

NIH MedlinePlus®

Trusted Health Information
from the National
Institutes of Health

SPRING 2013

the magazine



Tedy Bruschi



Sharon Stone



*Before,
During,
& After*

Know Stroke & What to Do



Beau Biden

Going strong after stroke



Della Reese



Kirk Douglas



*Senator
Mark Kirk*

Plus!

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of life" for women **14**

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Welcome to *NIH MedlinePlus* magazine.

Our purpose is to present you with the best in reliable, up-to-date health information. We bring you the latest breakthroughs from NIH-supported research. We feature people from all walks of life talking about how they've handled their health challenges.

Sometimes it's the famous, like CNN's Dr. Sanjay Gupta, television journalist Katie Couric, or cancer survivor Martina Navratilova. But mostly, it's regular people who have turned to NIH for care and want to share their stories. Often, too, NIH scientists will write about their efforts to cure disease. Lastly, the magazine's lively graphics, fun quizzes and practical tips have been designed with your daily health in mind.

We hope *NIH MedlinePlus* becomes a favorite source of trusted health information for you, whether you read it in your healthcare professional's office, local health center, clinic, or hospital waiting room. Best of all, we hope that you take out a free subscription.

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With the best of good health to you and your family,

Donald A.B. Lindberg, M.D.
Director
National Library of Medicine



Photo: Jessica Marcotte, NLM

▲ Donald A.B. Lindberg, M.D., Director of the National Library of Medicine (NLM), in front of NLM's backlit Lucite transparency of its Visible Human anatomy education and research tool.

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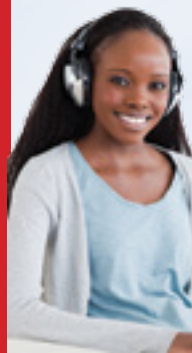


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NIH Research:

Walter J. Koroshetz, M.D., Deputy Director of the National Institute of Neurological Disorders and Stroke



Photo: NINDS

Researching and Reducing the Health Burden of Stroke

Dr. Walter J. Koroshetz is deputy director of the National Institute of Neurological Disorders and Stroke (NINDS). Formerly a professor of neurology at Harvard Medical School, he served as vice chair of neurology service and director of stroke and neurointensive care services at Massachusetts General Hospital. He is a long-standing member of the Brain Attack Coalition (BAC), a group of organizations working to reduce the occurrence of and disabilities and death associated with stroke. Dr. Koroshetz recently talked with *NIH MedlinePlus* magazine about how people can better protect themselves against stroke and about some of the latest advances in stroke research.

How serious a problem is stroke?

Stroke is very common. It can be devastating. Each year some 750,000 Americans—even young people—suffer injury from stroke. The good news is that a person's annual risk of stroke is down 70 percent since the 1950s and is still declining. But since people are living much longer now, stroke remains a serious problem. As age rises, so does the incidence of stroke. As many as 40 percent of people 80 years or older show signs of “silent” stroke on magnetic resonance imaging (MRI) scans.

What is the major cause of stroke?

High blood pressure—hypertension—is the number one, two, and three cause of stroke! It's the driver of wear and tear on the heart and the blood vessels. There are two types of stroke: hemorrhagic, when a blood vessel bursts in the brain, and ischemic, when a blood vessel in the brain becomes blocked (most often by a clot or hardening of the arteries), reducing blood supply. In both cases, brain tissue dies and functions cease, such as the ability to speak, walk, or think normally.

What can people do about stroke?

People can reduce their risk of stroke. The most important thing is prevention. To keep from having a stroke, work hard on keeping blood pressure normal. Other risk factors to guard against include being overweight, not getting enough exercise, and not eating enough fruits and vegetables. So lose weight, exercise, and maintain a balanced, healthy diet.

For example, a recent study has shown the Mediterranean diet to be extremely effective in reducing the chances of stroke and heart attack. It is high in olive oil, fish, vegetables, fruits, nuts, and whole grains. And very low in red meat and dairy products.

It's the lifestyle changes that go into reducing stroke risk. Stroke can be prevented, but starting when you're 60 may not be soon enough.

Why is it important to get medical help quickly when a stroke is occurring?

The needle moves more rapidly with a stroke than a heart attack. Brain damage occurs very quickly, usually

over minutes to hours. So it's a question of whether an intervention can successfully prevent the brain tissue from dying. That is why it is extremely important to get people to the hospital as quickly as possible to begin treatment.

In instances of hemorrhagic strokes, where blood just explodes around the surface of the brain, there has to be emergency treatment to prevent devastating brain damage. For ischemic strokes, drug therapy must begin as soon as possible to dissolve the obstructing clot, return blood flow, and reduce permanent disability. Minutes count!

Where is some of the emphasis these days in prevention and treatment?

In the area of prevention, there is a big push to better understand vascular cognitive impairment—the wear and tear on the small vessels from age and hypertension that cause “silent strokes” and what is called “diffuse white matter disease” in areas of the brain where MRIs show structural changes in up to 80 percent of elderly patients. Both stroke and white matter disease are risk factors for dementia. The more we can understand the basic biology of the aging brain—how blood vessel changes interact with the biology of Alzheimer's disease, for example—the better able we'll be to someday prevent dementia. NINDS and the National Institute on Aging, in particular, are at the center of such research.

On the acute treatment side, tPA (tissue plasminogen activator) remains the only drug approved for the acute treatment of ischemic stroke by the Food and Drug Administration. It is given through a vein. We need to develop newer, safer intravenous drugs, as well as devices that can be inserted into the blocked artery to more quickly and effectively return blood flow to the brain.

Researchers are also looking at ways to slow the time it takes for the brain to die. For example, hypothermia—deep cooling that is known to slow all biologic processes—is a possibility. If we can discover a way to slow the dying process in the brain after stroke, then a great many more people could benefit from treatments that repair the blood vessel.

How about people living with the effects of stroke? Is there anything new for them?

Thankfully, there are now assistive devices, such as self-propelled automated wheelchairs, that permit independent movement. Current research also suggests that thought-controlled robotic arms may someday help patients who have suffered severe strokes. (See “Progress for the Paralyzed” page 10.) Such devices could be game changers, the result of continuing research to map the brain and interface it with a computer to enable stroke patients to regain function.

People can reduce their risk of stroke. The most important thing is prevention . . . work hard on keeping blood pressure normal . . . guard against being overweight, not getting enough exercise, not eating enough fruits and vegetables.

How important is the new effort to map the human brain?

The brain is more complex than any computer ever built, its computational energy and power just enormous. We are in the early stages of understanding—of mapping—what the different areas of the brain do and how they work together to enable complex functions, such as speaking or moving your fingers. Often, when one part of the brain dies, another part takes over its function. This is called neuroplasticity. In brain mapping, we are trying to understand how that plasticity happens. That's the key to recovery.

MP

What to Know – and Do! – About **STROKE**

1 Know Stroke

A stroke, sometimes called a “brain attack,” occurs when blood flow to the brain is interrupted. When a stroke occurs, brain cells in the immediate area begin to die because they stop getting the oxygen and nutrients they need to function.

There are two forms of stroke:

- an **ischemic stroke** occurs when a blood vessel supplying the brain becomes blocked; and a
- **hemorrhagic stroke** occurs when there is bleeding into or around the brain.

2 Know the Signs

Because stroke injures the brain, you may not realize that you are having a stroke. To a bystander, someone having a stroke may just look unaware or confused. Stroke victims have the best chance if someone around them recognizes the symptoms and acts quickly.

What are the symptoms of a stroke?—

The symptoms of stroke are distinctive because they happen quickly—thus the origin of the name “stroke.”

- Sudden numbness or weakness of the face, arm, or leg (especially on one side of the body)
- Sudden confusion, trouble speaking, or understanding speech
- Sudden trouble seeing in one or both eyes

- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden severe headache with no known cause

What should a bystander do?—

If you believe someone is having a stroke—if he or she suddenly loses the ability to speak, or move an arm or leg on one side, or experiences facial paralysis on one side—**call 911 immediately.**

3 Act in Time

Stroke is a medical emergency. Every minute counts when someone is having a stroke. The longer blood flow is cut off to the brain, the greater the damage. Immediate treatment can save people’s lives and improve their chances for successful recovery.

Why is there a need to act fast?—Ischemic strokes, the most common type of stroke, can be treated with a drug called t-PA. T-PA dissolves blood clots that block blood flow to the brain. The window of opportunity to start treating stroke patients is three hours. But to be evaluated and receive treatment, patients need to get to the hospital within 60 minutes.

What is the benefit of treatment?—A five-year study by NINDS found that some stroke patients who received t-PA within three hours of the start of stroke symptoms were at least 30 percent more likely to recover with little or no disability after three months.

What can I do to prevent a stroke?—The best treatment for stroke is prevention. There are several risk factors that increase your chances of having a stroke:

- High blood pressure
- Heart disease
- Smoking
- Diabetes
- High cholesterol
- Sedentary lifestyle

If you smoke—quit. If you have high blood pressure, heart disease, diabetes, or high cholesterol, getting them under control—and keeping them under control—will greatly reduce your chances of having a stroke.

Act In Time CALL 911

“To all stroke survivors—never, ever give up.”

On Saturday morning, January 21, 2012, U.S. Senator Mark Kirk of Illinois began to feel dizzy. Then, his left arm grew numb. The 52-year-old senator was in the first stages of what became an ischemic stroke—a blocked carotid artery was not delivering blood to his brain. The stroke affected the left side of Senator Kirk’s body, leaving him unable to walk. After almost a full year of often painful and frustrating rehabilitation and recovery, Senator Kirk mounted the steps of the U.S. Capitol on January 3, 2013, to once again take his seat in the Senate.

Photo: Senator Mark Kirk



▲ Senator Mark Kirk of Illinois (second from left) on his return to the Senate on January 3 after almost a year of stroke rehabilitation. Accompanying him are (L-R) Vice President Joe Biden, Senator Joe Manchin, and Senator Richard Durbin on the steps of the U.S. Capitol.

You have said that the quality and intensity of your rehabilitation was crucial to your recovery. What were the key elements to successful rehabilitation for you?

Key elements crucial to my recovery were my physical therapists, occupational therapists, and speech staff at the Rehabilitation Institute of Chicago. I was able to achieve small yet great successes because of the intensity of the interactions I had with these therapists on a day-to-day basis.

As an example, once, after about an hour on the treadmill, trying to do a simple thing that my brain would no longer communicate to my limb, I threw up on my physical therapist, Michael Klonowski. He looked at me and said, “I can’t believe you just did that.”

Was there a breakthrough moment for you in the course of your rehabilitation?

There was a major breakthrough moment, which was when my physical therapist, Michael Klonowski, taught

me how to walk again. After that, I became more motivated with every step I took.

What did you use for motivation to keep going when it was so tough?

I wanted to give up almost every day and was so fatigued. What kept me going was my desire to return to the Senate, to come back and work for the people of Illinois who elected me. I am an optimist now, and I want to make my life matter by doing work that matters to others.

As a U.S. Senator, you keep a demanding schedule. Are there lifestyle steps you take to keep up your energy?

I am a different person now, and my left arm and left leg may not work the way they once did, but my mind is sharp. I recognize the importance of getting sufficient rest, which helps me keep up energy throughout the day.

What message do you have for other Americans who are recovering from strokes and other serious health challenges? What about their families?

That if you should ever hear the terrible diagnosis of stroke, to remember that it is not all over. You can get much better. Even though it’s quite a shock, and you may be afraid of dying, a significant improvement can take place if you remain dedicated to your rehabilitation.

Climbing up the steps of the U.S. Capitol on January 3 and returning to the Senate was one of the greatest moments of my life, and I want to send that message to all stroke survivors—never, ever give up.

Relearning the Basics: Rehabilitation after a Stroke

More than 795,000 Americans suffer a stroke each year. About two-thirds survive. They need rehabilitation (rehab) to help them recover successfully.

What is post-stroke rehabilitation?

Rehab helps stroke survivors relearn skills lost to brain damage, such as walking. They also learn new ways to cope with resulting disabilities. For example, they may need to learn to bathe and dress using only one hand. Rehab may include physical therapy, speech therapy, and occupational therapy.

Rehab begins after a person's condition has stabilized. That is often within 24 to 48 hours of the stroke.

What disabilities can result from a stroke?

Generally, strokes cause

- paralysis or problems controlling movement
- sensory disturbances, including pain
- problems using or understanding language
- problems with thinking and memory
- emotional disturbances

The types and degrees of disability depend on which area of the brain is damaged and how much. Since every stroke is different, it is difficult to compare one person's disability to another.

Paralysis or problems controlling movement

Paralysis is one of the most common stroke disabilities. It usually occurs on the side of the body opposite the damaged side of the brain. So a stroke on the left side of the brain affects the right side of the body. It may affect the face, an arm, a leg, or the entire side of the body. Stroke patients may have problems with swallowing, posture, balance and walking, or grasping objects.

Sensory disturbances including pain

Stroke patients may lose the ability to feel touch, position, pain, or temperature. They also may be unable to

recognize objects they are holding, or even their own arm or leg. Some experience pain, numbness, or tingling and prickling in paralyzed or weakened limbs.

Incontinence is fairly common right after a stroke. Survivors often are unable to sense the need to urinate, cannot control bladder or bowel muscles. Permanent incontinence is uncommon.

Also, stroke survivors frequently suffer chronic pain syndrome. The brain may send false pain signals in the limb or side with the sensory loss. The most common syndrome is thalamic pain. This is caused by a stroke to the thalamus, which processes sensory information from the body to the brain. It can be difficult to treat even with medications.

Lastly, patients with seriously weakened or paralyzed arms may experience moderate to severe pain radiating outward from the shoulder. The tendons and ligaments become fixed in one position from prolonged lack of movement.

Problems using or understanding language

Stroke may injure the brain's language-control centers. The result is called aphasia. There are several types:

- Expressive aphasia—you know what you want to say, but you have trouble saying or writing what you mean
- Receptive aphasia—you hear the voice or see the print, but you can't make sense of the words
- Global aphasia—you can't speak, understand speech, read or write

Problems with thinking and memory

Stroke may damage parts of the brain responsible for memory, learning, and awareness. Survivors may have shortened attention spans or suffer short-term memory loss. They also may be unable to plan, comprehend meaning, learn new tasks, or engage in other complex mental activities.



Emotional disturbances

After a stroke, many people feel fear, anxiety, frustration, anger, sadness, and a sense of grief for their physical and mental losses. The physical damage to the brain causes emotional disturbances and personality changes. Depression is the main emotional problem. Problems include:

- sleep disturbances
- changes in eating patterns leading to sudden weight loss or gain
- lethargy, social withdrawal, and irritability
- fatigue
- self-loathing and suicidal thoughts

Post-stroke depression is treatable. Antidepressant medications and psychological counseling can help.

▲ Physical and occupational therapists can help stroke patients relearn many of the day-to-day motor skills we use every day.

When should a stroke patient start rehabilitation?

- Rehabilitation should begin as soon as a stroke patient is stable, sometimes within 24 to 48 hours of the event.
- Rehabilitation can begin in the hospital but is very dependent on the patient's unique circumstances.
- In the largest U.S. study of stroke rehabilitation to date, researchers found that 52 percent of the participants significantly improved in walking, everyday function and quality of life, regardless of how severe their impairment or whether training began at two or six months after the stroke.



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**Linebacker
Tedy Bruschi**
Stroke in 2005



Mark Wilson / iStockphoto

**Delaware Attorney
General Beau Biden**
Stroke in 2010



Helga Esteb / Shutterstock.com

**Actress & singer
Della Reese**
Stroke in 1979



Brian Kersey / iStockphoto

Senator Mark Kirk
Stroke in 2012



Helga Esteb / Shutterstock.com

Actress Sharon Stone
Stroke in 2001



Frederick M. Brown / iStockphoto

Actor Kirk Douglas
Stroke in 1996

Each of these well-known personalities suffered one or more strokes. In each case, he or she has returned to an active life after rehabilitation.

Tedy Bruschi: The New England Patriots linebacker was able to return to pro football after a congenital hole in his heart caused a blood clot and stroke in 2005.

Beau Biden: The Delaware Attorney General and older son of Vice President Joe Biden suffered a mild stroke in 2010, but was able to resume his duties after a short recuperation.

Della Reese: After a near-fatal brain aneurysm in 1979 and two subsequent brain operations, the world-renowned actress and singer returned to an active performing life.

Senator Mark Kirk: After a major stroke in early 2012 when he was 52, the U.S. Senator from Illinois spent a year in rehab and returned to the Senate in early 2013. (See story on page 5.)

Sharon Stone: In 2001, the actress suffered a stroke that bled into her brain for 11 days. She was partially paralyzed and left with a speech impediment. Through rehabilitation, she returned to her film and television roles without hindrance.

Kirk Douglas: After a major stroke in 1996, Douglas felt his life was over and entered a deep depression. But today, at 96, he considers the event his "stroke of luck" because he came to appreciate "the gift of life."

Find Out More

- ✓ **MedlinePlus: Stroke Rehabilitation**
www.nlm.nih.gov/medlineplus/strokerehabilitation.html
- ✓ **National Institute of Neurological Disorders and Stroke (NINDS) Stroke Information**
www.ninds.nih.gov/disorders/stroke/stroke.htm
- ✓ **NINDS Stroke Rehabilitation Information**
www.ninds.nih.gov/disorders/stroke/stroke_rehabilitation.htm

What research is being done?

The National Institute of Neurological Disorders and Stroke (NINDS) has primary responsibility for disorders of the brain and nervous system, including the acute phase of stroke and restoration of function after stroke. For example, using noninvasive imaging technologies, NINDS-funded scientists are mapping patterns of biological activity inside the brain to understand how it reorganizes its functions (plasticity).

Other researchers are looking at brain reorganization after stroke to determine whether specific rehabilitative techniques can stimulate brain plasticity, thereby improving motor function and lessening disability.



Photo: iStock

Other scientists are implanting neural stem cells, to see if they may be able to replace the cells that died as a result of a stroke.

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Rehabilitation specialists

Post-stroke rehab involves several kinds of health professionals.

- **Physicians** manage long-term care. They care for the patient's general health, including prevention measures to prevent a second stroke. Neurologists and psychiatrists—physicians specializing in physical medicine—are involved in stroke rehab.
- **Rehabilitation nurses** help survivors relearn the basics of daily living.
- **Physical therapists** assess a survivor's strength, endurance, range-of-motion, gait abnormalities, and sensory deficits. They design programs to regain motor control. They help survivors regain use of stroke-impaired limbs, teach how to compensate for reduced abilities, and devise exercise programs to help retain new skills. Examples of physical therapy activities include learning to walk up or down stairs or move safely between obstacles.
- **Occupational therapists** help survivors relearn personal care, cooking, cleaning, and other tasks. They also aid people in making changes in their homes to help physical functioning and safety (such as installing grab bars in bathrooms and removing barriers).
- **Recreational therapists** help people with disabilities develop and use leisure time to enhance their quality of life.
- **Speech-language pathologists** help stroke survivors with aphasia relearn language or develop alternative means of communication. They also help people to swallow better, and develop the problem-solving and social skills necessary for coping after a stroke.
- **Vocational therapists** are like career counselors. They help stroke patients to identify their vocational strengths and assist in job searches. They also educate disabled individuals about their rights and protections under the Americans with Disabilities Act.
- **Mental health professionals** assist stroke victims with depression and other problems.

Progress for the Paralyzed

Latest Advances Help People Regain Function and Independence

Founded in 2000, the National Institute for Biomedical Imaging and Bioengineering (NIBIB), part of the National Institutes of Health (NIH), works to speed discovery and development of biomedical technologies in every field of medicine by bringing together teams of scientists and engineers from many different backgrounds to spark innovative approaches to health care. The technologies have the potential to greatly advance the lives of persons with paralysis, as well as amputation and numerous neuromuscular disorders, such as Parkinson's disease and others.

New Technologies—Years of NIH investment have made the field of neural prosthetics and other technologies to assist paralyzed individuals possible.

Improved Quality of Life—Neural prosthetic systems have advanced to allow the severely paralyzed to achieve independent control of function and engage in activities of daily living to improve their quality of life.

Options for the Paralyzed—The expanding options for paralyzed individuals include:

- robotic arms
- spinal cord stimulation
- improved prosthetic limbs
- restored ability to communicate

College Athlete Stands Again... On His Own!

Shortly after pitching his Oregon State University baseball team to the 2006 College World Series championship, Rob Summers was struck and paralyzed from the chest down by a hit-and-run driver.

But now, thanks to an experimental mix of physical therapy and electrical stimulation of the spinal cord, he can do something he never dreamed of doing again: stand and voluntarily make some leg movements.

“It was completely unexpected,” says V. Reggie Edgerton, professor of integrative biology and physiology, and neurobiology at the University of California, Los Angeles. Until Summers, scientists believed that patients with a completely severed spinal cord would

never be able to regain voluntary control of their paralyzed limbs.

To see if spinal cord stimulation could be successful in people, Edgerton and his collaborator, Dr. Susan Harkema at the University of Louisville, implanted an electrode array normally used to treat back pain in Summers' lower back. Harkema led the clinical study, which was supported by the National Institute of Biomedical Imaging and Bioengineering, the National Institute of Neurological Disorders and Stroke, and the Christopher and Dana Reeve Foundation.

After years of being bound to his wheelchair, Summers can now push himself up and remain standing for a



Photo: NIBIB

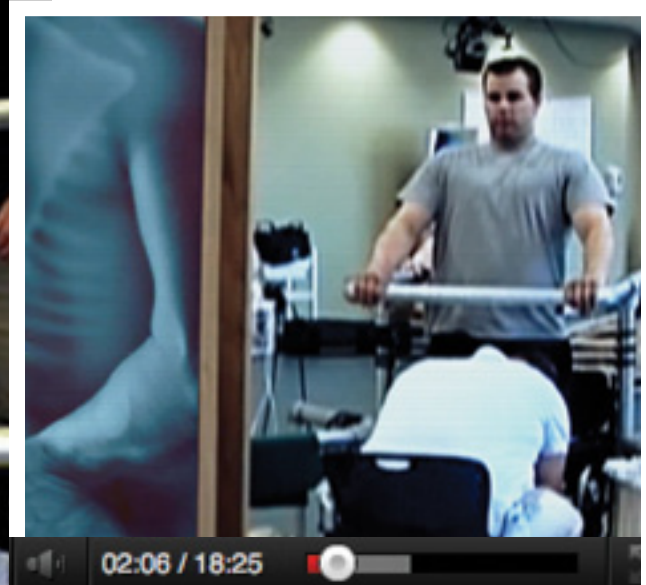
▲ Rob Summers standing, on his own.

few minutes while receiving stimulation. With the support of a harness and help from therapists, he also can make stepping motions on the treadmill. Other functions impaired by his injury have improved, too: body temperature regulation, bladder and bowel control, and sexual function.

Edgerton thinks connections between Summers' brain and the part of the spinal cord below the point of his injury may have been spared, or that the therapy encouraged nerve cells to make new connections.

And he wonders whether, combined with other biological approaches, spinal cord stimulation could one day come close to a cure, at least for some patients, or be used to improve walking in the victims of stroke and Parkinson's disease.

For the millions living with paralysis, this research itself is a giant step toward a better quality of life.



See Rob Summers Standing Again

For video of Rob Summers standing and stepping, go to: http://www.youtube.com/watch?v=ykUMNi172Ag&feature=player_embedded

Find Out More

- ✓ **National Institute of Biomedical Imaging and Bioengineering (NIBIB)**
www.nibib.nih.gov/
- ✓ **NIBIB Rehabilitation Engineering Program Area**
www.nibib.nih.gov/Research/ProgramAreas/Rehab
- ✓ **BrainGate Research** www.braingate2.org/

Coffee to Go: Woman “Thinks” First Cup in 15 Years

NIH-funded study shows progress in brain-computer interface technology

Photo: The BrainGate Collaboration.



▲ Cathy Hutchinson grasps a drink for the first time in 15 years – on her own.

“This is another big jump,” said John Donoghue, Ph.D., who leads the development of BrainGate technology and is the director of the Institute for Brain Science at Brown University. “We’re getting closer to restoring some level of everyday function to people with limb paralysis.”

“That it is possible for a person to mentally control a robotic limb in three-dimensional space represents a remarkable advance,” noted Roderic Pettigrew, M.D., Ph.D., director of NIH’s National

Imagine Cathy Hutchinson’s satisfaction!

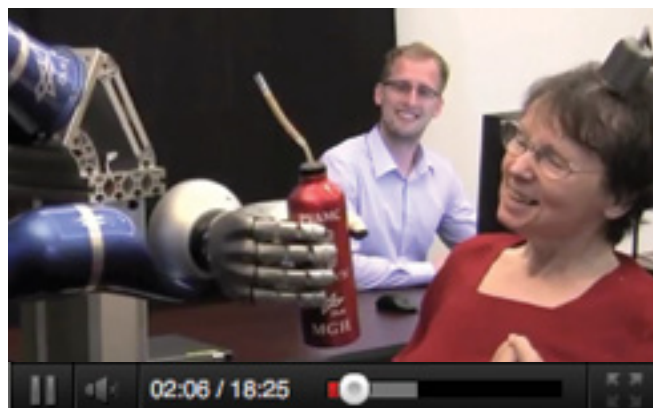
For the first time since being paralyzed from the neck down by a stroke fifteen years ago, she was able to reach for and drink coffee on her own—using her thoughts alone to direct a robotic arm to her lips.

The feat was made possible by Cathy’s fierce determination and a device called the BrainGate2 neural interface system, designed to put robotic arms and other assistive devices under the brain’s control. The BrainGate consists of a baby aspirin-sized sensor that is implanted into the motor cortex (the part of the brain that directs movement) to monitor brain signals. It is attached to computer software and hardware that then turn the signals into commands for moving external devices, such as Hutchinson’s robotic arm.

“The smile on her face was remarkable,” said Leigh Hochberg, M.D., Ph.D., an associate professor of engineering at Brown University in Providence, R.I. and a critical care neurologist at Massachusetts General Hospital (MGH)/Harvard Medical School in Boston, who led the clinical study of BrainGate. Although the technology is years away from practical use, he noted it is making good progress.

Institute of Biomedical Imaging and Bioengineering (NIBIB), which supports the research. The ultimate goal is to reconnect the brain directly to paralyzed limbs rather than robotic ones, according to researchers.

MP



Watch Cathy Hutchinson “Think” Her Coffee

To see brain computer interface (BCI) technology in action, go to: http://www.ninds.nih.gov/news_and_events/news_articles/BrainGate2_robotic_arm_control.htm

Toddler 'functionally cured'

of HIV infection



► Pediatric HIV specialist Dr. Hannah Gay of the University of Mississippi Medical Center led a team of laboratory investigators who provided HIV antiretroviral therapy for 18 months to a baby girl born with HIV infection.

In the first well-documented case of its kind, a two-year-old girl appears to have been “functionally cured” of the HIV infection she was born with.

The little girl was born prematurely in 2010 to an HIV-infected mother. Under the medical care of Hannah Gay, M.D., a pediatric HIV specialist at the University of Mississippi Medical Center in Jackson, the girl received intensive antiretroviral therapy for the first 18 months of her life, but then treatment was discontinued for unknown reasons. When she finally was examined again, in the fall of 2012, blood samples revealed undetectable HIV levels and no HIV-specific antibodies. However, using ultrasensitive tests, the researchers did find extremely low viral levels.

“With this case, it appears we may have not only a positive outcome for the particular child, but also a promising lead for additional research toward curing other children,” says National Institute of Allergy and Infectious Diseases (NIAID) Director Anthony S. Fauci, M.D.



Photo: Jay Ferchaud, University of Mississippi Medical Center

The landmark discovery was made by two pediatric HIV experts, Deborah Persaud, M.D., associate professor of infectious diseases at the Johns Hopkins Children's Center in Baltimore, and Katherine Luzuriaga, M.D., professor of pediatrics and molecular medicine at the University of Massachusetts Medical School in Worcester. They presented their findings at the Conference on Retroviruses and Opportunistic Infections (CROI), in March, in Atlanta.

MP

UNDERSTANDING & MANAGING MENOPAUSE

Menopause, or the “change of life,” is different for each woman. For example, hot flashes and sleep problems may trouble your sister. Meanwhile, you are enjoying a new sense of freedom and energy. And your best friend may hardly be aware of a change at all.



Photo: iStock

WHAT IS MENOPAUSE?

Menopause is a normal part of life, just like puberty. It is the time of your last period, but symptoms can begin several years earlier. Some symptoms of menopause can last for months or years after. Changing levels of estrogen and progesterone, which are two female hormones made in your ovaries, might lead to these symptoms.

This time of change is known as the *menopausal transition*, but it is also called *perimenopause* by many women and their doctors. It can begin several years before your last menstrual period. Perimenopause

lasts for one year after your last period. After a full year without a period, you can say you have been “through menopause.” *Postmenopause* follows menopause and lasts the rest of your life.

The average age of a woman having her last period, menopause, is 51. But, some women have their last period in their forties, and some have it later in their fifties. Smoking can lead to early menopause. So can some types of operations. For example, surgery to remove your uterus (called a hysterectomy) will make your periods stop, and that’s menopause. But you might not have menopause symptoms like hot flashes right then because if your ovaries are untouched, they still make hormones.

In time, when your ovaries start to make less estrogen, menopause symptoms could start. But, sometimes both ovaries are removed (called an oophorectomy), usually along with your uterus. That’s menopause too. In this case, menopause symptoms can start right away, no matter what age you are, because your body has lost its main supply of estrogen.

MENOPAUSE: EVERY EXPERIENCE IS DIFFERENT

Most women would prefer not to experience the side effects of menopause even once, let alone twice. But that's what happened to Melanie Modlin, deputy director of communications and public liaison at the National Library of Medicine. And she volunteered for it!

You volunteered to take part in a clinical research trial relating to menopause. What was it about?

The National Institute of Mental Health sponsored the trial. It was meant to measure the cognitive effects—thinking, attention, memory, problem solving—of an experimental drug that created a temporary state like menopause. It was being tested to possibly treat women who had severe physical and emotional problems connected to their menstrual periods.

Why did you volunteer for the trial?

I've always been interested in public service and volunteering, and I wanted to contribute, in some small way, to science. When the opportunity came along to participate in an NIH clinical trial as a healthy volunteer, I jumped at the chance.

I feel so lucky to be healthy. I had a sister who died of cancer, so I believe it is very important for healthy people to help. We have a role to play in helping find new, more effective treatments that can save lives.

Symptoms vary for women during menopause. What were your most notable symptoms during the trial?

During the trial, I felt some fatigue from time to time, and I'd have to say that my thoughts and memory seemed occasionally slow to materialize, or scrambled. But I never had a hot flash.

One part of my trial was a series of fairly complicated mental tests, like counting backwards, adding numbers in your head as a recording of numbers was read increasingly quickly, memorizing lists of objects, etc. It wasn't all that taxing, but the nurse coordinating the study said another patient got so flustered that she unplugged the recorder and threw it across the room. I guess menopause comes in many forms!



Photo: Melanie Modlin

How long did actual menopause symptoms last for you?

They came on gradually, but the fatigue and mental lapses must've lasted for about two years.

What treatments for symptoms did you have during the menopause transition?

I feel so fortunate...none. I'm not sure why my hormones let me off so easily, but I always want to share my story, so those approaching menopause know that it's not all bad news.

SYMPTOMS

Women may have different signs or symptoms at menopause. That's because estrogen is used by many parts of your body. So, as you have less estrogen, you could

have various symptoms. Here are the most common changes you might notice at midlife. Some may be part of aging rather than menopause.

Mood changes.

You might find yourself more moody or irritable around the time of menopause. Scientists don't know why this happens. It's possible that stress, family changes such as growing children or aging parents, a history of depression, or feeling tired could be causing these mood changes.

Hot flashes.

Many women have hot flashes around the time of menopause. They may be related to changing estrogen levels. Hot flashes may last a few years after menopause. A hot flash is a sudden feeling of heat in the upper part or all of your body. Your face and neck become flushed. Red blotches may appear on your chest, back, and arms. Heavy sweating and cold shivering can follow. Flashes can be very mild or strong enough to wake you from your sleep (called night sweats). Most hot flashes last between 30 seconds and 10 minutes.

Your body seems different.

Your waist could get larger. You could lose muscle and gain fat. Your skin could get thinner. You might have memory problems, and your joints and muscles could feel stiff and achy. Are these a result of having less estrogen or just related to growing older? Experts don't know the answer.

Sleep.

Around midlife, some women start having trouble getting a good night's sleep. Maybe you can't fall asleep easily, or you wake too early. Night sweats might wake you up. You might have trouble falling back to sleep if you wake during the night.

Change in your period.

This might be what you notice first. Your periods may no longer be regular. They may be shorter or last longer. You might bleed less than usual, or more. These are all normal changes, but to make sure there isn't a problem, see your health professional if:

- Your periods come very close together
- You have spotting
- You have heavy bleeding
- Your periods last more than a week

Sex.

You may find that your feelings about sex are changing. You could be less interested. Or, you could feel freer and sexier after menopause. After 1 full year without a period, you can no longer become pregnant. But remember, you could still be at risk for sexually transmitted diseases (STDs), such as gonorrhea or even HIV/AIDS.

Problems with your vagina and bladder.

Changing estrogen levels can cause your genital area to get drier and thinner. This could make sexual intercourse uncomfortable. Or, you could have more vaginal or urinary infections. Some women find it hard to hold their urine long enough to get to the bathroom. Sometimes urine leaks during exercise, sneezing, coughing, laughing, or running.

Photo: iStock

OTHER PHYSICAL CHANGES

Two common health problems can start to happen at menopause, and you might not even notice.

Osteoporosis. Day in and day out, your body is busy breaking down old bone and replacing it with new healthy bone. Estrogen helps control bone loss, and losing estrogen around the time of menopause causes women to lose more bone than is replaced. In time, bones can become weak and break easily. This condition is called osteoporosis. Talk to your doctor to see if you should have a bone density test to find out if you are at risk. Your doctor can also suggest ways to prevent or treat osteoporosis.

Heart disease. After menopause, women are more likely to have heart disease. Changes in estrogen levels may be part of the cause. But so is getting older. As you age, you may gain weight and develop other problems, like high blood pressure. These could put you at greater risk for heart disease. Be sure to have your blood pressure and levels of triglycerides, fasting blood glucose, and LDL, HDL, and total cholesterol checked regularly. Talk to your health care provider to find out what you should do to protect your heart.

THE QUESTION OF HORMONES

These days you hear a lot about whether you should use hormones to help relieve some menopause symptoms. It's hard to know what to do, although there is some information to help you.

During perimenopause, some doctors suggest birth control pills to help with very heavy, frequent, or unpredictable menstrual periods. These pills might also help with symptoms like hot flashes, as well as prevent pregnancy.

If you are bothered by symptoms like hot flashes, night sweats, or vaginal dryness, your doctor might suggest taking estrogen (as well as progesterone, if you still have a uterus). This is known as menopausal hormone therapy (MHT). Some people still call it hormone replacement therapy or HRT. Taking these hormones will probably help with menopause symptoms. It also can prevent the bone loss that can happen at menopause.

Menopausal hormone therapy has risks. That is why the U.S. Food and Drug Administration suggests that women who want to try MHT to manage their hot flashes or vaginal dryness use the lowest dose that works for the shortest time it's needed. Your symptoms may come back when you stop taking hormones.



Photo: iStock

▲ Hormone therapy is available in several forms, including tablets (above), patches, nose sprays, and injections.

STAYING HEALTHY AFTER MENOPAUSE

Staying healthy after menopause may mean making some changes in the way you live.

- Don't smoke. If you do use any type of tobacco, stop—it's never too late to benefit from quitting smoking.
- Eat a healthy diet, low in fat, high in fiber, with plenty of fruits, vegetables, and whole-grain foods.
- Make sure you get enough calcium and vitamin D—in your diet or with vitamin/mineral supplements.
- Learn what your healthy weight is, and try to stay there.
- Do weight-bearing exercise, such as walking, jogging, or dancing, at least 3 days each week for healthy bones. But try to be physically active in other ways for your general health.

Other things to remember:

- Take medicine if your doctor prescribes it for you, especially if it is for health problems you cannot see or feel—for example, high blood pressure, high cholesterol, or osteoporosis.
- Use a water-based vaginal lubricant (not petroleum jelly) or a vaginal estrogen cream or tablet to help with vaginal discomfort.
- Get regular pelvic and breast exams, Pap tests, and mammograms. You should also be checked for colon and rectal cancer and for skin cancer. Contact your doctor right away if you notice a lump in your breast or a mole that has changed.

TREATMENTS

Here are some ideas that have helped some women:

- Try to keep track of when hot flashes happen—a diary can help. You might be able to use this information to find out what triggers your flashes and then avoid those triggers.
- When a hot flash starts, try to go somewhere cool.
- If night sweats wake you, sleep in a cool room or with a fan on.
- Dress in layers that you can take off if you get too warm.
- Use sheets and clothing that let your skin “breathe.”
- Have a cold drink (water or juice) when a flash is starting.

You could also talk to your doctor about whether there are any medicines to manage hot flashes. A few drugs that are approved for other uses, for example, certain anti-depressants, seem to be helpful to some women.

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QUESTIONS TO ASK

- What tests do you recommend I have to determine how menopause is affecting my body?
- Are there any medications or treatments I should take to help with my menopause symptoms?
- How can I avoid problems that menopause may cause to my heart and bones?
- What changes, if any, do I need to make in my exercise and diet to stay healthy?
- Should I consider menopausal hormone therapy and why?
- How will I know when menopause is over?

Find Out More

- ✓ **National Institutes of Health: Menopausal Hormone Therapy Information**
www.nih.gov/PHTindex.htm
- ✓ **National Library of Medicine: MedlinePlus**
www.medlineplus.gov. Type “menopause” into the main search box.
- ✓ **National Institute on Aging**
www.nia.nih.gov
www.nia.nih.gov/espanol
To sign up for regular email alerts about new publications and other information from the NIA, go to www.nia.nih.gov/health.
- ✓ **NIHSeniorHealth** (www.nihseiorhealth.gov), a senior-friendly website from the National Institute on Aging and the National Library of Medicine.
- ✓ **U.S. Department of Health and Human Services Office on Women’s Health**
<http://womenshealth.gov/menopause/menopause-basics/index.html>

What Do Fats Do in the Body?

By Stephanie Dutchen, NIGMS

When you have your cholesterol checked, the doctor typically gives you your levels of three fats found in the blood: LDL, HDL and triglycerides. High levels of LDL and triglycerides can lead to disease, and a healthy diet involves watching how much fatty food we eat. However, our bodies need a certain amount of fat to function—and we can't make it from scratch.

Triglycerides, cholesterol and other essential fatty acids—the scientific term for fats the body can't make on its own—store energy, insulate us and protect our vital organs. They act as messengers, helping proteins do their jobs. They also start chemical reactions that help control growth, immune function, reproduction and other aspects of basic metabolism.

The cycle of making, breaking, storing and mobilizing fats is at the core of how humans and all animals regulate their energy. An imbalance in any step can result in disease, including heart disease and diabetes. For instance, having too many triglycerides in our bloodstream raises our risk of clogged arteries, which can lead to heart attack and stroke.

Fats help the body stockpile certain nutrients as well. The so-called “fat-soluble” vitamins—A, D, E and K—are stored in the liver and in fatty tissues.

Knowing that fats play such an important role in many basic functions in the body, researchers funded by the National Institutes of Health study them in humans and other organisms to learn more about normal and abnormal biology.

Despite fat's importance, no one yet understands exactly how humans store it and call it into action. In search of insight, Oklahoma State University biochemist Estela Arrese studies triglyceride metabolism in unexpected places: silkworms, fruit flies, and mosquitoes.

The main type of fat we consume, triglycerides are especially suited for energy storage because they pack more than twice as much energy as carbohydrates or proteins.

Once triglycerides have been broken down during digestion, they are shipped out to cells through the bloodstream. Some of the fat gets used for energy right away. The rest is stored inside cells in blobs called lipid droplets. When we need extra energy—for instance, when we run a marathon—our bodies use enzymes called lipases to break down the stored triglycerides. The cell's power plants, mitochondria, can then create more of the body's main energy source: adenosine triphosphate, or ATP.

Arrese works to identify, purify, and determine the roles of individual proteins involved in triglyceride metabolism. Her work could teach us more about disorders like diabetes, obesity, and heart disease. But before any of that can happen, says Arrese, “We need to study a lot and have information at the molecular level.”

Thanks to the National Institute of General Medical Sciences (www.nigms.nih.gov) (NIGMS), part of the National Institutes of Health (www.nih.gov), for supplying this article.

Find Out More

- ✓ National Institute of General Medical Sciences (NIGMS) www.nigms.nih.gov/
- ✓ NIGMS: The Big, Fat World of Lipids <http://publications.nigms.nih.gov/insidelifescience/fat-world-of-lipids.html>
- ✓ NIGMS Inside Life Science <http://publications.nigms.nih.gov/insidelifescience/>

Measuring Cholesterol Levels

Everyone age 20 and older should have his or her cholesterol measured at least once every five years. A blood test called a lipoprotein panel can help show whether you're at risk for coronary heart disease by looking at substances in your blood that carry cholesterol. This blood test is done after a 9-to-12-hour fast (no eating) and gives information about you:

- **Total cholesterol**—a measure of the total amount of cholesterol in your blood, including low-density lipoprotein (LDL) cholesterol and high-density lipoprotein (HDL) cholesterol.
- **LDL (bad) cholesterol**—the main source of cholesterol buildup and blockage in the arteries
- **HDL (good) cholesterol**—HDL helps remove cholesterol from your arteries
- **Triglycerides**—another form of fat in your blood that can raise your risk for heart disease

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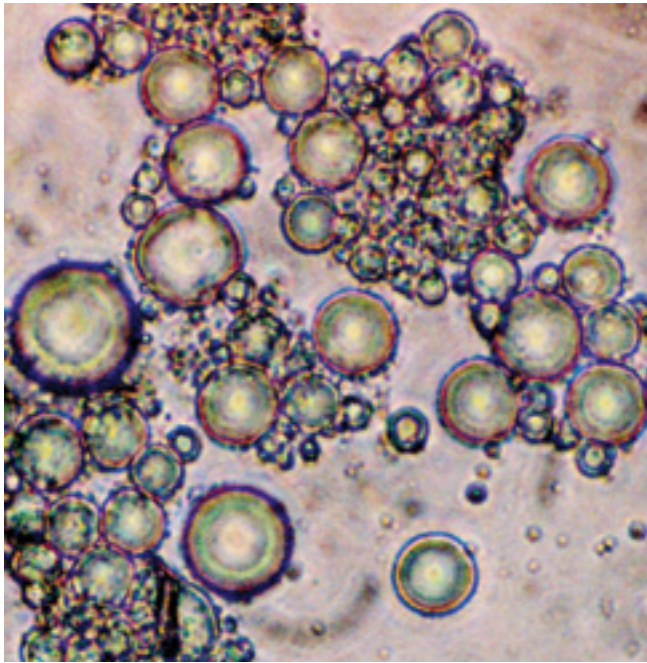


Photo: Estela Arrese.

▲ These lipid droplets store fat in the cells of the tobacco hornworm, *Manduca sexta*.

See how your cholesterol numbers compare to the table below:

Total Cholesterol Level	Category
Less than 200mg/dL	Desirable
200-239 mg/dL	Borderline high
240mg/dL and above	High

LDL (Bad) Cholesterol Level	LDL Cholesterol Category
Less than 100mg/dL	Optimal
100-129mg/dL	Near optimal/above optimal
130-159 mg/dL	Borderline high
160-189 mg/dL	High
190 mg/dL and above	Very High

HDL (Good) Cholesterol Level	HDL Cholesterol Category
Less than 40 mg/dL	A major risk factor for heart disease
40—59 mg/dL	The higher, the better
60 mg/dL and higher	Considered protective against heart disease

Source: National Heart, Lung, and Blood Institute

How to Control Your Seasonal Allergies

Allergic reactions occur when the body wrongly defends itself against something that is not dangerous. A healthy immune system defends against invading bacteria and viruses. During allergic reactions, however, the immune system fights harmless materials, such as pollen or mold, with production of a special class of antibody called immunoglobulin E (IgE).



Fast Facts!

- Allergies are reactions of your immune system to one or more things in the environment.
- The immune system is your body's defense system. In allergic reactions, however, it is responding to a false alarm.
- Pollens and mold spores can cause seasonal allergies.
- Allergies from pollens and molds can cause runny and blocked noses, sneezing, nose and eye itching, runny and red eyes rashes, or asthma. Allergies typically make you feel bad.

— Source: National Institute of Allergy and Infectious Diseases

Photo: Shutterstock

Treat respiratory allergy with antihistamines, topical nasal steroids, cromolyn sodium, decongestants, or immunotherapy. (See page 24 for details.)

Plant Pollen

Ragweed and other weeds, such as curly dock, lambs quarters, pigweed, plantain, sheep sorrel, and sagebrush are prolific producers of pollen allergens. Ragweed season runs from August to November, but pollen levels usually peak by mid-September in many areas in the country. Pollen counts are highest in the morning, and on dry, hot, windy days.

Protecting yourself

- Between 5:00 and 10:00 in the morning, stay indoors. Save outside activities for late afternoon or after a heavy rain, when pollen levels are lower.
- Keep windows in your home and car closed to lower exposure to pollen. Keep cool with air conditioners. Don't use window or attic fans.
- Use a dryer, not a line outside; dry your clothes and avoid collecting pollen on them.

Grass Pollen

Grass pollens are regional as well as seasonal. Their levels also are affected by temperature, time of day, and rain. Only a small percentage of North America's 1,200 grass species cause allergies, including:

- Bermuda grass
- Johnson grass
- Kentucky bluegrass
- Sweet vernal grass
- Timothy grass
- Orchard grass

Protecting yourself

- Between 5:00 and 10:00 a.m., stay indoors. Save outside activities for late afternoon or after a heavy rain, when pollen levels are lower.
- Keep windows in your home and car closed to lower exposure to pollen. Keep cool with air conditioners. Don't use window or attic fans.
- Use a clothes dryer, not a line outside, to avoid collecting pollen on them.
- Have someone else mow your lawn. If you mow, wear a mask.

Tree Pollen

Trees produce pollen earliest, as soon as January in the south, and as late as May and June in the north-east. They release huge amounts that can be distributed miles away. Fewer than 100 kinds of trees cause allergies. The most common tree allergy is against oak, but others include catalpa, elm, hickory, sycamore, and walnut.

Protecting yourself

- Follow the same protective strategies related to time of day, closed windows, and clothes dryers noted in "Protecting yourself" under Grass Pollen, above.
- Plant species that do not aggravate allergies, such as crape myrtle, dogwood, fig, fir, palm, pear, plum, redbud, and redwood trees, or the female cultivars of ash, box elder, cottonwood, maple, palm, poplar, or willow trees.

Diagnosis

Testing for Allergies

Knowing exactly what you are allergic to can help you lessen or prevent exposure and treat your reactions. There are several tests to pinpoint allergies:

- Allergy skin tests—Allergy skin testing is considered the most sensitive testing method and provides rapid results. The most common test is the “prick test,” which involves pricking the skin with the extract of a specific allergen, then observing the skin’s reaction.
- Serum-specific IgE antibody testing—These blood tests provide information similar to allergy skin testing.

Treatment

For allergy sufferers, the best treatment is to avoid the offending allergens altogether. This may be possible if the allergen is a specific food, like peanuts, which can be cut out of the diet, but not when the very air we breathe is loaded with allergens, such as ragweed pollen. Various over-the-counter or prescription medications can relieve symptoms.

- **Antihistamines.** These medications counter the effects of histamine, the substance that makes eyes water and noses itch and causes sneezing during allergic reactions. Sleepiness was a problem with the oldest antihistamines, but the newest drugs do not cause such a problem.
- **Nasal steroids.** These anti-inflammatory sprays help decrease inflammation, swelling, and mucus production. They work well alone and, for some people, in combination with antihistamines; in recommended doses, they are relatively free of side effects.
- **Cromolyn sodium.** A nasal spray, cromolyn sodium can help stop hay fever, perhaps by blocking release of histamine and other symptom-producing chemicals. It has few side effects.
- **Decongestants.** Available in capsule and spray form, decongestants may reduce swelling and sinus discomfort. Intended for short-term use, they are usually used in combination with antihistamines. Long-term usage of spray decongestants can actually make symptoms worse, while decongestant pills do not have this problem.
- **Immunotherapy.** Immunotherapy (allergy shots) might provide relief for patients who don’t find relief with antihistamines or nasal steroids. Allergy shots alter the body’s immune response to allergens, thereby helping to prevent allergic reactions. They are the only form of treatment that can induce long-lasting protection for several years after therapy is stopped. Current immunotherapy treatments are limited because of potential allergic reactions; rarely, these can be severe.

Is It a Cold or an Allergy?

Symptoms	Cold	Airborne Allergy
Cough	Common	Sometimes
General Aches, Pains	Slight	Never
Fatigue, Weakness	Sometimes	Sometimes
Itchy Eyes	Rare or Never	Common
Sneezing	Usual	Usual
Sore Throat	Common	Sometimes
Runny Nose	Common	Common
Stuffy Nose	Common	Common
Fever	Rare	Never
Duration	3 to 14 days	Weeks (for example, 6 weeks for ragweed or grass pollen seasons)
Treatment	<ul style="list-style-type: none"> ■ Antihistamines ■ Decongestants ■ Nonsteroidal anti-inflammatory medicines 	<ul style="list-style-type: none"> ■ Antihistamines ■ Nasal steroids ■ Decongestants
Prevention	<ul style="list-style-type: none"> ■ Wash your hands often with soap and water ■ Avoid close contact with anyone with a cold 	<ul style="list-style-type: none"> ■ Avoid those things that you are allergic to, such as pollen, house dust mites, mold, pet dander, cockroaches
Complications	<ul style="list-style-type: none"> ■ Sinus infection ■ Middle ear infection ■ Asthma exacerbation 	<ul style="list-style-type: none"> ■ Sinus infection ■ Asthma exacerbation

NIH/D

Seasonal Allergy Research at NIH

- **Asthma and Allergic Diseases Cooperative Research Centers:** In 1971, the National Institute of Allergy and Infectious Diseases (NIAID) established its Asthma and Allergic Diseases Centers to conduct basic and clinical research on the mechanisms, diagnosis, treatment, and prevention of asthma and allergic diseases.
- **Immune Tolerance Network (ITN):** The ITN is an international consortium of investigators in the United States, Canada, Europe, and Australia dedicated to the development and evaluation of novel, tolerance-inducing therapies in such disorders as asthma and allergic rhinitis.
- **Inner-City Asthma Consortium:** Since 1991, the NIAID has funded research on asthma in inner-city areas with the goal of improving the treatment of children living in environments where the prevalence and severity of asthma is particularly high.
- **Allergen Epitope Research and Validation Centers:** The goal of this NIAID program is to identify the portions of allergy-inducing molecules that immune system cells and IgE antibodies recognize, and to develop therapies that block these portions from causing allergic reactions.

Seasonal Allergies: Nuisance or Real Health Threat?

For most people, hay fever is a seasonal problem—something to endure for a few weeks once or twice a year. But for others, such allergies can lead to more serious complications, including sinusitis and asthma.

- Sinusitis is one of the most commonly reported chronic diseases and costs almost \$6 billion a year to manage. It is caused by inflammation or infection of the four pairs of cavities behind the nose. Congestion in them can lead to pressure and pain over the eyes, around the nose, or in the cheeks just above the teeth. Chronic sinusitis is associated with persistent inflammation and is often difficult to treat. Extended bouts of hay fever can increase the likelihood of chronic sinusitis. But only half of all people with chronic sinusitis have allergies.
- Asthma is a lung disease that narrows or blocks the airways. This causes wheezing, shortness of breath, coughing, and other breathing difficulties. Asthma attacks can be triggered by viral infections, cold air, exercise, anxiety, allergens, and other factors. Almost 80 percent of people with asthma have allergies, but we do not know to what extent the allergies trigger the breathing problems. However, some people are diagnosed with allergic asthma because the problem is set off primarily by an immune response to one or more specific allergens. Most of the time, the culprit allergens are those found indoors, such as pets, house dust mites, cockroaches, and mold. Increased pollen and mold levels have also been associated with worsening asthma.

MP

Find Out More

- ✓ MedlinePlus: Allergy
www.nlm.nih.gov/medlineplus/allergy.html
- ✓ MedlinePlus: Hay Fever
www.nlm.nih.gov/medlineplus/hayfever.html
- ✓ National Institute of Allergy and Infectious Diseases
www.niaid.nih.gov/topics/allergyandasthma/
- ✓ National Survey of Lead and Allergens in Housing (NSLAH)
www.niehs.nih.gov/research/clinical/join/studies/riskassess/nslah.cfm

Straight Talk For Good Health

Straight talk with your healthcare provider is important. You and your medical team can then both make better decisions for your good health. Here's how.



Photo: iStock

Does this sound familiar? You have only a few minutes with your health-care provider. You say what's on your mind. But, later, you remember something you forgot to ask. Or, maybe you listen to what she says, and then forget parts of what she told you. Or, you realize that although you thought you understood what she was telling you at the time, there are some words and directions that now confuse you.

Today, patients take an active role in their health care. How well you and your healthcare provider talk to each other is one of the most important parts of getting good health care. Unfortunately, it isn't always easy. It takes time and effort on your part. Here are some tips for making the most of your visit.

Today, patients take an active role in their health care. Speaking clearly with your healthcare provider about what's wrong and how to cure it is one of the most important aspects of getting good care.

Make a List

Come prepared for your visit. Make a list of the things that you want to discuss, such as:

- Any symptoms that are bothering you. Have they changed since your last visit?
- Medicines you take. Be sure to include vitamins and any complementary and alternative therapies you use, such as herbs or supplements.
- Any allergies you may have, especially to medications.
- A description of symptoms, when they started, and what makes them better.

Be sure to understand your diagnosis and prescribed treatments. Ask your healthcare provider to write down his or her instructions to you. If you still don't understand, ask where to go for more information.

Ask Questions

If you don't understand your healthcare provider, ask questions until you do understand. Write down what he or she says. Go with a trusted friend or relative, and let your health professional know if you want that person to hear what is said.

Helpful questions for clear understanding:

About My Disease or Disorder

- What is my diagnosis?
- What caused my condition?
- Can it be treated?
- How will it affect my health now and in the future?
- Should I watch for any particular symptoms and notify you if they occur?
- Should I make any lifestyle changes?

Treatment

- What is the treatment for my condition?
- When will the treatment start, and how long will it last?
- What are the benefits of this treatment, and how successful will it be?
- What are the risks and side effects associated with this treatment?
- Are there foods, drugs, or activities I should avoid while I'm on this treatment?
- If treatment includes taking a medication, what should I do if I miss a dose?
- Are other treatments available?

Medical Tests

- What kinds of tests will I have?
- What do you expect to find out from these tests?
- When will I know the results?
- Do I have to do anything special to prepare for any of the tests?
- Are there any side effects or risks?
- Will I need more tests later?

Look it up

Sometimes, it can seem as if you and your healthcare provider are speaking different languages. Health professionals often use technical terms instead of more common names for conditions. For example, a doctor might say you have a contusion. You would call it a bruise.

You can use the *Merriam-Webster Medical Dictionary* at www.MedlinePlus.gov to look up words. Just go to www.nlm.nih.gov/medlineplus/mplusdictionary.html and enter the word you're looking for. On that same page, you can also find lists of word parts and what they mean, some common abbreviations, and even a tutorial, "Understanding Medical Words."

- **Understanding Medical Words:** www.nlm.nih.gov/medlineplus/medicalwords.html
- **Word Parts and What They Mean:** www.nlm.nih.gov/medlineplus/appendixa.html
- **Some Common Abbreviations:** www.nlm.nih.gov/medlineplus/appendixb.html

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Find Out More

- ✓ Talking to Your Doctor
www.nei.nih.gov/health/talktodoc.asp
- ✓ Questions are the Answer
<http://www.ahrq.gov/patients-consumers/patient-involvement/ask-your-doctor/index.html>
- ✓ Talking with your Doctor
nhseniorhealth.gov/talkingwithyourdoctor/toc.html

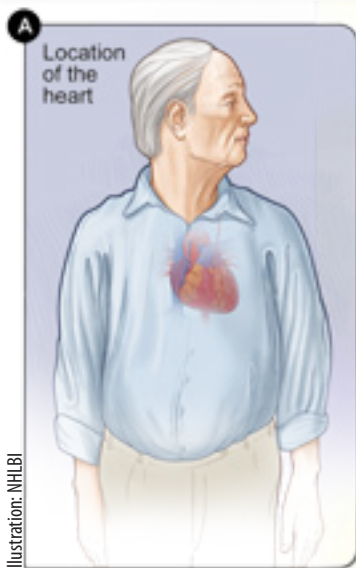
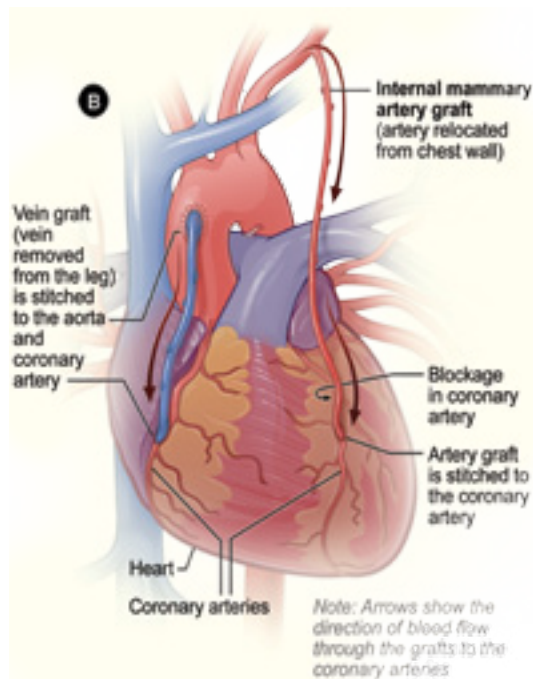


Illustration: NHLBI



Treating Diabetes and Heart Disease: Cardiac Bypass Surgery a Better Option

A recent study may impact how doctors treat people with diabetes and heart disease.

Researchers compared two treatments for adults with diabetes who have heart disease in more than one blood vessel. The study confirmed cardiac bypass surgery is a better overall treatment option than an artery-opening procedure called percutaneous coronary intervention (PCI) that included insertion of drug-eluting stents. Surgery patients lived longer and had fewer severe complications.

The National Heart, Lung, and Blood Institute funded the study. Director Gary H. Gibbons, M.D., says the results may help physicians in their efforts to prevent cardiovascular events such as heart attacks and deaths in this high-risk group.

Coronary heart disease can block or reduce the flow of blood to the heart

muscle. Doctors try to restore blood flow with one of two types of procedures. Coronary artery bypass graft (CABG) surgery uses a healthy artery or vein from another part of the body to bypass the blocked artery. PCI is non-surgical and less invasive. It uses a balloon to open the artery. A small mesh tube called a stent is then inserted to prop open the artery.

Diabetes is a major risk factor for heart disease and stroke. More than 65 percent of people with diabetes die of some type of cardiovascular disease.

During the trial, participants received standard medical care for all major cardiovascular risk factors, such as high LDL cholesterol, high blood pressure, and high blood sugar. Participants were also counseled about lifestyle choices, such as smoking cessation, diet, and regular exercise.

Therapy Shows Promise for Peanut Allergy

A small amount of liquid therapy that a person with peanut allergy places daily underneath the tongue can reduce his or her sensitivity to peanuts, a new study has found. With further development, the experimental technique could make life easier for people whose only current option is to avoid everything that contains peanuts.

Food allergy occurs when the immune system responds to a harmless food as if it were a threat. Symptoms can range from hives and itching to anaphylaxis, a life-threatening condition that can involve throat swelling, a sudden drop in blood pressure, trouble breathing, fainting, and dizziness.

The trial was funded by NIH's National Institute of Allergy and Infectious Diseases (NIAID), National Center for Research Resources (NCRR) and National Center for Advancing Translational Sciences (NCATS).



Info to Know

NIH Quickfinder

For more information or to contact any of the following NIH institutes, centers, and offices directly, please call or go online as noted below:

Institutes

- **National Library of Medicine (NLM)**
www.nlm.nih.gov
1-888-FIND-NLM (1-888-346-3656)
- **National Cancer Institute (NCI)** www.cancer.gov
1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)** www.nei.nih.gov
(301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**
www.nhlbi.nih.gov (301) 592-8573
- **National Human Genome Research Institute (NHGRI)** www.genome.gov (301) 402-0911
- **National Institute on Aging (NIA)** www.nia.nih.gov
Aging information 1-800-222-2225
Alzheimer's information 1-800-438-4380
- **National Institute on Alcohol Abuse and Alcoholism (NIAAA)** www.niaaa.nih.gov
(301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)** www.niaid.nih.gov
(301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases** www.niams.nih.gov
1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biomedical Imaging and Bioengineering (NIBIB)** www.nibib.nih.gov
(301) 451-6772
- **Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)**
www.nichd.nih.gov 1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**
www.nidcd.nih.gov 1-800-241-1044 (voice)
1-800-241-1055 (TTY)
- **National Institute of Dental and Craniofacial Research (NIDCR)** www.nidcr.nih.gov
(301) 480-4098
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)** www.niddk.nih.gov
Diabetes 1-800-860-8747
Digestive disorders 1-800-891-5389
Overweight and obesity 1-877-946-4627
Kidney and urologic diseases 1-800-891-5390

- **National Institute on Drug Abuse (NIDA)**
www.nida.nih.gov (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)** www.niehs.nih.gov
(919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)** www.nigms.nih.gov
(301) 496-7301
- **National Institute of Mental Health (NIMH)**
www.nimh.nih.gov 1-866-615-6464
- **National Institute on Minority Health and Health Disparities (NIMHD)** www.nimhd.nih.gov
(301) 402-1366
- **National Institute of Neurological Disorders and Stroke (NINDS)** www.ninds.nih.gov
1-800-352-9424
- **National Institute of Nursing Research (NINR)**
www.ninr.nih.gov (301) 496-0207

Centers & Offices

- **Fogarty International Center (FIC)**
www.fic.nih.gov (301) 402-8614
- **National Center for Complementary and Alternative Medicine (NCCAM)**
www.nccam.nih.gov 1-888-644-6226
- **National Center for Advancing Translational Research (NCATS)**
www.ncats.nih.gov (301) 435-0888
- **NIH Clinical Center (CC)**
www.cc.nih.gov (301) 496-2563
- **Office of AIDS Research (OAR)**
<http://www.oar.nih.gov> (301) 496-0357
- **Office of Behavioral and Social Sciences Research (OBSSR)**
<http://obssr.od.nih.gov> (301) 402-1146
- **Office of Rare Diseases Research (ORDR)**
<http://rarediseases.info.nih.gov>
Genetic and Rare Disease Information Center
1-888-205-2311
- **Office of Research on Women's Health (ORWH)**
<http://orwh.od.nih.gov> (301) 402-1770

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- **An illustrated medical encyclopedia**

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U.S. DEPARTMENT OF HEALTH
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