do.

DOCTORS & PATIENTS

Nowhere is assessing a stranger more personally important than in a physician’s exam room, Gladwell believes.

Yet, according to a 2016 study published by the *Annals of Internal Medicine*, physicians spent just 27% of their total office time on direct clinical face time with patients and a whopping 49.2% of their time on electronic health records (EHR) and desk work. When in the exam room itself, they spent just over half of their time directly engaging with patients, with 37% devoted to EHR and desk work. And a 2013 study of medical residents—doctors in training—revealed they spent only 12% of their total time examining and talking with patients.

To compound matters, in the U.S. it’s not uncommon for doctors to be asked to see patients in 15-minute intervals.

“Doctors consistently complain how they are given less and less time with their patients,” Gladwell says. “One conclusion you can take from my book is that they are 100% right to make that complaint. In the interest of efficiency, we’re creating grave problems. You cannot ask a doctor to make sense of a stranger in 10 minutes. The danger when you speed things up is that people start relying on strategies to make sense of the stranger that are inaccurate or misleading.”

David B. Agus, MD, professor of medicine and engineering at the University of Southern California Keck School of Medicine and Viterbi School of Engineering, and author of *The Lucky Years: How to Thrive in the Brave New World of Health*, agrees. He thinks a balance must be struck between the innovations of big data, which are transforming the speed of patient care and rates of accurate diagnoses, with the time doctors must spend on EHR.

“Doctors spend the majority of their time entering data while staring at a computer,” Agus says. “A doctor needs to look at how patients are holding their bodies, how they’re breathing. It’s very hard to do that when there’s a computer monitor between a doctor and patient. If you’re a patient, you want to trust what your doctor is saying and understand he or she cares about you. Then you’ll be compliant and follow what they ask you to do. When you’re missing that interaction, trust goes down, compliance goes down. That’s a serious problem.”

Gladwell certainly isn’t against digital innovations, especially if they yield results. But he reminds us there is more to health care than diagnoses. “An overwhelming reason we go to doctors is for reassurance and consolation,” he says. “We have enormous psychological needs.

“YOU CANNOT ASK A
DOCTOR TO MAKE SENSE
OF A STRANGER IN
10 MINUTES.”



TOP: GLADWELL RECORDING HIS PODCAST, “REVISIONIST HISTORY,” NOW IN ITS FOURTH SEASON

RIGHT: GLADWELL’S NEW BOOK, *TALKING TO STRANGERS: WHAT WE SHOULD KNOW ABOUT THE PEOPLE WE DON’T KNOW*

BOTTOM: GLADWELL RECORDING HIS PODCAST, WHICH “REINTERPRETS SOMETHING FROM THE PAST”



PHOTOGRAPHY: RICK LOZIER (BOOK); ANNE BAILEY (TOP); PROVIDED (BOTTOM)

TALKING POINTS

THE TOP FIVE TAKEAWAYS FROM MALCOLM GLADWELL’S LATEST TOME, *TALKING TO STRANGERS*.

EVEN THE EXPERTS GET IT WRONG—MUCH OF THE TIME

Gladwell asserts that most of us are wired for gullibility—we believe just about everything other people say, even with multiple red flags flying. Why? How could humanity survive, and society hum along, otherwise? This allows the few of us who do deceive a better chance of getting away with it, according to the author.

FACIAL CUES ARE NOT ACCURATE SIGNPOSTS

Research shows that facial cues do not provide transparent, accurate insight. So why do we study them in job interviews, doctors’ offices, and criminal courts to try to assess a stranger? Gladwell says we shouldn’t—unless we study how a specific individual employs specific expressions over time. Only then can we guess what any one expression might mean—for that individual alone.

HUMAN BEHAVIOR OFTEN “COUPLES” WITH CONTEXT

This means specific circumstances, environments, and/or opportunities can trigger certain outcomes. Examples of this include crime and suicide rates. According to Gladwell, the vast majority of criminal activity occurs in concentrated urban areas within a few city blocks, year after year, called “hot spots.” And, suicide among women in England peaked at an all-time high in 1960 during the era when dangerous “town gas” was being used in most English homes to fuel ovens—the method poet Sylvia Plath used to take her own life in London in 1962. By 1977, town gas was switched out for much safer natural gas; suicide rates dropped dramatically.

TORTURE DOESN’T YIELD RELIABLE RESULTS

Even when understanding a stranger is urgent and might save countless lives—say, when interrogating a terrorist about a future attack—multiple studies show how physically forcing a confession does not produce accurate information.

WE WILL NEVER KNOW THE WHOLE TRUTH

“We need to accept that the search to understand a stranger has real limits,” Gladwell writes. “The right way to talk to strangers is with caution and humility.”



I RUN AFTER WORK IN
THE LATE AFTERNOON. ...
IT'S THE MOST PEACEFUL
PERIOD OF MY DAY.

MIKE MCGREGOR / GETTY IMAGES

RUN FOR YOUR HEALTH

PUT ONE FOOT IN
FRONT OF THE OTHER
WELL INTO MIDDLE
AGE—AND BEYOND.

Back in his high school days, writer and “Revisionist History” podcaster Malcolm Gladwell ran on his Ontario-based track team—and was a 1,500-meter phenom. These days, at 55, he runs regularly—not for glory but for good health.

New York-based sports medicine and running expert Lewis G. Maharam, MD, FACSM, offers tips to keep pace with an aging body and stay in the race well into middle age and beyond.

BEFORE YOU LACE UP

“When you’re young you put on your running

shoes and go,” Maharam says. “To stay pain-free as you get older, you need to do more stretching beforehand, every day. Make sure your ligaments and tendons are warmed up before you run. You need to break a sweat. Take a brisk walk, do some jumping jacks, or even start a light jog. Then run.”

CROSS-TRAINING IS KEY

Building strength may protect runners from injury, Maharam says. “People lose calcium as their bones get older and can become osteoporotic.” Weight-bearing exercises, including circuit training or free weights, can

help protect bones. Core-strengthening exercise like Pilates is also good. “The more, the better,” Maharam says of supplemental exercise.

NEVER IGNORE PAIN

“If you experience pain, and you can’t maintain your regular form, stop running and see a doctor,” Maharam says. “You know better than anyone what your form should feel like.” Common injuries include ankle sprains, muscle pulls and tears, and shin splints.

We go to have our illnesses treated, yes, but we need to have more respect for the human role of the doctor, where it’s most valuable. Maybe we should help doctors rely more effectively on data to free them up to more successfully understand the patient. It’s not an either-or-question. It’s a matter of deciding where the machine does best and where the human does best—perfecting both sides of the equation.”

RUN FOR IT

Gladwell cares about his own health, too, and he also stares at a computer most days, meeting endless deadlines. To decompress, he hits the road.

“I’m a big runner,” he says. “I exercise a lot. I’ve been injured with tendonitis, a recurring problem with my knees, but I’m battling it and coming back.” Tendonitis is inflammation of the tendons, the fibrous cords that attach muscle to bone.

It’s a common problem for runners, says sports medicine and running expert Lewis G. Maharam, MD, FACSM, who adds that the best treatment for Gladwell and others who suffer from tendonitis is to remember the acronym MICE.

“It stands for *moving* as soon as you are able to, but only after *ice*, *compression*, and *elevation*,” says Maharam. For shin splints, another common runners’ complaint, he suggests stretching the calf muscles really well before running, something that Gladwell admits he often fails to do, and to consider using orthotic arch support, if you need them, inside running shoes.

“I usually do an hour and change each day, five or six days a week,” Gladwell, 55, says of his running routine. Although he lives in New York, he tries to run on soft surfaces like jogging trails as much as he can. “It comes with being old!” he says. “I run after work in the late afternoon. No one’s bothering me. I’m not distracted. It’s the most peaceful period of my day.”

Gladwell signs up for the occasional 5K race, running in these events maybe four or five times each year, when his knees are up for it. Does he ever consider doing a marathon? “I’m a middle-distance runner,” he says. “My body would break down. I don’t think I could handle the training.”

Maharam, who brands himself “The Running Doc,” offers tips for both runners and running wannabes in our sidebar (see “Run for Your Health”). He believes with the right approach—and a doctor’s blessing—most everyone can gradually build endurance and go the distance.

HEALTHY PURSUITS

Gladwell shows a healthy interest in a wide range of topics, many of them with psychological, social, and health-based underpinnings. From his popular *New Yorker* articles that report on the safety of decriminalizing marijuana—“I’m a cautious advocate of legalization, but we just don’t know enough yet, and that alarms me”—to his breakdown of how cancer drugs get approved, he educates his readers while entertaining them. As to what sparks his pursuit of any given story, he’ll only say, “I try to keep an open mind and follow my curiosity.”

Such inquisitiveness led Gladwell to the launch his podcast “Revisionist History,” now in its fourth season, which “reinterprets something from the past: an event, a person, an idea. Something overlooked. Something misunderstood,” says Gladwell. What he’s most excited about right now, he says, are the three new episodes he’s devoted to “how to think like a Jesuit.”

OK, bait taken. How, exactly, does one think like a Jesuit? “Guess you’ll have to listen,” he says. Classic Gladwell: Set an intellectual trap. Pursue the answers in a surprising way. Then wait as fellow curiosity seekers follow his lead—and inevitably get hooked.

EXPLORE TREATMENT OPTIONS

Stress fractures, meniscal tears, tendonitis, hamstring strains, joint pain—these setbacks can put a hold on your jogging habit. To treat them, your doctor may advise a modified running schedule, or even complete rest, to allow for healing and the reduction of inflammation. You may also need to examine errors in your training, such as not stretching well enough before you run. Serious aches and pains may require physical

therapy, orthopedic procedures, or, in some cases, surgery.

YOU ARE NOT TOO OLD

It’s never too late to start training (if your doctor gives you the green light, Maharam says). He suggests running three or four times each week, even if you can last just a few minutes in the beginning. “Aim to increase your distance by about 10% each time you run,” he suggests. Soon you’ll be logging—and jogging—miles.

CASCADE OF INNOVATIONS

HEALTH CARE LEADERS SHARE
THEIR VISIONS FOR THE FUTURE



"Experts I've spoken with say we're overdue for a flu pandemic. I'm hopeful we can develop a universal flu vaccine before that happens. Researchers are optimistic about a new type of vaccine that could manipulate the virus' DNA in a way that teaches the human body how to fight it."

SANJAY GUPTA, MD, CHIEF MEDICAL
CORRESPONDENT, CNN



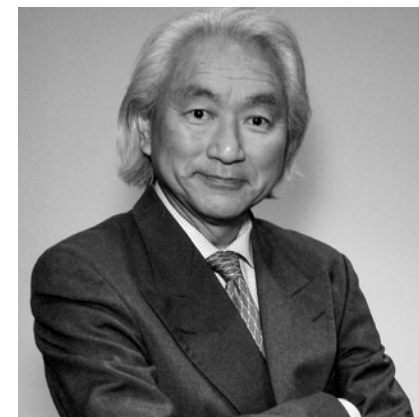
"What excites me most in health care is the use of human genomic data, coupled with non-invasive tests such as MRI, in healthy or non-symptomatic people to better understand, treat, and prevent the onset of disease."

J. CRAIG VENTER, PhD, BIOCHEMIST,
GENETICIST, HUMAN GENOME PIONEER,
AND FOUNDER, CHAIRMAN, AND CEO OF
THE J. CRAIG VENTER INSTITUTE (JCVI)



"As we look to the future of health care in the United States, I'm most excited about the opportunity to reconceptualize what is possible in primary care. I see a cascade of innovations that leverage technology, comprehensive team-based care, and precision medicine to build long-term relationships that improve health outcomes."

ASAF BITTON, MD, MPH, EXECUTIVE
DIRECTOR, ARIADNE LABS AND ASSISTANT
PROFESSOR OF HEALTH CARE POLICY,
HARVARD MEDICAL SCHOOL



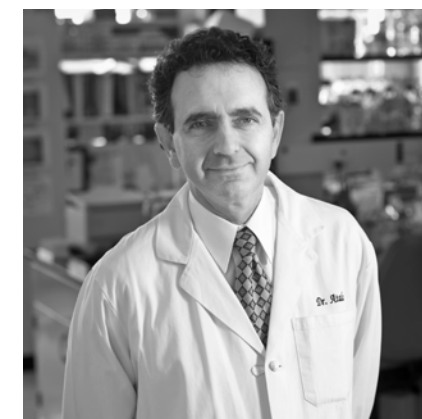
"In the near future, the words *tumor* and *heart attack* will disappear from the English language. Sensors with artificial intelligence (AI) will (a) identify the genes of cancer cells circulating in our bodily fluids many years before a tumor forms, and (b) will recognize the EKG of a heart attack, locate your position, and call for an ambulance, even if you are unconscious. We will tame the two greatest killers in the U.S. today via AI. AI will also scan millions of genomes of the elderly, identify where aging takes place, and perhaps even extend the human life-span."

MICHIO KAKU, PhD, PROFESSOR OF THEORETICAL PHYSICS, CITY UNIVERSITY OF NEW YORK AND AUTHOR OF THE BESTSELLER *THE FUTURE OF HUMANITY: OUR DESTINY IN THE UNIVERSE*



"I believe we stand on the threshold of a new revolution in medicine, moving away from the tyranny of the population mean results to a paradigm of 'what works best for a person like me.' This will be driven in part by the ability to mine health care data and in part by the advances in gene sequencing and genetic intervention platforms that can be highly personalized."

JANET WOODCOCK, MD, DIRECTOR
OF THE FDA'S CENTER FOR DRUG
EVALUATION AND RESEARCH



"I am excited about the progress and many advancements made in the field of regenerative medicine with its ability to provide replacement tissues for patients using cells. We are seeing technologies, like the use of 3-D printing, potentially accelerating the development of new therapies to help improve long-term health and patients' lives."

ANTHONY ATALA, MD, DIRECTOR OF
THE WAKE FOREST INSTITUTE FOR
REGENERATIVE MEDICINE

IMAGES PROVIDED



"The drug development process is too long and expensive, delaying cures for patients and families. Approaches that use genetics as the basis for drug discovery will speed drug development and double the overall probability of success."

KENNETH HILLAN, MB, ChB, HEAD OF THERAPEUTICS, 23ANDME



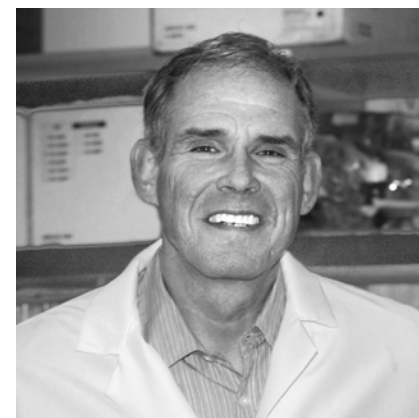
"We are in the midst of a consumer-driven health care revolution. The federal government wants to give patients unprecedented free access to their health care data and companies like Apple are ready to innovate with it. The key will be to ensure that patients are better informed and healthier as a result."

DAVID BLUMENTHAL, MD, PRESIDENT, THE COMMONWEALTH FUND



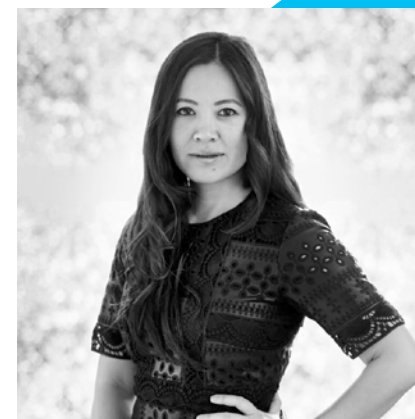
"As a clinician and researcher, I'm excited about the potential to use technology to paint a more comprehensive picture of health—much of which happens outside the four walls of the clinic. Using advanced sensors or mobile technology, for example, we can more richly capture information across day-to-day life and empower patients, doctors, and care teams to more proactively address health."

JESSICA MEGA, MD, MPH, CHIEF MEDICAL AND SCIENTIFIC OFFICER, VERILY



"The most exciting near-term innovation—which will be highly popular for both patients and doctors—is the liberation from keyboards. Voice-synthesized office notes are coming, and along with that will be the return of eye contact and real presence during medical encounters."

ERIC TOPOL, MD, GARY & MARY WEST ENDOWED CHAIR OF INNOVATIVE MEDICINE, SCRIPPS RESEARCH AND AUTHOR OF *DEEP MEDICINE* (READ OUR INTERVIEW WITH TOPOL ON PAGE 76.)



"By bringing together wearable neurotech and big data analytics, we now have the possibility of gathering and exploring huge datasets about how brains work in daily life outside of lab or hospital settings. The potential for developing new treatments and preventive strategies by studying the brain in its natural environment is just incredible."

TAN LE, FOUNDER & CEO, EMOTIV, INC.



"CRISPR genome editing is a breakthrough technology that allows us to alter DNA—the code of life. Using CRISPR, researchers are accelerating the development of new individualized medicines and approaches to treat and potentially cure the most intractable cancers and genetic diseases, including sickle cell and cystic fibrosis."

JENNIFER DOUDNA, PhD, PROFESSOR OF CHEMISTRY AND MOLECULAR AND CELL BIOLOGY, UNIVERSITY OF CALIFORNIA, BERKELEY



GOOD EATS

Plump Pick


FRESH FIG SEASON IS FLEETING, SO GRAB THESE LUSH FRUITS WHILE YOU CAN

WHEN PERFECTLY RIPE, FRESH FIGS HAVE A LUXURIOUS, velvety texture and sweet flavor that makes them a pleasure to eat. They contain a surprising amount of fiber for their size, with just one large fig providing 7% of an adult's daily value. They're also a source of antioxidant polyphenols, which may reduce heart disease and type 2 diabetes risk. Figs are famously fragile, so store them in your refrigerator and eat them within a week. Add sliced figs to yogurt with a drizzle of honey or use them to top warm oatmeal. Toss them in leafy green salads, where their sweetness pairs well with little bits of salty cheese. Or, simply relish a couple of fabulous figs as the perfect, low-calorie dessert. —ERIN O'DONNELL

Ooodles of Zoodles

ZUCCHINI MAKES A SURPRISINGLY DELICIOUS STAND-IN FOR PASTA. HERE ARE THREE WAYS TO PREPARE “ZOODLES,” A LOW-CALORIE, LOW-CARB, GLUTEN-FREE NOODLE ALTERNATIVE.

BY Erin O'Donnell RECIPES BY Kathleen Zelman, MPH, RD, LD

 Sign up for the **Food & Fitness** Newsletter at WebMD.com.

Zoodles 101

You may be tempted to use the zucchini noodles found in your supermarket freezer section, but we don't like the way they become watery when cooked. Buy fresh, pre-cut zucchini noodles in your supermarket produce section. Or, make your own with a spiralizer tool with a medium blade. Wash and dry the zucchini first, leaving the peel intact. Then cut the zucchini in half lengthwise and remove the seeds. Place the zucchini in the spiralizer and crank to make noodles. Alternatively, use a vegetable peeler to make wide zucchini ribbons.



THE RAINBOW DISH

Zoodle Confetti with Peppers, Shrimp, and Goat Cheese

This recipe features an array of colorful vegetables and tastes great served hot with shrimp or leftover protein, such as chicken or fish. To make it vegetarian, leave out the shrimp (or other protein). To make it vegan, skip the cheese as well.

THE MIX

4 MEDIUM ZUCCHINIS, SPIRALIZED + OLIVE OIL, ONION, RED AND YELLOW SWEET PEPPERS, JALAPEÑO PEPPER, CORN, GARLIC, 1 LB SHRIMP, FRESH BASIL, SEA SALT, BLACK PEPPER, LEMON JUICE, GOAT CHEESE CRUMBLES

MAKE IT

In a large skillet, heat 1 tbsp olive oil over medium-high heat. Add chopped onion, peppers, whole-kernel corn, and garlic and cook 5 to 7 minutes or until tender. Transfer mixture to a large bowl. In the same skillet, heat 1 tbsp oil. Add peeled, deveined shrimp and cook 2 to 3 minutes or until shrimp are cooked through and no longer pink. Transfer shrimp to the cooked vegetables. Add zucchini to the hot skillet and toss with tongs for 4 minutes. Turn heat to low and return cooked ingredients to the skillet. Toss with chopped basil, salt, pepper, and 2 tbsp lemon juice. Place mixture on 4 plates. Serve garnished with goat cheese and additional basil. **SERVES 4**

PER SERVING (ABOUT 2½ CUPS) 311 calories, 29 g protein, 25 g carbohydrate, 11.5 g fat (3 g saturated fat), 173 mg cholesterol, 5.4 g fiber, 9 g sugar, 368 mg sodium. Calories from fat: 33%

PHOTOGRAPHY: RICK LOZIER, FOOD STYLING: CHARLIE WORTHINGTON



THE FAMILY-FRIENDLY RED SAUCE

Zoodles with Turkey Ragu

This flavorful feast features zucchini and another late-summer fave, the Roma tomato.

THE MIX

4 LARGE ZUCCHINIS, SPIRALIZED + ROMA TOMATOES, OLIVE OIL, ONION, GARLIC, NO-SALT-ADDED TOMATO PASTE, FRESH PARSLEY, DRIED OREGANO, 1 LB GROUND TURKEY (BROWNED), PARMESAN CHEESE

MAKE IT

Working in batches, process 14 tomatoes in a food processor until pureed. In a large skillet, add 1 tbsp olive oil, 1 chopped onion, and 3 to 4 cloves finely chopped garlic. Cook 3 to 4 minutes or until soft. Add tomato puree, 2 tbsp tomato paste, chopped parsley, oregano, and salt and pepper to taste. Reduce heat and simmer 30 to 40 minutes. Stir in browned turkey and cook 5 minutes. Pour sauce in a separate bowl. Wipe out the skillet; heat to medium-high and add 1 tbsp olive oil. Add zucchini and sauté with tongs about 4 minutes or until just tender. Place zucchini on four plates. Top with turkey ragu and garnish with grated Parmesan and additional parsley. **SERVES 4**

PER SERVING (ABOUT 2 CUPS) 374 calories, 29 g protein, 25 g carbohydrate, 19 g fat (5 g saturated fat), 94 mg cholesterol, 7 g fiber, 14 g sugar, 419 mg sodium. Calories from fat: 46%

THE LATE-SUMMER SALAD

Greek Style Zoodles with Feta

This dish works with raw or lightly cooked zucchini noodles. (You can experiment, but we prefer them after a quick stir-fry.) Either way, this dish tastes best when served chilled or at room temperature. It's a vegetarian-friendly side dish for late summer picnics and potlucks. To make it vegan, leave out the feta cheese.

THE MIX

4 MEDIUM ZUCCHINIS, SPIRALIZED + OLIVE OIL, RED ONION, GARLIC, YELLOW AND RED CHERRY TOMATOES, CUCUMBER, SMALL PITTED GREEK OLIVES, LEMON, SEA SALT, BLACK PEPPER, FETA CHEESE, MINT

MAKE IT

Heat olive oil in a large skillet over medium-high heat. Add chopped red onion and finely chopped garlic and cook 4 to 5 minutes or until just soft. Add zucchini and toss with tongs for 2 minutes. (Or you can use raw zucchini if you prefer.) Transfer the zucchini mixture to a bowl and allow to cool. Toss with halved tomatoes, chopped cucumber, 16 olives, the juice and zest of 1 lemon, and salt and pepper. Chill for 1 hour or serve at room temperature, garnished with feta cheese and fresh mint. **SERVES 4**

PER SERVING (ABOUT 1¼ CUPS) 184 calories, 6 g protein, 14 g carbohydrate, 13 g fat (4 g saturated fat), 17 mg cholesterol, 4 g fiber, 7 g sugar, 364 mg sodium. Calories from fat: 60%





BAKED IN

Get your veggies in by adding a layer or two of cooked spinach, mushrooms, or squash to your lasagna.



BUILD A BETTER

Lasagna

LASAGNA CAN BE THE PERFECT CROWD-PLEASER. JUST GIVE IT THE TIME IT NEEDS.

BY Matt McMillen

REVIEWED BY Hansa Bhargava, MD
WebMD Senior Medical Editor

“PEOPLE LOVE LASAGNA, AND YOU CAN FEED A LOT OF THEM WITH IT,” says Lidia Bastianich, the host of the public television cooking show *Lidia’s Italian Kitchen* and the author of numerous cookbooks, including *Felidia: Recipes from My Flagship Restaurant*, available in October. But keep in mind, she says, “Lasagna takes a little labor and a little planning.” Check out her tips.

MAKE IT

- All types of lasagna noodles work. If you can make your own pasta, do it. But fresh, dry, and even no-bake all make excellent lasagna.
- Select the best tomatoes. Top choice: Canned tomatoes from San Marzano, Italy, cooked down sweet and meaty, available in many markets and online.
- Choose whatever meat you like. A blend of ground beef and pork makes a classic Italian-American lasagna, but you can substitute ground veal, lamb, and even turkey.
- Consider time an ingredient. Your sauce will need a couple of hours to thicken and fully develop its flavor. Don’t rush it.
- Prep your cheese. Look for a ricotta with nice curd, and let its whey drain in the fridge overnight so it doesn’t add extra liquid to the lasagna.
- Boil your noodles in batches so you don’t overcrowd the pot. Once they’re al dente, transfer each batch to a bowl of ice water to stop the cooking. Then layer them on kitchen towels to dry.
- Build the layers. Start with sauce, then cover with noodles, then sauce, then ricotta. Repeat. The first of four layers of noodles should crisscross and overlap all four sides of a lightly greased pan by an inch. When filled, fold the ends over the top and cover with sauce, then add grated mozzarella, tent with foil—you don’t want the cheese to stick—and bake until bubbling, about an hour.
- Remove foil, let the cheese brown, and allow your lasagna to rest 20 to 30 minutes before you serve.

COOKING OIL

GO BEYOND OLIVE, VEGETABLE, AND CORN OILS WITH THESE COOKING OILS RECOMMENDED BY REGISTERED DIETITIAN KERI GANS, MS, CDN, AUTHOR OF *THE SMALL CHANGE DIET*.

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.



THRIVE ALGAE OIL

“Delicately flavored and loaded with heart-healthy monounsaturated fats, this oil has the lowest level of saturated fats in food oils. Use it in sautés and salad dressings.”



ELLYNDALE ALMOND OIL

“Nutty and toasty, this one is ideal for salad dressings and baking cookies, cakes, and muffins. But don’t use it on the stovetop, as it easily burns.”



CHOSEN FOODS AVOCADO OIL

“With a buttery texture and a nutty taste, it does not taste like avocado. Perfect for frying and sautéing and salads.”



LA TOURANGELLE ROASTED WALNUT OIL

“Its robust, earthy flavor livens up salads and baked treats. Combine with cider vinegar, Dijon mustard, garlic, salt, and pepper to make a delicious salad dressing.”



365 EVERYDAY VALUE CANOLA OIL

“An all-purpose oil with a neutral flavor, use it for sautéing, stir-frying, grilling, and baking. Use it in a marinade for grilling salmon to allow the flavor of the fish to fully shine through.”

Heart of Stone

STONE FRUITS—IN ALL THEIR MANY SHAPES, SIZES, AND FLAVORS—REWARD EXPLORATION AND EXPERIMENTATION

BY Matt McMillen **REVIEWED BY** Hansa Bhargava, MD, WebMD Senior Medical Editor

ON THE LONG AND MOTLEY LIST OF STONE FRUITS, some may stand out as surprises. Coconuts? Who knew? But they all share a few key characteristics, says Sébastien Giannini, executive chef at Kingbird at the The Watergate Hotel in Washington, DC. “They offer a variety of nutrients, are relatively low in calories and sugar, and are incredibly versatile—ideal for both savory and sweet recipes.” These five are among his favorites.



COCONUT

“Creamy, milky, and nutty with hints of vanilla and slightly fruity, you can cook with nearly all of the coconut: the milk, the meat, the oil. One delicious example: coconut banana bread.”



Search for the slideshow
Fun Facts About Fruits and Veggies at WebMD.com.

PEACHES

“When ripe, they burst with sweet juices and mellow tartness when you bite into their velvety skin. Toss sliced peaches with arugula, burrata, and lemon herb vinaigrette.”

APRICOTS

“Balancing sweet and tart flavors, ripe juicy apricots are firmer and less messy than peaches. Halve and drizzle them with a simple syrup infused with herbs like thyme and verben.”

MANGO

“Incredibly sweet, juicy, and lightly acidic, they can be soft and pulpy or firm and fibrous. The Alphonso mango is the standout variety. Caramelized mango makes a perfect counterpoint to duck breast.”

BING CHERRIES

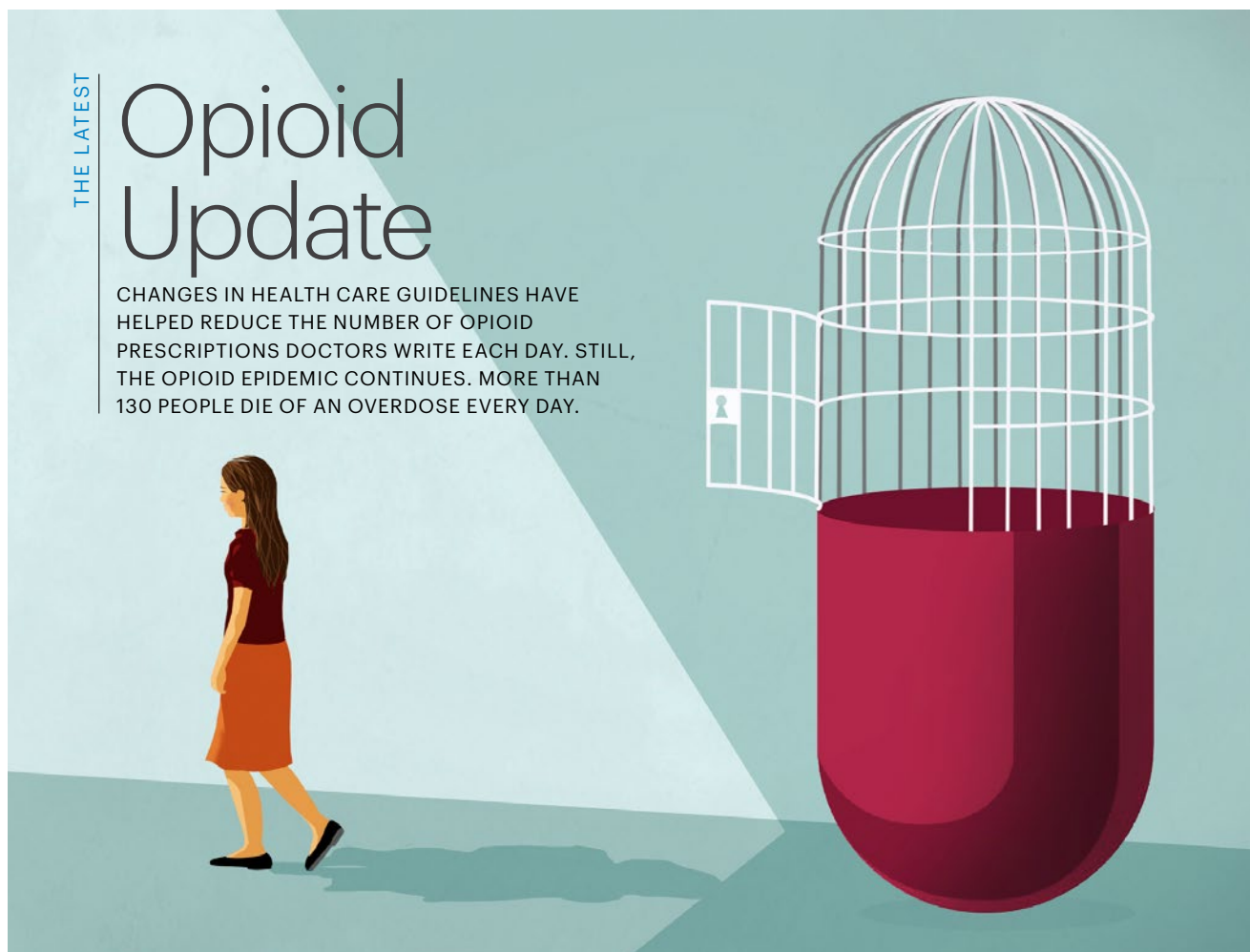
“Firm, densely textured with smooth, shiny, and purplish-black skin, these cherries are abundantly sweet and very juicy. Use them to make a cherry vinaigrette for a salad of fennel and radishes.”

PHOTOGRAPHY: RICK LOZIER
FOOD STYLING: CHARLIE WORTHINGTON

THE LATEST

Opioid Update

CHANGES IN HEALTH CARE GUIDELINES HAVE HELPED REDUCE THE NUMBER OF OPIOID PRESCRIPTIONS DOCTORS WRITE EACH DAY. STILL, THE OPIOID EPIDEMIC CONTINUES. MORE THAN 130 PEOPLE DIE OF AN OVERDOSE EVERY DAY.



OPIOIDS, SUCH AS MORPHINE AND OXYCODONE, INTERACT WITH TWO DIFFERENT RECEPTORS IN THE BRAIN. ONE INTERACTION RELIEVES PAIN, BUT THE OTHER SLOWS BREATHING. That's what causes overdose death.

Scientists at Scripps Research Institute are developing new opioids that only interact with the pain-related receptor. So far, in animal tests, the new drugs are just as effective as morphine and don't slow breathing. Animal testing is an early step in drug development. Future tests must prove the drugs are safe and effective in people and must also look at potential for abuse and addiction.

A West Virginia patient with sciatica—a painful nerve condition in the lower back—was recently the first to receive a new form of an older medication: a clonidine micro-pellet. Clonidine, a blood pressure medication, typically comes in a tablet. The new micro-pellet is half the size of a grain of rice, and doctors inject it directly into the lower back. The pellet stays in place for up to a year, and

researchers expect it to offer continuous pain relief. The injection eliminates the need for daily pills that come with the risk for misuse. Another 28 university hospitals around the country are recruiting people with sciatica to test the experimental drug in a clinical trial.

Not everyone needs new prescription drugs for pain. Ongoing research continues to show that for many types of pain, over-the-counter pain relievers, such as ibuprofen and acetaminophen, are as good or better than opioids.

In a recent study that adds to that evidence, researchers examined the benefits of these drugs in people with severe, long-term back pain or knee or hip arthritis. Half the people in the study received prescription opioids and half received acetaminophen or NSAIDs, such as aspirin and ibuprofen. After a year on these medications, the people in the over-the-counter group had the same level of pain relief and improvements in daily function as those who took opioids. —SONYA COLLINS

INSIGHT Sports Ready

THIS BACK-TO-SCHOOL EXAM MAKES SURE YOUR CHILD IS CLEARED TO PLAY SPORTS SAFELY



BY John Whyte, MD, MPH,
WebMD Chief Medical Officer

IT'S THAT TIME OF YEAR WHEN WE GET OUR KIDS READY FOR A NEW SCHOOL YEAR. Along with all the school supplies we need to buy, we need to prepare for after-school activities, which often include sports.

If your child plays sports, most school districts and athletic leagues require an exam before your child can participate. The Pre-Participation Physical Examination is different from the yearly physical exam and well-check you might be accustomed to for your child.

A key element of this exam is medical history, especially your family's medical history. You will be asked about your child's or family members' history of diseases—such as asthma, epilepsy, and diabetes—as well as instances of dizziness and palpitations. None of these conditions automatically excludes your child from participating in sports, but they are important to be aware of as they may necessitate limitations or accommodations. For example, some children only have asthma during exercise, so it's important to diagnose and then manage it.

You might be surprised when you are asked about allergies. Parents sometimes forget that allergies can put your child at risk during sports. How so? Allergies to insects and bees can be a real problem for sports played outside during warm weather, and the ubiquitous team-snack afterward can expose

children to food to which they are allergic. So it is critical to know upfront if your child has allergies.

Many parents have heard stories about a young athlete who suddenly dies of a heart attack on the basketball court or baseball field. This often is a result of a condition called hypertrophic cardiomyopathy (HCM). Despite some press coverage, HCM is fairly uncommon, although there often is a strong family history. You and your child will be asked about any chest discomfort, murmurs, shortness of breath or dizziness, or feeling like passing out. (In the absence of a family history or a physical exam finding, EKGs and echocardiograms are not routinely done as part of this exam.)

This exam is a good time to talk about the role of supplements as well as performance-enhancing drugs, which teenagers sometimes inappropriately use. Such supplements and drugs often have significant side effects and should never be used without a physician's guidance.

Although getting ready for school to start can be quite hectic, try to schedule the pre-participation exam at least four to six weeks before an activity is scheduled to begin, just in case lab tests or imaging studies need to be performed, which then might require a visit to a specialist.

Questions? Comments? Email me at john@webmd.com.

Sleep Sense

APPROXIMATELY ONE IN THREE U.S. ADULTS GETS TOO LITTLE SLEEP. OVER TIME, THAT RAISES THE RISK OF TYPE 2 DIABETES, OBESITY, HEART DISEASE, AND DEPRESSION. HOW MUCH DO YOU KNOW ABOUT SLEEP DISORDERS?

BY Matt McMillen

REVIEWED BY Brunilda Nazario, MD, WebMD Senior Medical Editor

1

MY SPOUSE TELLS ME THAT I SNORE EVERY NIGHT, BUT THAT'S NORMAL AND NO CAUSE FOR CONCERN.

☐ TRUE

☐ FALSE

2

DAYTIME SLEEPINESS MAKES IT DIFFICULT TO CONCENTRATE, AND IT CAN BE HAZARDOUS FOR ME AND FOR OTHERS.

☐ TRUE

☐ FALSE

3

WORKING THE OVERNIGHT SHIFT CAN AFFECT HOW WELL I SLEEP.

☐ TRUE

☐ FALSE

4

I HAVE DIFFICULTY SLEEPING AS A RESULT OF INSOMNIA, BUT I CAN JUST TOUGH IT OUT.

☐ TRUE

☐ FALSE

5

CERTAIN HEALTH CONDITIONS AND MEDICATIONS INTERFERE WITH SLEEP.

☐ TRUE

☐ FALSE



Search for **Visual Guide to Sleep Disorders**, a slideshow at WebMD.com.

ANSWERS

1. FALSE

Chronic snoring can be a symptom of obstructive sleep apnea (OSA), which disrupts your breathing and disturbs sleep (yours and your spouse's), and it can lead to serious health problems such as high blood pressure and heart disease. Effective treatments exist, so talk to your doctor.

2. TRUE

Whatever the cause, sleep difficulties can lead to excessive daytime sleepiness, which makes it harder to focus on things like work or—when driving—the road. Common culprits include insomnia and OSA. Narcolepsy, a rare sleep disorder that causes excessive sleepiness, also can trigger sudden onsets of sleep and loss of muscle control, which can be dangerous.

3. TRUE

If you have a job that requires you to work when your body's internal clock, or circadian rhythm, tells you it's time to sleep, you likely will not get enough good quality sleep compared to those who work a 9-to-5 day. This can impair your judgment and boost the risk of accidents and illnesses like heart disease, obesity, and depression.

4. FALSE

While insomnia may go away on its own, it also can become chronic and require intervention. Lifestyle changes can help. Stick to a regular sleep schedule, relax before bed, and avoid late-day naps. Exercise, eating smaller evening meals, and avoiding alcohol, caffeine, and tobacco can also help.

5. TRUE

Depression and chronic stress can make sleep difficult, as can chronic pain. Some drugs taken for high blood pressure, heart disease, and asthma can also contribute to insomnia. If you have trouble sleeping, talk to your doctor about your current health conditions and the prescription and over-the-counter medications you take.





Need a doctor? Use [WebMD's Physician Directory](#). Go to [WebMD.com/findadoctor](#).

NEUROLOGICAL DISORDERS AFFECT AN ESTIMATED 100 MILLION AMERICANS EVERY YEAR, and neurologists are on the front lines of their care.

HEALTH CARE FOR ALL AGES AND STAGES

Neurologic conditions affect patients of all ages. Neurologists might diagnose spina bifida in utero or treat older adults with Alzheimer's or Parkinson's disease. Their care spans both acute and chronic conditions. You might receive a consult after suffering a concussion, or—if you live with a disease such as epilepsy or muscular dystrophy—a neurologist might be an essential member of your health care team.

SPECIALIZED ATTENTION

Although neurologists have an excellent understanding of how the nervous system works, it would be impossible to be well-versed in the latest research and treatments for all 600 neurologic diseases. Neurologists often choose to specialize, focusing their research or patient care on a specific area of neurology such as movement, seizure, headache, and memory disorders—and might narrow their focus to the treatment of specific conditions.

NON-SURGICAL TREATMENTS

Tests ranging from CT scans and magnetic resonance imaging (MRI) to biopsies are used to diagnose neurological disorders. Once a diagnosis is made, neurologists use a range of treatments such as medication, supplements, biofeedback, and relaxation training. If you require surgery, your neurologist may refer you to a neurosurgeon.

Neurologists treat patients in hospitals, medical clinics, and private practices; these highly trained health care professionals might also be engaged in research to help improve treatments or discover cures for diseases that affect the nervous system.

WHO'S WHO

Neurologist

THESE SPECIALISTS FOCUS ON THE DIAGNOSIS AND TREATMENT OF CONDITIONS THAT AFFECT THE BRAIN, SPINAL CORD, AND NERVES THAT MAKE UP THE NERVOUS SYSTEM

BY Jodi Helmer REVIEWED BY Neha Pathak, MD, WebMD Medical Editor

BY THE NUMBERS

1935

The year the American Board of Psychiatry and Neurology started certifying neurologists.

20,714

The total number of board-certified neurologists in the United States.

60%

Percentage of neurologists who reported at least one symptom of burnout.

\$243 billion

The estimated annual cost to treat memory disorders such as dementia and Alzheimer's disease.

GETTY IMAGES

1. WHAT INSPIRED YOU TO WRITE YOUR NEW BOOK, *DEEP MEDICINE: HOW ARTIFICIAL INTELLIGENCE CAN MAKE HEALTHCARE HUMAN AGAIN*?

I started realizing that artificial intelligence (AI) wasn't just improving productivity, efficiency, accuracy, and speed—it has much bigger, more momentous potential with respect to restoring humanity, the humanness of health care, that has been lost.

2. WHAT IS 'DEEP MEDICINE'?

• It has three connotations. First is this concept of deep phenotyping, which is understanding a person at the most granular level—not just their medical records, but also their genome and microbiome, environment, and life story. ... Then you have deep learning, the new subtype of AI, which is ideally suited for taking all of that data and distilling it for both doctors and patients. That sets up deep empathy, which is when you understand the uniqueness of each person.

3. WHY HAS HUMANENESS, AS YOU PUT IT, BEEN MISSING IN MEDICAL CARE, AND HOW CAN AI HELP BRING IT BACK?

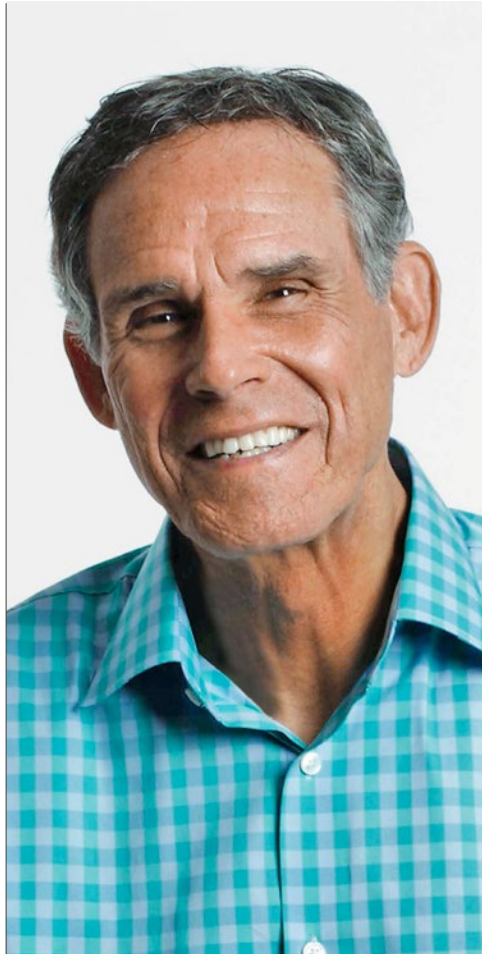
It's about the human-human bond, the doctor-patient relationship. ... The potential [with AI] is outsourcing many of the tasks to improve the doctor's performance and get rid of data clerk functions so they can cue in to the person with them.

4. HOW MIGHT TECHNOLOGY REDUCE ERRORS IN MEDICINE?

There are more than 12 million serious diagnostic errors a year in the United States. ... If we had all of a person's data keyed up, doctors could have more time [to think about the diagnosis]. That could markedly reduce the error rate.

5. IN YOUR BOOK, YOU DESCRIBE HOW VIRTUAL MEDICAL COACHES COULD HELP PEOPLE MANAGE MEDICAL CONDITIONS. HOW MIGHT THEY DO THIS?

They will have all your data—every interaction you ever have with doctors, the sensors that you're wearing. You



Eric Topol, MD

Cardiologist, director of Scripps Research Translational Institute, La Jolla, California

"IF WE HAD ALL OF A PERSON'S DATA KEYED UP, DOCTORS COULD HAVE MORE TIME [TO THINK ABOUT THE DIAGNOSIS]."

would have this interactive, seamless way of knowing your data and knowing the medical literature and [using it to promote] your health.

6. WHAT ABOUT THE RISKS OF MEDICAL DATA ANALYZED BY COMPUTERS?

About 60% of the American population have had their data hacked. That's a pretty bad rate in this country. All the nefarious uses or discriminatory uses of your data out there are just not acceptable.

7. SO, HOW CAN WE PROTECT THE PRIVACY OF OUR MEDICAL INFORMATION ONLINE?

You should be controlling your data. ... The security and privacy of your data are far better when you are controlling it, rather than the different doctors or health systems that you've visited over the years.

8. COULD COMPUTERS EVENTUALLY MAKE SOME MEDICAL SPECIALTIES OBSOLETE?

No. I don't think that we want to have any elimination of doctors, but rather the gift of time, so doctors have much more time with patients.

9. WHAT WOULD DOCTORS CONTRIBUTE AND WHAT WOULD AI CONTRIBUTE TO MEDICAL CARE?

It changes a little bit for each part of medicine. ... You can't just make a generalization, but there's going to be a lot of outsourcing. Let's say, eye doctors. The eye exam would largely be done through algorithms—and eventually through your smartphone.

10. WHAT FUNCTIONS MIGHT AI NEVER REPLACE?

You don't ever want to trust the algorithm for a serious diagnosis. Can you imagine [being told], "You have cancer" by an algorithm? Any serious diagnosis requires significant oversight and human communication and a treatment plan.

—STEPHANIE WATSON