

WINTER 2021

# NIH MedlinePlus

MAGAZINE

Trusted Health  
Information from the  
National Institutes  
of Health

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Breakthroughs  
in palliative care  
research

6 exercises for low  
back pain

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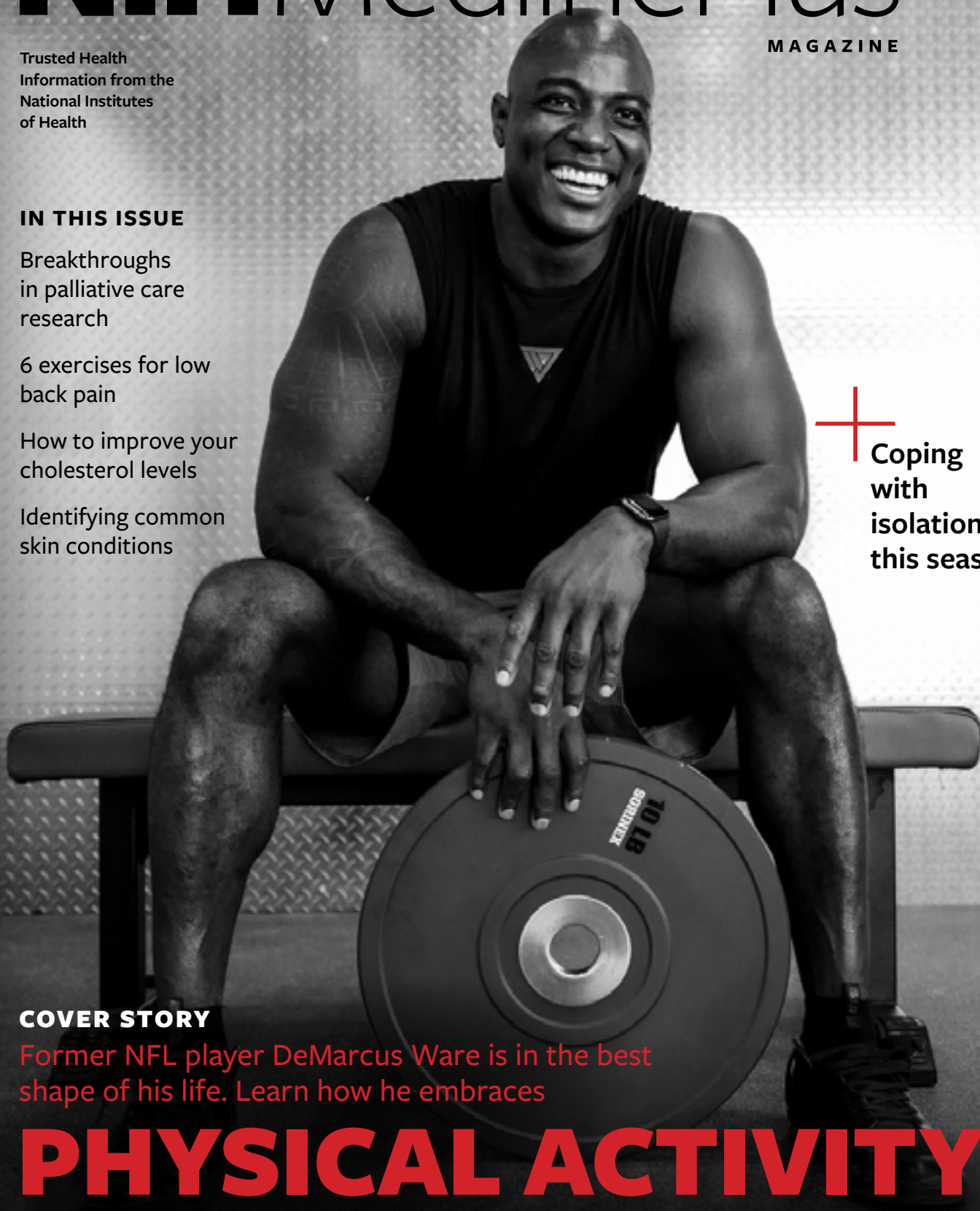
Identifying common  
skin conditions

+ Coping  
with  
isolation  
this season

## COVER STORY

Former NFL player DeMarcus Ware is in the best  
shape of his life. Learn how he embraces

# PHYSICAL ACTIVITY



# In this issue

**THE NATIONAL HEART, LUNG, AND BLOOD INSTITUTE (NHLBI)** is excited to work with the National Library of Medicine on NIH MedlinePlus magazine to highlight important research on physical activity and heart health.

The magazine's cover star is DeMarcus Ware, a former National Football League player who has translated his passion for fitness off the field. In addition to lifting weights and working out in the gym, Ware gets moving with his two kids and has cut a rug in "Dancing with the Stars," blending fitness with family time and fun.

In this issue, we share new research funded by NHLBI on how physical activity can do more than get you in shape. Combined with a healthy diet, physical activity may help prevent future heart issues by improving your cholesterol and blood pressure, and lowering your risk of type 2 diabetes.

As we celebrate American Heart Month this February, it's important to recognize how you don't have to be an athlete to get moving and help your heart. Just 30 minutes of activity each day can go a long way to preventing heart-related diseases in the future. The Physical Activity Guidelines for Americans can provide more specific guidance for



**Gary H. Gibbons, M.D., is the director of the National Heart, Lung, and Blood Institute.**

older Americans, kids, and teens.

During American Heart Month, use #OurHearts on social media to show your community how committed you are to staying heart healthy. We wish you a happy and healthy start to 2021!

*Gary H. Gibbons, M.D.  
Director, NHLBI*

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## NIH MedlinePlus MAGAZINE

### WHO WE ARE

The National Institutes of Health (NIH) is the **nation's premier medical research agency**, with 27 different institutes and centers. The National Library of Medicine (NLM) at NIH is a leader in research in biomedical informatics and data science research and the world's largest medical library.

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Former Dallas Cowboys defensive star DeMarcus Ware is still committed to staying fit and eating healthy.

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Study shows kidney transplants between people with HIV are safe.



# health

NEWS,  
NOTES,  
& TIPS  
FROM NIH

## How to cope with the stress of social isolation

*Loneliness and lack of contact can have long-term health effects*

**YOUR HEALTH** Social isolation, or being physically separated from others, can lead to loneliness and increased stress, especially during a pandemic.

Loneliness has been associated with higher rates of depression, anxiety, and suicide. It can also weaken our immune systems, which help protect us from getting sick. Luckily, understanding stress and loneliness and how to manage them can help.

### How stress affects us

While some stress is normal, too much of it can interfere with daily activities, relationships, and work. Symptoms of stress and anxiety include:

- Feeling irritable, restless, and on edge
- Feeling overwhelmed and unmotivated
- Muscle tension
- Fatigue or tiredness
- Difficulty concentrating

### Combating stress

To combat stress, make sure to eat a diet full of heart-healthy fruits, vegetables, and grains. Get enough sleep (for adults, that is usually between 7 and 8 hours) and seek out physical activity.

Connecting with nature can lower levels of stress and reduce symptoms of anxiety and depression. A walk or bike ride may make you feel better and stay physically fit. Just 30 minutes of physical activity a day can make a big difference.



*Virtual exercise classes can combat stress and keep you connected.*

Remember to wear a mask even when you are outside. Also, keep 6 feet of space between yourself and people who do not live in your home.

### Combating loneliness

Avoiding in-person social gatherings will help keep you and others safe. But you can stay in touch with people in other ways:

- Connect with loved ones through online games, video calls, or messaging apps.
- Look online for virtual exercise classes, religious services, and cultural events.
- Try at-home, guided yoga, mindfulness, or meditation through a mobile app.
- Consider adopting a pet. Pets can provide comfort and lower blood pressure, according to the National Institute on Aging.



## Reach out to a health care professional

Stress and social isolation can worsen existing mental illness. Consult your health care provider if your feelings are getting in the way of your daily life.

“For those with mental illnesses, be sure to continue your treatment regimens,” says Joshua Gordon, M.D., Ph.D., director of the National Institute of Mental Health. “Consider developing a plan for telehealth sessions with your provider if you (or your provider) are quarantined or must avoid exposures to the public for any reason. And reach out to friends and family for support, virtually if necessary.” ■

**SOURCES:** National Institute of Mental Health; National Institute on Aging; Joshua Gordon, M.D., Ph.D., Director’s Message

### DID YOU KNOW?

**Loneliness and social isolation** have been linked to poorer cognitive function and higher risk for dementia, including and especially for Alzheimer’s disease.



**SOURCE:** Centers for Disease Control and Prevention

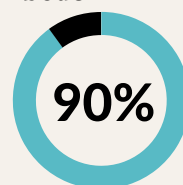
# Is it time to get your colon checked?

**BY THE NUMBERS** Colorectal—or colon—cancer is one of the most common cancers in the U.S. It’s also one of the most treatable, especially if detected early. Screening can not only detect colon cancer early but also can reduce your risk of developing colon cancer by finding and removing colon polyps, some of which can progress to cancer. Most medical groups recommend that people at average risk of colorectal cancer get screened regularly beginning at age 50 with either a colonoscopy or an at-home test. However, you may be advised to start earlier if you or a close relative have had colon polyps, an inflammatory bowel disease, colon cancer, or other risk factors. Check with your health care provider to learn when—and how—you should get checked.

Colorectal cancer is the **third most common** cancer diagnosis among **men and women combined**.



About



of colon cancers occur in people who are

**50**  
and older.



About **nine out of every 10 people** with colon cancer found and treated early are **still alive five years later**.

**21.7 million** adults age 50 to 75 have **never been screened** for colon cancer.



**SOURCES:** National Institute of Diabetes and Digestive and Kidney Diseases; National Cancer Institute; Centers for Disease Control and Prevention

# 6 ways to communicate better while you wear a mask

*Quieter environments and texting can make connecting easier*



**HEALTH TIPS** Social distancing and face masks are necessary for preventing the spread of COVID-19. But they can also make communication more difficult for the 37.5 million U.S. adults with hearing problems.

Masks make it difficult for individuals who are hard-of-hearing to read lips and see facial expressions that help them understand what others are saying. Masks and social distancing also muffle or soften voices, making it tough to understand speech even for people with normal hearing.

The National Institute on Deafness and Other Communication Disorders has a helpful guide on best practices for communicating during COVID-19. Below are a few key takeaways:

- 1 Consider a face mask with a clear window.** These masks use a clear insert, so a person's mouth and lips are visible, which makes lip-reading easier.
- 2 Be loud and clear.** Is the person you're talking to having trouble understanding you? Speak slower and louder (without shouting) than you normally would. Focus on speaking clearly.
- 3 Be patient.** Masks and social distancing decrease the sound and obscure the visual cues that help us communicate. It's frustrating even for those with normal hearing and more so for those who are hard-of-hearing. Be compassionate.
- 4 Turn down the background volume.** Background noise can make conversation especially hard to understand. When possible, move to a quieter spot or turn down the sound.
- 5 Use another method.** If speech is too hard to understand, use another method—a smartphone or paper and pen—to get your message across.
- 6 Bring a friend or be a friend.** If it's essential that you understand spoken details—for example, during a discussion with a health care provider—consider bringing a friend or family member with you to listen and take notes. Or offer to accompany a friend with hearing difficulties to an important appointment or meeting and be their second set of ears. ■

**SOURCE:** National Institute on Deafness and Other Communication Disorders

About 1 in 500 babies in the U.S. are born deaf or hard-of-hearing.

**SOURCE:** Centers for Disease Control and Prevention

# Skin 101: Identifying common conditions

*What do your bumps, blisters, and blotches mean?*



**HEALTH TIPS** Skin: It's our body's largest organ. It protects us by keeping fluids in and harmful microbes out. Sometimes, due to our environments and genes, our skin gets, well, unhappy. But how can you tell the difference between a minor rash and a more serious condition? Read our quick rundown of five common skin conditions and what they look like. Also, be sure to talk to a dermatologist, a doctor who specializes in skin conditions, or other health care provider for a full diagnosis and care.



## Hives

Hives are pink, itchy bumps that can appear anywhere on the skin and last for less than 24 hours. They may be caused by some food allergy, infection, or medications. Hives are common and often go away on their own.



## Eczema

Eczema, or atopic dermatitis, often begins before age 5 and may continue as kids get older. For some people, the raw, sensitive, and inflamed skin may cause severe itching at night. It often happens on the face, inside the elbows, behind the knees, and on the hands and feet.



## Contact dermatitis

Contact dermatitis may have well-defined borders and appears when your skin touches a foreign substance (dyes, soaps, latex, poisonous plants). The resulting rash may be itchy and red, and oozing blisters may develop. The reaction most often occurs 24 to 48 hours after the exposure.



## Psoriasis

Psoriasis consists of thick patches of rough, scaly skin, most commonly on the scalp, elbows, knees, and lower back. These patches can be itchy and painful and may bleed when scratched. Psoriasis sometimes runs in families and can be associated with arthritis that often involves the fingers or toes or spine.

## Have dry skin?

Lotions and creams, a humidifier, and avoiding hot showers can help.

**SOURCE:** National Institute on Aging



## Dry skin

Dry skin occurs when your skin loses too much water and oil. It can happen at any age. The rough, cracked, and itchy skin may be caused by cold, dry air; washing your hands often; harsh soaps or detergents; and aging. As we get older, our skin makes less natural oil. ■

**SOURCE:** National Institute of Arthritis and Musculoskeletal and Skin Diseases

# How to manage low back pain before it gets worse

*Walking and yoga can offer relief and comfort*

Low back pain is often hard to avoid. Many jobs require long periods of sitting or other types of activities that can stress our backs. However, there are things you can do to avoid more serious injury.

National Institutes of Health-supported researcher Jonathan Lurie, M.D., provides a few recommendations for people with low back pain. Dr. Lurie is a physician-researcher at the New Hampshire-based Dartmouth Institute for Health Policy and Clinical Practice.

## Stay active

Dr. Lurie encourages movement for people with low back pain, instead of staying on the couch or in bed. “There is evidence to show that bed rest for acute back pain does not improve things and leads to greater disability,” he explains.

Walking is a helpful low-impact activity that most people can do on a daily basis.

Other forms of exercise such as tai chi or yoga can also be helpful for low back pain. The best stretches and other exercises for low back pain will vary from person to person, so consult with your health care provider to make sure they are right for you.

## Work smarter

Low back pain can get worse if you sit for prolonged periods, Dr. Lurie explains. He encourages individuals to “evaluate their work environment and ensure that they are able to practice good posture and ergonomics.” Ergonomics is about making people’s work environments as efficient and safe as possible.

Some tools that may be helpful are standing desks and ergonomic chairs, which help put your spine in a better position. It is important to stand often throughout the workday and stretch at your desk if possible. Check out the guide on the next page for back exercises you can do at work.



## Physical treatment

Dr. Lurie explains that acupuncture, spinal manipulation, or physical therapy are other potential treatment options, depending on your type of low back pain. There are also behavioral treatments like biofeedback and nerve stimulation, which use electric pulses to help people learn how to manage pain. This type of care is recommended as a first line of treatment before medication.

## Medication

Painkillers, such as acetaminophen and aspirin, can also help at times when pain is worse. Alternating between heat (with a heating pad or warm bath) and ice may also be helpful. Other medications, which are prescribed by a health care professional, could include muscle relaxers, antidepressants, or opioids. Opioids are strong pain medicines that can be highly addictive. People using opioids must be closely monitored by their provider.

## Serious or long-lasting pain

Serious low back conditions, such as herniated discs or spinal deformities, may be best addressed with surgery, depending on the case, Dr. Lurie says. Make sure to check with your health care provider if you are experiencing pain that gets in the way of your daily life. ■



Ergonomics is about adjusting the work site to be comfortable, safe, and efficient.

## 5 exercises you can do in your office

*Moving throughout the workday can lessen chronic back pain*

### While seated:



#### Neck stretch

Tilt your head to one side and hold for 15 seconds. Repeat this on each side, three times per side.



#### Shoulder shrug

Shrug your shoulders up to your ears and hold for three seconds. Roll them back and down. Repeat this 10 times.



#### Executive stretch

While seated, put your hands behind your head and lace your fingers together. Bring your elbows back and toward each other, as far as you can. Inhale and hold for 20 seconds. Exhale and relax, and repeat one more time.

### On the floor:



#### Plank

Put your elbows on the floor directly underneath your shoulders with your feet hip-width apart. Keep your back flat and neck neutral as you drive your elbows into the floor, engaging your abdominal, leg, and buttock muscles. Hold as long as you can up to a minute then repeat. If there is pain, stop immediately.



#### Bridge

Lie on your back with your knees bent and your arms at your sides. Raise your hips using your stomach and buttock muscles. Hold for five seconds, and lower. Repeat up to 20 times.

#### FAST FACT

**25% of adults in the U.S.** report having low back pain in the last 3 months.

SOURCE: Centers for Disease Control and Prevention

SOURCE: National Institutes of Health: Division of Occupational Health and Safety



Gwendolyn Sowa, M.D., Ph.D.

# Why does your back hurt?

## NIH researchers work to find better ways to diagnose low back pain

Identifying the cause of low back pain has become a frequent challenge for medical professionals. It is also what has encouraged Gwendolyn Sowa, M.D., Ph.D., of the University of Pittsburgh to study the topic.

Low back pain is a widespread issue in the U.S. It affects more than 25% of workers, according to a recent national health survey. An injury, working in a physically demanding job, or working in a job where you sit too much can all contribute to back pain.

“It’s one of the most common causes of disability both from a quality of life perspective but also from a productivity perspective,” Dr. Sowa says. “It has a huge impact on how patients can function in their everyday life, whether that’s their work, their home-related activities, or their leisure activities.”

Because of how widespread it is, low back pain also presents an opportunity for researchers.

### An opportunity for change

“It’s also one of the areas that we have the biggest opportunity to change the way we care for patients,” Dr. Sowa explained.

One of those opportunities is around identifying contributors to back pain.

“The findings on traditional imaging such as X-rays and MRIs often have a very poor correlation with patient symptoms,” Dr. Sowa explains. She says that many people who might have physical damage to their low back may not experience any symptoms. On the other hand, some individuals might experience a great deal of low back pain but could have little visible damage.

Through her work supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases, Dr. Sowa and her collaborators study better ways to treat people based on their individual symptoms and medical history. This includes looking at factors like genetics, stress, lifestyle, behaviors, and activity levels.

### Holistic health for low back pain

Rather than treating one symptom or only looking at one aspect of a person’s pain, Dr. Sowa says she and her team aim for a more well-rounded approach.

“We want to develop precision medicine approaches to their treatment that we hope will be more effective and prevent a trial-and-error type of approach to treating these patients,” Dr. Sowa says.

She adds that the ultimate goal of her research is to decrease unnecessary treatments and increase the chance of finding the right treatment the first time.

“If we don’t improve [patients’] function and get their pain under control, they’re more likely to progress to chronic back pain,” she says.

### Addressing chronic pain

Dr. Sowa also studies how to better address chronic back pain through the Back Pain Consortium (BACPAC) Research Program of the Helping to End Addiction Long-term<sup>SM</sup> Initiative, or NIH HEAL Initiative<sup>SM</sup>. The NIH HEAL Initiative’s goal is to help advance research that will address the national opioid public health crisis. Opioids are often prescribed for low back pain. They are strong and sometimes addictive painkillers that have been overused and sometimes misused, and not currently indicated for use in chronic low back pain.

To tackle this complex and common problem, teamwork is key, she notes.

“It’s a complex problem, and one that one individual field is not going to solve,” Dr. Sowa says. “As we bring physicians and scientists from all different backgrounds together, I’m hoping we can move the needle on it.” ■

**“The findings on traditional imaging like X-rays and MRIs often have a very poor correlation with patient symptoms.”**

— Gwendolyn Sowa, M.D., Ph.D.

# Biking, Pilates, and yoga: How one woman stays active

*Low back pain doesn't stop young professional*

**A**pril is always on the go. She loves to hike and ride her bike to and from work, and went skiing for the first time last year. She also suffers from low back pain.

It's been 20 years since her first back injury, which she distinctly remembers.

"My entire back just froze up and I suddenly was in tremendous pain," she says. April, who was in college at the time, believes that her body had been sending her

**PERSONAL STORY** warning signs long before that moment.

When her back first began to hurt because of extensive sitting and hunching over books, she attempted to stretch the muscles.

She knows now, after talking with her physical therapist and doctor, that she was stretching improperly, which likely contributed to her initial injury.

## Physical therapy and stretching

After her first injury, April did physical therapy and made sure to do approved stretches and exercises at home.

Her low back pain was manageable until about three years ago, when she experienced a second significant back injury after twisting too deeply during a yoga class.

She went to her doctor, who recommended she do more physical therapy.

Even though her pain comes and goes, April's experience with low back pain has had a major impact on her life. She avoids high-impact exercises, like dance fitness classes, which she



April on a recent hike.



*"I think just those day-to-day motions play such an important role in keeping us flexible."*

once loved doing. And as an avid traveler, she now feels more anxious when she goes on trips since carrying luggage and long airplane and car rides can make her pain worse.

"I prepare myself for travel to be physically painful," she says.

## Daily work to manage pain

To help address her pain, April has a standing desk in her office and does Pilates as often as she can. She's also started doing yoga again but is taking it one step at a time.

"I've found basic Pilates moves to be very helpful," she says. Her physical therapist suggested that she

work on strengthening her abdominal muscles, hips, and thighs. "I usually do a set of various [physical therapy] and Pilates-related moves daily. The list of useful moves is long enough that I can regularly mix it up."

April's advice for fellow low back pain sufferers is to get up and move their bodies when they can.

"Try to move between standing and sitting throughout the day," April says. "It's far too easy to find that you've spent hours at your computer in pretty much the same position. I think just those day-to-day motions play such an important role in keeping us flexible." ■

## RETIRED NFL STAR

# DeMarcus Ware is in the best shape of his life

*Ware shares his passion for staying fit and healthy*

Retired National Football League (NFL) defensive superstar DeMarcus Ware won millions of fans with his ability to conquer and defeat opposing teams. Now, the former Dallas Cowboy and Denver Bronco All-Pro has a new starring role: helping others improve their fitness and health. He spoke about what keeps him motivated, his favorite healthy snack, and how he and his family lead healthy lives.

**You have said that you are in better shape now in retirement than when you were playing in the NFL. Why is that?**

Retiring from the NFL has allowed me to have a healthier lifestyle. I get more rest and recovery time between workouts and my body doesn't get beaten up and bruised every week. I've also cut in half the number of calories I take in. Some people say that your life stops when you retire. For me it has started!



**Tell us about your diet.**

I eat three healthy meals a day and a few healthy snacks. For example, I usually eat oatmeal with blueberries before my 45-minute morning workout. After that I have a full breakfast with things like brown rice, eggs, chicken sausage, and a protein shake. For lunch I'll have fish, broccoli, and whole-grain rice. And for dinner I'll have a lean meat, vegetables, and sweet potato. Also, one day every week I treat myself to food I can't have the other days. If I'm tempted to eat something I shouldn't, it helps to be able to tell myself I can have it, just not that day.

**When did you start your healthy habits?**

As a kid, I played four sports and always made a priority of staying fit. I looked into the diets of the sports stars I wanted to be like. So, I started eating healthier then. I couldn't afford much of the fresh foods that these stars were eating, but I got the frozen versions, which were still healthy.

**How are you instilling healthy diet and exercise habits in your kids?**

Giving your kids a positive experience with healthy foods is important. If I were to tell my kids I don't like how sweet potatoes taste, they won't like sweet potatoes. But if instead I put a little bit of brown sugar and cinnamon on them and say it tastes like sweet potato pie, they'll love it. Regarding fitness, my son and daughter didn't enjoy exercise at first. But now they love to go out and do any kind of exercise because we do it together and we make it fun. It is a staple of our family routine.

“Some people say that your life stops when you retire. For me it has started!”

—DeMarcus Ware

**What motivates you to get moving when you don't feel like it?**

We all need help with motivation from time to time. I like to use both sound and visual imagery. I'll make myself a playlist of upbeat music or listen to motivational speeches. I also like to look at pictures of healthy role models who inspire me about what I'd like to achieve with my workouts. That helps me create a mental image of what I'd like to look like, like having a toned, fit body.

**What other healthy habits do you try to keep up?**

I do stretches and I use a foam roller to relieve tension in my muscles in the morning and night before I go to sleep. I am also sleeping and resting more now. I used to go to bed at midnight and wake up at 6 a.m. Now I go to sleep at 10:30 p.m. I feel more fit as a result.

**You were on the 27th season of “Dancing with the Stars.” How did your fitness play into that?**

Competing on “Dancing with the Stars” (DWTS) was one of the most challenging things I've ever done. In football I played defensive line, and I was known as a body mover. To do

my job, I had to move guys who were 6 feet 5 inches tall and 365 pounds. For “DWTS” I had to have sweet feet, twinkle toes! I had to train myself very differently, with a real focus on mental quickness. I'm still doing some dancing now as part of my fitness routine because it requires you to think while you are moving.

**What does the future look like for DeMarcus Ware?**

My ultimate goal is to help motivate people to improve their fitness. Recently, I opened a gym in Texas, where I live. I'm also launching a new digital fitness app. I was a computer science major in college, so I enjoyed applying that knowledge to my expertise in fitness. ■



Left, DeMarcus Ware; Above, Ware dances with partner Lindsay Arnold on ABC's “Dancing with the Stars.”



# 4 physical activity tips for older adults

*Don't forget strength and balance training*

Regular physical activity is great for your mental and physical health. It also helps you stay independent as you age. The Physical Activity Guidelines for Americans recommend that you aim to exercise at least 150 minutes every week at a moderate pace, or 75 at a more vigorous pace. The guidelines also recommend that older adults do muscle-strengthening activities at least two days a week.

**Not sure how to get started? These tips can help.**



1

**TALK WITH YOUR DOCTOR.** Almost anyone, at any age, can exercise safely. If you're concerned about starting an exercise routine, talk with your doctor. Ask whether there are activities you should avoid and whether any health conditions you have might affect what exercises you can do safely.



3

**MOVE THROUGHOUT THE DAY.** Every day presents opportunities to move more. For example, use the stairs instead of taking the elevator. Or park far away from the grocery store entrance instead of in the closest spot.



2

## DEVELOP A WELL-ROUNDED ROUTINE.

Include the four main types of exercise.

- Endurance exercises increase your breathing and heart rate. Brisk walking is a good option.
- Strength exercises, like lifting weights or using a resistance band, make your muscles stronger.
- Balance exercises can help prevent falls. This includes standing on one foot.
- Flexibility exercises, like yoga, stretch your muscles and help you stay limber and maintain mobility as you age.



4

## START GRADUALLY.

Begin with low-intensity exercises like walking. Be sure to drink plenty of water before, during, and after your workout.

**SOURCE:** National Institute on Aging

# Personal story: Sara Santiago

*A gym's strong community helped her get fit*

**SARA SANTIAGO, 40**, was never an athlete. She joined gyms and exercised on occasion, but never found a routine she could maintain.

"I felt intimidated because I didn't know how to use a machine at the gym and awkward because I was the overweight girl trying to work out," she says. "I assumed that I couldn't be an athlete or physically fit. I had accepted that was the way I was meant to be."

In February 2019, Sara was working 60 hours a week and had started drinking. Her depression grew worse and her weight climbed to 230 pounds. With support from her doctors and her manager, she took a leave of absence from her job to focus on her health.

"My brother called me and said I needed to find a gym with a strong community," she says. "I had moved from Massachusetts to California, and he knew that was tough on me. I found a studio with fitness classes and knew

that I would probably not last, but I tried them anyway."

## Clear signs of progress

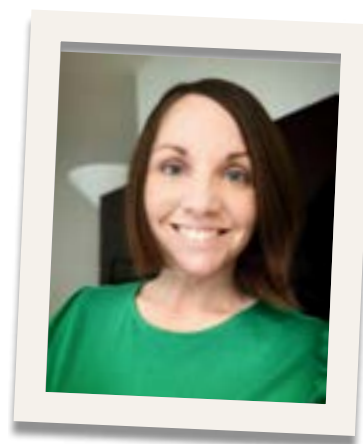
Sara took her first class, which combined high-intensity cardio with weightlifting, and was hooked. With help from trainers, she started gradually, walking 3 miles per hour and using 5-pound weights.

Today, she runs a mile in under 10 minutes and lifts 20-pound weights.

"My brother told me to show up 15 minutes early and stay 15 minutes late to talk to people and make friends," she says. "And he was right—the community is what has kept me coming back. The friends I've made keep me motivated."

## A new perspective

Since beginning her fitness journey, Sara has lost 70 pounds and gained a new perspective.



"The community is what has kept me coming back. The friends I've made keep me motivated."

—SARA SANTIAGO

"When there's a drought in California, the grass turns brown. But once it rains a few times, it comes back green," she says. "That was my body. It wanted to be healthy, but it needed me to take care of it, both mentally and physically. Today I'm strong, I'm fit, I'm happy, I'm sober, and I'm healthy." ■

## Keep it going! How to stick with a fitness routine

*Mix things up, find a workout buddy, and mark it on your calendar*

Sticking to a fitness routine isn't always easy between family, work, hobbies, and everything in between. These tips can help you get started and keep you moving, even when life gets busy.

**FIND AN ACTIVITY YOU LIKE.** Whether it's walking, biking, or playing a recreational sport, the key to maintaining your exercise routine is doing something you find interesting and enjoyable.

**GET ACTIVE WITH FRIENDS.** A workout buddy can help keep you accountable and make exercise more fun. During social distancing you can do this by working out with someone in your household or with a friend or family member digitally.

**SCHEDULE A TIME FOR IT.** You are more likely to stick with an exercise routine if it is part of your day. Find a time that's most convenient for you, whether it's first thing in the morning or after work. If you don't have 30 full minutes to dedicate to exercise, try to be active a few times throughout the day.

**MEASURE YOUR PROGRESS.** Keep track of how far you walked, how much weight you lifted, or how far you stretched. Measuring your progress and noting improvements will help you stay motivated.

**TRY SOMETHING NEW!** Exercise shouldn't be boring. Trying a new exercise video or sport is one way to keep your exercise routine fresh. ■

**SOURCE:** National Heart, Lung, and Blood Institute

# Exercise isn't just for athletes—it's for everyone

*New study looks at health benefits of daily steps for women*



I-Min Lee, M.D., Sc.D.

**F**inding time and energy to exercise can be hard. But I-Min Lee, M.D., Sc.D., wants to reframe how we think about exercise, especially as we age. For example, taking the stairs instead of running on a treadmill. Dr. Lee is a National Institute on Aging-supported researcher who studies the role of physical activity in promoting health and preventing chronic disease. She spoke about recent research that studies the role of step counts in improving older women's health. Already, she and her team have found that small steps can make a big difference.

## How did you become interested in researching the link between step counts and health?

Pedometers, which are devices that count the number of steps you take, have been around for decades. In the past, only people who sought them out had one. Today, that technology is built into common devices, like mobile phones and watches. They automatically track your steps, making this information available to more people.

My hospital had a challenge where we formed teams and competed to accumulate the most steps. Many of my teammates were older women, and 10,000 steps a day—the default goal for many devices—just wasn't doable for them. I was interested in discovering how many steps per day would actually improve health.

## Where did the 10,000-step goal originate?

In 1965, a Japanese company was selling pedometers. They gave it a name, which translated to "the 10,000-step meter." It's thought that they chose that number because the Japanese character for 10,000 looks a little like a man walking. That number was essentially a marketing tool rather than anything rooted in actual data.

## Could you tell us about the study?

The study looked at women over the age of 65, step counts, and mortality [or impact on how long they lived]. We gave them devices to count their daily steps, whether they were

going for a walk outside or walking to and from their bedroom. We discovered that women who took an average of 4,400 steps a day achieved a significantly lower mortality rate compared to the least-active women, who averaged 2,700 steps per day. The more steps these women took, the lower their mortality [or death] rate. We also learned that the risk reduction leveled off at about 7,500 steps per day, meaning getting more than 7,500 may have other health benefits, but did not affect the women's mortality.

**"The more steps these women took, the lower their mortality rate."**

— I-Min Lee, M.D., Sc.D.

## What else did you discover?

We also found that the speed at which these women walked didn't impact their mortality rate. So, if two people achieved 5,000 steps—one by strolling and one by fast walking—their mortality rate was the same. This shows us that for older women, all steps count, no matter the speed.

## Is there something else you wish more people knew about exercise?

I think there's a stigma [or shame] that comes with the word "exercise" among certain age groups, like older adults. People think that exercise is for someone younger or more athletic. They think it's about going to the gym or running, which turns many people off. People are afraid of the word "exercise." I think referring to it as "physical activity" is better. Physical activity is any body movement that's generated by a muscle. Physical activity is anything that gets you moving. It's for everyone, and it doesn't have to be intentional exercise. ■

# Physical activity does more than help you look good

*Research shows exercise can help you live a longer, healthier life*

*Damon Swift, Ph.D., studies exercise training and risk factors for heart-related disease. He spoke about recent research in this area funded by the National Heart, Lung, and Blood Institute.*

## Tell us about your recent research in exercise.

Our latest study looked at the relationship between the amount of exercise needed to maintain weight loss in obese and overweight people. We also wanted to understand how exercise impacts your cardiovascular disease profile.

The study took 39 overweight and obese adults and had them lose about 7% of their weight. Then, in a maintenance phase, we randomly assigned two different amounts of cardio exercise.

## What are some of your preliminary findings?

About 90% of the people in the study made the weight loss goal

“Maintaining your weight loss and improving your overall fitness will lead to better health.”

—Damon Swift, Ph.D.

with an average weight loss of about 9.8%. Their glucose and insulin levels, which are major risk factors for type 2 diabetes, both improved. Their blood pressure and cholesterol levels improved. We also saw improvements in the health of people’s blood vessels.

## Why is that important?

It shows that maintaining your weight loss and improving your overall fitness will lead to better health. Diet also plays an important role. After the diet phase ended, some people’s cholesterol levels increased, even with exercise. This may suggest that you need a combination of healthy eating and exercise to improve your health. It also shows that while losing weight can be hard, maintaining those good habits and keeping the weight off in the long term are even harder.

## What’s a common misconception about weight loss?

People think that when they’re losing weight, they’re losing only fat. They’re actually losing a combination of fat and muscle. This is important for everyone, but especially for overweight or obese older adults who are trying to lose weight. Take a 70-year-old obese woman with low muscle mass, for example. Losing weight might



Damon Swift, Ph.D., with patients

improve some of her heart disease and metabolic disorder risk factors, but it might also decrease her muscle mass. Muscle mass is really important for quality of life. Physical activity and protein intake are key in maintaining or improving your muscle mass.

## What kind of research is on the horizon?

My group is interested in personalizing weight maintenance. How can we use mobile technology to determine how much physical activity people are doing and get a clearer picture of what people are eating? Nutrition is hard to quantify, and it’s an area in which many people struggle.

Also, if someone with diabetes has lost weight, we need to be conscious of their glucose and insulin levels after weight loss, in addition to their lean mass. We need to make sure that they’re doing both aerobic and resistance training, in addition to maintaining a healthy diet. ■



# Comfort care

## for kids and their families: A mother's story

*Barbara Swoyer describes how palliative care has improved her son's life and her own*

**W**hen Jake Swoyer was born in 1995, he seemed like any other healthy baby boy. His family—parents, John and Barbara Swoyer, and big brother Ryan, then 3—were thrilled. But when Jake, who is from Sudbury, Massachusetts, was 7 months old, he had his first seizure. After that, “he got very sick, very quickly,” his mother says. His seizures came frequently and could last up to an hour. “We had 23 ambulance rides in that first year.”

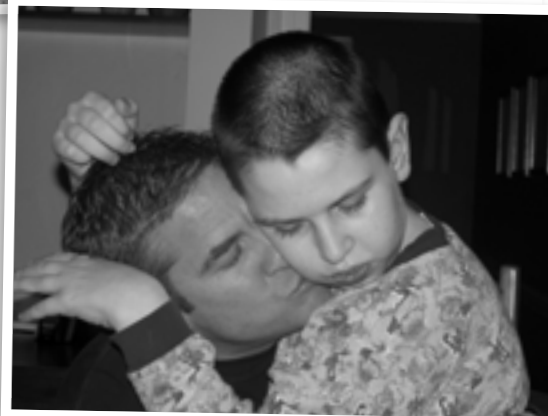
Despite a lot of testing, doctors were unable to determine a cause for his seizures until Jake was nearly 10 years old, when a test revealed he had a genetic mutation associated with Dravet syndrome. Dravet syndrome is a lifelong, rare form of epilepsy that begins in the first year of life and typically doesn't respond to medication. Jake was also later diagnosed with mitochondrial dysfunction, adding to the severity and complexity of his disease.

Since he was diagnosed, Jake has suffered a long, slow, steady decline in his health, his mother says. Palliative care has made all the difference in how the family has coped with Jake's devastating condition and in helping Jake enjoy a good quality of life. He received pediatric palliative care support and services until he turned 21.

### Finding palliative care

“When Jake was first diagnosed, our physician suggested enrolling him in palliative care. Like many families, my first thought was, ‘Oh no, he thinks my son is dying.’ I had no idea what palliative care really was or what it could do for us,” Barbara recalls.

She finally took his suggestion after about a year. As Barbara worked with several different providers, “a light bulb finally went off. I realized what palliative care



Barbara and John with son Jake when he was younger.

was supposed to be,” she says. “Along with providing clinical and emotional support, the palliative team introduced comfort care measures. Jake was able to receive pet therapy for enjoyment, massage therapy for relaxation, and music therapy for active engagement and socialization. Each of these therapies brought joy and positive change into his daily life.”

Palliative care services also included a medical team to help with medical support and crisis management, Barbara



“I had no idea what palliative care really was or what it could do for us.”

— Barbara Swoyer

says. “They could come to the house, diagnose a problem, and prescribe and provide treatment. We didn’t have to go to the hospital for every problem.” Having home-based medical support allowed the family to treat problems in their own home, which became especially important as Jake got older.

### Embracing a difficult but important path

A chaplain and a social worker paid regular visits to the Swoyer home.

“In 25 years of caring for a child with limited life expectancy, these were two of the more meaningful and pivotal people I had the opportunity to work with,” Barbara says. They were open to and encouraged

philosophical discussion about Jake’s eventual end of life.

“They helped us consider and define our goals of care,” Barbara says. “From these conversations, we felt at peace with past decisions and better equipped to make future decisions on Jake’s behalf. It was a relief to have these discussions in periods of calm, rather than in moments of crisis.”

Barbara is a founding member of the Parent Advisory Board for

Courageous Parents Network, a nonprofit organization that helps families and providers caring for children with serious illness. Her wish is for families to understand that palliative care is about helping a child live well in the face of life-threatening disease.

“It’s about bringing happiness and comfort to a child, while also supporting the entire family unit, no matter where they are on their journey with serious illness,” she says. ■



Barbara and Jake near their home in Sudbury, Massachusetts.

## How pediatric palliative care can benefit your family

Barbara Swoyer tells parents that pediatric palliative care can help them with these issues:

- Talking about difficult topics and determining goals of care that support the whole family.
- Getting in-home medical support and helping put appropriate resources in place.
- Understanding treatment options and making medical decisions.
- Discussing what will make the child happy and comfortable, and how to make that part of the treatment plan.
- Helping parents prepare for what lies ahead as the disease progresses. ■



# Who's on your palliative care team?

You don't have to give up your own health care provider to receive palliative care

*The palliative care team focuses on providing relief from symptoms and side effects.*

**Palliative (pal-lee-uh-tiv) care is specialized medical care for people living with a serious illness.** Think of it as a support team that helps a person while they receive treatment for their condition.

The palliative care team provides relief from both symptoms and side effects of treatment. They can also help reduce the stress of the illness. The goals are to improve a patient's quality of life and help family members with tasks like coordinating and planning care. Palliative care can also offer emotional, social, and spiritual support.

Many adults and children living with serious illnesses can benefit from palliative care. Those may include cancer, heart or lung disease, multiple sclerosis, or cystic fibrosis.

A palliative care team is specially trained. It can include nurses, social workers, and doctors and other experts to support your unique needs. "The palliative care team works together with you and your own doctor to coordinate your care, and to listen and help you and your family understand your treatment options and choices," says Jeri Miller, Ph.D., chief of the Office of End-of-Life and Palliative Care Research at the National Institute of Nursing Research.

How long people receive palliative care depends on their individual needs, she adds. People often confuse palliative care with hospice care, but they are different. Palliative care can be given at any age and at any stage of an illness, while hospice care focuses on a person's final stages of life. ■

**SOURCE:** National Institute of Nursing Research

# Comforting and supporting caregivers

*Health risks for friends, family members can be daunting*

Some of the greatest challenges in patient care involve helping people improve their quality of life as they cope with a serious illness. Providing their families with support and, at the end of life, grieving, can also be hard.

For that reason, studying ways to comfort and care for these people is important, says Jeri Miller, Ph.D., chief of the Office of End-of-Life and Palliative Care Research at the National Institute of Nursing Research (NINR).

“We want to make sure we understand what all populations in all care settings need. We also want to learn how best to communicate a patient’s situation to family members and other health care providers,” she says.

That’s why NINR is funding research about the health risks and needs of family caregivers of persons with a serious illness. Family caregivers can be anyone from a spouse or partner, child, neighbor, or friend. “These caregivers are at greater risk of depression and poor health because they may be less likely to tend to their own needs,” says Dr. Miller.

In addition, some NINR studies look at how to adapt palliative care for elderly patients, adolescents,

and young adults.

“Caring for patients during the COVID-19 pandemic has shown us the importance of communicating your preferences, goals, and values for end-of-life care.

We want people to proactively think about and make their care preferences known before they are seriously ill and unable to communicate their needs,” says Dr. Miller. Being proactive, planning, and sharing your choices for care with your loved ones and providers are helpful whether you have COVID-19 or another serious disease.

Other studies focus on improving palliative and end-of-life care in underserved communities, such as in rural areas.

“The visiting restrictions from COVID-19 have also pushed us to develop new resources and tools, such as telehealth guidance, so that family members have access to care during a crisis,” Dr. Miller says. ■

**SOURCES:** National Institute of Nursing Research; Center to Advance Palliative Care



**“We want to make sure we understand what all populations in all care settings need.”**

— Jeri Miller, Ph.D.

## *Did you know?*

Palliative care can be given at any age and at any stage of an illness.

**SOURCE:** National Institute of Nursing Research





Palliative care researcher Jean Kutner, M.D., in her lab at the University of Colorado.

## New research on palliative care and COVID-19

*Dr. Jean Kutner is training future researchers to provide support*

**J**ean Kutner, M.D., a professor of medicine at the University of Colorado School of Medicine, is a well-known expert in palliative and hospice care. She is also a top researcher in the field. She says palliative care “focuses on the whole person, addressing their spiritual, psychological, and medical needs along the whole course of their journey with a serious illness.”

This year, the COVID-19 pandemic has spotlighted the need for doctors and nurses trained in palliative care. Hospitals are treating thousands of seriously ill patients. Many of them may end up on life support with their families unable to be with them.

Dr. Kutner discussed how palliative care teams are helping patients and families during this time.

**Doctors and nurses trained in palliative care have been in high demand during the pandemic. Has the crisis shown people how this kind of care can help patients and their families?**

Yes, absolutely. At hospitals across the country, there has been increased demand for palliative care teams. They help overwhelmed families, patients, and hospital staff cope with this very serious illness. It has been especially hard for patients and families who have to be separated because the virus is so contagious. A palliative care team can support families that have to make difficult decisions. The pandemic has also shown the importance of having conversations about the goals of care—such as, do you want to be on a ventilator?—and documenting someone who can make medical decisions for a patient who is seriously ill or dying. This is also known as a health care proxy.

### Much of the early research on the benefits of palliative care involved cancer patients. How is the scope of palliative care expanding?

It's true that palliative care had its roots in helping people with cancer. In the last five-plus years, there has been more work with people who have Parkinson's, ALS, heart failure, lung diseases like COPD, advanced kidney disease, and dementia. These groups have different needs than cancer patients. There's also been exciting research supporting children and adolescents with progressive, life-limiting illness.

**“A palliative care team can support families that have to make difficult decisions.”**

— Jean Kutner, M.D.

### Can you tell us about the NIH-funded research you are involved in?

I am the lead researcher in a large national project funded by the National Institute of Nursing Research on providing training for other palliative care researchers. I'm also doing research on training palliative care providers to help families with the most difficult conversations regarding a family member's health.

### Until recently, people may not have heard of palliative care or confused it with hospice care. Is that changing?

When I gave talks to public groups about palliative care 10 years ago, I often would get blank stares. But that is changing. More people have heard of it. There is also a growing number of patient and provider groups who are huge advocates of it. I especially see that among our nursing and medical school students, even clinical psychology students. When I do interviews for residency programs in internal medicine, the students ask about rotations in palliative care. They feel it's important. This generation of trainees is truly going to change this field. ■

**SOURCES:** National Institute of Nursing Research; Center to Advance Palliative Care

## 3 tips for families considering palliative care

*Planning ahead and being proactive are key*

Patients and their families who have heard about the value of palliative care often have many questions about it. Jeri Miller, Ph.D., chief of the Office of End-of-Life and Palliative Care Research at the National Institute of Nursing Research (NINR), offers these three tips:

- 1 First, understand if palliative care is right for you.** “If you or a family member or friend suffers from physical symptoms such as pain due to serious illness and that pain is not under control, it may be a good time to seek help from a palliative care team,” Dr. Miller says. If you're a family caregiver and you need help coping, consider that palliative care can also help you.
- 2 Don't delay.** “It's never too early to start palliative care,” she says. “Tell your doctor or health care provider that you'd like to include palliative care as part of your treatment care. Ask for a referral.” Dr. Miller recommends looking at the provider directory at [getpalliativecare.org](http://getpalliativecare.org). The NINR website also has a palliative care page ([www.ninr.nih.gov/palliative-care](http://www.ninr.nih.gov/palliative-care)). The page gives answers to many important questions, including information on palliative care for children with serious illnesses. It also has videos and personal stories of families who used palliative care.
- 3 Know what to expect.** “You don't need to give up your own health care provider to get palliative care. It's like an extra layer of support,” Dr. Miller says. Palliative care can also help with symptom management, social support, and counseling. A care team can help with practical problems such as completing medical and legal forms or organizing and scheduling care. Palliative care is available in the hospital, at home, and in outpatient clinics and other settings. ■

**SOURCES:** National Institute of Nursing Research; Center to Advance Palliative Care



# WHAT YOU DO NOW can prevent heart disease later



*NIH research studies how to improve cholesterol earlier and reverse past damage*

Jennifer Robinson, M.D., studies cholesterol and cholesterol drug therapies with support from the National Heart, Lung, and Blood Institute. She spoke about new research and how people can reduce cholesterol to stay healthy now—and later on in life.

## Can you tell us about new research in cholesterol?

We have begun to research how to prevent heart disease in patients under 40, which may reduce complications from heart disease in later adulthood. Preventing early atherosclerosis in young people is key. Atherosclerosis is the buildup of cholesterol on your artery walls. If left untreated, it can lead to a heart attack or stroke.

I have proposed a trial, called CURing Early ATHEROsclerosis (CURE ATHERO). It suggests that if we intensify treatment by reducing “bad” cholesterol, the low-density lipoprotein (LDL), with medications, we may be able to eliminate plaque in the arteries during its early stages of development.

## Why is this significant?

If you can get the cholesterol levels at a healthy level by preventing other risk factors and encouraging healthy lifestyle behaviors early in life, you may be able to prevent or reduce the process from developing atherosclerosis in the first place. If we can lower the risk of early plaque development so atherosclerosis doesn’t even start or further develop, this could help reduce heart disease.

## What are other risk factors for high cholesterol?

Certain health conditions and lifestyle choices increase your risk for high cholesterol. These include type 2

diabetes, obesity, a diet high in saturated fat and trans fat, and smoking. There’s also a genetic condition called familial hypercholesterolemia that affects about 1 in every 311 people. This causes very high LDL cholesterol levels beginning at a young age. If left untreated, it worsens as you get older. People with this condition have 20 times the risk of having a heart attack.

## What can people do to reduce their risk of high cholesterol?

High cholesterol levels can be reduced or prevented for most people by eating a low-cholesterol, heart-healthy diet high in fruits, vegetables, whole grains, nuts, legumes, lean meat, and fish. You should also limit your intake of fried foods and foods that are high in saturated fats and cholesterol. Those include red meats, egg yolks, and certain oils, like lard (pork fat). Maintaining a healthy weight and exercising regularly is also key. Some people may need medications to lower their cholesterol if diet, exercise, and weight loss don’t lower it enough.\* ■

\*Talk to your health care provider before stopping or starting a new diet or exercise routine.



**Jennifer Robinson, M.D.,**  
studies ways to prevent  
heart disease early on  
through cholesterol  
management.

# 6 ways to lower your cholesterol

*Ask questions, mind your diet, and get moving*

High LDL cholesterol can lead to heart disease, which is the number one cause of death in the U.S. That's why it's important to take steps early. While some risk factors are beyond your control, there are things you can do to reduce your risk.

## Ask questions

Don't hesitate to ask your health care provider follow-up questions after a blood test. They can answer questions about your cholesterol levels and provide guidance on what to do next. Cholesterol is a tricky topic that you don't have to navigate alone.

## Eat a healthy diet

Reduce or avoid foods high in saturated fat and trans fat. This can help to lower your cholesterol levels in your blood. Eat a variety of nutritious foods, including fruits, vegetables, whole grains, nuts, beans, lean meats, and fish.

## Lose weight

Excess weight increases your cholesterol and risk for heart disease. Losing weight can help lower your LDL cholesterol and triglycerides. Talk to your doctor about what a healthy weight is for you.

## Stay active

Regular exercise may help lower your LDL cholesterol and raise your HDL cholesterol. Adults should aim for 30 minutes a day. Children and adolescents should get one hour of physical activity a day.

## Quit smoking

Quitting smoking can raise your HDL cholesterol. Talk to your doctor about ways to help you quit.

## Take your medication

Some people need medicine to lower cholesterol levels. Never stop taking your medication without speaking with your doctor, nurse, or pharmacist. ■

**SOURCE:** National Heart, Lung, and Blood Institute

A healthy HDL cholesterol level may protect against heart attack and stroke.

# Cholesterol: Know the terms

*Find out the difference between HDL, LDL, and VLDL*



Heart-healthy nuts, like almonds, can help maintain healthy cholesterol levels when eaten in moderation.

## What is cholesterol?

Cholesterol is a waxy substance found in the cells in your body. Your body needs cholesterol to make hormones, vitamin D, and substances that help you digest food. Too much cholesterol can combine with other substances in the blood to form plaque. Plaque sticks to the walls of your arteries, which can lead them to become narrowed or blocked, causing heart disease.

## What is HDL?

HDL, or high-density lipoprotein, is sometimes referred to as “good” cholesterol. It carries cholesterol from other parts of your body back to your liver. Your liver then removes the cholesterol from your body. A healthy HDL cholesterol level may protect against heart attack and stroke.

## What is LDL?

LDL, or low-density lipoprotein, is sometimes referred to as “bad” cholesterol. High levels of LDL lead to the buildup

of plaque in your arteries. This increases your risk for heart attack, stroke, and other heart diseases.

## What is VLDL?

VLDL, or very low-density lipoprotein, is also referred to as a “bad” cholesterol because it contributes to the buildup of plaque in your arteries. While LDL mainly carries cholesterol, VLDL carries triglycerides.

## What are triglycerides?

Triglycerides are the most common type of fat in the body. The excess calories you eat that your body doesn’t immediately need are changed into triglycerides, which are stored in fat cells. When your body needs extra energy, it releases the triglycerides. A high level of triglycerides can raise your risk of heart diseases, including coronary artery disease. ■

**SOURCES:** MedlinePlus; National Heart, Lung, and Blood Institute



# What do my cholesterol numbers mean?

Cholesterol numbers are measured in milligrams per deciliter (mg/dL). Here are the healthy levels of cholesterol, based on your age and gender:

Type of Cholesterol	Healthy Level Anyone age 19 or younger:	Healthy Level Men age 20 or older:	Healthy Level Women age 20 or older:
Total Cholesterol	Less than 170	Less than 200	Less than 200
LDL	Less than 100	Less than 130	Less than 130
HDL	More than 45	More than 40	More than 45
Triglycerides	Less than 90	Less than 150	Less than 150

**SOURCE:** MedlinePlus

# Genetic condition teaches teen importance of heart health

*Familial hypercholesterolemia causes high cholesterol even in young people*



Elizabeth Fitch has a genetic condition that causes high cholesterol.

**E**lizabeth Fitch is a lot like other teens. She enjoys spending time with her friends. She's a member of her high school's dance team. She's learning how to drive. What's unique about the 16-year-old Massachusetts native, however, is a condition she was diagnosed with at age 2: familial hypercholesterolemia (FH).

FH is a genetic condition that causes very high levels of "bad" cholesterol, or low-density lipoprotein (LDL), even in otherwise healthy individuals. This increases the risk of narrowing of the arteries from an early age, which can lead to heart attack and heart disease.

## PERSONAL STORY

"Ask your doctors questions. They're there to help."

— Elizabeth Fitch

The risks of the condition are well known in Elizabeth's family. Her father, who was also diagnosed with FH, died of a heart attack in 2015 at the age of 43.

"The doctors didn't know he had [FH] until he was about 20, and he didn't start on medication to lower his cholesterol until he was about 30," says Karen Fitch, Elizabeth's mother. "He had all those years of cholesterol affecting his heart."

## Diagnosed early

Elizabeth's doctors started testing her cholesterol when she was just 2. While a normal cholesterol level for children and adolescents is below 170, Elizabeth's was close to 400. Medications to lower cholesterol, like statins, aren't recommended until age 10. But doctors started her on a statin at age 9 due to her high levels.

"People are usually surprised when I tell them I have [FH] because I'm thin, I try to eat healthy, and I'm active," she says. "But because it is inherited, people who have it may have always eaten healthy and exercised. You can't get your cholesterol levels down with diet and exercise alone."

Since her diagnosis, Elizabeth sees a team of doctors every six

months to one year. Her care team includes her primary care doctor, a cardiologist, and a nutritionist. They monitor her health and cholesterol levels and ask whether she's developed new symptoms such as chest pain or shortness of breath. They also discuss her nutrition and exercise habits, she says.

Her blood is tested every six months, and based on her cholesterol levels and physical growth, her doctors might make adjustments to her medication.

## Importance of professional support

"Because I've known about it my whole life, taking medication and [going to] the doctors' appointments are normal for me. It's just become part of my routine," Elizabeth says.

For others with FH, she stresses the importance of regularly taking your medication and staying on top of doctors' appointments.

"The medication is what will get your cholesterol down to a healthy level," she says. "Ask your doctors questions. They're there to help." ■



## Study shows kidney transplants between people with HIV are safe

### A GROWING NUMBER OF PEOPLE WITH HIV HAVE END-STAGE KIDNEY DISEASE.

They're also nearly three times more likely to die while on kidney dialysis than people without HIV. Kidney transplants can help extend their lives, but they face a shortage of donors and limited access to donor kidneys.

New research funded by the National Institutes of Health has found that kidneys of those who have died with HIV can safely be transplanted into people living with both HIV and end-stage kidney disease. NIH's National Institute of Allergy and Infectious Diseases and the National Cancer Institute both funded the study. It builds on important 2019 research that found that people living with HIV who received kidney transplants from deceased donors with HIV had high overall survival after five years.

A law passed in 2013 allows organ transplants from donors with HIV to recipients with HIV in approved research studies in the U.S.

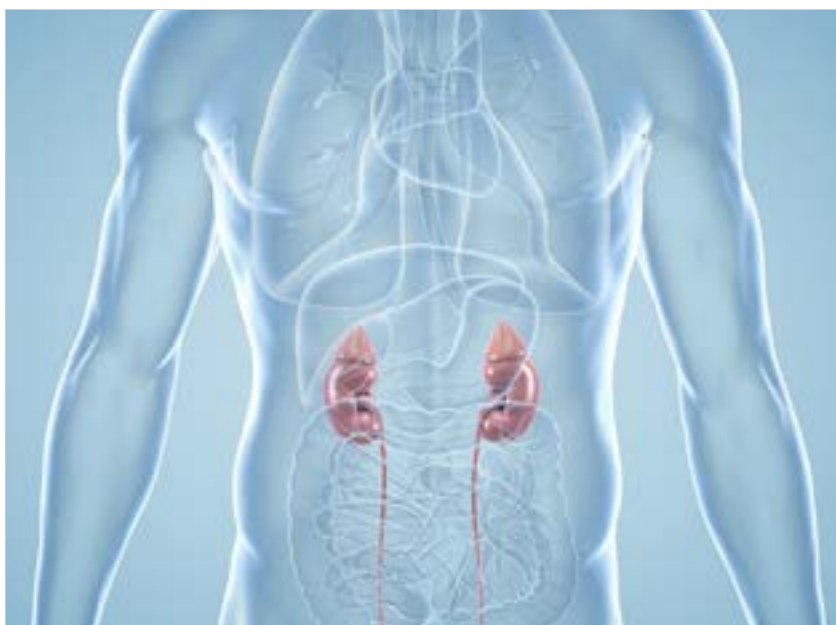
In this new study, 75 adults received a kidney from a deceased donor between 2016 and 2019. In 25 cases, the donor had HIV. The other

50 received kidney transplants from deceased donors without HIV.

One year after transplantation, overall survival was excellent and comparable between both groups. In addition, there were no differences in the rates of infections requiring hospitalization, serious side effects, or HIV-related complications, which were rare.

The findings show that kidney transplants between those with HIV is "safe and feasible and associated with excellent short-term patient survival," researchers said. ■

**SOURCES:** National Institute of Allergy and Infectious Diseases; National Cancer Institute



*Kidneys, which are located under the rib cage, play a vital role in removing waste and toxins from the body.*





*Once the body fights off a virus, like a cold, it retains some disease-fighting cells.*

## Could a cold teach your body to fight COVID-19?

### THE COMMON COLD

is caused by viruses in the same family as those that cause COVID-19. Now, a recent study finds that immune cells from previous cold infections may help the body fight the virus causing COVID-19.

The study, funded by the National Institute of Allergy and Infectious Diseases, may explain why some people have milder COVID-19 infections compared with others.

Once the body fights off a virus, such as the common cold, it retains some disease-fighting cells as memory cells. The next time a person is exposed to the same type of virus, a memory cell recognizes it and it's ready to fight the disease again. This gives the immune system a head start in combating the disease.

A team of researchers tested blood samples to identify these memory cells that recognize the SARS-CoV-2 virus that causes COVID-19.

More research is needed to determine how large a role these memory cells play in fighting COVID-19, but having a strong response from these cells "may give you the opportunity to mount a much quicker and stronger response," said researcher Alessandro Sette, Ph.D.

It is still important to follow Centers for Disease Control and Prevention guidelines by wearing a recommended mask or face covering and staying 6 feet away from people who do not live with you. ■

**SOURCE:** National Institute of Allergy and Infectious Diseases

## NIH study links opioids to pregnancy loss

**A NEW STUDY** from the National Institutes of Health (NIH) indicates that women who use opioids while trying to conceive have a 29% lower chance of becoming pregnant. Those who used opioids early in pregnancy were more than twice as likely to have a miscarriage than those who did not use opioids.

The study analyzed data from 1,228 women ages 18 to 40 with a history of one or two pregnancy losses. Among the women who became pregnant, those who had used opioids around the time of conception were 1.5 times as likely to have a miscarriage as women who had not.

For the women who used opioids in the first four weeks of pregnancy, their chance of miscarriage more than doubled. If they used opioids in the first four through eight weeks of pregnancy, they were 2.5 times as likely to miscarry.

"Our findings indicate that women who are pregnant or planning a pregnancy should, along with their physicians, consider the potential effects opioids may have on their ability to conceive or sustain a pregnancy," said study author Kerry Flannagan, Ph.D., with NIH's National Institute of Child Health and Human Development. ■

**SOURCES:** MedlinePlus.gov; National Institute of Child Health and Human Development



*Opioids, like fentanyl and oxycodone, are often prescribed for severe pain and can be highly addictive.*

# NIH on the web



*A video still of lung structures developed through tissue engineering.*

## Learn how tissue engineering works in 60 seconds

### ➔ HAVE YOU EVER WONDERED

how human tissue is created in a lab and implanted into humans? Check out the National Institute of Biomedical Imaging and Bioengineering's series of 60 Seconds of Science videos.

Each one-minute video offers a brief explanation and animation of a complex topic. Learn about the technology behind the common types of ultrasound, as well as PET, MRI, and CT scans. There are currently nine videos, so you can watch them all in under 10 minutes!

## NIH makes finding an eye doctor easy

➔ **GETTING AN EYE EXAM** is the only way to be sure your eyes are healthy. But when do you need to see a doctor? And should you see an optometrist or ophthalmologist?

Online resources from the National Eye Institute (NEI) will help you find the right kind of doctor to meet your eye care needs. Get tips on how to talk to your eye doctor, learn about dilated eye exams, find a doctor near you, and learn about the cost of an appointment.

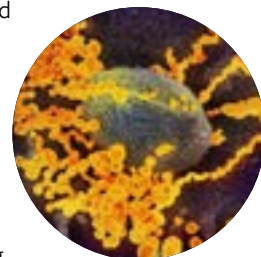
Eye exams and glasses can be expensive, so NEI's website provides information on programs that may offer help in paying for eye care.



Find it all in one place!  
[magazine.medlineplus.gov/otw](https://magazine.medlineplus.gov/otw)

## Follow NIH on Instagram!

➔ **SEE STRIKING IMAGES** from under the microscope and learn about research at the National Institutes of Health (NIH) on the NIH Instagram (@nihgov)! The page also features health tips, COVID-19 research updates, and information on upcoming live events featuring NIH leaders.



*Image: A microscopic image of COVID-19 featured on NIH's Instagram page.*



## What's it like to work as a scientist?

### ➔ **THINKING ABOUT A POSSIBLE CAREER** in basic biomedical research?

Look no further than the online resources from the National Institute of General Medical Sciences (NIGMS).

NIGMS shares stories of people doing cutting-edge research on its Being a Scientist webpage. These NIGMS-funded basic scientists seek to increase our understanding of biological processes and lay the foundation for advances in disease diagnosis, treatment, and prevention.

The webpage includes magazines, blog posts, fact sheets, and videos for students, educators, and the general public.

*Above: Joshua Brown, M.D./Ph.D. student at the University of Maryland*

# NIH is here to help

**The National Institutes of Health (NIH)**—the nation’s medical research agency—includes 27 Institutes and Centers and is a part of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical, and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit [www.nih.gov](http://www.nih.gov).

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## Institutes

### [National Library of Medicine \(NLM\)](http://www.nlm.nih.gov)

[www.nlm.nih.gov](http://www.nlm.nih.gov)  
888-FIND-NLM 888-346-3656

### [National Cancer Institute \(NCI\)](http://www.cancer.gov)

[www.cancer.gov](http://www.cancer.gov)  
800-4-CANCER 800-422-6237

### [National Eye Institute \(NEI\)](http://www.nei.nih.gov)

[www.nei.nih.gov](http://www.nei.nih.gov)  
301-496-5248

### [National Heart, Lung, and Blood Institute \(NHLBI\)](http://www.nhlbi.nih.gov)

[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)  
301-592-8573

### [National Human Genome Research Institute \(NHGRI\)](http://www.genome.gov)

[www.genome.gov](http://www.genome.gov)  
301-402-0911

### [National Institute on Aging \(NIA\)](http://www.nia.nih.gov)

[www.nia.nih.gov](http://www.nia.nih.gov)  
Aging information 800-222-2225  
Alzheimer’s information 800-438-4380

### [National Institute on Alcohol Abuse and Alcoholism \(NIAAA\)](http://www.niaaa.nih.gov)

[www.niaaa.nih.gov](http://www.niaaa.nih.gov)  
301-443-3860

### [National Institute of Allergy and Infectious Diseases \(NIAID\)](http://www.niaid.nih.gov)

[www.niaid.nih.gov](http://www.niaid.nih.gov)  
301-496-5717

### [National Institute of Arthritis and Musculoskeletal and Skin Diseases \(NIAMS\)](http://www.niams.nih.gov)

[www.niams.nih.gov](http://www.niams.nih.gov)  
877-22-NIAMS 877-226-4267

### [National Institute of Biomedical Imaging and Bioengineering \(NIBIB\)](http://www.nibib.nih.gov)

[www.nibib.nih.gov](http://www.nibib.nih.gov)  
301-451-6772

### [Eunice Kennedy Shriver National Institute of Child Health and Human Development \(NICHD\)](http://www.nichd.nih.gov)

[www.nichd.nih.gov](http://www.nichd.nih.gov)  
800-370-2943

### [National Institute on Deafness and Other Communication Disorders \(NIDCD\)](http://www.nidcd.nih.gov)

[www.nidcd.nih.gov](http://www.nidcd.nih.gov)  
800-241-1044 (voice)  
800-241-1055 (TTY)

### [National Institute of Dental and Craniofacial Research \(NIDCR\)](http://www.nidcr.nih.gov)

[www.nidcr.nih.gov](http://www.nidcr.nih.gov)  
301-480-4098

### [National Institute of Diabetes and Digestive and Kidney Diseases \(NIDDK\)](http://www.niddk.nih.gov)

[www.niddk.nih.gov](http://www.niddk.nih.gov)  
NIDDK Health Information Center  
1-800-860-8747

### [National Institute on Drug Abuse \(NIDA\)](http://www.nida.nih.gov)

[www.nida.nih.gov](http://www.nida.nih.gov)  
301-443-1124

### [National Institute of Environmental Health Sciences \(NIEHS\)](http://www.niehs.nih.gov)

[www.niehs.nih.gov](http://www.niehs.nih.gov)  
919-541-3345

### [National Institute of General Medical Sciences \(NIGMS\)](http://www.nigms.nih.gov)

[www.nigms.nih.gov](http://www.nigms.nih.gov)  
301-496-7301

### [National Institute of Mental Health \(NIMH\)](http://www.nimh.nih.gov)

[www.nimh.nih.gov](http://www.nimh.nih.gov)  
866-615-6464

### [National Institute on Minority Health and Health Disparities \(NIMHD\)](http://www.nimhd.nih.gov)

[www.nimhd.nih.gov](http://www.nimhd.nih.gov)  
301-402-1366

### [National Institute of Neurological Disorders and Stroke \(NINDS\)](http://www.ninds.nih.gov)

[www.ninds.nih.gov](http://www.ninds.nih.gov)  
800-352-9424

### [National Institute of Nursing Research \(NINR\)](http://www.ninr.nih.gov)

[www.ninr.nih.gov](http://www.ninr.nih.gov)  
301-496-0207

## Centers & Offices

### [Fogarty International Center \(FIC\)](http://www.fic.nih.gov)

[www.fic.nih.gov](http://www.fic.nih.gov)  
301-496-2075

### [National Center for Complementary and Integrative Health \(NCCIH\)](http://www.nccih.nih.gov)

[www.nccih.nih.gov](http://www.nccih.nih.gov)  
888-644-6226

### [National Center for Advancing Translational Sciences \(NCATS\)](http://www.ncats.nih.gov)

[www.ncats.nih.gov](http://www.ncats.nih.gov)  
301-435-0888

### [NIH Clinical Center \(CC\)](http://clinicalcenter.nih.gov)

[clinicalcenter.nih.gov](http://clinicalcenter.nih.gov)  
301-496-2563

### [Office of AIDS Research \(OAR\)](http://www.oar.nih.gov)

[www.oar.nih.gov](http://www.oar.nih.gov)  
301-496-0357

### [Office of Behavioral and Social Sciences Research \(OBSSR\)](http://www.obssr.od.nih.gov)

[www.obssr.od.nih.gov](http://www.obssr.od.nih.gov)  
301-402-1146

### [Office of Communications & Public Liaison \(OCPL\)](http://www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison)

[www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison](http://www.nih.gov/institutes-nih/nih-office-director/office-communications-public-liaison)  
301-496-5787

### [Office of Rare Diseases Research \(ORDR\)](http://www.rarediseases.info.nih.gov)

[www.rarediseases.info.nih.gov](http://www.rarediseases.info.nih.gov)  
Genetic and Rare Disease  
Information Center  
888-205-2311

### [Office of Research on Women’s Health \(ORWH\)](http://orwh.od.nih.gov)

[orwh.od.nih.gov](http://orwh.od.nih.gov)  
301-402-1770

# Rare Diseases Are Not Rare!

Rare diseases affect **1 in 10** people in the United States.



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**NIH is leading the way to understand  
and treat rare diseases.**

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Visit: [www.ghr.nlm.nih.gov](http://www.ghr.nlm.nih.gov)

Find high-quality resources to educate, engage  
and empower those with a rare disease:  
**<https://ncats.nih.gov/rdresources>**



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Translational Sciences