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# Exercising in the Summer Can Turn Deadly: How You Can Stay Safe

By Lynn Allison

Whether you're playing golf or tennis, going for a power walk or competing in a pickleball tournament, exercising in hot weather puts extra stress on the body, which increases your risk for serious illness, even death. According to the Centers for Disease Control and Prevention (CDC), heat-related illnesses are one of the deadliest weather-related health conditions in the United States, with almost all heat-related deaths occurring between May and September, and the highest numbers reported during July.

Heat-related illness, also called hyperthermia, results from exposure to extreme heat in which the body becomes unable to properly cool down, resulting in a rapid rise in body temperature. The evaporation of sweat is the normal way our bodies release excess heat, but when the humidity is high, sweat doesn't evaporate quickly enough for the body to cool normally. If the core temperature rises too high, prompt treatment with aggressive fluid replacement is critical for cooling the body, reducing illness, and preventing death.

Even though all heat-related illnesses are preventable, each year an average of 658 people die from extreme heat, and experts say that number may be low because of underreporting by hospitals and health officials.

"When the heat safety index is too high and exposure to heat is too lengthy, heat-related illness often occurs," says Dr. Anthony Abbott, an internationally recognized expert in exercise physiology and the founder, president, and chief instructor for Fitness Institute International. "The heat index is an adjusted temperature based on air temperature and humidity. Often, experts refer to the WetBulb Globe Temperature (WBGT) that also measures wind speed, sun angle, and solar radiation. This index is used in the military as a guide to managing workload in direct sunlight."

The body's normal core temperature is 98.6 degrees Fahrenheit, but during exercise the temperature can rise to 100 or more. And if the body cannot dissipate that excess heat, core temperature may rise above 104 degrees — and then the situation becomes critical. Abbott warns that some individuals

are at greater risk for adverse health effects as well as death from hyperthermia.

“The young, the elderly, and those with certain medical conditions and comorbidities are more vulnerable from physical harm to the heat,” he says. “Many people are unaware that children are less efficient in their heat dissipation response than adults, and therefore require greater supervision when exercising or playing outdoors during the summer months.”

Abbott, who helped design the fitness programs for NASA and the Apollo missions, adds:

“The mortality from heat stroke is related to the duration of one’s core temperature remaining elevated,” he says. “When emergency responses are delayed, the mortality rate may be as high as 80 percent. However, with early diagnosis and immediate cooling, the mortality rate can be reduced to 10 percent. As expected, mortality is highest among the elderly and those with preexisting diseases.”

Here are some tips for exercising safely this summer:

**Don’t eat right before you head out.** Carol Ewing Garber, Ph.D., professor of movement science at Columbia University, says that while fueling the body before exercising is important, it’s best to have a light meal at least an hour before your workout in the heat. “It takes blood and energy to your gut to digest the food — not what you want when you’re already hot,” she says. When you finish your workout, hydrate, but don’t eat until your body has cooled down since digesting food will delay that process.

**Wear material that helps your body breathe.** “What a person wears during exercise in the summer months also has an important impact on the possibility of succumbing to a heat illness,” says Abbott. “Normally the advice is to wear loose, light-colored cotton clothing. However, when you sweat, cotton tends to absorb moisture and leads to a feeling of heaviness. Moisture-wicking clothing is both breathable and helps evaporate the sweat.” Garber tells *Health Radar* that exposing

more skin also makes it easier for sweat to evaporate. Just remember to wear sunscreen.

**Try more heat-friendly forms of exercise.** Garber, an avid runner and hiker, says that when it gets hot, she switches to exercise activities that are easier on the body. “Swimming is a great exercise if the water is cool,” she says. Yoga is also a great alternative because it is beneficial from a fitness standpoint but doesn’t use as much energy. You can also opt for exercising indoors with air conditioning, or use a fan to help promote evaporation and cooling. Another tip is exercising early in the morning or in the evening when temperatures tend to be cooler. “You can also switch locations,” says Garber. “Find a shady or breezy location, which can help reduce the risk of heat-related illness.” Abbott adds that biking outdoors allows for increased airflow compared to running.

**Know the difference between dry and humid heat.** Dry heat is easier on the body because your sweat is able to evaporate more easily. But high temperatures in dry climates can also be dangerous because



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you can lose too much water, says Garber. In humid areas, it's easier to gauge water loss because of the sweat. But humidity carries its own risks. "It's harder in humid areas for your sweat to evaporate, and that really impairs your body's ability to cool yourself off," she explains. Be careful if you find yourself soaked in sweat because that's a reminder your body needs to cool down. Pay attention to the relative humidity, too. "If it is humid out, the real temperature stress on your body is much greater," says Garber.

**Stay hydrated.** Start drinking fluids slowly an hour or two before exercise, and replace fluids during the workout. "Room temperature water is not only more palatable but also more readily absorbed, whereas water that is too cold decreases the absorption rate," notes Abbott. "Water is usually the drink of choice. However, with extended activity coupled with profuse sweating, sports drinks may be preferable because of their electrolytes."

Abbott cautions that drinking too much water can cause excessive hydration, which can lead to a life-threatening condition called hyponatremia, in which sodium levels fall dangerously low. Signs and symptoms of hyponatremia include nausea, vomiting, headache, confusion, fatigue, muscle weakness, seizures, cramps, and even death.

**Choose foods wisely.** Lyssie Lakatos, a registered dietitian with The Nutrition Twins, tells *Health Radar* that the foods you eat can also help keep you hydrated in the summer heat. "Focus on getting ample fruits and vegetables because they contain

as much as 95 percent water," she says. "Lettuce, tomatoes, berries, cucumbers, grapefruit, oranges, and melons are great options." Lakatos echoes the warning not to eat directly before a workout because digestion requires blood, and energy and diverts blood away from the muscles that will be working during exercise. A helpful pre-exercise meal could be a piece of fruit with a little nonfat Greek yogurt or a banana with a tablespoon of peanut butter, consumed at least an hour before your workout.

**Listen to your body.** Give your body time to adapt to hot weather workouts, says Garber. It will adjust over time, but take it easy at the beginning of summer. "Some avid exercisers say, 'we're tough' and go through any discomfort," she notes. "But there are some serious warning signs they shouldn't ignore." It's important to listen to the signals your body is sending because the physiological message may be to ease up, rest, or cool down to avoid a heat-related illness that can last for days or cause heat exhaustion and heat stroke.

**Beware of the warning signs of heat exhaustion and heat stroke.** Heat exhaustion is the result of the body overheating; it can occur suddenly or over time. Possible signs include cool, moist skin with goosebumps, heavy sweating, feeling faint, dizziness, fatigue, weakness, rapid pulse, low blood pressure upon standing, muscle cramps, and headache. "Stop exercising and move to a cool place, and hydrate with cool water or a sports drink," says Garber.

"If the symptoms do not

improve within one hour, or the person becomes confused or agitated, loses consciousness or is unable to drink, seek medical attention. You will need immediate cooling and urgent medical care if the body core temperature rises above 104 degrees Fahrenheit."

Heat stroke occurs when the body temperature rises above 104 degrees. This may happen from prolonged exposure or continued physical exertion. It usually occurs in high temperatures. "This is the most serious form of heat injury," says Garber. Heat stroke requires immediate emergency care. "Untreated heat stroke can quickly damage your brain, heart, kidneys, and muscles. The damage worsens the longer treatment is delayed, increasing the risk of serious complications or death."

Symptoms of heat stroke include high body temperature, altered mental state, confusion, agitation, slurred speech, irritability, delirium, seizures, and coma. Heat stroke can also cause nausea and vomiting, flushed skin, rapid shallow breathing, and racing heart rate.

"If you think a person may be experiencing heatstroke, call 911 or your local emergency services number," says Garber.

In the meantime, get the person into shade or indoors, remove excess clothing and cool the person with whatever means are available. Put them in a cool tub of cool water or a cool shower, spray them with a garden hose, sponge with cool water, fan while misting with cool water, or place ice packs or a cold, wet towel on the person's head, neck, armpits, and groin. □



# Making **YOU** Live Healthier

## Lesser Known Hypertension Risks

What condition affects almost half of all U.S. adults (that's 105 million people) and yet is so sneaky that more than 25 million of those people don't even know they're imperiled by its far-reaching repercussions? High blood pressure, also called hypertension. Blood pressure is a measure of the force of blood against the walls of your blood vessels as your heart contracts and sends blood to every corner of your body (that's the top number, the systolic pressure), and then as your heart relaxes and fills back up with blood (that's the bottom number, the diastolic pressure). When that pressure is measured as more than 120/80 millimeters of mercury (mmHg), you are officially said to have high blood pressure.

Chronic high blood pressure can damage your heart, blood vessels, even your kidneys. But did you know high blood pressure also damages bone strength in women and, in men and women, it damages vision, cognition, and sexual function?

### Blood Pressure and Bone Health

A study of more than 3,000 postmenopausal women found that those with high blood pressure were 10 percent more likely to develop osteoporosis. And women with osteoporosis were 10 percent more likely to develop high blood pressure. The study, published in the journal *Calcified Tissue International*, found lower consumption of dairy products resulted in greater risk for both high blood pressure and osteoporosis, meaning deficiency of the components of dairy, such as calcium and potassium, may play a role in the development of both conditions.

### Blood Pressure and Vision Loss

High blood pressure can slowly damage the blood vessels in the retina, triggering hypertensive retinopathy (HR), the symptoms of which include dim or double vision, and eventually vision loss. One

13-year study in the journal *Hypertension* found that people with mild hypertensive retinopathy have a 35 percent greater risk of having a stroke, and those with moderate or severe hypertensive retinopathy are at a 137 percent greater risk of stroke than people without HR.

### Blood Pressure and the Brain

Studies show that elevated blood pressure interferes with the proper function of cerebral blood vessels, and blocks the removal of Alzheimer's-related amyloid proteins from the brain. But lowering BP cuts dementia risk dramatically. Johns Hopkins researchers found that the use of antihypertensive, potassium-sparing diuretics reduced the risk of Alzheimer's nearly 75 percent, while people who took any type of antihypertensive medication lowered their risk by about a third.

### Blood Pressure and Sexual Dysfunction

Some high blood pressure medications have sexual side effects. If you're taking antihypertensives and experiencing sexual dysfunction, ask your doctor to switch to one that doesn't cause problems. But high blood pressure itself is an often overlooked culprit. It can cause reduced blood flow, and that interferes with arousal, climax, and lubrication.

Get your pressure checked regularly and adopt these four proven ways to have a healthy BP:

- Eat a low-saturated-fat diet loaded with vegetables and fruits and whole, unprocessed carbs and grains.
- Walk 10,000 steps a day or the equivalent; sweat regularly; do two 30-minute strength-training sessions weekly.
- Control your stress response; try meditation, yoga, breathing exercises — whatever works for you.
- Shed excess weight; men should aim for a 40-inch waist or smaller, women 35 inches or less. □

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# Could Monkeypox Be the Next Pandemic?

By Chris Iliades, M.D.

A virus jumps from animals to humans, appears to be spreading between humans, and shows up in places it has never been before. To a weary world already traumatized by COVID-19, this sounds ominous. The last thing people want to think about is monkeypox. But we know too well that small viral outbreaks can become big global problems very quickly. How worried should we be?

“There’s some evidence that this virus is changing and has more potential for human-to-human transmission. We should be concerned but not panicked,” says Dr. Nima Majlesi, director of medical toxicology at Staten Island University Hospital at Northwell Health, and assistant professor of medicine at Donald and Barbara Zucker School of Medicine at Hofstra/Northwell.

## Why We Should Be Concerned

Monkeypox was first discovered in African monkeys in 1958. The first human case was diagnosed in 1970. It’s in the same viral family as smallpox, which killed 30 percent of people it infected before it was eliminated by a vaccine. Prior to appearing in the U.S. and Europe, almost all cases of monkeypox were confined to rural rainforest regions of Central Africa. “In these areas, fatality may be as high as 10 percent, but that’s probably due to suboptimal supportive care,” says Majlesi.

People who got the smallpox

vaccine may have some protection against monkeypox, but those vaccines stopped being administered more than 50 years ago. “It is hard to know if those vaccines offer any protection today,” says Majlesi. “Protection is probably limited, at best.”

According to the World Health Organization (WHO), there are no antiviral medications to treat monkeypox, but antivirals used to treat smallpox have been effective in Africa. A monkeypox vaccine was approved in 2019, but WHO says neither the medication nor the vaccine is widely available.

## Why We Shouldn’t Panic

Like COVID, monkeypox can spread from person to person through sneezing or coughing. It can also spread through body fluids, which means very close contact. “So far, spread has been mostly through very close contact, which limits the potential for widespread disease,” says Majlesi.

At the end of May, there were growing numbers of confirmed cases outside of Africa, but the R number was estimated at 3. That means that one person may spread it to three others. It’s a good measure of how contagious a virus is. The R number for the omicron variant of COVID was 12. “The R number tells us that so far, this virus does not have the potential for exponential growth,” says Majlesi.

Although treatments are not widely available for monkeypox, it’s not the same situation we

faced with COVID. “One thing we learned from COVID is that when the government and the pharmaceutical industry work together, resources can be quickly mobilized,” says Majlesi. “If monkeypox becomes a serious threat, it should be an easy fix. We don’t have to invent a vaccine. They’re already available, we just need to ramp up production.”

## Symptoms of Monkeypox

Symptoms may start five to 21 days after contact. Early on, they may include fever, headache, muscle aches, and fatigue. Unlike COVID, this virus is likely to cause lymph nodes to swell. One to three days after the fever, a rash may appear on the face or extremities. The rash progresses from flat red spots to raised bumps (lesions). These lesions then become firm pimples (pustules) that cover the face, trunk, arms, and legs, including the palms and soles.

Diagnosis is made with a biopsy of the skin lesion. Most people will recover in two to four weeks. Children, pregnant women, and people with weak immune systems are at higher risk for severe disease. “If you have the typical viral symptoms with chills and fever, and you develop a rash that looks like chickenpox, you should see your healthcare provider,” advises Majlesi.

Could monkeypox be the next COVID? It’s possible but unlikely. Keep an eye on the R number and avoid close contact with anyone who has symptoms, just like you would for the flu or COVID. □

# Rx Warning: These Supplements Can Interfere With Your Medications

By Lynn Allison

Supplements are enjoying unprecedented popularity, with consumers spending billions of dollars on capsules, powders, and gummies that often contain ancient cures newly packaged for 21st century shoppers. More than 50 percent of adults ages 20 and older have taken a supplement in the last 30 days, according to a National Health and Nutrition Examination Survey. And that percentage increases with age. The survey found that more than 80 percent of women 60 and older regularly use dietary supplements.

But what many adults don't know is that taking some of these supplements along with prescription medications or other drugs can have serious and even life-threatening consequences.

"It's a common misconception that natural equals safe," says Sherry Torkos, pharmacist and the author of "The Canadian Encyclopedia of Natural Medicine."

"While some natural products, such as vitamins, minerals, probiotics, herbs, and essential fatty acids are generally well-tolerated with low risk of side effects when taken as recommended, there are potential drug interactions. Herbal remedies contain active ingredients that have druglike effects. Some can be very potent, and interact positively or negatively with prescription medications."

Alyssa Billingsley, a doctor of pharmacy at GoodRx, explains how interactions can occur.

"After you take a supplement, it's absorbed, distributed, broken down and eventually removed by your body," she tells *Health Radar*. "But sometimes it competes with medications that are going through one or more of the same pathways, leading to potential interaction. In some cases, this makes the medication less effective. In other cases, it may cause the amount of medication in your body to be higher, increasing the risk of side effects."

And some of the interactions don't have anything to do with these pathways at all, says Billingsley. For example, a supplement's effects may interfere with how the medication works in your body.

"This is the case with vitamin K and the drug warfarin," she says. "Warfarin is a blood thinner, and vitamin K helps the blood to clot, so they work against each other."

St. John's wort is one of the most notorious supplements for causing problems with drugs. "Not only can it make certain medications less effective, it can also increase the risk of serious side effects when used with antidepressants, birth control pills, or blood thinners," says Billingsley.

Here are some more examples of potentially dangerous supplement and medication interactions:

- Supplements with blood thinning properties — such as ginkgo, ginger, garlic, turmeric, and high dose vitamin E — can interact with blood-thinning medications such as warfarin, increasing the risk of bleeding.

Milk thistle can also reduce the amount of warfarin metabolized in the liver, increasing levels of the drug and the risk of bleeding.

- Supplements that affect blood sugar levels can be helpful for those with prediabetes or Type 2 diabetes, but are problematic for people with Type 1 diabetes. These include chromium, magnesium, cinnamon, bitter melon, and fenugreek. Monitor blood sugar levels carefully when starting any new supplement.

- Supplements that could raise blood pressure, such as bitter orange, ephedra, and licorice, should not be taken by people taking antihypertension medications. Garlic, bacopa monnieri, and panax ginseng all lower blood pressure. They too should be used cautiously with blood pressure medications.

- Herbs and vitamins that affect the immune system — such as echinacea, elderberry, and high-dose vitamin C — should be avoided or taken under doctor supervision by those with autoimmune diseases such as lupus or multiple sclerosis, or those undergoing chemotherapy.

"Check with your healthcare provider or pharmacist before taking any supplement to be sure it is safe," says Billingsley. "Depending on the type of interaction, you may be instructed to avoid the supplement altogether. But if the supplement is necessary, your healthcare provider may need to adjust your medication dosage, or switch to a different treatment." □

# ‘Broken Heart Syndrome’ Is on the Rise: How to Know if You Are at Risk

By Charlotte Libov

Naomi Kuchen’s first tipoff that something was wrong was when she became short of breath while walking around her community lake. But it was the night she awakened, gasping for air, that sent her to the hospital. Doctors were certain the 70-year-old Maryland woman had suffered a heart attack, but when they performed a test on her coronary arteries, they were surprised to find no evidence of it.

It turned out that Kochen had “broken heart syndrome,” or takotsubo cardiomyopathy. Known also as stress cardiomyopathy, broken heart syndrome is a condition in which the heart suddenly becomes weak.

## Study Findings

Unlike many cardiac conditions, broken heart syndrome is usually temporary. It’s also considered rare. But Susan Cheng, M.D., director of the Institute for Research on Healthy Aging in the Department of Cardiology at the Smidt Heart Institute in Los Angeles, believes it’s more common than we think.

Cheng is lead author of a study that looked at more than 135,000 women and men diagnosed with the syndrome between 2005 and 2017. While confirming that women are diagnosed more often than men, the results also revealed that diagnoses have been increasing six to 10 times more rapidly for women ages 50 to 74.

“It’s difficult to tell whether it’s being recognized more often or it’s actually occurring more, but our study suggests both,” says Cheng of the study published in the *Journal of the American Heart Association*.

## Causes

Broken heart syndrome appears to be triggered by a physical or emotional event that causes a burst of stress hormones such as adrenaline, which impacts the heart. “The event that sets it off can be physical, like pneumonia, or it can be an emotional or a traumatic event, like a cancer diagnosis, an earthquake, or an accident,” says Cheng. But why such events have this detrimental effect on the heart in some people, but not others is unknown.

Still, because there is an emotional component to the condition, its recognition has added greatly to the evidence of the “brain-heart connection,” which suggests that a person’s reaction to emotional stress impacts the function of the heart.

“There has been skepticism about the brain-heart connection, but you can’t really argue against it with this syndrome. That’s why this is a really good starting point to try to understand the brain’s impact on heart health. I think this is the tip of the iceberg,” says Cheng.

It isn’t known why women are far more affected, but, when men do develop broken heart syndrome, their cases are usually more serious.

## Symptoms, Diagnosis, and Treatment

There are a number of symptoms for heart attacks, but in broken heart syndrome two stand out prominently: shortness of breath and chest discomfort.

And even though most people recover, it’s important that the condition be properly diagnosed and treated.

“First, we try to identify the trigger, if there was one, and then we also support the heart, because it can take days to months for a person to recover. We also have medications that can help, including beta blockers and ACE inhibitors,” says Cheng.

In addition, people with broken heart syndrome often have cardiac risk factors that need to be addressed, such as high cholesterol, obesity, or smoking. Because of the emotional component, stress management techniques such as relaxation methods or yoga are often recommended.

In addition, it isn’t known if having broken heart syndrome predisposes people to heart problems later on, but patients should be followed, notes Cheng.

Because it isn’t known what causes broken heart syndrome, it’s impossible to say exactly what can be done to prevent it. But reducing cardiac risk factors will strengthen the heart, and that can help guard against other conditions, including broken heart syndrome.

Fortunately, Kochen’s symptoms gradually improved, and nowadays she’s back to her former routine, including walks around the lake. □

# Irritable Bowel Syndrome Can Be Managed Successfully



**Tushar Dharia, M.D.**, is a member of the American Board of Internal Medicine-Gastroenterology. Dr. Dharia is a specialist in gastroenterology at the Kelsey-Seybold Clinic in Houston and strongly believes in communicating openly with his patients so he can deliver quality health care based on knowledge, integrity, and experience.

## Q: What is irritable bowel syndrome?

**A:** Irritable bowel syndrome (IBS) is a chronic condition of the gastrointestinal tract. The primary symptoms include a combination of bowel habit changes and abdominal pain. Other symptoms include cramping, bloating, and gas. There are various subtypes of IBS, including conditions that are characterized predominantly by constipation, those that are diarrhea-dominant, and those that are mixed between the two. The estimated prevalence of IBS in America is about 10 percent to 15 percent of the population, and most people who have IBS develop symptoms at a young age. The occurrence of IBS in females is almost double the rate of that in males.

## Q: What causes IBS?

**A:** More and more research is finding that IBS runs in families, therefore there is a genetic component. There is also a correlation with certain mood disorders, such as depression and anxiety. There are many theories about the underlying mechanisms of IBS, including heightened contractions of the intestine, a bacterial imbalance in the gut, increased sensitivity of the intestine, intolerance to particular foods, or even exposure to an infectious pathogen. People exposed to a traumatic event, especially in childhood, tend to have more symptoms of IBS, according to the Mayo Clinic.

## Q: How is IBS diagnosed?

**A:** Because IBS is a syndrome, there is not a single test that can facilitate a diagnosis. However, doctors

can rely on what is known as the Rome IV criteria, a set of guidelines that outline symptoms and applies parameters, such as frequency and duration of symptoms, to diagnose IBS. These criteria include abdominal pain and discomfort lasting on average at least one day a week for three months, with at least two other symptoms such as pain or discomfort during defecation, and frequency or change in stool consistency. Generally, a specialist will diagnose IBS by assessing whether a patient meets these formal criteria and by running tests to rule out other conditions that can have overlapping symptoms, such as inflammatory bowel disease.

## Q: How is IBS treated?

**A:** IBS should not be thought of as a syndrome that can be cured. Instead, there are many different treatment strategies that help control the underlying symptoms. Strategies include medications to improve abdominal pain, such as anticholinergic drugs, elimination diets, laxatives, antidiarrheal medications, certain types of antidepressants, probiotics, and even antibiotics. Researchers are also investigating new treatments for IBS, including fecal microbiota transplantation, a procedure that restores healthy intestinal bacteria by placing one person's processed stool into the colon of a person affected by IBS. Currently, treatment of IBS focuses on relieving symptoms so that a person can live as normally as possible with the condition.

## Q: When should you seek medical help?

**A:** I have seen in my practice that many patients wait too long before discussing their chronic condition with their physician. Due to embarrassment or for other reasons, these patients may tolerate their symptoms for years. If you have persistent changes in bowel habits, unexplained weight loss, or other worrisome symptoms, do not hesitate to see your healthcare provider. IBS is a common condition that can easily be diagnosed under the care of a specialist. □

# How Alzheimer's Disease Is Diagnosed

By Fran Kritz

The Food and Drug Administration (FDA) recently approved a new test to help diagnose Alzheimer's disease. Called Lumipulse, the test requires a spinal tap, and is not a standalone test, according to the company that makes it, but it could help make a diagnosis of this devastating disease faster.

Experts say that as new and better tests are approved to diagnose Alzheimer's disease, doctors are better able to accurately and swiftly make a diagnosis. And that's crucial, says Reza Ghomi, M.D., a neuropsychiatrist based in Montana, who is also on the neurology faculty of the University of Washington. "Without precise tests for the condition, it can take months to years to diagnose Alzheimer's disease. And an early diagnosis can help people get financial and other long-term planning started, as well as research potential opportunities to enroll in clinical trials that could down the road offer new and effective treatments for the condition."

## PET Scans and Other Tests

Amyloid plaques — fragments of protein found in the brain — are the hallmarks of Alzheimer's disease. In a healthy brain, the fragments are broken down and eliminated. But with Alzheimer's disease, the fragments form hard plaques and disrupt memory and other brain functions.

While doctors often diagnose

Alzheimer's using cognitive tests and interviews with the patient and family members, sometimes a more definite diagnosis is wanted or needed to rule out other possible causes of dementia. For example, conditions such as a vitamin deficiency or Parkinson's disease can also lead to dementia and can be treated, so determining a precise cause can help patients either receive treatment for another condition or begin treatment and planning for Alzheimer's disease.

"While there is no cure for Alzheimer's, beginning treatment early can help delay significant symptoms, though only for a while," says Ghomi.

A common test for Alzheimer's is a brain-imaging technique called a PET scan, which can detect amyloid plaques. But PET scans require a radioactive dye injection that has its own radiation risks. And patients must sit still for an hour or more for the injection and scan, which can be hard for many people with cognitive decline.

"While amyloid plaques can occur in other diseases, being able to detect the presence of plaque, along with other evaluations, helps a doctor determine the probable cause of a patient's symptoms," says Jeffrey Shuren, M.D., director of the Center for Devices and Radiological Health at the FDA. "[The Lumipulse test] can typically be completed the same day, and can give doctors the same information regarding

brain amyloid status, without the radiation risk, to help determine if a patient's cognitive impairment is due to Alzheimer's disease."

## Cognitive and Other Assessments

Not all patients will need a PET scan or spinal tap test to diagnose Alzheimer's disease. For patients without access to such tests, or for whom the tests would be too uncomfortable or frightening, doctors will often make an Alzheimer's diagnosis based on cognitive and other assessments. The doctor will order other tests if they think that there could be a cause for the dementia other than Alzheimer's, such as Parkinson's or a low vitamin level. Those include a medical history to ask about health conditions, medications, family history of Alzheimer's, and the patient's current health status. They will also perform a neurologic exam and check reflexes, coordination, speech, and sensation. Blood tests are likely to be ordered to check vitamin and mineral levels, liver and kidney function, and the thyroid gland.

## Mental Status Tests

Cognitive ability is an important part of the testing doctors perform to make a diagnosis of Alzheimer's disease. Those tests are likely to include memory tests such as repeating words, problem solving, counting, attention span, reasoning, and language tests. □

# Managing Diabetes Is Even More Important During COVID

By Fran Kritz

**D**iabetes is a chronic disease that affects how your body turns food into energy. It occurs when the pancreas is no longer able to make insulin, or when your body doesn't use insulin properly. According to the American Diabetes Association, each year 1.4 million Americans are diagnosed with diabetes, and more than 280,000 die from the disease.

## Link to COVID Severity and Long COVID

Concern about diabetes has heightened since the start of the COVID-19 pandemic because it is a risk factor for severe complications, even death. COVID has also been linked to the development of diabetes in people who did not have the disease before being infected. Reasons for that may include weight gain during the pandemic — weight gain is a risk factor for developing diabetes — and the possibility that the virus that causes COVID can impact cells in your body in a way that leads to diabetes.

Now a study by researchers at Emory University School of Medicine in Atlanta found that people with diabetes may be up to four times more likely to develop long COVID. This condition, which can last for months after an initial COVID infection, causes long-term symptoms such as fatigue, shortness of breath, cough, and brain fog.

**Understanding diabetes.** Most

of the food you eat is broken down into sugar (glucose) and released into your bloodstream. When your blood sugar increases, it signals your pancreas to release insulin, which acts like a key, letting blood sugar into your body's cells for use as energy. If you have diabetes, your body either doesn't make enough insulin (called Type 1 diabetes) or can't use the insulin it makes as well as it should (called Type 2 diabetes, the most common type.) When there isn't enough insulin or cells stop responding to insulin, too much blood sugar stays in your bloodstream. Over time, that can cause serious health problems including heart disease, vision loss, and kidney disease.

**Severe COVID for people with diabetes.** Both Type 1 and Type 2 diabetes put you at risk for severe complications and death from COVID-19.

Diabetics who contract COVID are more likely to end up in the hospital. They are also more likely to need a ventilator. According to data from the Centers for Disease Control and Prevention, 30 percent to 40 percent of deaths from COVID-19 have occurred in people with diabetes. Vaccination, avoiding infection, and prompt treatment if you contract COVID can all reduce your risk of death and severe COVID if you have diabetes.

Preventing and managing diabetes also reduce your risk of severe COVID and death, says

Linda Yancey, M.D., an infectious disease specialist with Memorial Hermann Health System in Houston.

**Diabetes is on the rise.** There has been a decades-long increase in diabetes around the world as people become heavier on average, says Yancey. "Also, more of us have desk jobs, which cuts down on how much exercise we get. In addition, the global population is growing older, which is a risk for diabetes over time."

## Common diabetes symptoms.

The most common symptoms people experience from diabetes are excessive thirst and frequent urination. Unexplained intermittent blurry vision is another. Yancey says people should be evaluated by their doctor for diabetes every year, including questions about symptoms and a blood test to check their glucose levels.

**Diabetes complications beyond COVID-19.** Severe disease and death from COVID-19 is not the only risk from diabetes, says Yancey. Other potential complications include blindness, heart attack, amputations, and kidney failure. Diabetes does damage over time. The earlier it is diagnosed, the better, Yancey says.

**Managing diabetes.** "There isn't a cure yet for diabetes, but losing weight, eating healthy food, and being active can really help," says Yancey. "Taking medicine as needed, getting diabetes education and support, and keeping health care appointments can also reduce the impact of diabetes." □

# FDA Approvals: COVID Boosters for Kids, Diabetes, Esophagitis

Compiled exclusively by Health Radar, here are the most significant new drugs and medical devices approved by the U.S. Food and Drug Administration.

## COVID Boosters for Kids Ages 5 to 11

A single booster dose of the Pfizer COVID-19 vaccine can be given to 5- to 11-year-olds at least five months after healthy kids complete the two-dose vaccine series, according to the U.S. Food and Drug Administration. FDA officials based their decision on an analysis of data from a group of children in an ongoing trial that led to last fall's authorization of the Pfizer vaccine primary series in 5- to 11-year-olds.

Antibody responses were evaluated in 67 study participants who received a booster dose seven to nine months after completing the two-dose vaccine regimen. A month after the booster, their antibody levels were higher than before. The safety of a single Pfizer booster dose was assessed in about 400 children, ages 5 to 11, who received it five to nine months after the two-dose series.

The most commonly reported side effects were pain, redness and swelling at the injection site, as well as fatigue, headache, muscle or joint pain, and chills and fever.

## Mounjaro for Type 2 Diabetes

Mounjaro (tirzepatide) injection was approved as an addition to diet and exercise to improve blood glucose control in adults with Type 2 diabetes. The first-in-class medicine works by activating glucagon-like peptide-1 and glucose-dependent insulinotropic polypeptide receptors, and is administered by injection under the skin once a week. The dose is adjusted as tolerated to meet blood glucose goals.

Approval was based on data from five clinical trials in which three different doses of Mounjaro (5 mg, 10 mg, and 15 mg) were evaluated as standalone therapy or in addition to other diabetes medicines. Researchers found that the hemoglobin A1c (HbA1c) levels of patients randomly assigned to receive 15 mg of Mounjaro

as a standalone therapy were reduced by 1.6 percent more than levels of patients randomly assigned to placebo, and when combined with a long-acting insulin, levels were reduced by 1.5 percent more than placebo.

Compared with semaglutide, insulin degludec, and insulin glargine, HbA1c levels with 15 mg of Mounjaro were reduced by 0.5, 0.9, and 1.0 percent more, respectively. Commonly reported side effects of Mounjaro include nausea, vomiting, diarrhea, decreased appetite, constipation, upper abdominal discomfort, and abdominal pain. Mounjaro caused thyroid C-cell tumors in rats, but it is unknown whether it causes such tumors in humans.

Mounjaro is contraindicated in individuals with a personal or family history of medullary thyroid cancer and in those with multiple endocrine neoplasia type 2 syndrome.

## First Treatment for Eosinophilic Esophagitis

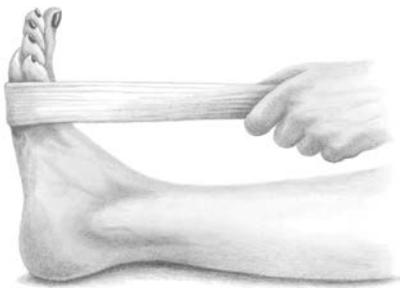
The FDA approved the monoclonal antibody Dupixent (dupilumab) to treat eosinophilic esophagitis in patients 12 years and older. The efficacy and safety of Dupixent was evaluated in a randomized, double-blind, parallel-group (Part A and Part B), multicenter, placebo-controlled trial, in which patients received either placebo or Dupixent every week for 24 weeks.

According to the results of the study, in Part A of the trial, 60 percent of the 42 patients who received Dupixent achieved the predetermined level of reduced eosinophils in the esophagus versus 5 percent of the 39 patients who received a placebo. Patients in Part A receiving Dupixent experienced an average improvement of 22 points in their Dysphagia Symptom Questionnaire (DSQ) score versus 10 points in patients receiving placebo.

In Part B, 59 percent of the 80 patients who received Dupixent achieved the predetermined level of reduced eosinophils in the esophagus versus 6 percent of the 79 patients who received a placebo; improvements in DSQ score were 34 points and 14 points, respectively. □

**ELECTROCONVULSIVE THERAPY REDUCES SUICIDE BY 50 PERCENT**

Hospitalized patients suffering from depression who were treated with electroconvulsive therapy (ECT) had a 50 percent lower risk of suicide in the year following their hospitalizations, according to a study published in *The Lancet Psychiatry*. In addition, death from any cause was reduced by 25 percent compared to depressed patients who were not treated with ECT, also known as “shock therapy.” “ECT significantly reduced the risk of suicide death while also being a medically safe procedure,” said Tyler Kaster, M.D. “These findings suggest that ECT can prevent suicide in severe depression and potentially be a lifesaving procedure.”



**EXERCISE DURING MIDDLE AGE MAY PREVENT AGE-RELATED DISEASES**

Exercising during midlife may prevent age-related chronic diseases, according to a study published in the *Journal of Applied Physiology*. Physiologists in Texas and Japan studied three groups: middle-age athletes (ages 45 to 60) with at least 10 years of aerobic training; middle-age sedentary adults; and younger, active adults. They found that middle-age exercisers had better cardiovascular health,

including less arterial stiffness, than nonactive adults, and had test results comparable to younger athletes. Arterial stiffness is linked to a higher risk of stroke and dementia later in life. Researchers believe exercising will lower the risks for stroke, dementia, chronic kidney disease, and other age-related chronic conditions.

**WEARING DENTURES MAY AFFECT NUTRITION**

A study published in the *Journal of Prosthodontics* found that dentures had a negative impact on a person’s overall nutrition. Researchers compared laboratory data in men and women two years before receiving dentures and two years after to people who did not wear dentures. They found that those who wore dentures had a significant decline in certain nutritional markers in the two years after receiving dentures, while those who didn’t wear them had no decline. “Dentures are a significant change for a person,” said Thankam Thyvalikakath, Ph.D. “They do not provide the same chewing efficiency, which may alter eating habits.”

**ASTHMA DRUG BLOCKS COVID PROTEIN**

The FDA-approved drug montelukast, which has been used for more than 20 years to reduce inflammation caused by asthma, hay fever, and hives, blocks a crucial protein produced by the virus that causes COVID-19. Called Nsp1, it is one of the first proteins unleashed by the coronavirus inside human cells. In cell cultures, researchers found that montelukast was able to reduce the amount of COVID-19

virus in infected cells. Some clinicians have tested the drug in patients with COVID. “There are reports that montelukast reduced hospitalization in COVID-19 patients,” says researcher Tanweer Hussain, Ph.D. The study was published in *eLife*.

**COVID INCREASES RISK FOR TYPE 2 DIABETES**

Men and women who recover from even mild cases of COVID-19 appear to have a significantly higher risk of developing Type 2 diabetes than those who have had respiratory infections. While it’s unclear if the changes are temporary or permanent, COVID may damage insulin-producing beta cells, causing high blood sugar in people with no prior history of diabetes. The study, which was published in the journal *Diabetologia*, found the risk of developing Type 2 diabetes was 28 percent higher in those with COVID than in people who had upper respiratory infections but had not been diagnosed with COVID.

**ELEVATED HEART RATE LINKED TO DEMENTIA**

A study from the Karolinska Institutet in Sweden found that being 60 or older and having an elevated heart rate was linked to dementia and cognitive decline that was independent of other risk factors, such as cardiovascular disease. Researchers followed participants for 12 years and found that those with a resting heart rate of 80 beats a minute or higher had a 55 percent greater risk of dementia than those whose resting heart rate was 60 to 69 beats per minute. High heart rates could identify patients at risk of developing dementia,

allowing for early intervention that might delay onset of the disease.

### REDUCING AIR POLLUTION COULD LOWER DEMENTIA RISK

A study published in *Proceedings of the National Academy of Sciences* found that improving air quality appears to slow cognitive decline in women and reduce their risk of developing dementia. Researchers gave older women cognitive tests and followed them for 10 years. They found that those who lived in locations with the greatest reductions in two types of air pollution — fine particulate matter (PM2.5) and the traffic-related pollutant nitrogen dioxide (NO<sub>2</sub>) — reduced their risk for dementia by 14 percent and 26 percent, respectively.

“Our results show that the benefits may be universal in older women, even those already at greater risk for dementia,” said Xinhui Wang, Ph.D., of the Keck School of Medicine of USC. Improvements in air quality were also linked to benefits in overall cognition and memory.

### NAUSEA DRUGS INCREASE RISK FOR STROKE

Medications that are widely used to relieve nausea and vomiting caused by migraine, chemotherapy, and other conditions increase the risk for ischemic stroke, according to a study published by *The BMJ*. New users of metopimazine, metoclopramide, and domperidone — known as antidopaminergic antiemetics — had a 3.53 times increased risk for stroke, and men were at the highest risk (3.59-fold increase).



### VITAMIN D SUPPLEMENTS LOWER ODDS OF AUTOIMMUNE DISEASE

Older Americans who take a daily vitamin D supplement — or a combination of vitamin D and omega-3 fish oil — appear to have a lower risk of developing an autoimmune disease, such as rheumatoid arthritis and psoriasis, according to a study published in *The BMJ*. In the last three years of the five-year trial, vitamin D supplements lowered the risk for autoimmune disease by 39 percent compared to placebo. When vitamin D was combined with an omega-3 fatty acid supplement, the risk was lowered by about 30 percent.

### EXERCISE AFTER VACCINES INCREASES ANTIBODIES

Head to the gym after a flu or COVID-19 vaccine to boost its effectiveness, suggests a study published in the journal *Brain, Behavior, and Immunity*. Researchers at Iowa State University found that 90 minutes of mild to moderate exercise, such as a brisk walk, directly after a flu or COVID-19 vaccine produces more antibodies, the body’s first line of defense against viruses. However, exercising

only 45 minutes didn’t provide the same increase in antibodies. “Our preliminary results are the first to demonstrate a specific amount of time can enhance the body’s antibody response to the Pfizer-BioNTech COVID-19 vaccine and two vaccines for influenza,” said lead author Marian Kohut, Ph.D.

### SEVERE COVID LEADS TO SLOW RECOVERY

Only one in four patients who were hospitalized with COVID-19 feel fully recovered one year later, according to a British study published in *The Lancet Respiratory Medicine*. Women were less likely to feel recovered than men. Undergoing mechanical ventilation also slowed recovery. The most common long-lasting COVID symptoms included fatigue, muscle pain, poor sleep, and breathlessness.

### COENZYME Q10 IMPROVES HEART FUNCTION

Coenzyme Q10 (CoQ10) is a substance found in every cell in the body. Objective studies of cardiac output, stroke volume, ejection fraction, and cardiac index showed improvement with CoQ10 treatment. Most studies have focused on patients with mild to moderate congestive heart failure, but one found that giving 100 mg of CoQ10 a day to advanced heart failure patients improved symptoms in 82 percent of the patients. Another finding was that two years after CoQ10 therapy, the survival rate for those with advanced heart failure was 62 percent — compared to 25 percent for patients receiving conventional medical treatment. The best thing about CoQ10 is that there are few side effects. □

# How to Best Navigate Your Doctor Visits

By Fran Kritz

Now that most of us are returning to in-person doctor's appointments, it is important to know how to best connect with your doctor and the medical practice.

John Samuels, head of Better Health Advisors, a health advisory firm that helps individuals and companies navigate healthcare situations such as complex illnesses, says "patients often find visiting the doctor stressful and time-consuming, whether they're experiencing symptoms or going for a routine checkup. A few strategies can help you streamline your care." Healthcare is a collaborative process, says Samuels. "By taking these steps, you can make your doctor's visit more efficient and more effective."

## Practice Logistics

"It's important to consider how far you're willing to travel to the doctor's office, whether there is parking, and how much it costs," says Tochi Iroku-Malize, M.D., a practicing family physician and president-elect of the American Academy of Family Physicians. "If you travel by public transit, ask if the office is on a bus or subway line," says Iroku-Malize. "And for special needs, be sure to ask if the office has an elevator and ramps for walkers and wheelchairs, as well as accommodations for those with sensory or cognitive issues."

Other important questions to ask include average wait time for an appointment, availability of same-day appointments, telehealth options, how the practice handles after-hours emergencies, and whether house calls are available. "Be sure to ask whether the doctor accepts your insurance, and if they are in your insurer's preferred network," says Iroku-Malize.

## Scheduling Appointments

If there are no upcoming appointments available, ask to be put on the waiting list and then call regularly to see if there have been any cancellations, says Samuels. If you see a doctor regularly, schedule your next appointment before you leave the office and add it to your calendar. If something else comes up, call

early to reschedule. To make it easier, check to see if the practice has online appointment scheduling.

## Improve Communication

According to the American Academy of Family Physicians, the average medical visit lasts just 15 minutes, so you could find yourself with questions left unanswered. Ask the doctor, office manager, or receptionist how follow-up is handled. A nurse may be able to answer questions or confer with the doctor.

Samuels recommends asking how best to reach your doctor if you have a question between appointments. And while you may find online patient portals frustrating, many practices use them to answer questions. It could speed up requests such as prescription refills.

Especially if you got a new diagnosis or are having a follow-up visit after a procedure, Samuels advises preparing a list of questions, bringing a friend or family member along, and asking the doctor if you can record a call. Most smartphones have a recording button that you can use for the conversation.

## Confused? Ask for Clarification

Doctors sometimes use medical jargon that can be hard for someone who doesn't work in the healthcare system to understand, says Samuels. "If you aren't sure what the doctor is telling you, or what the next steps are, ask them to explain it to you in plainer language." And if you didn't hear something, ask the doctor to repeat the information, as well as have them write down instructions and names of medications.

## Can You Ask for the Doctor's Personal Contact Information?

Some doctors hand out their cell number and email address, especially if you have a long-standing relationship, but don't count on it, especially with a new doctor. "Most medical practices have an established protocol for contacting physicians and other medical staff," says Iroku-Malize. "It's OK to ask [for their personal info], but don't be surprised if they offer an alternative means of reaching them. For medical emergencies, always dial 911." □

# Stay Healthy While Vacationing This Summer

By Sylvia Hubbard

Whether it's travel to foreign lands or simply to see what's over the next hill, it's human nature to travel and to explore — particularly during the summer, when the weather is warmer and we all crave a break. COVID-19 closed the world to travel, but now that travel destinations are again welcoming tourists (with the right commonsense precautions), vacationing can now be done safely.

“Get out and travel,” agrees Russell Blaylock, M.D., board-certified neurosurgeon and author of *The Blaylock Wellness Report*, adding that Americans shouldn't be afraid. “Travel is beneficial in so many ways.”

Travel offers many health benefits, including reducing stress, boosting happiness, and spurring creativity. Still, everyone should take reasonable steps to have the safest, healthiest trip possible. “Pay particular attention to your diet a week or two before a trip,” says holistic physician David Brownstein, M.D., author of *Dr. David Brownstein's Natural Way to Health*. “You want to be in your best health going into a trip to protect yourself. One of the best ways is to cut out sugar. Your immune system can't fight at its best when you're eating sugar,” he tells *Health Radar*. “Also, get plenty of rest before traveling.”

In addition to a healthy diet, take a quality multivitamin and consider adding — or increasing amounts of — the following

supplements, which may cut your odds of becoming sick on your trip, whether from the common cold, COVID, or a stomach virus. Always check with your doctor before taking a new medication or supplement.

**Vitamin C.** Blaylock recommends 2,000 mg three times a day between meals. Brownstein adds, “If you get sick, take 1,000 mg of vitamin C every hour until you get better or reach bowel tolerance.”

**Vitamin D.** “I would take 5,000 IU a day,” says Blaylock. “In two weeks, check blood D3 levels, which should be between 65 ng/mL and 100 ng/mL.”

**Selenium.** “It's crucial for immune function, but don't take more than 100 mcg a day,” says Blaylock.

**Melatonin.** “The best thing for jet lag is melatonin,” says Brownstein. “Take one-half gram to three grams before going to bed, and it will help shift your time clock.”

**Pycnogenol.** Pycnogenol is an antioxidant that comes from the bark of the French maritime pine tree. “It has been known to dramatically reduce pulmonary embolism. If you're going to travel more than four or five hours, either by air or car, take pycnogenol,” says Blaylock, who says it works better than compression stockings to prevent blood clots. He recommends 300 mg a day.

**Beta-glucan.** Beta-glucan is an extract of yeast cell walls that can improve your immune response. Blaylock recommends taking

500 mg twice a week (for example, on Sunday and again Friday) on an empty stomach while traveling.

**Nanocurcumin.** Blaylock recommends 500 mg two or three times a day between meals, which maximizes the benefits. “I'd take it all through the trip,” says Blaylock. “It's a powerful protector against viruses including COVID-19.”

Both doctors agree that one of the most important things to remember when traveling is to drink plenty of water, especially when flying. The Aerospace Medical Association recommends drinking eight ounces of water for every hour you fly. Dehydration weakens your immune system and drains your energy.

## Disinfect Surfaces

It's important to avoid as many germs as possible when traveling. When flying, use disposable disinfecting wipes that kill 99.9 percent of viruses and bacteria to disinfect the handles of your seat, your tray table, and the remote control. Carry hand sanitizer and use after trips to the bathroom (door latches are usually contaminated). Wash your hands frequently. In your hotel room or cruise cabin, wipe down room and bathroom surfaces with disinfectant wipes, paying special attention to the remote control, phone, faucets, door handles, and light switches. You can also use handheld sanitizing devices that use UV light to clean and disinfect surfaces. □

## Tumors Destroyed by Sound

Noninvasive sound technology destroyed liver tumors and stimulated the immune system to prevent the cancer from spreading in a study involving rats. Typically, ultrasound uses waves to create images of the body's interior; researchers at the University of Michigan developed the use of sound waves for treating cancerous tumors. Because tumors can't always be targeted, due to size, location, or stage, researchers wanted to investigate the effects of partially destroying them with sound waves. Called histotripsy, the treatment focuses sound waves to destroy tissue with millimeter precision. After eliminating 50 percent to 75 percent of a tumor's volume, the immune systems of 80 percent of the rats were able to clear the remaining cells. The technique could eventually help patients avoid the harmful side effects caused by radiation and chemotherapy.

## Surgical 'Duct Tape' Alternative to Sutures

MIT engineers have created a surgical "duct tape" that can be applied to internal tissues and organs to help seal tears and wounds. The strong, flexible, and biocompatible patch is sticky on one side and smooth on the other. In animal studies, it closed large tears and punctures in the colon, stomach, and intestines. The adhesive works within seconds, providing a strong bond that holds for over a month, and its flexibility allows it to expand and contract with a functioning organ as it heals. The patch degrades within about 12 weeks without causing inflammation or other problems. The tape could replace sutures, which can trigger scarring around the injury, and can also tear, causing secondary leakages that could lead to sepsis. Currently, up to 20 percent of surgeries in high-risk patients leak. "This tape could solve that

problem, and potentially save thousands of lives," said researcher Xuanhe Zhao, Ph.D.

## Drug Cocktail for Muscular Dystrophy

University of Alberta scientists are developing a new drug "cocktail" that could lessen symptoms for up to 45 percent of patients with Duchenne muscular dystrophy (DMD), a chronic wasting disease. The largest gene in the body, dystrophin, has 79 sections, or exons, and even if one is missing the body can't produce the protein muscles need and they degenerate. The new cocktail uses an approach called "exon skipping" that acts as a Band-Aid over the missing exons, allowing the body to skip over faulty instructions and produce the protein it needs to build muscle tissue. The new treatment skips over 11 exons at once, which would allow about 45 percent of patients to benefit. Testing the new drug in test tubes and mice with tissue derived from DMD patients, scientists found signs of dystrophin production, muscle building, and improved heart function.

## Regrowing Knee Cartilage

In a promising step toward healing human joints, University of Connecticut bioengineers have regrown cartilage in a rabbit's knee, according to a study published in *Science Translational Medicine*. The best treatments to repair damaged joints caused by deteriorating cartilage involve replacing damaged cartilage with a healthy piece taken from either another part of the patient's body or using donor tissue. But if it's a patient's tissue, transplanting it could damage the area it's taken from. If it's donor tissue, the body may reject it. The best option would be to regrow healthy cartilage in the damaged joint, but current techniques have failed. The new technique involves a specially designed tissue scaffold made of nanofibers of a biodegradable polymer often used to stitch up surgical wounds. The nanomaterial has an unusual property called piezoelectricity — when it is squeezed it produces a little burst of electrical current. Regular movement of a joint can cause the scaffold to generate a weak but steady electrical field that encourages cells to grow into cartilage. When the scaffold was used in the knee of an injured rabbit, the cartilage grew back normally. □

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# Monitor Your Heart Everywhere You Go



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