

NHL MedlinePlus®

FALL 2008

the magazine

Trusted Health Information
from the National
Institutes of Health

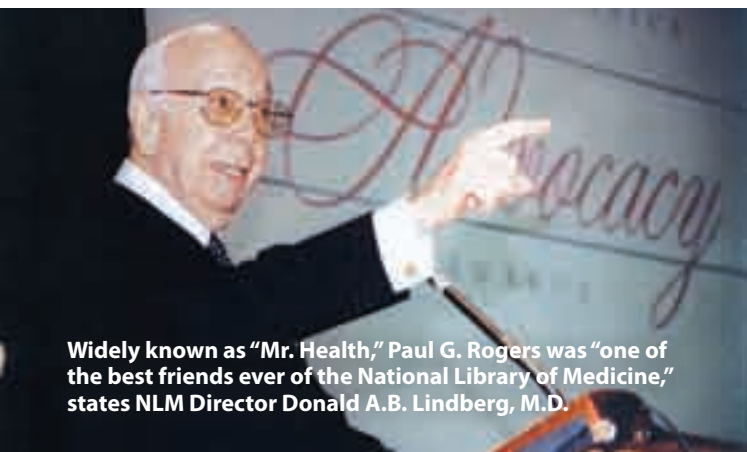
A Family Finds Its Way

ABC newsman Bob Woodruff, wife Lee, and family deal with Bob's traumatic brain injury and daughter Nora's hearing loss.

“Without Research, There Is No Hope!”

—Paul G. Rogers

Former U.S. Representative Paul G. Rogers, 87, a founder of the Friends of the National Library of Medicine (FNLM), died October 13, 2008 of lung cancer. A Democrat who represented West Palm Beach, Fla., for 24 years, he was known as “Mr. Health” for his leading role in passing key environmental and health care legislation.



Widely known as “Mr. Health,” Paul G. Rogers was “one of the best friends ever of the National Library of Medicine,” states NLM Director Donald A.B. Lindberg, M.D.

“Paul Rogers was one of the best friends ever of the National Library of Medicine,” noted NLM Director Donald A.B. Lindberg, M.D. “A courtly gentleman, he had an uncanny ability to see the potential of medical research and aggressively fought for it. He had big, powerful ideas and always looked to the future. He will be sorely missed.”

As chair of the Subcommittee on Health and the Environment, Rogers racked up an unmatched record of groundbreaking health policy advances for all Americans, including the Migrant Health Act; Clean Air Act; Health Manpower Training Act; National Cancer

Act; Heart, Lung, and Blood Act; Emergency Medical Services Act; Community Health Centers Act; Medicare-Medicaid Anti-Fraud and Abuse Amendments; and the National Health Promotion and Disease Prevention Act. He was honored with the 2004 Distinguished Service Award by the NLM Board of Regents.

Throughout the 1960s and ’70s, Rogers was an ardent supporter of the National Library of Medicine on Capitol Hill. Thanks largely to his efforts, the Library established a research center for biomedical communications. This ultimately led to creation of the Lister Hill National Center for Biomedical Communications, in 1968, by joint Resolution of Congress. After retiring from Congress in 1979, he became an advisor to Dr. Lindberg, helping to craft the Library’s long-range activities in the mid-1980s.

He was instrumental in helping to establish the nonprofit FNLM in 1986. As chair, he developed a coalition of individuals, medical associations, hospitals, health science libraries, corporations, and foundations into an effective, productive organization. One of FNLM’s most important achievements is *NIH MedlinePlus* magazine, the free quarterly publication you are now reading. It is published jointly by the Friends and the National Institutes of Health, with editorial supervision by NLM. Since debuting in 2006, circulation has risen to 500,000, with a readership of over 5 million. It is distributed to physicians’ offices, hospitals, clinics, and libraries nationwide.

In addition to *NIH MedlinePlus*, visitors to NIH, in Bethesda, can enjoy a lasting, visual tribute to Paul Rogers and his many contributions. In the main plaza, designated in 2000 by Congress as the Paul G. Rogers Plaza, a marker proudly bears Paul’s vivid exclamation, “Without research, there is no hope!”

“Mr. Health” is survived by his wife of 46 years, Rebecca, of Washington, D.C.; daughter, Rebecca Laing Sisto of Westfield, N.J.; a brother; and four grandchildren.

Help Out for Health!

You can be a part of the Friends’ mission to help educate the health, corporate, and public communities about NIH’s many vital research initiatives.

If you or your company can help to support and expand the Library’s efforts by providing sponsorship and other charitable donations for *NIH MedlinePlus* magazine’s publication and distribution, many more thousands of Americans will gain valuable, free access to the world’s best online

medical library, www.medlineplus.gov.

For more information, please visit www.fnlm.org or call (202) 719-8094. Written correspondence may be sent to FNLM, 2801 M Street NW, Washington, DC 20007.

The FNLM is classified as a 501(c)(3) nonprofit organization for federal tax purposes.

Donald A.B. Lindberg, M.D.
Director, NLM

Betsy L. Humphreys, M.L.S., A.H.I.P.
Deputy Director, NLM

Donald West King, M.D.
Deputy Director for Research
and Education, NLM

Kathleen Cravedi
Director, Office of Communications
and Public Liaison, NLM

Elliot Siegel, Ph.D.
Associate Director for Health Information
Programs Development, NLM

Naomi Miller, M.L.S.
Manager of Consumer Health Information, NLM

Patricia Carson
Special Assistant to the Director, NLM

Christopher Klose
Magazine Coordinator

Peter Reinecke
Strategic Advisor, NLM



Kathy White

Co-Chair, Corporate & Annual Event Fundraising Development Committee
FNLM Board of Directors

*(If you are interested in providing a sponsorship or other charitable donation
to support and extend the reach of this publication, please contact
Kathy White at (336) 547-8970, x 3327 or kathy.white@vitality.com)*

Friends of the NLM

2801 M Street NW, Washington, DC 20007

NIH MedlinePlus Magazine Editorial Board

Don Detmer, M.D. • Jordan Cohen, M.D.

Jay Sanders, M.D. • Barbara Redman, Ph.D. • Roger Bulger, M.D.
Kenneth Forde, M.D. • Leslie Kuhn, M.D.



Selby Bateman, Ginny Gaylor, Managing Editors
Jan McLean, Creative Director
Traci Marsh, Production Director

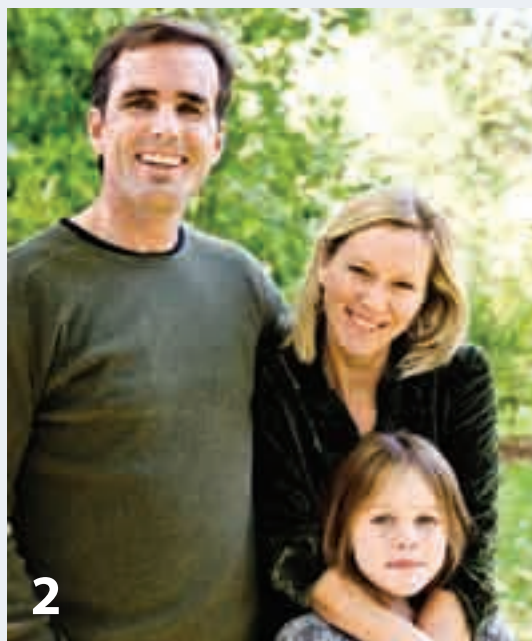
NIH MedlinePlus, the Magazine is published by
Vitality Communications
407 Norwalk St.
Greensboro, NC 27407
(336) 547-8970

William G. Moore, President

Pat Blake, Controller

Pat Schrader, Administrative Assistant

Articles in this publication are written by professional journalists.
All scientific and medical information is reviewed for accuracy by representatives
of the National Institutes of Health. However, personal decisions regarding health,
finance, exercise, and other matters should be made only after consultation with the
reader's physician or professional advisor. Opinions expressed herein are not
necessarily those of the National Library of Medicine.



Lee Woodruff
discusses her family's
health challenges.

2



18

Drs. Douglas Lowry and John Schiller
have helped in the fight against STDs.

2 Traumatic Brain
Injury: A Family
Finds Its Way

10 Focus on
Communication

18 Preventing STDs



22

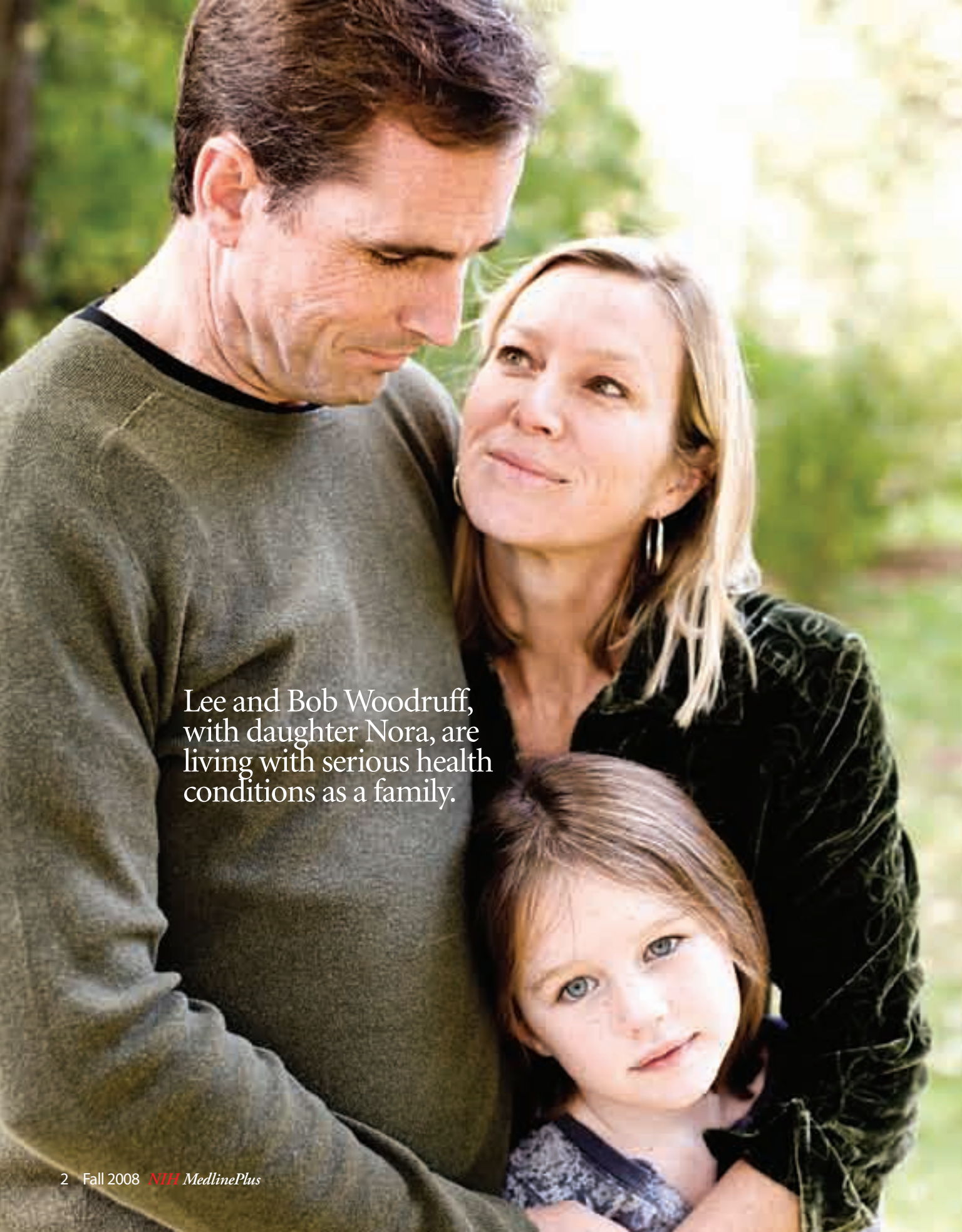
**Learn the basics of skin health and the
most common skin diseases.**

22 Skin Health and
Skin Diseases

27 Healthlines: New
NIH Research

Photos: (cover and top of page)
Stefan Radtke, www.stefanradtke.com;
(center) NIH;
(bottom) stock





Lee and Bob Woodruff,
with daughter Nora, are
living with serious health
conditions as a family.

Special Sections

The following two special sections on *traumatic brain injury* and *communication* discuss the health challenges families face.

A Family Finds Its Way

The Woodruffs deal with Bob's TBI and Nora's hearing impairment

FASTFACTS

- Traumatic brain injury (TBI) occurs when a sudden trauma causes damage to the brain. Symptoms of TBI can be mild, moderate, or severe, depending of the extent of damage.
- About 1.4 million people suffer a TBI each year in the United States. Of those, 50,000 die, 235,000 are hospitalized, and 1.1 million are treated and released at an emergency room.
- The leading causes of TBI are falls (28 percent), motor vehicle crashes (20 percent), other events in which the head strikes or is struck by an object (19 percent) and personal assaults (11 percent).
- People 75 and older have the highest rates of TBI-related hospitalizations and death.
- U.S. hospital emergency rooms treated about 319,000 sports-related head injuries in 2006 (latest figures). That was an increase of 10,000 injuries from 2005.
- Over the last few years, tens of thousands of soldiers have suffered traumatic injuries from blasts due to improvised explosive devices (IED) in Afghanistan and Iraq.

Although she's a best-selling co-author, freelance writer and contributor to ABC's *Good Morning America*, Lee Woodruff is just like millions of other Americans. She is a principal caregiver. On assignment in Iraq, her husband, ABC correspondent Bob Woodruff, was blown up by a roadside bomb and suffers from traumatic brain injury (TBI). As a baby, daughter Nora, now 8, was diagnosed with severe hearing loss. Lee spoke recently with *NIH MedlinePlus*' Christopher Klose.

At its heart, TBI, hearing loss, any health condition is a family issue, isn't it?

Lee Woodruff: It really is. My brother-in-law said something which has always resonated with me. "It wasn't just Bob who was hit by the IED, it was the whole family." Just substitute anything for "IED."

You're saying the impact is the same, no matter what the problem?

Lee Woodruff: MS, cancer, a hearing disability, autism or whatever. It ripples out to the entire family. So you have to look at anything like that holistically in terms of family.

How do families cope?

Lee Woodruff: A sudden injury, a phone call that changes life in an instant, can bring out the best and sometimes the worst in people. My family has a wonderful support

TBI Symptoms,

Symptoms

- **Mild:** Person may remain conscious or be briefly unconscious (up to a few minutes); also, headache, confusion, lightheadedness, dizziness, blurred vision, ringing in the ears, bad taste in the mouth, fatigue (including changed sleep patterns), behavior or mood swings, trouble with memory and concentration.
- **Moderate or severe:** As above, but headache worsens or does not go away; also, repeated vomiting or nausea, convulsions or seizures, inability to wake from sleep, dilation of one or both pupils, slurred speech, weakness or numbness in the arms and legs, loss of coordination, and increased confusion, restlessness or agitation.

Diagnosis

- **Imaging tests,** including X-rays of the head and neck to check for fractures or other problems; computed tomography (CT) scans to give a three-dimensional view.
- **To gauge severity,** medical professionals typically use a standard, 15-point test to measure a person's level of consciousness and neurologic function, including speaking, seeing and movement.



“I have been very, very lucky in my ongoing recovery from the traumatic brain injury I suffered in Iraq.”

—Bob Woodruff

Photo: ABC News

system with siblings and both our parents still alive, so we were able to function as a cohesive unit.

What about Lee the caregiver?

Lee Woodruff: I learned I was really good in a crisis. I kept my head and was able to think strategically and think for him. However, what I call the “Newton’s Law” part—that what goes up must come down—doesn’t get enough attention. For the caregiver, it is after the acute phase, especially with a brain injury, long-term diagnosis or lifelong disability that the road becomes long, flat and forever.

What about the caregiver’s helpers?

Lee Woodruff: Everybody wants to help at the beginning. But then

comes the “when all the cars have left the driveway” period, when the casseroles aren’t being dropped off anymore. There’s the feeling that, “Okay, we took your kids to baseball practice for the last couple of months; set meals up for you. You should be standing on your own two legs.” That’s when you need to bring the dinners, send the flowers; that says, “I have not forgotten you; I’m here to help.”

What should caregivers do to help themselves?

Lee Woodruff: One of the best pieces of advice I got was in the hospital, during Bob’s acute stage: “Don’t go day by day. That’s too much sometimes. Go hour by hour.” “That’s great!” I thought. “I don’t have to make it through to bedtime, just from 9 to 10, then

continued on page 6

Diagnosis, Treatment, Prevention

Treatment

1. Immediate First-Aid

- Seek medical attention as soon as possible
- Keep the person still, lying face up, with head and shoulders slightly raised; do not move the person unless absolutely necessary
- Stop any bleeding, applying firm pressure to the wound with sterile gauze or clean cloth; do not apply direct pressure if you think there could be skull fracture
- Monitor breathing and alertness; if breathing or movement ceases, immediately begin CPR
- Sometimes when the brain is injured, swelling occurs and fluids accumulate within the brain space. It is normal for bodily injuries to cause swelling and disruptions in fluid balance. But when an injury occurs inside the skull-encased brain, there is no place for swollen tissues to expand and no adjoining tissues to absorb excess fluid.

2. Professional Medical Care

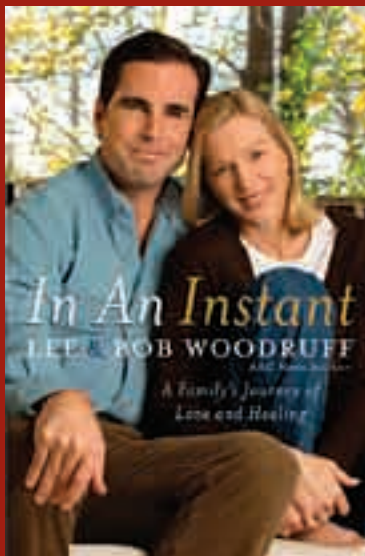
- Medical personnel try to stabilize the person's condition and prevent further injury by ensuring an adequate supply of blood and oxygen to the brain and rest of the body, and by controlling blood pressure
- Moderate to severe TBI requires rehabilitation, which may involve physical, speech and occupational therapy, counseling and social services support

- About half of the severely head-injured require brain surgery to repair or remove ruptured blood vessels or bruised brain tissue

Prevention

To prevent head injury and reduce the risk of TBI, the National Institute of Neurological Disorders and Stroke (NINDS) and the Centers for Disease Control and Prevention (CDC) urge people to always:

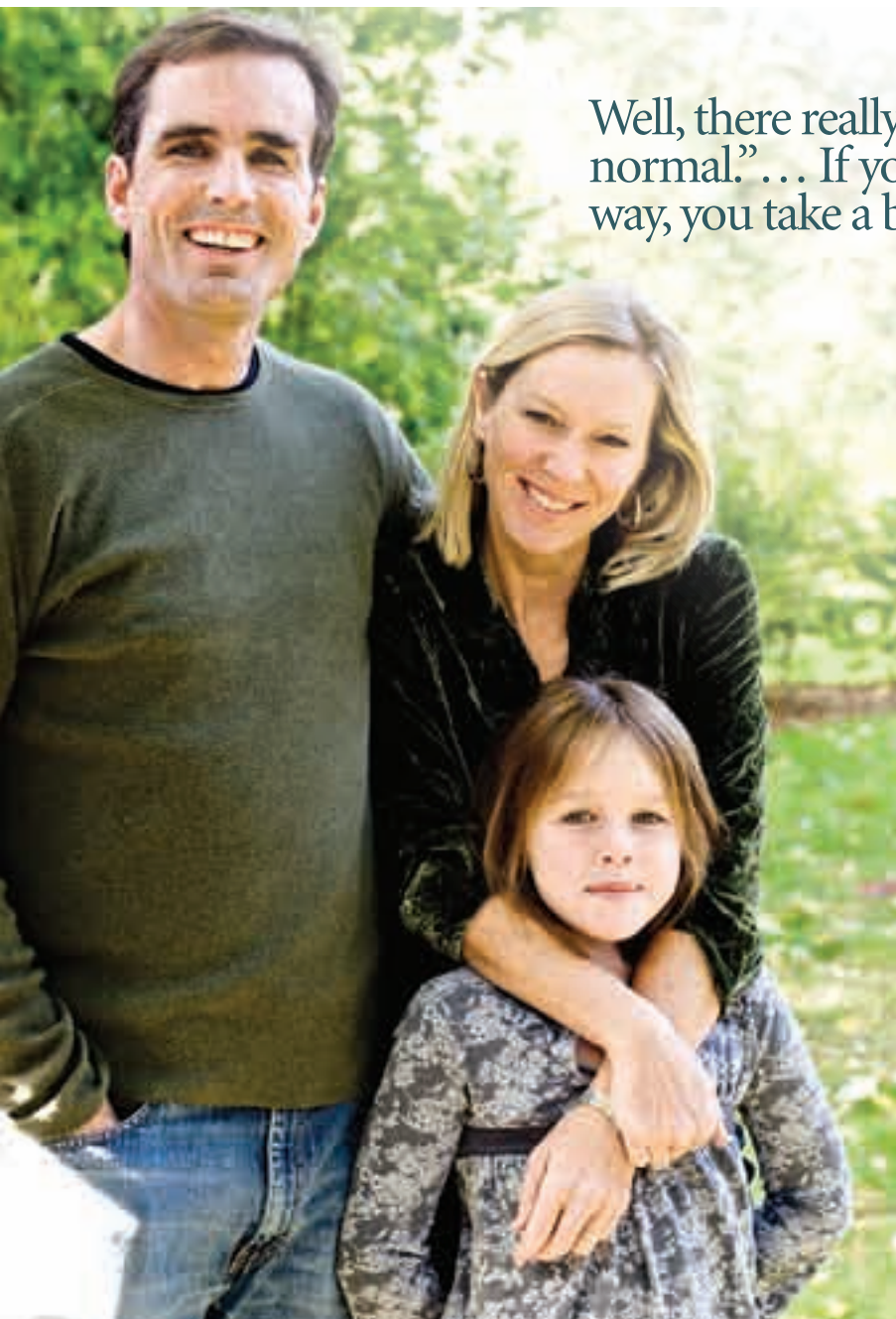
- Wear a seat belt when driving or riding in a car
- Use a child safety seat, booster seat or seat belt for children when riding in a car
- Wear a helmet when:
 - Riding a bike or motorcycle
 - Playing football, ice hockey or any contact sport
 - Roller skating or skateboarding
 - Playing baseball or softball
 - Horseback riding
 - Skiing or snowboarding
- Store firearms and ammunition in a locked cabinet or safe
- Avoid falls by using or installing:
 - A step-stool with grab bar when reaching for high objects
 - Handrails on stairways
 - Window guards to keep young children safe
 - Safety gates at the top and bottom of stairs when young children are around



Perfectly Imperfect

A life and family contributor for ABC's *Good Morning America*, Lee Woodruff is also author of two books, *In An Instant* (co-authored with her husband and ABC anchor, Bob Woodruff) and her latest, *Perfectly Imperfect*.

Perfectly Imperfect is a personal look at a well-lived life in progress and the many roles played by a modern American wife, mother, daughter, and friend.



Well, there really is no “perfect and normal.” . . . If you can look at the world this way, you take a big weight off your shoulders.

look at the world this way, you take a big weight off your shoulders.

What else helps?

Lee Woodruff: I found that if I could spend 15 minutes in a quiet room just not answering to “Mom,” unloading the dishwasher or being on call was enormously helpful. But that’s not always possible. Thankfully, I’ve learned that human beings have an incredible ability to adjust. What seems so overwhelming, when you take it in bite-size pieces—day by day, days into weeks, weeks into months—you realize you’ve been able to cope.

How’s Nora doing?

Lee Woodruff: Nora has hearing aids and is mainstreamed in school. She has a fair amount of residual hearing.

Can you describe her hearing aids?

Lee Woodruff: They’re over the ears. As she gets older, she’ll probably choose ones that go completely inside. But these are the best for now. Her teachers wear microphones that transmit directly to her. If you met Nora, it wouldn’t be immediately apparent she has an issue. She may

never speak quite as crisply as everyone else, so it’s hard to know how that will define her and what the challenges may be as she matures.

Do you talk with her about that?

Lee Woodruff: Not yet. We have tried to keep it matter-of-fact. Like another child might wear glasses, Nora wears hearing aids because she doesn’t hear as well as others. It’s not a disability but a different ability. But the rubber’s going to meet the road in the next few years when the academics become more rigorous.

continued from page 4

see if I feel like making it to 11.”

You can’t possibly know what is going to befall you, good and bad. Nora’s disability was devastating at first, too, because we all have a vision of our children as perfect and normal. Right?

Who’s to say what’s “perfect”?

Lee Woodruff: Well, there really is no “perfect and normal.” The American family is a rich tapestry of different things. If you can

Where do you go for your medical information to keep ahead of her curve?

Lee Woodruff: The Internet has opened up so much information, such as MedlinePlus, you know. There are so many Web sites and blogs where you can ask questions of other parents.

How is Bob?

Lee Woodruff: Fabulous; on the air, traveling all around the world. There's no medical explanation for his recovery. I look at it sometimes in a spiritual framework; that the only explanation for why those little rocks missed something vital is that he really did have some work to do. He needed to come back because nobody really understands this issue of brain injury among our troops. He does have his challenges, however.

Does he have a speech problem?

Lee Woodruff: Yes, with aphasia. And names are hard. We can be cruising along and then he'll just forget a word. You might not even notice, but I see every little wrinkle because I have been married to him for 20 years. I know when he just needs to stop and go to bed. Fatigue is his enemy.

What about depression?

Lee Woodruff: No. Miraculous. He has his blue days, but he had those before the injury and they're usually work-related. And there are moments when he's kind of down and not really sure why. Then I say, "You had those before. Don't we all?"

Any post traumatic stress disorder (PTSD)?

Lee Woodruff: No PTSD. And none of the real anger other families mention that their injured loved ones have. However, I think we would both agree that his fuse is slightly shorter.

What advice would you have for families who, like yours, have multiple health challenges?

Lee Woodruff: It's really about acceptance of the human heart and mind. As I say to the wives and spouses in the military hospitals and rehabilitation centers I visit, "As horrible as it seems right now, it will get better." Maybe not like Bob, but you will find a way to come to terms with whatever the health issue is. That doesn't mean there won't be good days. There will, and really bad ones, too.

Also, when I was first trying to take care of Bob and the kids and all the challenges, I would tell myself, "I'm one mommy doing the best I can." I couldn't change what happened. So I would urge people also to accept that they can't rewind the tape, and pledge to do the best they can.

Last is a wonderful story from one of Bob's mentors, Jim

Wooten, senior ABC correspondent, about his mother-in-law. She'd been dealt a tough life, including a couple of husbands who'd died. Her advice, "Play the hand you're dealt but don't ever stop trying to get your hands on the cards—including stealing that ace over there!"

I think if you keep that in mind, you just feel like you have a sense of control. Half the time, that's what it's about for families.

NIH Research to Results

- The National Institute of Neurological Disorders and Stroke (NINDS) is researching treatments that can be given in the first hours after a TBI to prevent or reverse much of the brain damage resulting from the injury. A recently completed NINDS-funded clinical trial involved lowering body temperature in TBI patients to 33° C (91.4° F) within eight hours of the injury. Patients younger than 45 years who were admitted to the hospital with lower than normal body temperature were better off if they were kept cool rather than being brought back to normal body temperature too quickly.
- Other ongoing clinical trials include the use of lowering body temperature for severe TBI in children, the use of magnesium sulfate chemical compounds to protect nerve cells after TBI, and the effects of lowering the pressure inside the brain and increasing the brain's blood flow.
- The use of stem cells to repair or replace damaged brain tissue is also a new avenue of research.
- Another important area of research involves the development of improved rehabilitation programs for those who have disabilities from a TBI.

NIH Studies TBI/PTSD Links

Post-traumatic stress disorder (PTSD) is an illness usually caused by living through or seeing a traumatic event, such as war, a hurricane, physical abuse, or a bad accident. PTSD makes you feel stressed and afraid after the danger is over. NIH-funded clinical trials are studying the relationships between traumatic brain injuries (TBI) and PTSD.

Going Local to Find Help

Finding local health and social services for survivors of TBI is as important as knowing about the medical condition itself. Currently, 29 Go Local sites link nearly half the U.S. population. More are coming online all the time.

From the MedlinePlus page on Traumatic Brain Injury, you can use Go Local to find specific local services. For example, suppose you were looking for a TBI clinic in Durham, N.C. You would choose the North Carolina area from the Go Local box on the Traumatic Brain Injury page:

Go Local

Services and providers for **Traumatic Brain Injury** in the U.S.

NC - North Carolina 

GO

[Select from map](#)

and find an entry for services, complete with description, phone numbers, maps and directions, such as

Adult Day Care [view by county](#)

Hinds' Feet Farm

Hinds' Feet Farm is dedicated to serving persons living with brain injury.
<http://www.hindsfeetfarm.org/home.asp>
(704) 992-1424

Questions to Ask Your Health Care Professional

1. When can I get back to normal activities?
2. Should I restrict my activities, such as exercise?
3. Can I drive my car?
4. What drugs should I take or stop taking?
5. May I drink alcohol? If so, how much?
6. What other problems could this injury cause?
7. Will I need any special treatment or therapy?

To Find Out More

- Visit www.ninds.nih.gov/disorders/tbi/tbi.htm. Or just go to www.ninds.nih.gov and click on the "T" category under the disorders alphabet.
- Go to www.medlineplus.gov and enter "TBI" in the Search MedlinePlus box.
- The Bob Woodruff Foundation www.remind.org

Changing the Odds

A North Carolina family's search to help those with TBI

By Christopher Moore,
Freelance Writer

According to the U.S. National Highway Transportation Safety Authority, auto accidents claim one life every 13 minutes.

Phillip Foil was lucky to survive his. But the 1984 crash left him with traumatic brain injury (TBI)—and changed his family's life forever. “Back then there were no roadmaps for our journey,” recalls his mother, Carolyn. “But we had an unshakable belief that Phillip would have hope and a future.”

For the next nine years, the Foils moved around the country, desperately seeking long-term care for Philip. More often than not, what they found were unsupportive programs and inattentive staff.

“Phillip needed a peer group in a place where temperament, behavior, and compatibility were carefully evaluated and monitored,” says his mother.

The family set out to change things.

In late 2000, they founded Hind's Feet Farm, a non-profit organization dedicated to maximizing the post-injury potential of people like Phillip with brain injury. Located in Huntersville, N.C., the 36-acre facility offers a day program of structured group activities tailored to residents' needs. Included are arts and crafts, yoga, field games and community outings, all designed to add meaning and purpose to post-injury life.

Because of the Foil family's experience, Hind's Feet Farm also focuses on support of family members. Says Phillip's brother, Marty, the farm's executive director, “People and families get discharged from outpatient therapy and rehabilitation facilities with no idea what to do next—where to go, who to contact, and how to proceed. We help them.”



Hind's Feet Farm executive director Marty Foil (left) with farm favorite, Shay Day, and Brendan, 22 (right), who was injured in a 2002 traffic accident in North Carolina.



TBI patients at Hind's Feet Farms engage in a variety of activities.

Photos courtesy Hind's Feet Farms

To Find Out More

For more information, go to
www.HindsFeetFarm.org

Living with Hearing Loss

Articles by Linda Joy,
Science Writer, NIDCD

FASTFACTS

It is estimated that more than 46 million people in the United States suffer some form of disordered communication. The National Institute on Deafness and Other Communication Disorders (NIDCD) was created to conduct and support research and research training in the processes of hearing, balance, smell, taste, voice, speech, and language.

Nora Woodruff, daughter of ABC newsman Bob Woodruff and author Lee Woodruff, was born hearing impaired. But she wasn't diagnosed until she was nine months old. Claire, her twin sister, had no hearing problems.

For the Woodruff family (they have two other children, Mack and Cathryn), Nora's hearing impairment meant a re-education on communicating, one that would serve them well when Bob suffered a traumatic brain injury while reporting in Iraq (See cover story, page 2).

The NIDCD celebrates its 20th anniversary this year, with a continued mission to improve the lives of people with communication disorders. "Human communication research now has more possibilities for productive exploration than at any other time in history," says James F. Battey, Jr., M.D., Ph.D., director of NIDCD.

- There are two main types of hearing loss. Permanent hearing loss (called sensorineural) usually involves damage to the inner ear or auditory nerve. Non-permanent hearing loss (called conductive) usually involves damage to the outer or middle ear and occurs because sound waves cannot reach the ear because of earwax build-up, fluid or a punctured eardrum.
- The intensity of sound is measured in units called decibels, or dB. An ordinary conversation is approximately 60 dB. City traffic noise can reach 80 dB. Firearms can reach an ear-piercing 140 to 170 dB. Loud noises at or above 85 dB can damage the inner ear for good.
- Approximately 15 percent (32.5 million) of American adults report some degree of hearing loss.

Photo by Stefan Radtke, www.stefanradtke.com



Nora Woodruff and her family, including dad Bob, have adapted to her hearing impairment.

Hearing Loss—Symptoms, Causes, Assistive Devices, and Prevention

Symptoms

You may have hearing loss without realizing it. Or you may have symptoms such as

- Earache
- A feeling of fullness or fluid in the ear
- Ringing in your ears (called tinnitus)

Causes

- Aging
- Ear infections, if not treated
- Certain medicines
- Genetic disorders
- A severe blow to the head
- Loud noise

Assistive Devices

- **Hearing Aids**—Small electronic devices worn in or behind the ear to help people hear more in both noisy and quiet situations. Hearing aids enable people with hearing loss to listen, communicate, and participate more fully in daily life
- **Cochlear implants**—Small, complex electronic devices that can help to provide a sense of sound to people who are profoundly deaf or severely hard-of-hearing. They consist of an external portion that sits behind the ear and a second portion that is surgically placed under the skin.
- **Assisted Listening Devices (ALD)**—Devices that enable better communicating in day-to-day situations. ALDs can be used with or without hearing aids to overcome distance, background noise, or poor room acoustics. An example is a telephone amplifying device.

Prevention

- **Know how much noise is too much**
Sounds at or above 85 decibels (dB) can damage your ears. Normal conversation is about 60 dB. Chainsaws, hammers, drills, and bulldozers ring in at over 100 dB.
- **Protect your hearing from loud noise**
Wear ear plugs or special earmuffs to prevent hearing loss from dangerously high noise levels. (See page 16 for more on decibel information.)

To Find Out More

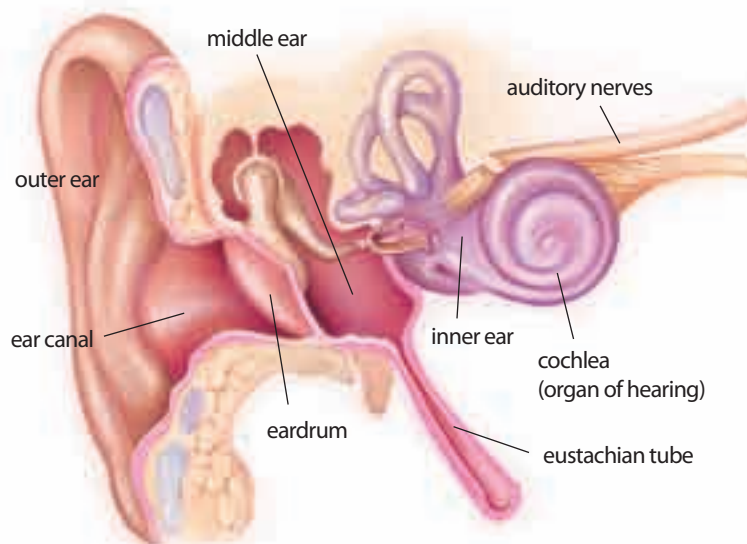
For more information on hearing loss, visit www.medlineplus.gov, www.nidcd.nih.gov.

NIH Research to Results

- NIDCD-funded researchers from Northwestern University are trying to develop a cochlear implant that uses light, not electrodes, to stimulate the auditory nerve. The goal is a more precise implant to help those with profound hearing loss to distinguish speech in noisy environments.
- An NIDCD-funded research team says it might be possible in the future to restore hearing with a genetic message telling the inner ear to grow new hair cells. Hair cells are tiny structures within the cochlea of the inner ear that convert sound waves into electrical impulses that the auditory nerve carries to the brain. Excessive noise, certain medications, aging, and disease can damage or destroy hair cells. Since the human ear is unable to replace hair cells, our hearing declines as they are lost. Researchers at Oregon Health & Science University transferred genes into the inner ears of embryonic mice and grew new hair cells.

Anatomy of the Human Ear

The ear is made up of outer, middle, and inner ear structures.



Can Baby Hear?

“Yes!” says newborn hearing screening

At dawn on January 1, 2007, Evelyn Judith Remortel made her way into the world—to the delight of first-time parents Jennifer and Brian Remortel, of Montgomery Village, Md.

Beautiful as all babies are, was Evelyn healthy, too? To her parents’ relief, she passed all her newborn tests, including screening for hearing. “You’ve just had this huge thing happen to you,” recalls Jennifer. “Of all the unknowns, it was a big relief to know that her hearing was fine.”

Although not universally required, newborn hearing screening has become common since 1993, the year the National Institutes of Health (NIH) recommended it for all infants within the first three months of life. There are two tests hospitals can use. One plays a sound in the baby’s ears and records a return echo to indicate the baby can hear. The other uses earphones and electrodes to measure the baby’s brain’s response to sound.

Two to three of every 1,000 children born in the United States are deaf or hard-of-hearing. Research shows that early intervention with hearing devices and educational services can help children with hearing loss to develop language skills at the same rate as their hearing peers. Interventions are most effective for language development when the child is identified before age six months.

Researchers think that the first two years of life are the most important for developing language and speech. Discovered too late, children with hearing loss may face lifelong academic problems, struggle socially and have limited employment possibilities.

Today, about 81 percent of newborns are screened before they are one month of age, according to the National Institute on Deafness and Other Communication Disorders (NIDCD). Prior to this, the average age of identification for deaf and hearing impaired children was close to three years.



New mother Jennifer Remortel was grateful for the newborn hearing screening that determined her daughter, Evelyn, had no hearing problems.

Photo: NIDCD

Questions to Ask Your Hearing Professional

1. What can I do to protect my hearing from loud noise?
2. How can I prevent infections that cause hearing loss?
3. If I already have a hearing loss, can I get my hearing back?
4. What options do I have for treating a hearing loss?
5. Is hearing loss hereditary?
6. Can any of my medicines cause hearing loss?

SPECIAL SECTION: FOCUS ON COMMUNICATION

Mia and Isabelle Jepps, 10, share brown eyes, broad smiles, and engaging personalities. Like most other twins, they experience practically everything together.

Except Mia is deaf, and Isabelle is not.

Had Mia been born before 1990, things might have been very different. Cochlear implants—small, sophisticated electronic devices—have been approved for children in the U.S. since 1990. Thanks to them, Mia is able to interpret sound, speak, read, and write. She is developing crucial language skills and keeping pace in school.

The girls were born prematurely in 1998 to Carolyn and David Jepps, who then lived in Tokyo. Neonatal testing confirmed that Mia was deaf, and she was fitted with hearing aids.



Twin sisters Mia, right, and Isabelle Jepps meet with Mia's cochlear implant surgeon, John Niparko, M.D., of Johns Hopkins University.

Cochlear Implants

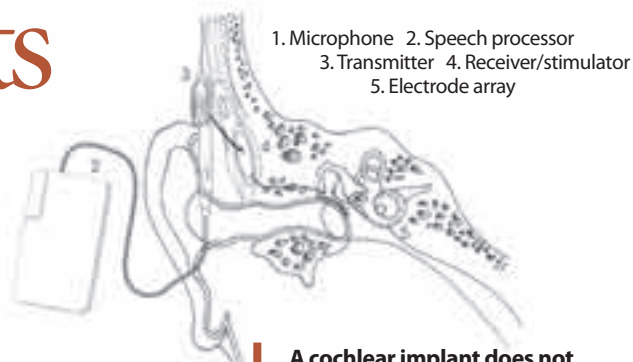
Keep Twin Sisters Learning, Discovering Together

When they returned to the U.S., the Jeppsens began working with John Niparko, M.D., of Johns Hopkins University School of Medicine in Baltimore. With support from the National Institute on Deafness and Other Communication Disorders (NIDCD), he studies how the language skills of children with cochlear implants progress.

Tests showed that Mia could not discern different sounds well. Niparko and his team surgically implanted her first cochlear device at age 2 ½, her second in 2007. Having two implants helps Mia to identify the location of a sound and makes it easier to hear in noisy environments—a critical ability in a classroom.

Before the second implant, Mia was pulling back from group settings, because she couldn't process the jumble of sounds. Says her mother, gratefully, "There's the obvious benefit of learning to read, write and communicate with facility and it's made a real difference in social situations."

While cochlear implants are appropriate for a limited number of those with severe hearing loss, NIDCD sponsors research to improve cochlear implants and other communica-



A cochlear implant does not amplify sound. It is a surgically implanted electronic device that stimulates auditory nerves with electric impulses.

tion aids. These include:

- hearing aids,
- brain stem implants that facilitate hearing for people who cannot be helped by cochlear implants because of damage to the auditory nerve,
- devices similar to cochlear implants but adapted to support balance, and,
- communication aids for people with speech-language production disorders.

To Find Out More

For more information on cochlear implants, see <http://www.nidcd.nih.gov/health/hearing/coch.asp>.

Balancing Acts

Inner ear problems can make you dizzy

Brian Groark, 60, woke up one night dizzy, the room spinning. “It was like watching a movie, but every couple of frames were skipping. It was disorienting,” the Pittsburgh accountant recalls.

The dizziness didn’t go away. Finally Groark went to the Center for Balance Disorders at the University of Pittsburgh Medical Center (UPMC), where he was diagnosed with benign paroxysmal positional vertigo (BPPV). BPPV disrupts the inner ear’s tiny balance-sensing structures. It is most commonly age-related, but may also be caused by inner ear infections or head injuries.

Groark failed to respond to initial treatment. “Happy to make a small contribution to public health,” he agreed to participate in a clinical trial of a new type of balance therapy using computerized, virtual reality.

UPMC associate professor Susan Whitney, Ph.D., developed the therapy with funding from the National Institute on Deafness and Other Communication Disorders (NIDCD). It involves simulated trips down the aisles of a virtual grocery store in the university’s Medical Virtual Reality Center. Patients walk on a treadmill and safely practice walking and head turning.

After one practice session per week for six weeks, Groark felt much better. “It seems to have slowly subsided. It’s just about all gone,” he says. “I think virtual reality balance therapy may have a lot of potential.”



Patients can safely practice walking and head turning to improve balance using the University of Pittsburgh’s simulated grocery store aisles.

Photo courtesy of the University of Pittsburgh Medical Center.

For information on NIH clinical research, including how to participate, go to <http://clinicaltrials.gov>.

NIDCD Turns 20!

The NIH National Institute on Deafness and Other Communication Disorders (NIDCD) was established by Congress in 1988 to fund and conduct scientific research on hearing, balance, smell, taste, voice, speech, and language—common elements in how we perceive and interact with the world.

From better hearing aid technology to the study of improved approaches for treating language disorders, NIDCD continues to advance its core scientific mission. “We are proud of the many challenges we have undertaken and the discoveries we continue to make to improve people’s lives,” says NIDCD director James F. Battey, Jr., M.D., Ph.D.

For more information about NIDCD programs, see www.nidcd.nih.gov.



The High Price of Noise Exposure

Kurt Evers, 46, of Montgomery Village, Md., started driving fire engines in the early 1980s, when firemen typically didn't use ear protection. By the late 1990s, he often couldn't hear his wife talking to him. In 2004, even with digital hearing aids, he was unable to pass National Fire Protection Association hearing standards.

Too many loud sirens over too many years had taken their toll: Evers was forced to retire.

Now co-owner of a fireplace company, he is among the 22 million Americans between 20 and 69 who have noise-induced hearing loss. And he never misses an opportunity to warn against its dangers.

Loud noises such as sirens damage the hair cells in our inner ear. These tiny structures convert sound waves into electrical energy. Our auditory nerve sends this energy to the brain, which perceives it as sound. Our bodies cannot replace damaged hair cells. Once

they are gone, hearing declines—permanently.

Although hearing loss tends to increase as we age, young people are vulnerable, too. Doctors, parents and educators worry about portable music players and other noisy gadgets damaging hearing in children and young adults. Just how much depends on both loudness and time—the longer the exposure, the more likely the damage.

In addition, the louder the sound, the less time it takes to cause harm. Exposure to loud noise also can cause tinnitus, a continuous ringing, roaring, or clicking sound in the ears.

“Our goal is to make it second nature for people to use protective hearing techniques when they're exposed to loud noise, just like using sunscreen at the beach or wearing a helmet when you go biking,” says James F. Battey, Jr., M.D., Ph.D., director of the National Institute of Deafness and Other Communication Disorders (NIDCD).

How Loud Is Too Loud?

Protect Your Hearing

Know which noises can cause damage. Wear earplugs when you are involved in a loud activity. Sponsored by the NIDCD, *It's a Noisy Planet*. *Protect Their Hearing* aims to increase awareness among parents of children ages 8 to 12 about the causes and prevention of noise-induced hearing loss.

110 Decibels

Regular exposure of more than 1 minute risks permanent hearing loss.

100 Decibels

No more than 15 minutes of unprotected exposure recommended.

85 Decibels

Prolonged exposure to any noise at or above 85 decibels can cause gradual hearing loss.

150	Firecracker
120	Ambulance siren
110	Chain saw, rock concert
105	Personal stereo system at maximum level
100	Wood shop, snowmobile
95	Motorcycle
90	Power mower
85	Heavy city traffic
60	Normal conversation
40	Refrigerator humming
30	Whispered voice



Get sound advice.

For more information, visit
<http://noisyplanet.nidcd.nih.gov>.

Speak Up!

But don't strain your voice

“**E**very year, I would lose my voice at the same time,” recalls Sherdina Jones, a 56-year-old Pittsburgh elementary school teacher, librarian, and church choir singer.

Since teachers and singers are at high risk for developing voice problems, Jones accepted it as a matter of course—until she attended an in-service teacher training session on voice disorders.

It was then that University of Pittsburgh Voice Center researchers found small nodules on her vocal folds, a sure sign of voice strain and overuse. At their invitation, Jones took part in a clinical trial sponsored by the National Institute on Deafness and Other Communication Disorders (NIDCD) at the Voice Center. She was one of 105 teachers from Pennsylvania and Massachusetts who participated.

Led by Katherine Verdolini, Ph.D., the trial tested which therapy was more effective at increasing volume: humming exercises or airflow practice. Once a week over five weeks, Jones

received 90 minutes of therapy. “They showed you how to get the kids’ attention without screaming, how to get more volume,” she explains.

Although her throat nodules didn’t change, Jones reports not having had a sore throat since. “I always used to have lozenges with me, but not anymore!” Her singing range is higher now, too. And she did not lose her voice last year.



Photo: University of Pittsburgh Voice Center

A clinical trial at the NIDCD Voice Center gave Sherdina Jones tools to limit voice strain in the classroom and the choir.

Medical Mystery:

Losing the sense of smell

Imagine, if you can, a world without scent. Of not being able to “wake up and smell the coffee.”

Welcome to the odor-free world of Suzie Thomas, 54, a Canton, Ohio, public relations executive. She suspects she lost her sense of smell after breaking her nose as a cheerleader, years ago. The complete inability to smell, known as anosmia, is generally rare, but can happen in people who have experienced head trauma. More common is a gradual diminishing of the senses of smell and taste with age.

Although it may seem that smell and taste rank as second-tier senses behind seeing, hearing, and touching, their loss can be both depressing and dangerous. Thomas recalls being in her kitchen with her back to the stove, unaware that a pot had caught fire. She did not realize what was happening until her sons burst into the kitchen yelling, “What’s burning?”

Our sense of smell is also key to perceiving flavor and taste. Working alone, taste buds can only detect five flavors: salty, sweet, bitter, sour, and savory. Smell adds a practically limitless variety and subtlety to the world of flavors.

The sense of smell often diminishes with age—in one clinical study, 40 percent of men and 20 percent of women between ages

70 and 79 had measurable smell impairments.

Over the past 20 years, researchers have made great strides in understanding our sense of smell. For example, they have discovered how odor receptors working alone or in combination allow us to detect 10,000

different odors. They have also discovered how the odor receptors communicate with the brain to alert us to the presence of odors.

NIDCD is supporting research aimed at better understanding how the senses of smell and taste work. Of all the senses, smell and taste hold the most medical mystery. Researchers hope that new knowledge might eventually point the way to methods and treatments to preserve and restore the senses of smell and taste.



Photo: Malone University

Suzie Thomas suffered a head trauma as a teenager that took away her sense of smell.

Understanding, Treating, and Preventing STDs



Photo: Corbis

More than 19 million men and women in this country are affected by sexually transmitted diseases (STDs) every year, according to the Centers for Disease Control and Prevention. Once called venereal diseases, STDs are among the most common infections in the United States today. The annual medical costs of STDs in the United States are estimated to be up to \$14 billion.

Understanding the basic facts about STDs—the ways in which they are spread, their common symptoms, and how they can be treated—is the first step toward preventing them. Researchers supported by the National Institute of Allergy and Infectious Diseases are looking for better methods to diagnose, treat, and prevent STDs.

FASTFACTS

- Sexually transmitted diseases (STDs) are infections that you can get from having sex with someone who has the infection. The causes of STDs are bacteria, parasites, and viruses.
- There are more than 20 types of STDs, the most common of which include chlamydia, gonorrhea, herpes simplex, HIV/AIDS, HPV, syphilis and trichomoniasis.
- STDs affect men and women. In many cases the health problems they cause can be more severe for women.
- STDs caused by bacteria can be treated and often cured with antibiotics. Some bacterial STDs include chlamydia, gonorrhea, trichomoniasis, and syphilis.
- STDs caused by viruses can be controlled, but not cured. If you get a viral STD, you will always have it. Some viral STDs include HIV/AIDS, genital herpes, genital warts, human papilloma virus (HPV), hepatitis B virus, and cytomegalovirus.
- When diagnosed and treated early, many STDs can be treated effectively. Some infections have become resistant to the medicines used to treat them and now require newer types of treatments.
- Correct usage of latex condoms greatly reduces, but does not completely get rid of the risk of catching or spreading STDs.
- Approximately 19 million new infections occur each year, almost half among young people ages 15 to 24.

Symptoms

The symptoms vary among the different types of STDs. Some examples of common symptoms include:

- Unusual discharge from the penis or vagina
- Sores or warts on the genital area
- Burning while urinating
- Itching and redness in the genital area
- Anal itching, soreness, or bleeding

Diagnosis

Talk with your doctor or nurse about getting tested for STDs. She or he can tell you how to test for each STD.

An exam will include a thorough look at your genital area, oral cavity and rectum. Swabs from open sores or discharges may be taken. Women will have a pelvic exam. You will also have urine and blood tests.

Many symptoms of STDs come and go. Just because your symptoms disappear, it does not mean you are cured without medical treatment.

Treatment

The treatment depends on the type of STD. For some STDs, treatment may involve taking drugs or getting a shot. For other STDs that can't be cured, like herpes, there is treatment to relieve the symptoms.

Prevention

The only way to ensure that you won't get infected is to not have sex. This means avoiding all types of intimate sexual contact.

If you are sexually active, you can reduce your risk of getting STDs by practicing "safe sex." This means:

- Using a condom for vaginal, oral, and anal intercourse—every time
- Knowing your partner and his/her STD status and health
- Having regular medical check-ups, especially if you have more than one sexual partner

Questions to Ask Your Health Care Professional

1. How can I prevent getting an STD?
2. If I already have an STD, what should I do so I don't spread the disease?
3. What long-term health effects will there be with an STD?

NIH Research Leads to Cervical Cancer Vaccine

By Judy Folkenberg, Staff Writer, NLM

Cervical cancer kills more than 250,000 women worldwide each year. Caused by the human papillomavirus (HPV), it is the second deadliest cancer among women.

But thanks to Drs. Douglas Lowy and John Schiller, senior research scientists at NIH's National Cancer Institute, a vaccine is now available to protect against two of the deadliest forms of HPV.

Approved by the U.S. Food and Drug Administration in 2006, Gardasil resulted from advances over 25 years by Lowy, Schiller, and their research teams to boost the body's immune response to HPV infection. The vaccine has been clinically proven to be 100-percent effective.

"It is personally gratifying to unravel a health mystery. Most important, however, is to have a vaccine which potentially can save thousands of lives," says Lowy.

Lowy and Schiller are focusing their research on helping to produce second-generation HPV vaccines for use in developing countries. They are also testing potentially effective ointments made from a wide variety of compounds, including carrageenan, an extract from seaweed.

According to Schiller, "The current vaccine is expensive to make and deliver, so we're trying to devise better, simpler approaches."

NIH Research to Results


- Testing very young babies for HIV, and giving antiretroviral therapy (ART) immediately to those found infected with the virus, dramatically prevents illness and death, according to recent research funded by the National Institute of Allergy and Infectious Diseases (NIAID). The study found that giving ART to HIV-infected infants beginning at an average age of seven weeks made them four times less likely to die in the next 48 weeks when compared with postponing ART until signs of illness or a weakened immune system appear—the standard of care when the study began.
- Based on ongoing assessments of vaccine safety information, FDA and CDC continue to find that Gardasil is a safe and effective vaccine. This vaccine is an important cervical cancer prevention tool that will potentially benefit the health of millions of women. Every year, about 12,000 women are diagnosed with cervical cancer and almost 4,000 die from this disease in the United States. Worldwide, cervical cancer is the second most common cancer in women, causing an estimated 470,000 new cases and 233,000 deaths per year.

To Find Out More

For more information on individual sexually transmitted infections, visit www.medlineplus.gov, www3.niaid.nih.gov or www.cdc.gov.

What's New?

- Community-wide treatment of curable sexually transmitted infections (STDs) reduced STD rates, and improved pregnancy outcomes, but did not reduce new HIV infections, in a recent study supported by the National Institute of Allergy and Infectious Diseases (NIAID). The study was conducted in a rural region of Uganda where STDs and HIV infection are common.
- A database designed to accelerate research on sexually transmitted infections (STDs) is now "on line." The STDGEN Relational Database (<http://www.stdgen.lanl.gov>) is a collaborative effort between the Los Alamos National Laboratory and the National Institute of Allergy and Infectious Diseases (NIAID).

A photograph of two men, Drs. Douglas Lowy and John Schiller, in a laboratory. They are both wearing white lab coats over collared shirts. Dr. Lowy, on the left, has a beard and is smiling. Dr. Schiller, on the right, has grey hair and is looking directly at the camera. In the foreground, there are several multi-well plates with colorful tabs. The background shows shelves filled with various laboratory supplies and equipment.

NIH researchers Drs. Douglas Lowy (left) and John Schiller developed the vaccine to prevent HPV infection in women, the cause of the majority of cervical cancers.



Skin Health and Skin Diseases

Care for conditions from acne to wrinkles

FASTFACTS

- **Skin cancer is the most common form of cancer in the United States. The two most common types are basal cell cancer and squamous cell cancer. Melanoma, a more serious type of skin cancer, is less common.**
- **The number of cases of skin cancer has been increasing. Exposure to the sun is a major factor.**
- **In 2006, over 30 million people visited health-care providers for skin rashes.**

Everyone needs protection from the sun.

Photo: Photodisc

Did you know that your skin is the largest organ of your body? It is, in terms of both weight—between 6 and 9 pounds—and surface area—about 2 square yards. Your skin separates the inside of your body from the outside world. It protects you from bacteria and viruses, and regulates your body temperature.

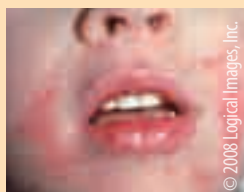
Conditions that irritate, clog, or inflame your skin can cause symptoms such as redness, swelling, burning, and itching. Allergies, irritants, your genetic makeup, and certain diseases and immune system problems can cause dermatitis, hives, and other skin conditions. Many skin problems, such as acne, also affect your appearance. Your skin can also develop several kinds of cancers.

Here are the key facts about some of the most common skin problems:

Acne—A disease that affects the skin's oil glands. The small holes in your skin (pores) connect to oil glands under the skin. These glands make a substance called sebum. The pores connect to the glands by a canal called a follicle. When the follicle of a skin gland clogs up, a pimple grows. Acne is the most common skin disease; an estimated 80 percent of all people have acne at some point. Early treatment is the best way to prevent scars. Your doctor may suggest over-the-counter (OTC) or prescription drugs.

SKIN DISEASES

Eczema—Also known as atopic dermatitis, this is a long-term skin disease. The most common symptoms are dry and itchy skin, rashes on the face, inside the elbows, behind the knees, and on the hands and feet. Currently, there is no single test to diagnose eczema, so doctors rely on information about you and your family.



Eczema

Hives—Red and sometimes itchy bumps on your skin. An allergic reaction to a drug or food usually causes them. People who have other allergies are more likely to get hives than other people. Other causes include infections and stress. Hives are very common. They usually go away on their own, but if you have a serious case, you might need medical help.

Impetigo—A skin infection caused by bacteria. Usually the cause is staphylococcal (staph), but sometimes streptococcus (strep) can cause it, too. It is most common in children between the ages of 2 and 6. It usually starts when bacteria get into a break in the skin, such as a cut, scratch, or insect bite. Symptoms start with red or pimple-like sores surrounded by red skin. These sores usually occur on your face, arms, and legs. The sores fill with pus, then break open after a few days and form a thick crust. You can treat impetigo with antibiotics.

Melanoma—A severe and potentially life-threatening skin cancer. The “ABCD’s” of what to watch for with the moles on your skin:

- **Asymmetry:** the shape of one half does not match the other
 - **Border:** the edges are ragged, blurred, or irregular
 - **Color:** the color is uneven and may include shades of black, brown, and tan
 - **Diameter:** there is a change in size, usually an increase
- People with melanoma may have surgery, chemotherapy, biological therapy, radiation therapy, or a combination of those.



Melanoma

Moles—Growths on the skin. They happen when cells in the skin, called melanocytes, grow in a cluster with tissue surrounding them. Most people have between 10 and 40 moles. A person may develop new moles from time to time, usually until about age 40. About one out of every 10 people has at least one unusual (or atypical) mole that looks different from an ordinary mole. They may be more likely than ordinary moles to develop into melanoma, a type of skin cancer. Because of this, you should have a health care professional check your moles if they look unusual, grow larger, change in color or outline, or in any other way.

NIH Research to Results

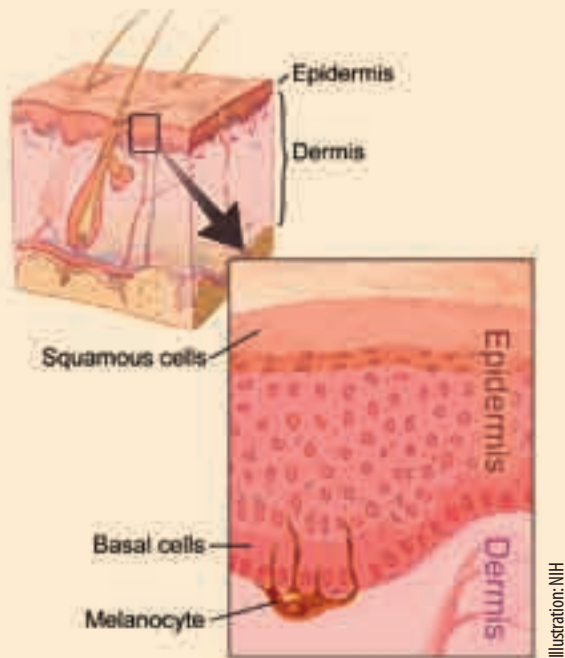
- **Dermatitis**—Some researchers are focusing on new treatments, including biologic agents, fatty acid supplements, and new forms of phototherapy.
- **Skin cancer**—New ways of working with the immune system to fight cancer are being studied. Researchers are working on vaccines aimed at making a person immune to his or her skin cancer cells. Another method is to train a person's immune cells to attack the skin cancer cells. Other forms of immunotherapy are also being studied. A recent small study showed that treating patients with immune system cells found in tumors could shrink skin cancer tumors and possibly prolong life, too. Another study found that a type of white blood cell (T cells) that had their genes altered in the lab could cause tumors to shrink in a small number of patients. More studies of these treatments are being done.
- **Rosacea**—Research conducted by Richard L. Gallo, M.D., Ph.D., of the University of California, San Diego, and the VA San Diego Healthcare System, along with an international team of investigators, has uncovered a possible flaw in the immune system that contributes to the disease. Their findings were reported in the December 2007 issue of *Nature Medicine*.
- **Psoriasis**—A new wave of drug treatments known as biologics may offer those with psoriasis some relief. These medications do what previous treatments could not—go after the root of the problem by influencing the immune system. Currently, five biologics are approved by the Food and Drug Administration for treatment of psoriasis. Biologics are effective, and they also are more affordable than ultraviolet therapy, the other leading treatment for dealing with medium-to-severe cases of psoriasis.

Psoriasis—A skin disease that causes scaling and swelling. Most psoriasis causes patches of thick, red skin with silvery scales. These patches can itch or feel sore. They are often found on the elbows, knees, other parts of the legs, scalp, lower back, face, palms, and soles of the feet. But they can show up on other areas, as well. Psoriasis can be hard to diagnose because it can look like other skin diseases. The doctor might need to look at a small skin sample under a microscope. Treatment depends on how serious the disease is, the size of the psoriasis patches, the type of psoriasis, and how the patient reacts to certain treatments.



Psoriasis

Rashes (basic dermatitis)—Dry and itchy skin; Rashes on the face, inside the elbows, behind the knees, and on the hands and feet.



Cross-section of human skin

In the areas of skin health and skin diseases, the NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) has a wide range of topics under study and through funding of research outside NIAMS. These include disorders such as psoriasis, atopic dermatitis and other chronic inflammatory skin disorders, acne, and many others.

Your doctor will help you develop a good skin care routine, learn to avoid things that lead to flares, and treat symptoms when they occur.

Rosacea—Frequent redness (flushing) of the face; small red lines under the skin; inflamed eyes/eyelids, a swollen nose, and thicker skin. Your physician can usually diagnose rosacea with a thorough medical history and physical exam. There is no cure for rosacea, but it can be treated and controlled.



Rosacea

Skin Cancer—Skin cancer is the most common form of cancer in the United States. The two most common types are basal cell cancer and squamous cell cancer. They usually form on the head, face, neck, hands, and arms. Another type of skin cancer, melanoma, is more dangerous but less common.

Wrinkles—Your skin changes as you age. You might notice wrinkles, age spots, and dryness. Sunlight is a major cause of skin aging. (See "Skin and Sun—Not a Good Mix"). Cigarette smoking also contributes to wrinkles. The wrinkling increases with the number of cigarettes and years a person has smoked. Many products claim to revitalize aging skin or reduce wrinkles, but the Food and Drug Administration has approved only a few for sun-damaged or aging skin. Various treatments soothe dry skin and reduce the appearance of age spots.

Skin and Sun— Not a good mix

Good skin care begins with sun safety. Whether it is something as simple as age spots or as serious as skin cancer, the simplest and cheapest way to keep your skin healthy is to limit your exposure to the sun. Yet, Americans spend billions of dollars each year on skin care products that promise to erase wrinkles, lighten age spots, and eliminate itching, flaking, or redness.

As you age, your skin changes. It becomes thinner and loses fat, making your skin look less smooth. When your skin looks less plump, your veins and bones become more noticeable. You sweat less, which causes your skin to be drier. Also, your skin can take longer to heal from bruises or cuts as you get older. With all of these age-related changes, sunlight is a major contributing factor. You can delay these changes by avoiding prolonged and regular exposure to the sun.

Although nothing can completely undo sun damage, the skin sometimes can repair itself. So, it's never too late to protect yourself from the harmful effects of the sun.

- **Stay out of the sun.** Avoid the sun between 10 a.m. and 3 p.m. This is when the sun's harmful ultraviolet (UV) rays are strongest.
- **Use sunscreen.** Sunscreens are rated according to a sun protection factor (SPF), which ranges from 2 to 30 or higher. A higher number means longer, stronger protection. Buy products with an SPF of 15 or higher. Also look for products with a label that says: broad spectrum (protects against both UVA and UVB rays) and water resistant (stays on longer, even if you get wet or sweat). Reapply the lotion as needed.
- **Wear protective clothing.** A hat with a wide brim shades your neck, ears, eyes, and head. Look for sunglasses with a label saying the glasses block 99 to 100 percent of the sun's rays. Wear loose, lightweight, long-sleeved shirts and long pants or long skirts when in the sun.
- **Avoid artificial tanning.** Don't use sunlamps, tanning beds, tanning pills, or tanning makeup. Tanning pills have a color additive that turns your skin orange after you take them. The FDA has not approved this for tanning the skin. Tanning make-up products will not protect your skin from the sun.
- **Check your skin often.** Look for changes in the size, shape, color, or feel of birthmarks, moles, and spots. If you find any changes, see a doctor. The American Academy of Dermatology suggests that older, fair-skinned people have a yearly skin check as part of a regular physical exam.
- **Dark skin needs protection, too.** The incidence of skin cancer in African Americans and other dark-skinned people is much lower than in Caucasians due to the additional melanin, a pigment, in the skin. While this pigment offers some sun protection, dark brown or black skin is not a guarantee against skin cancer.

Questions for Your Health Care Provider

Photo: iStockphoto

Acne

1. How should I care for my skin if I have acne?
2. What will make my acne worse?
3. What are common myths about acne?

Dermatitis (including eczema)

1. Can dermatitis be cured?
2. What factors or triggers will make dermatitis worse?
3. What are the most common irritants?

Skin cancer

1. What type of skin cancer do I have?
2. How far has my melanoma spread within or beneath my skin?
3. How thick is the melanoma?
4. What treatment choices do I have? What do you recommend and why?

Psoriasis

1. How do I know I have psoriasis?
2. What treatments do you recommend?
3. Can psoriasis be cured?

Rosacea

1. How long does rosacea last?
2. What triggers a flare up?
3. What are the benefits of laser and therapies? How do they work?

To Find Out More

www.medlineplus.gov

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) call 877-226-4267 or visit www.niams.nih.gov

National Cancer Institute call 800-422-6237 or visit www.cancer.gov.

HEALTH LINES

By Shana Potash, Staff Writer, NLM

Catch Your Zzzzzs!

Nodding off in school may not be the only outcome for otherwise healthy teens who don't get enough sleep. A recent study links poor sleep in teens (ages 13 to 16 years old) to higher blood pressure. Researchers found that teens who got less than 6 ½ hours sleep were 2 ½ times more likely to have elevated

Sleep Facts:

School-aged children and teens need at least nine hours of sleep a night

Adults need seven to eight hours of sleep a night

Sleep Tips:

Set a sleep schedule; going to bed and waking up the same times each day

Keep room temperature on the cool side

A TV or computer in the bedroom can be a distraction

blood pressure than teens who slept longer. Also, teens who had trouble falling asleep or staying asleep were 3 ½ times more likely to have high blood pressure or pre-high blood pressure than teens who slept well. These results are similar to findings from other studies in adults. High blood pressure, if left untreated, can increase the risk of stroke and heart diseases later in life.

The research study funded by the National Heart, Lung, and Blood Institute was conducted by a team at Case Western Reserve University in Cleveland, Ohio.

For more information, visit www.medlineplus.gov and type “sleep” in the search box.

Incontinent? You're Not Alone

It may not be a topic women are quick to discuss, but a new study finds almost one quarter of U.S. women experience pelvic floor disorders.

The term “pelvic floor” refers to the group of muscles that

form a sling across the opening of a woman's pelvis. These muscles, together with their surrounding tissues, keep all of the pelvic organs in place so that the organs can function correctly.

A pelvic floor disorder occurs when the pelvic muscles and connective tissue in the pelvis weaken or are injured. The three main disorders are urinary incontinence, fecal incontinence, and pelvic organ prolapse, which happens when the muscles become so weak they can't hold pelvic organs in place.

NCHS-funded researchers used data from a national survey of nearly 2,000 women who were age 20 and older and were not pregnant. Nearly 24 percent said they had symptoms of at least one pelvic disorder; nearly 16 percent reported urinary incontinence; 9 percent had fecal incontinence; and nearly 3 percent had symptoms of pelvic organ prolapse.

The study found that pelvic floor disorders increase with age and are more common in women who are overweight or obese and women who have given birth.

Treatment possibilities include lifestyle changes, pelvic muscle exercises, vaginal medical devices to hold up pelvic organs, medications, and surgery. The study was funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the



Photo: iStockphoto

HEALTHLINES

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), the Office of Research on Women's Health (ORWH), all at the NIH, and by the National Center for Health Statistics (NCHS) and the Centers for Disease Control and Prevention.

For more information, visit www.medlineplus.gov and type **"incontinence"** in the search box.

Keep Weight Off

Anyone who has struggled with losing weight knows that's just part of the battle—keeping it off is another challenge. The study, funded by the National Heart, Lung, and Blood Institute, suggests that monthly personal counseling may help maintain weight loss. A web-based support system may help too, but was less beneficial after about two years. A research team led by Duke University Medical Center studied more than 1,000 overweight and obese people. Participants were randomly assigned to one of three groups, after an initial six-month weight loss intervention. One group had monthly personal coaching, usually through a brief phone call but sometimes face-to-face. Another group got similar information, but through an interactive Web site. The third group was basically left on their own. Personal counseling proved to be the most useful by the end of the 2 ½-year study.

Researchers say overall the effects of the counseling and support were modest, and most people in the study did regain some weight. But they note that even modest weight loss can have health benefits.

For more information, visit www.medlineplus.gov and type **"weight control"** in the search box.

Facts About Fat

Scientists are learning more about our fat cells, and their findings could explain why some people have a hard time maintaining weight loss.

NIH-funded research suggests that the number of our fat cells increases during childhood and teen years. Fat cells then level off and stay the same throughout adulthood. If we gain or lose weight as an adult, the number of cells stays the same. But their volume changes—expanding



Photo: Thinkstock LLC

or shrinking depending on weight gain or loss. "If you are overweight and you lose weight, you still have the capacity to store lipids because you still have the same number of fat cells. That may be why it's so hard to keep the weight off," explains one of the study authors, scientist Bruce Buchholz of the NCRR-funded National Resource for Biomedical Accelerator Mass Spectrometry, at Lawrence Livermore National Laboratory in California.

For more information, visit www.medlineplus.gov and type **"weight control"** in the search box.

Control Blood Pressure, Protect Your Kidneys

High blood pressure is a leading cause of chronic kidney disease (CKD). The disease is the permanent loss of kidney function. Some racial groups, including African Americans, are at increased risk for CKD. NIH has been conducting the largest and longest study of chronic kidney disease in African Americans. Researchers found that the disease got much worse in about one-fourth of the participants, even with the best available treatment. The findings highlight the importance of prevention, early detection, and treatment. The study was funded by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

For more information, visit www.medlineplus.gov and type **"kidneys"** in the search box.

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
- **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 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

- **Center for Information Technology (CIT)**
www.cit.nih.gov (301) 594-6248
- **Center for Scientific Review (CSR)**
www.csr.nih.gov (301) 435-1115
- **Fogarty International Center (FIC)**
www.fic.nih.gov
- **National Center for Complementary and Alternative Medicine (NCCAM)**
www.nccam.nih.gov 1-888-644-6226
- **National Center on Minority Health and Health Disparities (NCMHD)** www.ncmhd.nih.gov
(301) 402-1366
- **National Center for Research Resources (NCRR)**
www.ncrr.nih.gov (301) 435-0888
- **NIH Clinical Center (CC)**
www.cc.nih.gov (301) 496-2563
- **Office of Research on Women's Health (ORWH)**
http://orwh.od.nih.gov (301) 402-1770

NIH MedlinePlus Advisory Group

Marin P. Allen, Ph.D., Office of Communications and Public Liaison, NIH

Joyce Backus, National Library of Medicine (ex-officio)

Christine Bruske, National Institute of Environmental Health Sciences

Vicky Cahan, National Institute on Aging

Kym Collins-Lee, National Eye Institute

Kathleen Cravedi, National Library of Medicine (ex-officio)

Kate Egan, National Institute of Mental Health

Marian Emr, National Institute of Neurological Disorders and Stroke

Martha Fishel, National Library of Medicine (ex-officio)

Susan Johnson, National Institute of Dental and Craniofacial Research

Mary Beth Kester, National Institute of Biomedical Imaging and Bioengineering

Kathy Kranzfelder, National Institute of Diabetes and Digestive and Kidney Diseases

Carol Krause, National Institute on Drug Abuse

Lonnie Lisle, National Institute on Deafness and Other Communications Disorders

Ann London, National Institute of Allergy and Infectious Diseases

Richard E. Manrow, Ph.D., National Cancer Institute

John McGrath, Ph.D., National Institute of Child Health and Human Development

Naomi Miller, National Library of Medicine (ex-officio)

Gregory Roa, National Institute of Alcohol Abuse and Alcoholism

Dennis Rodrigues, Office of Communications and Public Liaison, NIH

Diane Striar, National Heart, Lung, and Blood Institute

Chris Thomsen, National Center for Complementary and Alternative Medicine

Larry Thompson, National Human Genome Research Institute

Anne Thurn, Ph.D., Office of Dietary Supplements

Marcia Vital, National Institute of Arthritis and Musculoskeletal and Skin Diseases

MedlinePlus.gov Turns 10!

NIH's MedlinePlus.gov, the popular, consumer-friendly health Web site produced by the National Library of Medicine, is celebrating 10 years of bringing trusted health information to people across the country and around the world.



NIH MedlinePlus Advisory Group celebrates 10 years of success.



Photos: Michael Spencer, NIH photographer

What a difference a decade makes. Since its debut in 1998, MedlinePlus.gov has grown to include:

- Information on hundreds of diseases, conditions, and wellness issues
- MedlinePlus en español, the most comprehensive Spanish-language health site in the United States
- A "Go Local" feature for finding health services in your community

Nearly 500 million people in more than 200 countries have turned to MedlinePlus.gov since its launch. The site receives about 12 million visitors each month and is approaching one billion page views a year.



MedlinePlus.gov