

NIH MedlinePlus®

Trusted Health Information
from the National
Institutes of Health



Winter 2012

the magazine

Plus!

- **Don't Wait for Eye Problem Warning Signs**

Take action early!

- **Going After Gout**

Detecting and treating
this painful arthritis

- **Exploring Native Peoples' Concepts of Health, Illness**

New interactive exhibition
opens free to public



ABC/NPR news analyst
Cokie Roberts
celebrates the work of
The Children's Inn

Advancing Clinical Research on **Safe Medicines & Healthy Children**

FNLM Medical Awards

Dr. Mehmet Oz and Dr. Michael Roizen win health communications award. Four others also honored.

The 2011 FNLM Annual Awards Dinner on November 3 brought together representatives from the public, professional, and business sectors in health care to show their support for the Library—this year celebrating its 175th anniversary. For their achievements and support of the advancement of health, six recipients were honored.

Paul G. Rogers Health Communications Award Mehmet Oz, MD, and Michael Roizen, MD, co-authors, *YOU: The Owner's Manual*

Distinguished Medical Science Award Purnell W. Choppin, MD, President Emeritus, Howard Hughes Medical Institute

Michael E. DeBaakey Library Services Outreach Award Ann Duesing, Outreach Librarian, Claude Moore Health Sciences Library, UVA

Distinguished Medical Informatics Award Larry Ellison, Founder and CEO, Oracle

Congressional Citation Michael Lemole, one of the medical professionals who operated on Congresswoman Gabrielle Giffords, for his outstanding work in neurosurgery.

Sincerely,
Donald West King, M.D., Chairman
Friends of the National Library of Medicine



Award winner Dr. Mehmet Oz and wife Lisa at the Awards Gala.

Drs. Michael Roizen and Mehmet Oz helped improve patient education and health literacy in their bestselling *YOU: The Owner's Manual*, which sparked a series of associated books from the two doctors.



Award winner Dr. Michael Roizen (left) and FNLM Chairman Dr. Donald West King.

Photos: Michael Spencer



Help Out for Health: Be a Friend

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

If you or your company can help to support and expand the publication and distribution of *NIH MedlinePlus* magazine, thousands and thousands more people 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) 679-9930. Or, write to FNLM, 7900 Wisconsin Avenue, Suite 200, Bethesda, MD 20814.

The FNLM is classified as a 501(c)(3) nonprofit organization for federal tax purposes. Web site: www.fnlm.org

Mobile MedlinePlus!

On the go! Find trusted health information from the experts at MedlinePlus and the National Library of Medicine:

- Disease and wellness topics
- The latest health news
- An illustrated medical encyclopedia
- Information on prescription and over-the-counter medications

Trusted medical information on your mobile phone.

<http://m.medlineplus.gov>
and in Spanish at <http://m.medlineplus.gov/spanish>



NATIONAL LIBRARY OF MEDICINE
at the NATIONAL INSTITUTES OF HEALTH
8600 Rockville Pike • Bethesda, Md. 20894
www.nlm.nih.gov
www.medlineplus.gov

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

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

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

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

Patricia Carson
Special Assistant to the Director, NLM

Elliot Siegel, Ph.D.
Outreach Consultant, NLM

Christopher Klose
Contributing Editor

Peter Reinecke
Strategic Advisor



Friends of the NLM
(202) 679-9930

7900 Wisconsin Avenue, Suite 200, Bethesda, MD 20814

Donations and Sponsorships

If you are interested in providing a sponsorship or other charitable donation to support and extend the reach of this publication, please contact the FNLM office at (202) 679-9930.

FNLM Officers

Donald West King, M.D.,
Chairman & President

Joseph Perpich, M.D., *Vice President*

Barbara Redman, Ph.D., *Secretary*

KRAMES
staywell

Selby Bateman, Managing Editor
Jan McLean, Creative Director
Traci Marsh, Production Director

NIH MedlinePlus, the Magazine is published by
Krames StayWell
407 Norwalk St.
Greensboro, NC 27407
336.547.8970

William G. Moore, President
Kelly Carter, Senior Staff Accountant

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.



Channing O'Halloran is a happy, healthy 9-year-old, thanks to life-saving research at the NIH Clinical Center.

10 Take the Steps to Save Your Sight

16 Detecting and Treating Gout

22 Take Part in Women's Heart Month—February



A new National Library of Medicine exhibition on native peoples includes a hand-built healing totem pole.

The National Institutes of Health (NIH)—the Nation's Medical Research Agency—includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical, and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

Follow us on **twitter** @medlineplus

IFC From the FNLM Chairman: 2011 Medical Awards

2 NIH Research: The NIH Clinical Center is America's clinical research hospital.

4 Developing Safe and Effective Medicines for Children



NEI scientist Dr. Emily Chew discovered a serious carotid artery problem in a patient during a thorough eye exam.

23 Health Lines: Your Link to the Latest Medical Research

24 Exploring Native Peoples' Concepts of Health and Illness

29 Info to Know

Photos: (cover) Randy Sager, (top of page) SKRPPhotography.net, (center) Ernie Branson NIH, (bottom) J.S.A. Photography



NIH Research:

Dr. John I. Gallin is Director
of the NIH Clinical Center.



Photo: NIH Clinical Center

Children research volunteers receive care and help advance knowledge

If one smile can light up a room, the smiles of many can light up a whole building. Such could be said of the pediatric patients at the National Institutes of Health (NIH) Clinical Center.

The NIH Clinical Center has a long history of treating the brave children who participate in clinical research to improve outcomes and advance the knowledge of disease. NIH researchers were responsible for the first chemotherapy cure for childhood leukemia and Hodgkin's disease and have made strides in the detection and treatments of pediatric AIDS. Progress continues in rare diseases, such as progeria, and behavioral conditions, including autism.

The hospital won the 2011 Lasker-Bloomberg Award for Public Service for serving as a model institution that has transformed scientific advances into innovative therapies and provided high-quality care to patients while training future clinician-scientists.

"More children with rare, orphan diseases are seen at the NIH Clinical Center than at any other place in the world," said Dr. John I. Gallin, NIH Clinical Center director.

(Near right) Channing Before: Channing O'Halloran, age 3, outside The Children's Inn, after a long day of treatment at the NIH Clinical Center in 2006.

(Far right) Channing Now: Today, Channing is a thriving 9-year old, thanks to successful treatment at the NIH for her rare genetic condition.

Photo: Veronica Lukasova



Photo: SKRPhotography

Research volunteers who enroll in the clinical studies at the NIH Clinical Center range from first-in-human trial participants hoping for a cure to healthy volunteers who provide comparison for studying disease. Children fall into both categories, too.

The hospital has a 22-bed inpatient unit and a 15-station day hospital where outpatients receive treatment. A dedicated outpatient

“More children with rare, orphan diseases are seen at the NIH Clinical Center than at any other place in the world,” said Dr. John I. Gallin, NIH Clinical Center director.

clinic welcomes children and young adults who are visiting for short-term appointments.

While visiting the NIH Clinical Center, children are treated to a world-class staff of specialists and support services. A dedicated pediatric consult service assists investigators in the care of this unique patient population. The Recreation Therapy Section addresses physical, cognitive, social and emotional domains. The NIH School helps children keep up with their studies in a classroom setting or at the bedside.

One of the greatest resources at the NIH for pediatric patients is The Children's Inn, a home environment only steps away from the hospital that houses more than 1,500 patients and their family members each year. The staff and volunteers create a caring environment where kids can be kids.

“The Inn has had a huge impact on the environment for children participating in clinical research,” said Dr. Gallin, who serves on the Inn's Board of Directors as clinical advisor. “It is a tremendous resource.”

For information on kids participating in research, visit clinicalcenter.nih.gov/kidsinresearch.

Channing's Story: Surviving at 3; Thriving at 9

Before she was 1, Channing O'Halloran was diagnosed with cystinosis, a hereditary illness found in fewer than 1,000 children worldwide. It used to be a death sentence for kids before they reached age 10. But thanks to her mother, who wouldn't accept that scenario, at age 3 Channing came under the care of NIH researcher Dr. William Gahl, a leader in the treatment of cystinosis. The family stayed at The Children's Inn while he developed the therapy that today enables Channing, now a confident 9-year old, to do well at school, take ballet, model, and shine on stage. At a recent school chorus performance, Channing noticed a boy wasn't wearing his chorus dress clothes. When the boy confided to Channing that he had “stage fright,” she advised, “I love being on stage. You should stand by me, and maybe you'll get some braveness.”

Although she is still a little girl in danger, Channing takes her medicine every six hours, even waking herself at 1:30 every morning to take her pill. Says Dr. Gahl, “A researcher needs to have access to the people like Channing who have the illness. Here at NIH, the children can come for free, stay for free, and be treated for free. There's nothing to compare to that anywhere else.”

Developing Safe and Effective Medicines for Children

Children are not “small adults,” when it comes to medicines.

FASTFACTS

- Prior to 1998, about 70 percent of the drugs prescribed for children had too little scientifically verified safety, effectiveness, and dosing information.
- The Best Pharmaceuticals for Children Act (BPCA), passed by Congress, encourages clinical research trials on children’s medications across all therapeutic areas.
- As of 2008, an estimated 50% to 60% of prescription drugs used to treat children had been studied in some part of the pediatric population, according to the FDA.
- Research is being conducted on drugs developed for newborn and premature babies through children age 18 in the United States.
- Clinical trials are being conducted on drugs to treat children for a range of problems, including heart diseases, cancer, infectious diseases, respiratory diseases, and many more.



Photo: Christopher Klose

The NIH’s Dr. Anne Zajicek, pictured with her 12-year-old son Eli, is at the forefront of efforts to make children’s medications safe, effective, and correctly dosed.

“As a mother, if my child gets sick, I want him to get the right medicine, and I want it to be safe and effective,” says Dr. Anne Zajicek about her 12-year-old son Eli. “And the Best Pharmaceuticals for Children Act does that.”

Dr. Zajicek, MD, PharmD, is not only a mother. She is a pediatrician and the chief of the Obstetric and Pediatric Pharmacology Branch (OPPB) at the NIH’s *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD).

She is also helping to make drugs for children safe, effective, and prescribed in proper dosages as part of a long-range, multi-million-dollar clinical research effort being carried out under the Best Pharmaceuticals for Children Act (BPCA). The NICHD has the lead role in funding and overseeing much of the BPCA-related research at the National Institutes of Health (NIH), which covers drug and medical device development for newborn and premature babies, and children until the age of 18.

Since 2007 alone, more than 346 pediatric studies have been carried out under BPCA, involving 155,755 patients, according to the U.S. Food and Drug Administration (FDA).

Since 1998, over 424 drugs have received specific pediatric labeling information changes. These drugs are used to treat many diseases, including asthma, sickle cell disease, ADHD, influenza, high blood pressure, leukemia, cerebral palsy, diabetes, skin diseases, and kidney failure.

Ballpark Doses

Dr. Danny Benjamin, MD, PhD, is a professor of pediatrics at Duke University and director of the Duke Clinical Research Unit pediatrics program. (See interview on following page.) He is also the father of a 10-year-old who takes seven different medicines every day. Many of them lack age-appropriate information about how much to take (dosing) and in what form (whether liquid or chewable). So, like many other parents in similar situations, Dr. Benjamin has to rely on simple techniques to estimate the doses.

“Every day, I use a kitchen knife to cut up Jack’s pills—to give him a ‘ballpark’ dose,” says Dr. Benjamin. “You can’t think of children as miniature adults.” He points out that how children metabolize drugs is not predictable because, among other things, their rates of growth and development vary.

For example, the proportions of fat, protein, and water that make up body weight change dramatically between infancy and childhood. A newborn’s weight is about 70 to 80 percent water but decreases to 60 percent by five months. Food moves through their digestive systems faster. And their kidneys and livers are smaller than adults’. All this affects how drugs impact children.

Questions to Ask Your Health Professional

Good communication between you and your child’s healthcare provider is very important. You should feel free to ask any and all questions that will help you understand instructions that your child’s healthcare provider may give you. This is especially important when it comes to medications that are prescribed.

- Have any of my child’s medicines been specifically tested for use in children?
- How can I tell if my child’s medicine has been studied in children?
- Is my child currently taking any medicines that have not been studied in children?
- Would my child benefit from or be a good candidate for a clinical trial?
- How long do most clinical trials last, and how many patients are needed for clinical trials?

What Is the “Best Pharmaceuticals For Children Act” (BPCA)?

Federal law and U.S. Food and Drug Administration (FDA) regulations require that drugs be tested for safety and effectiveness in specific populations, at specific dosages, and for specific time periods before being approved for use.

In 1997, Congress created an incentive that encouraged drug developers to test medications in children if the drugs would be prescribed for children. The resulting trials confirmed that pediatric dosing recommendations had often been little more than “guesstimates.”

This incentive was extended as part of the Best Pharmaceuticals for Children Act (BPCA) in 2002 and again in 2007. Related legislation, the Pediatric Research Equity Act (PREA), was passed in 2003 and reauthorized in 2007. Together, BPCA and PREA have helped to spur increased research and development into safe drugs for children. BPCA is scheduled to end under “sunset” rules in late 2012, unless extended again or made permanent by Congress.

Today, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD) is the lead NIH agency helping to direct the BPCA pediatric clinical research trials on developing safe and effective children’s drugs and some medical devices at the NIH.

These clinical trials include 16 broad disease categories, such as heart diseases, cancer, infectious diseases, respiratory diseases, newborn and premature babies, and medical devices. The BPCA provides ways for studying patented and off-patent (generic) drugs.

The Importance of Children in Clinical Trials

An interview with Daniel K. Benjamin, Jr., MD, PhD, professor of pediatrics at the Duke Clinical Research Institute and Director of the BPCA Pediatric Trials Network (PTN).

What do you say to a parent who asks you why children's clinical trials are important?

Clinical research is critically important to your child's health. It was only 100 years ago that nearly one out of every six children born in the United States died prior to their fifth birthday. Infant and early childhood mortality in the United States is now uncommon. It is from prior research studies conducted in children that we have reduced early childhood mortality to a relatively rare event.

Can you point to some of the successes with children from clinical trials research in the past?

Yes, here are several important examples:

- Clinical trials showed that surfactant—a substance that keeps air sacs in the lungs inflated—helps premature infants breathe. As a result, the lives of thousands of babies who would otherwise die of respiratory failure are saved each year.
- Clinical trials showed that giving antiretroviral therapy (AZT) to pregnant women with HIV-AIDS prevents HIV transmission. We have saved the lives of thousands of children born in this country every year thanks to this research.
- As a result of repeated clinical trials in children with cancer, most children who develop leukemia survive. Only 50 years ago, acute leukemia was almost universally fatal in young children.
- Prior to the development of the polio vaccine, 15,000 American children developed paralytic polio each year. In the last five years, there have been no cases of paralytic polio in the United States. This advance was only possible through clinical trials in children.

Can we just do clinical studies in adults?

No. Investigators at Duke University and elsewhere have shown that if we rely on adult data to guide how to give medicines to children, we will be wrong almost half the time.



Dr. Daniel Benjamin (right) and colleague Dr. Michael Cohen-Wolkowicz discuss research on safe medications for children at the Duke Clinical Research Institute in Durham, North Carolina.

Can we predict which drugs work differently in adults and children?

No. The differences in how drugs are metabolized relate to the age of the child, the organ that breaks down the drug (liver or kidney), and how much the brain has developed. No one can predict how the developing child's body will respond to medicines.

Can't we just do clinical studies in juvenile animals?

No. Animal research is an important part of clinical research but is not definitive.

Will my child benefit from this research?

This is the most difficult of the frequently asked questions. In general terms, there are some data to suggest that people who participate in clinical research have better outcomes compared to similar patients with the same disease.

The reason why research participants tend to fare better is unclear. Improved outcomes may relate to the close observation often demanded by clinical trials, or closer follow-up after care that is often dictated by the research. Children may benefit from participating in clinical research of new medicines because these medicines are usually tested and proven to be safe and effective in adults before they are studied in clinical trials in children.

These short-term benefits are small in comparison to the benefits that will certainly be recognized by future children.

Two of my four children, Jack (now 10 years old) and Eli (nine years old), have benefited from medicines that were initially studied in children over a decade ago; and the children of our parents' and grandparents' generations participated in clinical trials that resulted in life-saving therapies for diseases that would otherwise have claimed thousands of lives of children who are young adults today. This long-term societal benefit is the best reason that clinical research is important in both adults and children.

How to Participate In a Clinical Trial

More information about having your child participate in a clinical trial is available at government Web sites, such as:

- www.childrenandclinicalstudies.nhlbi.nih.gov (sponsored by the National Heart, Lung, and Blood Institute)
- www.clinicaltrials.gov
- www.cancer.gov/clinicaltrials (Cancer studies)
- aidsinfo.nih.gov/Clinical-Trials (HIV and AIDS studies)

What Is “Informed Consent”?

Before you decide whether or not to participate in a clinical trial, you should learn the key facts about it. To help you decide, the health professionals involved in the study explain its details. You also receive a document describing the study, including its purpose, duration, required procedures, risks, potential benefits, and key contacts.

If you agree to participate, you give your informed consent. Informed consent is not a contract. You may withdraw from the trial at any time and for any reason.

Are You Interested In a Children's Clinical Trial?

People volunteer to take part in clinical trials for many reasons. So do parents considering whether their own children would be a good fit for a clinical trial. They often hope that by participating, their health will improve in some way.

Researchers compare different treatments to determine which is better—for example, more effective or less risky. Sometimes the newer treatment is better, but sometimes the standard is.

Clinical trials can entail risks. These must be disclosed to potential participants as part of the informed consent process prior to enrollment. Always discuss a clinical trial with your health professional before participating.

Many times, people volunteer simply because they want to contribute to a medical research effort that may help others in the future.

—Source: MedlinePlus.gov

BPCA: To Find Out More

- **BPCA home website at NICHD**
<http://bpca.nichd.nih.gov/>
- **FDA—Best Pharmaceuticals for Children Act (BPCA)**
<http://www.fda.gov/RegulatoryInformation/Legislation/FederalFoodDrugandCosmeticActFDCAct/SignificantAmendmentstotheFDCAct/ucm148011.htm>
- **FDA Pediatric Drug Development**
<http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DevelopmentResources/ucm049867.htm>

As a Board member of The Children's Inn, journalist Cokie Roberts takes a personal interest in the sick children and their families who experience the Inn's healing environment while receiving groundbreaking medical treatments at the NIH.



Cokie Roberts Cares

**Award-winning
journalist supports
children's health
research**

As a cancer survivor treated at the National Institutes of Health, well-known journalist and news analyst Cokie Roberts is acutely aware of the importance of clinical medical research. And as a longtime member of the Board of The Children's Inn at the NIH, she knows first-hand the daily struggle families face caring for a seriously ill child.

"Anyone who is a parent knows the heart-stopping sense of terror you feel when a child is sick or runs a high fever," says Roberts. "Knowing how incredibly difficult their journey is makes it easy to support the Inn."



Photos: The Children's Inn



Cokie Roberts is a senior news analyst for NPR News, where she was the congressional correspondent for more than 10 years. In addition to her work for NPR, Roberts is a political commentator for ABC News, providing analysis for all network news programming.

In her more than 40 years in broadcasting, she has won countless awards, including three Emmys. She has been inducted into the Broadcasting and Cable Hall of Fame, and was cited by the American Women in Radio and Television as one of the fifty greatest women in the history of broadcasting.

In addition to her appearances on the airwaves, Roberts, along with her husband, Steven V. Roberts, writes a weekly column syndicated in newspapers around the country by United Media. The Roberts are also contributing editors to *USA Weekend Magazine*, and together they wrote *From this Day Forward*, an account of their more than 40 year marriage and other marriages in American history. The book immediately went onto *The New York Times* bestseller list,

Cokie Roberts: A History of Service

following Roberts' number one bestseller, *We Are Our Mothers' Daughters*, an account of women's roles and relationships throughout American history.

Roberts holds more than 20 honorary degrees, serves on the boards of several non-profit institutions and on the President's Commission on Service and Civic Participation. This year the Library of Congress named her a "Living Legend," one of the very few Americans to have attained that honor. She is the mother of two and grandmother of six.

about Kids!

Situated adjacent to the Clinical Center on the NIH campus in Bethesda, Md., The Children's Inn is a residential home for seriously ill children and their families known as the "place where hope lives." Children come from across the country and around the world to stay together with their families while receiving groundbreaking medical treatment at the Clinical Center.

The Inn was founded more than 20 years ago as a private, non-profit organization. Dr. John I. Gallin, M.D., Director of the NIH Clinical Center, is the Inn's longtime Clinical Advisor. More than 10,000 children have stayed at the Inn from all 50 states and more than 80 countries. Families stay together with their children and pay nothing, no matter how long they need to stay.

The Inn's mission is to allow kids to be kids, at least briefly, between the pokes and prods at the hospital. Here, they can play the piano, read a book, shoot baskets outside on the lighted Sports Court or enjoy a family dinner.

Familiar to millions as a senior news analyst for National Public Radio and commentator for ABC News, Roberts also is a best-selling author. But families at The Inn know her simply as a friend and passionate advocate for their children's health.

"Every child who comes to the NIH participates in research that may lead to lifesaving treatments," says Roberts. "These brave and beautiful children are helping all of us."

Take Steps To Keep Your Sight

Most of us take our eyesight for granted—until it's threatened. But regular dilated eye exams can help prevent eye problems even before there are any warning signs.

“I had come to the National Eye Institute on a routine visit to see Dr. Emily Chew, my retinal specialist who was studying diabetic retinopathy,” says Charles R. Tansil of Montgomery, Maryland. “I had no idea there was any particular problem.”

Tansil, who had participated in several National Eye Institute (NEI) clinical research studies about aging eyes over the previous years, was surprised at what he heard next from Chew, M.D., deputy director of NEI's Division of Epidemiology and Clinical Research. “She said, ‘You have a carotid artery that is almost stopped up, and you should have it checked out.’”

Tansil did have his doctor check his carotid artery, and the problem was very real; a condition that could easily have led to a stroke without intervention to remove the blockage. His doctor was surprised and pleased that Dr. Chew had spotted the potential problem: “You should absolutely be happy that she spotted it,” he told Tansil.

Most people might not think that a thorough, dilated-eye exam could be used to spot a potential severe health danger that may have nothing to do directly with the eyes. But such regular exams can, indeed, help spot trouble in a variety of areas even before there are any warning signs.

That's a message that Dr. Chew and her NEI colleagues want to have more Americans understand.

Americans report that, of all disabilities, loss of eyesight

would have the greatest impact on their daily life, according to an NEI survey. Vision loss ranks ahead of loss of memory, speech, arm or leg, and hearing. But losing eyesight is not a normal part of aging. What's more, the NEI reports that most cases of blindness can be prevented through early detection and treatment of eye diseases.

For more than 40 years, research and funding from the NEI have helped prevent and treat eye diseases and vision disorders and enabled great strides in the understanding of eye health.

“Diabetic retinopathy, glaucoma, and age-related macular degeneration affect millions of Americans,” says NEI Director Paul A. Sieving, M.D., Ph.D.

“These conditions were once untreatable, robbing people of their vision, mobility, and independence. Thankfully, in the last decade, medical researchers have developed highly effective, sight-saving treatments. However, these treatments are only effective if the disease is diagnosed before it causes vision loss. Since there are often no warning signs, regular dilated eye exams are key to early detection and treatment.”



Dr. Emily Chew of the National Eye Institute (NEI) conducts a thorough eye exam on her patient, Charles R. Tansil.

Photo: Ernie Branson, NIH



NEI Director Dr. Paul A. Sieving urges all Americans to get regular dilated eye exams.

Photo: Ernie Branson, NIH

Nutrition and the Aging Eye

More than nine million Americans have age-related macular degeneration (AMD), the leading cause of vision loss for people over 60. But new research is helping to turn the tide on this disease.

FASTFACTS

- Many causes of blindness are preventable through timely treatment.
- Protect your eyesight through regular eye exams, maintaining a healthy diet, and protecting your eyes at all ages.
- 20/20 vision does not necessarily mean perfect vision. Overall visual ability also includes peripheral awareness (side vision), eye coordination, depth perception, focusing ability, and color vision.
- Common impairments to vision include near-sightedness, far-sightedness, and astigmatism.
- The leading causes of blindness are cataracts, glaucoma, macular degeneration, and diabetic retinopathy.

Age-related macular degeneration (AMD) destroys sharp central vision, which is necessary for seeing objects clearly and for common daily tasks such as reading and driving.

Nearly two million people have the advanced form of the disease, called wet AMD, which can cause rapid vision loss in both eyes. An early symptom of wet AMD is that straight lines may appear wavy and distorted, and images on TV may appear blurry. It is caused when abnormal blood vessels grow beneath the retina and leak blood and fluid under the macula, the small area near the center of the retina responsible for central vision.

Initial Study Encouraging

In 1992, the National Eye Institute (NEI) launched the Age-Related Eye Disease Study (AREDS), a nationwide clinical trial. Results from the study were published in 2001 and showed that an experimental combination of three anti-oxidant vitamins (C, E, and beta carotene) and the minerals zinc and copper reduced the risk of progressing to advanced AMD by 25 percent and the risk of moderate vision loss by 19 percent.

“The results were of public health significance,” says AREDS lead investigator Emily Chew, M.D., deputy director of NEI’s Division of Epidemiology and Clinical Research. “About seven

million people are at risk of developing AMD in the next five years, so you could reduce the risk of developing advanced AMD and its accompanying vision loss by 300,000 people if all seven million took the AREDS supplement. That’s pretty big savings in health care and productivity.”

Foods Lower AMD Risk

Several years ago, as a follow-up to AREDS, NEI and its partner clinical centers conducted AREDS2, a study to determine how high doses of anti-oxidant and fish oil supplements affect the risk of advanced AMD, the need for cataract surgery, and moderate vision loss. Four thousand participants between the ages of 50 and 85 who have AMD were enrolled for the study. The trial was “double-masked,” meaning neither investigators nor participants know who is getting which combinations of the supplements or a placebo.

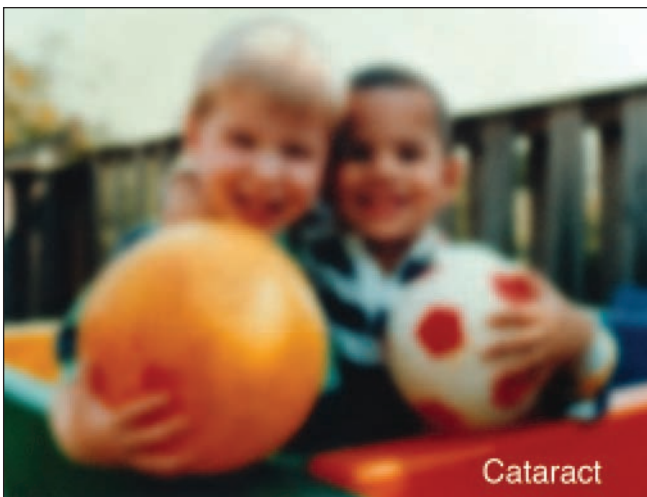
From earlier studies, NEI researchers knew that adults eating kale, mustard greens, collard greens, and raw or cooked spinach (vegetables high in lutein and zeaxanthin, two anti-oxidants from the same family as beta carotene), were at considerably less risk of developing advanced AMD than those who didn’t. And adults consuming more sources of the omega-3 fatty acids DHA and EPA (found in fish, especially salmon) also appeared to be at less risk.

Over the next several years, researchers will be testing the effects of the two kinds of nutrients—the vegetable-derived vitamins lutein/zeaxanthin (vitamins in the carotenoid family), and the fatty acids DHA and EPA—in four participant groups. One group is to receive lutein and zeaxanthin supplements; one will get DHA and EPA; one will get both the vitamins and the fatty acids; and a fourth (control) group will get a placebo. All participants will be given the choice of also taking the initial AREDS combination of vitamins (C, E, and beta carotene) and minerals (zinc and copper).

For more information about participating in vision-related clinical trials, visit www.nei.nih.gov/eyeclinic.

Leading Causes of Blindness

Photos: National Eye Institute



Cataracts

Cataracts are a clouding of the lenses in your eyes. They affect vision and are very common in older people. More than 22 million Americans have cataracts. They are the leading cause of blindness in the world. By age 80, more than half of all people in the United States either will have a cataract or have had cataract surgery.

Common symptoms are:

- Blurry vision
- Colors that seem faded
- Glare
- Not being able to see well at night
- Double vision
- Frequent prescription changes in your eye wear

Treatment with new glasses, brighter lighting, anti-glare sunglasses, or magnifying lenses can help at first. Surgery is also an option. It involves removing the cloudy lens and replacing it with an artificial lens. Wearing sunglasses and a hat with a brim to block ultraviolet sunlight may help to delay cataracts.

Glaucoma

Glaucoma damages the eye's optic nerve and is a leading cause of blindness. It usually happens when the fluid pressure inside the eyes slowly rises, damaging the optic nerve. Often there are no symptoms at first, but a comprehensive eye exam can detect it. About 2.2 million Americans have glaucoma.

Glaucoma is a leading cause of blindness among African Americans and Hispanics. African Americans experience glaucoma at a rate three times that of whites. They suffer blindness four times more frequently. Between the ages of 45 and 64, glaucoma is 15 times more likely to cause blindness in African Americans than in whites.

People at risk should get eye exams at least every two years, especially:

- African Americans over age 40
- People over age 60, especially Hispanics
- People with a family history of glaucoma

Treatment usually includes prescription eye drops and/or surgery. There is no "cure" for glaucoma. Early diagnosis and treatment can control glaucoma before vision loss or blindness occurs. New research is focusing not only on lowering pressure inside the eye, but also exploring medications to protect and preserve the optic nerve from the damage that causes vision loss. There has been progress in understanding the genetics of glaucoma in the last few years, including the discovery of genes found to be associated with many forms of glaucoma.



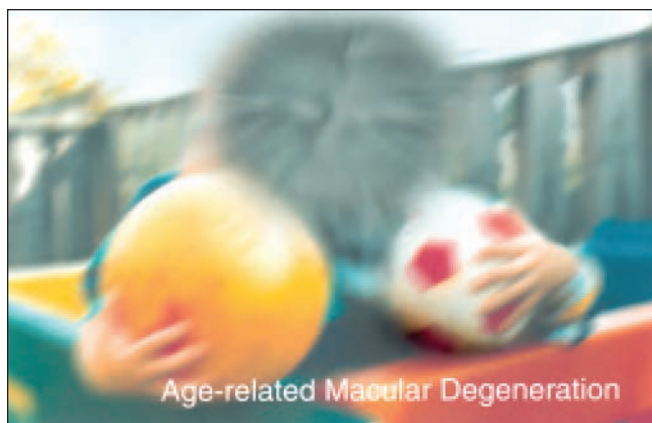
Macular degeneration

Macular degeneration, often called age-related macular degeneration (AMD), is a leading cause of vision loss in Americans 60 and older. It is a disease that destroys the sharp, central vision needed to see objects clearly. This affects the ability to read, drive, watch television, and do routine daily tasks.

AMD affects the macula, the part of the eye that allows you to

see fine detail. It does not hurt, but causes cells in the macula to die. In some cases, AMD advances so slowly that people notice little change in vision. In others, the disease progresses faster and may lead to vision loss in both eyes. There are two kinds of AMD—wet and dry. Wet AMD occurs when abnormal blood vessels behind the retina start to grow under the macula. Dry AMD occurs when the light-sensitive cells in the macula slowly break down, gradually blurring central vision in the affected eye.

Treatment: Although there is no cure for AMD at this time, regular eye exams can detect the disease so treatment can be



most effective. Findings from the NEI-supported Age-Related Eye Disease Study (AREDS) show that a specific combination of vitamins and minerals can help slow the progression of advanced AMD.

The NEI recently concluded the first year of a two-year clinical trial to compare the relative safety and effectiveness of two drugs currently used to treat wet AMD. The two drugs, which are injected into the eye, are Lucentis (ranibizumab) and Avastin (bevacizumab). Results indicate that the two drugs are equally effective in treating AMD.

Diabetic Retinopathy

Diabetic retinopathy is caused by diabetes. It affects the retina, the light-sensitive tissue at the back of the eye, and causes the most blindness in U.S. adults. It affects the vision of more than half of the 25.8 million people diagnosed with diabetes age 18 or older.

People with diabetes should have a complete eye exam through dilated pupils at least once a year.

Treatment: Diabetic retinopathy is treated with surgery or laser surgery. With timely treatment; adequate control of blood sugar, blood pressure, and cholesterol levels; and regular follow up, 90 percent of all cases of blindness from diabetes can be prevented.

Eye Expert Dr. Emily Chew: 3 Ways to Keep Your Sight

"Keeping your eyes healthy means learning about them and the conditions for which you may be at risk," says Emily Chew, M.D., deputy director of NEI's Division of Epidemiology and Clinical Research. "Early detection and treatment are the keys to preventing vision loss. Remember, poor vision is not a normal part of aging."

1. Get regular eye exams.

One of the easiest ways to keep your eyes healthy is by getting a regular eye exam. Early detection and treatment are the keys to preventing vision loss. In fact, the eyes often show signs of other conditions, such as diabetes and high blood pressure, when no other symptoms are present. An eye care professional may be the first to identify one of these problems. If you are at higher risk for an eye disease, it is important to make sure you get an eye exam through dilated pupils. This allows your eye care provider to see more of the inside of your eyes to check for early signs of the disease. After the exam, your close-up vision may remain blurred for several hours.

2. Eat a healthy diet.

Your mother may have told you to eat green, leafy vegetables, and she was right. These veggies are high in vitamin A, a key ingredient to good sight.

3. Protect your eyes at all ages.

Eye injuries are the leading cause of blindness in children in the United States. Most injuries are sports-related. Outfit your child with goggles or helmet shields for sports. Protect your own eyes when working with lawn mowers and other tools. Be sure to wear sunglasses to limit the impact of ultraviolet rays from the sun on your eyes.

Understanding Your Vision: The “Imperfect Eye”

Everyone’s eyes are different and so are the types of vision that we have. Understanding how some of us see differently and how the eyes change over time, will help protect your vision.

“Normal”

Normal vision, often called “20/20” vision, means that you can see clearly objects that are 20 feet away. However, 20/20 does not necessarily mean perfect vision. There are other important vision skills, including peripheral awareness (side vision), eye coordination, depth perception, focusing ability, and color vision that make up your overall visual ability.

Nearsighted

If you are nearsighted—also called myopia—you can clearly see close objects, but distant ones are blurry. The more nearsighted, the blurrier your distance vision and the closer objects need to be to be seen clearly.

Treatment helps to focus light on the retina through the use of corrective lenses or “refractive” surgery.

Corrective lenses include eyeglasses and contact lenses, both of which come in a variety of styles and can correct a number of problems at once.

Refractive surgery reshapes the curvature of the cornea and includes several types of laser surgery (such as LASIK) and regular surgery, including an implanted set of lenses.

Farsighted

If you are farsighted—have hyperopia—you can see distant objects clearly, but close ones are blurry. Farsightedness occurs when the eyeball is too short for light rays to focus clearly on the retina.

Treatment helps to focus the light through the use of corrective lenses or refractive surgery, as with nearsightedness. Most young people’s eyes are flexible enough to focus on nearby objects, so they don’t need corrective lenses. But by middle age, the natural lenses become less flexible. Corrective lenses, either eyeglasses or contacts, are necessary to improve vision at this point. Refractive surgery reshapes the curvature of the cornea with the same methods used for correcting nearsightedness. Conductive



All photos: National Eye Institute

keratoplasty (CK), which uses radio-frequency energy to apply heat to tiny spots around the cornea, is an additional treatment.

Astigmatism

If you have astigmatism, the cornea is more oval than round. This doesn’t allow the eye to focus clearly. Astigmatism is usually accompanied by nearsightedness or farsightedness.

Treatment addresses the cornea’s uneven curvature through corrective lenses or refractive surgery. Orthokeratology, or Ortho-K, is also used to correct astigmatism. In this procedure, you wear rigid contacts for several hours a day until the curvature of the eye improves. After that, you wear the lenses less frequently to maintain the new shape. If you stop treatment, the eyes return to their former shape.

Age-related Blurriness

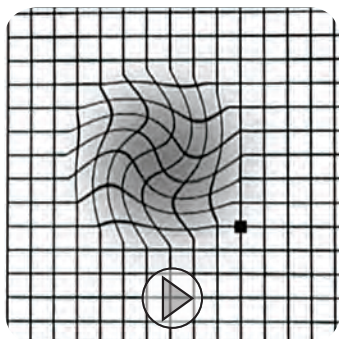
Beginning at about age 40, most people have to begin holding the newspaper or their favorite book at arm’s length in order to see clearly. At the same time, they may still clearly see far away objects. This is a common age-related blurriness called presbyopia. This process actually begins around age 10, but vision changes aren’t noticeable until many years later.

Treatment is through corrective lenses or several of the refractive surgical procedures mentioned for nearsightedness and farsightedness.

Videos from the National Eye Institute: Eye Diseases

Watch and learn as Dr. Rachel Bishop, NEI's Chief of Consult Services, discusses eye health and the importance of comprehensive dilated exams in the early detection of eye disease. Share these videos with friends, family and colleagues.

www.nei.nih.gov/videos/index.asp



Age-Related Macular Degeneration (AMD)



Comprehensive Dilated Eye Exams



Cataract



Diabetic Eye Disease

To Find Out More

National Eye Institute (NEI): A-Z Diseases and Disorders

www.nei.nih.gov/health/

MedlinePlus

www.medlineplus.gov

Type in "eye diseases" in the search box

NEI Clinical Research

<http://www.nei.nih.gov/health/clinicalstudies/>

Comprehensive Dilated Eye Exams

A comprehensive dilated eye exam is a painless procedure in which an eye care professional examines your eyes to look for common vision problems and eye diseases, many of which have no early warning signs. Regular comprehensive eye exams can help you protect your sight and make sure that you are seeing your best.

What does a comprehensive dilated eye exam include?

A comprehensive eye examination includes dilation, tonometry, visual field test, and visual acuity test.

Dilation: Drops are placed in your eyes to dilate, or widen, the pupils. Your eye care professional uses a special magnifying lens to examine your retina to look for signs of damage and other eye problems, such as diabetic retinopathy or age-related macular degeneration. A dilated eye exam also allows your doctor to check for damage to the optic nerve that occurs when a person has glaucoma. After the examination, your close-up vision may remain blurred for several hours.

Tonometry: This test helps to detect glaucoma by measuring eye pressure. Your eye care professional may direct a quick puff of air onto the eye, or gently apply a pressure-sensitive tip near or against the eye. Numbing drops may be applied to your eye for this test. Elevated pressure is a possible sign of glaucoma.

Visual field test: This test measures your side (peripheral) vision. It helps your eye care professional find out if you have lost side vision, a sign of glaucoma.

Visual acuity test: This eye chart test measures how well you see at various distances.

Detecting and Treating Gout

**Committed to
Understanding
the Basics...**

“Almost every household in America is affected in some way by diseases of the bones, joints, muscles, and skin,” says Dr. Stephen I. Katz, director of National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). “These disorders affect people of all ages, racial and ethnic populations, and economic levels.”

“Gout is one of the most painful conditions that we study at the NIAMS. We will continue to pursue strategies to improve treatments and quality of life for people affected by the disease.”

“The Human Genome Project has greatly increased our knowledge of gout. Because of it, we have a fuller understanding of what causes the disease, who gets it, and how to diagnose and treat it.”

“I believe that scientific research into conditions of the bones, joints, muscles, and skin will continue to result in improved health for everyone. Comprehensive information dissemination to the public, to patients, and to their healthcare providers is also essential for continued progress.”

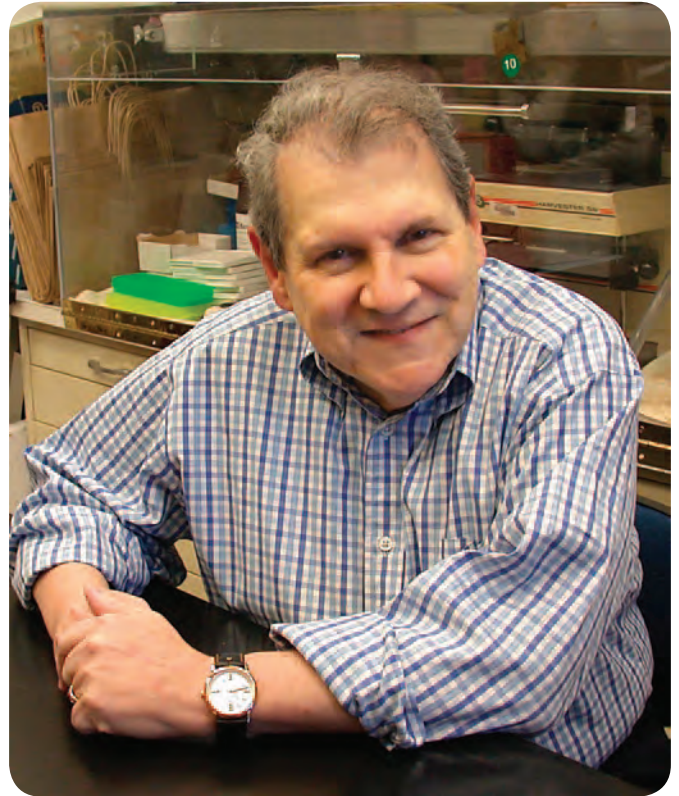


Photo: NIAMS

Stephen I. Katz, M.D., Ph.D., is director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS).

FASTFACTS

- Gout is a form of arthritis.
- Six million Americans suffer from gout.
- Men between 40 and 50 are most likely to develop gout.
- As many as 80 percent of people suffering from gout have a family history of the disease.
- Gout can be controlled through diet, exercise and proper treatment.

“We have a fuller understanding of what causes gout, who gets it, and how to diagnose and treat it.”

What Is Gout?

Gout is a form of arthritis that causes joint pain. It happens when uric acid, a bodily waste, deposits as needle-like crystals in your joints. The crystals cause swelling, redness, heat, pain, and stiffness.

In many people, gout first affects the joints of the big toe (a condition called podagra). Other spots can include the insteps, ankles, heels, knees, wrists, fingers, and elbows. Chalky uric acid deposits, called tophi, can also appear as lumps under the skin surrounding the joints and rims of the ear. Uric acid crystals also can cause kidney stones.

What Is Uric Acid?

Uric acid results from the breakdown of purines, which are a normal part of all human tissue. Normally purines dissolve and pass out of the body in urine.

What Are the Four Stages of Gout?

- **Asymptomatic (without symptoms) hyperuricemia** – Elevated levels of uric acid in the blood (called hyperuricemia) but no other symptoms. This does not need treatment.
- **Acute gouty arthritis**—Uric acid crystals build up in joints, causing sudden, intense pain, swelling and sometimes warmth and tenderness. Attacks are common at night and can be triggered by stress, alcohol or drugs, or the presence of another illness. Eating too many high-purine foods, such as liver, dried peas and beans, gravies and anchovies can produce uric acid crystals and increase the risk of gout.
- Even without treatment, such flare-ups (or bouts) usually subside within 10 days. They may not happen again for months or even years. But over time they may last longer and occur more frequently.
- **Interval or inter-critical gout**—The period between acute attacks, with no symptoms.
- **Chronic gout**—The most disabling stage. It usually develops over a period of 10 years. The affected joints and sometimes the kidneys may have been permanently damaged. With proper treatment, most people do not progress to this stage.

Look Out for Pseudogout

Pseudogout is another form of arthritis with symptoms similar to gout: acute periods of joint redness, warmth, pain, swelling, and stiffness. But the irritating crystals are calcium phosphate, not uric acid. Pseudogout is treated somewhat differently.

To Find Out More

- **Medlineplus.gov:** Type in “gout” in the search box
- **www.niams.nih.gov**
National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
- **ClinicalTrials.gov**
Clinical research trials
- <http://projectreporter.nih.gov/reporter.cfm>
NIH RePORTER
- **PubMed** www.ncbi.nlm.nih.gov/pubmed/

Jay Hobby's Tips for Taking on Gout

Somewhere high over the Atlantic on a flight home

to Baltimore from Israel, Jay Hobby began to feel increasing warmth and severe pain in his right ankle and big toe. "Somehow I broke my toe," the 46-year old management consultant recalls thinking.

But a visit to an orthopedist resulted in a diagnosis of gout. At home, a quick search on the Internet about "problems with toes" pointed to gout. And a call to his mother confirmed a family history of this painful form of arthritis. "Three of your grandfather's six brothers had it," she said. Hobby has been coping with gout for six years now.

"The biggest challenge is not knowing you're having a gout attack at first and, by then, you're behind the curve," Hobby says. Despite being advised to watch his diet, keep hydrated, and exercise regularly, he didn't get serious about managing his gout until September 2009. That's when his son was born prematurely out of town, and he couldn't see him for three days because he was in bed with a severe gout attack.

"Something had to give," he recalls. And it did. Through careful attention to his diet—"less red meat and sugar, many more vegetables"—regular exercise and consistent monitoring, he has not had an attack of gout for more than a year.

Hobby's top tips for living healthily with gout are:

1. Drink plenty of water and other fluids, especially black cherry juice;
2. Eat less meat and more vegetables;
3. Exercise regularly; and
4. At the slightest sign of an attack, begin your gout treatment. The first six hours are crucial!



Photo: Jay Hobby

For Jay Hobby—here with his wife and two children—staying healthy through a modified diet, drinking plenty of water, and regular exercise has kept him gout-free for more than a year now.

Signs of Gout

- Over-production of uric acid (hyperuricemia)
- Presence of uric acid crystals in joint fluid
- More than one attack of acute arthritis
- Arthritis that develops in a day, producing a swollen, red, and warm joint
- Arthritis attack in only one joint, often the toe, ankle, or knee

What Causes Gout?

Risk factors for over-production of uric acid and gout include:

- **Genetics** – An estimated 20 to 80 percent of people with gout have a family history of the disease.
- **Gender and age** – It is more common in men than in women and children.
- **Weight** – Being overweight increases risk.
- **Alcohol consumption** – Drinking too much alcohol keeps the body from removing uric acid.
- **Diet** – Eating high-purine foods can lead to gout flares or make them worse. These foods include anchovies, asparagus, beef kidneys, brains, dried beans and peas, game meats, gravy, herring, liver, mackerel, mushrooms, sardines, scallops, and sweetbreads (animal glands).
- **Lead exposure**
- **Other health problems** – A common cause of gout in older people is the kidneys being unable to eliminate waste products from the body. Other problems that may contribute to gout include: high blood pressure,

hypothyroidism (underactive thyroid gland), psoriasis, hemolytic anemia, or some cancers, and some inherited disorders in which the enzyme helping control uric acid is not present or doesn't work properly.

- **Medications** – A variety of medicines may increase your risk for gout. They include:
 - **Diuretics (water pills)**: These are taken to ease high blood pressure, edema, and heart disease. They also decrease the amount of uric acid passed in the urine.
 - **Salicylate-containing drugs**, such as aspirin
 - **Niacin**, a vitamin also known as nicotinic acid or vitamin B3
 - **Cyclosporine**, a drug used to suppress the immune system in the treatment of some autoimmune diseases and to prevent rejection of transplanted organs
 - **Levodopa**, used to treat Parkinson's disease

Tips for Staying Healthy with Gout

Fortunately, gout can be controlled. Taking medications as prescribed can reduce the severity and frequency of attacks. Acute gout is best controlled if medications are taken at the first sign of pain or inflammation. Other tips to help control gout:

- List all the medicines and supplements you take. Your healthcare professional can tell you which, if any, can increase your risk of elevated uric acid.
- Schedule follow-up visits with your health professional to evaluate your progress.
- Drink plenty of nonalcoholic fluids, especially water, to help eliminate uric acid. Alcohol can raise the levels of uric acid in your blood.
- Maintain a healthy weight and exercise regularly. If you are overweight, avoid low-carbohydrate diets designed for quick loss. When you don't eat enough carbohydrates, your body can't completely burn its own fat. The resulting abnormality in your metabolism can increase the level of uric acid in your blood.
- Avoid foods high in purines.

Who is likely to develop gout?

Some six million Americans aged 20 and older report having gout at some time in their lives. It is rare in children and young adults. Men between the ages of 40 and 50 are more likely to develop gout. Women rarely develop it before menopause. People who have had an organ transplant also are more susceptible to gout.

Getting the Diagnosis Right

When the pain along the top of Lance Elko's right foot grew severe enough, he went to see a podiatrist. After taking an X-ray of the foot, the podiatrist announced that there was a structural problem in the ball of Elko's foot. Surgery or a shoe insert was suggested.

But the diagnosis was wrong. "It just so happened that a week later I had an appointment with my regular doctor," says Elko, a 61-year-old magazine editor and professional guitarist who lives in Greensboro, North Carolina. "He looked at my feet and asked if certain things hurt. And then he said, 'I think you've got gout. Let's do a test.'"

Elko's doctor gave him two colchicine tablets—an anti-gout drug—and two days later the pain was gone. But finding a permanent cure to prevent recurrences proved elusive. It would be three years of trial and error with different medicines before his doctor hit on what Elko calls the "magic bullet."

"What cured me was probenecid and really staying hydrated," says Elko. "I haven't had an attack for the last five years."

Before the probenecid, Elko had recurrences over several years. "It moved mostly to the joint in the big toe of my right foot, which is a common spot for gout to attack," he says. "Then it developed in one elbow. When it comes and goes like that, you never know when the next attack will be. It would usually be at night, and I'd go, 'Oh, boy, here it comes.'"

Although Elko's older brother and a nephew have experienced symptoms of gout, neither of his parents nor any of his nine uncles have had any symptoms.

"My doctor saved the day, when he correctly diagnosed the gout," says Elko.



Photo: Laura Bullock

Magazine editor and professional guitarist Lance Elko has not had a gout flare-up for more than five years, thanks to a prescription drug, probenecid. His doctor correctly identified the gout, after a foot doctor missed the diagnosis.

Gout—Before Modern Medicine

Before medical research discovered the causes and possible cures for gout, the disease was treated as a painful curse and blamed on a variety of dietary and physical reasons.

In this 1815 caricature, the artist Henry William Bunbury seems to blame strong drink, aided by a demon, to explain the terrible pain and swelling of the sufferer.



Illustration: History of Medicine Division, National Library of Medicine (public domain)

How Is Gout Diagnosed?

Gout may be difficult to diagnose because the symptoms can be vague and could be from other conditions. To be sure that what you have is gout, your doctor draws a sample of synovial fluid from your joint. The fluid is examined under a microscope for uric acid crystals. However, not finding the crystals doesn't always mean that you don't have gout. The crystals may also be around the joints, so your doctor may search for them there as well. Also, gout attacks may look like joint infections. So the joint fluid may also be cultured to see if bacteria grow from it.

Treatment

Gout is treated with one or more therapies to ease the pain of acute attacks, prevent future episodes, and avoid formation of uric acid crystals and kidney stones. Treatment also can help prevent long-term damage to joints and disability.

Treatment of acute attacks includes:

- **Non-steroidal anti-inflammatory drugs (NSAIDs)**, such as ibuprofen or naproxen) taken by mouth. NSAIDs reduce inflammation but have no effect on the amount of uric acid in the body.
- **Corticosteroids**, such as prednisone, taken either orally or injected into the affected joint. With corticosteroids, patients often begin to improve within a few hours and attacks usually end within a week.
- **Colchicine**, another drug, is used when NSAIDs or corticosteroids do not work. But it must be taken within the first 12 hours of an acute attack.

Your doctor may prescribe small daily doses of either NSAIDs or oral colchicine to prevent future attacks. Other medicines may be considered to treat hyperuricemia, reduce

the frequency of acute bouts and development of uric acid crystals. Losartan, a blood pressure medication, and fenofibrate, used to lower fats in the blood, can also be useful for gout. Your doctor may also advise you to lose weight, limit alcohol consumption, and limit or avoid high-purine foods that raise uric acid levels.

Research Findings

Because uric acid's role in gout is well understood and medications are widely available, gout is one of the most controllable forms of arthritis. But researchers continue to make advances that someday may prevent this extremely painful disease. Some promising areas include:

- **Refining current treatments.** Recent studies have compared the effectiveness of different NSAIDs and looked at the best dosages of colchicine and allopurinol (a uric acid-lowering drug) to control and/or prevent painful attacks.
- **Evaluating new therapies.** A number of new therapies based on biologic agents that block a chemical called tumor necrosis factor, believed to play a role in gout inflammation, have shown promise.
- **Discovering the role of foods.** Certain foods may prevent gout. For example, a high intake of low-fat dairy products has been found to reduce the risk of gout in men by half. Another study suggests that vitamin C may be of use in the prevention and management of gout and other diseases associated with uric acid production.
- **Searching for new approaches.** Scientists are also studying how urate crystals lead to acute as well as chronic gout and cause debilitating bone problems among people with chronic gout. Better understanding of gout's inflammatory reactions may provide clues for treatment.

- **Examining genes and the environment.** Researchers are studying different populations to determine how certain genes and environmental factors may affect uric acid production and result in gout.

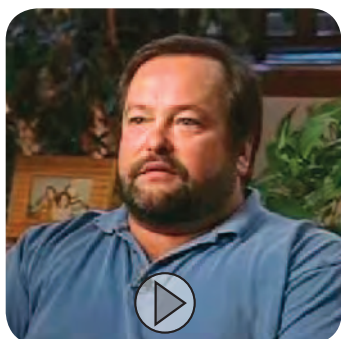
Recent NIH-Supported Advances

Gout in Women – Analyzing data between 1950 and 2002 from the Framingham Heart Study, researchers have found that higher levels of uric acid in the blood increase the risk of gout among women, although at a lower rate than among men. Increasing age, obesity, alcohol consumption, hypertension, and diuretic use also were associated with gout among women

Obesity, Younger Age and Gout – As part of an 18-year study of heart disease and cancer, begun in 1989, of more than 15,000 residents in and around Washington County, Maryland, researchers associate obesity and younger age with gout onset. While the overall mean age for gout was 59.3 years, gout occurred 3.1 years earlier in obese participants. For participants who were 21 years old and obese at the beginning of the study, gout came on 11 years earlier.

Fructose-Rich Beverages and Risk of Gout in Women – Based on an analysis of data from the Nurses' Health Study, which ran from 1984-2006, researchers linked consumption of fructose-rich beverages to an increased although modest risk of gout in women.

NIH Senior Health Video: *Living with Gout*



To see a free, short video on living with gout, visit the NIH Senior Health website. Click on the link to "Gout" in the videos list at this address: <http://nihseniorhealth.gov/videolist.html>

True or False: What Do You Know About Gout?

1. ____ All people who have high levels of uric acid have gout.
2. ____ Pain in the joints caused by gout comes and goes.
3. ____ The most important goal of medications that treat gout is to reduce swelling in the joints.
4. ____ Drinking too much alcohol affects the body's ability to get rid of uric acid.
5. ____ Eating shellfish and liver can raise your uric acid levels.

Answers

1. Answer: False. Gout is caused when the body's immune system attacks uric acid crystals in the joints. In some people, extra uric acid does not form crystals in the joints.
2. Answer: True. Attacks of inflammation in the joints due to gout usually last for a few days and improve on their own.
3. False. The most important goal of gout medications is to control the severe pain of gout attacks. Treatment of gout also aims to prevent more attacks and prevent the formation of new tophi and kidney stones.
4. Answer: True. It is hard for the body to get rid of uric acid if too much alcohol is consumed.
5. Answer: True. Organ meats and shellfish are high in purines. Since the body produces uric acid out of purines, eating these meats can raise uric acid levels. Eating sardines, mushrooms, and dried beans can also raise uric acid levels.

— Patient Education Institute

The Heart Truth Campaign Inspires Women's Heart Health Action



On February 9, 2011, *The Heart Truth* unveiled its annual Red Dress Collection 2011 Fashion Show at Mercedes-Benz Fashion Week. The Fashion Show featured 22 of the hottest celebrities—including Suzanne Somers, Giuliana Rancic, Linda Gray, Ann Curry, and Taraji P. Henson—and paired them with America's top designers. 2012's campaign will debut February 8.

National Wear Red Day

Join *The Heart Truth* campaign on Friday, February 3, 2012—National Wear Red Day—to help spread the message that “Heart Disease Doesn’t Care What You Wear, It’s the #1 Killer of Women.”

Significant progress has been made in increasing awareness among women that heart disease is their #1 killer. Still, many women fail to make the connection between heart disease risk factors and their personal risk of developing the disease. This disease is largely preventable, but kills more women than all forms of cancer combined.

Heart disease awareness in women has doubled in the last 12 years, and the awareness gap between older and younger women is narrowing, according to the National Heart, Lung, and Blood Institute (NHLBI). Data also show that women are taking preventive actions. Women who know that heart disease is the leading cause of death are more likely to be physically active and try to lose excess weight.

Although heart disease awareness is on the rise, one-third of women still underestimate their own risk for heart disease. Only 16 percent recognize heart disease as the greatest health problem facing women.

NHLBI created and introduced the Red Dress as the national symbol for women and heart disease awareness in 2002 to deliver an urgent wake-up call to American women. The Red Dress reminds women of the need to protect their heart health, and inspires them to take action. On National Wear Red Day, wear a Red Dress, red shirt, or red tie to show your support for women and heart disease awareness.

The Heart Truth is building awareness of women's heart disease and empowering women to reduce and prevent their risk. It is reaching women with important heart health messages in community settings through a diverse network of national and

grassroots partner organizations.

The Heart Truth campaign is sponsored by NHLBI in partnership with The Office on Women's Health (OWH) and other groups committed to the health and well being of women.

Community organizations across the country are joining *The Heart Truth* campaign and using its Red Dress symbol to raise awareness about women and heart disease. Educational materials are being distributed at local events and presentations emphasizing women's health issues.

To find out more about women and heart disease, visit *The Heart Truth* Web pages at www.hearttruth.gov or call the NHLBI Health Information Center at 301-592-8573.

To Find Out More

- **Heart Disease in Women (National Heart, Lung, and Blood Institute)**
www.nhlbi.nih.gov/health/health-topics/topics/hdw/
- **Heart Disease (Dept. of Health and Human Services, Office on Women's Health)**
<http://womenshealth.gov/publications/our-publications/fact-sheet/heart-disease.cfm>
- **The Heart Truth**
www.hearttruth.gov
- **Heart Disease in Women: MedlinePlus**
www.nlm.nih.gov/medlineplus/heartdiseaseinwomen.html

Social Media May Help Spot a Problem Drinker

College students who write about getting drunk and blacking out on Facebook and other social networking sites are more likely to have a drinking problem than students who don't post that kind of information. That's the conclusion of study by researchers at the University of Wisconsin in Madison and the University of Washington in Seattle. The researchers examined Facebook profiles of more than 300 students at those universities and also invited students to take an online test used to measure problem drinking. Students who posted references to dangerous drinking were more likely to have test scores indicating an alcohol problem. The researchers say parents and healthcare providers who see references to problem drinking on Facebook should consider talking to their child or patient about their drinking habits. The study was supported by NIH's National Institute on Alcohol Abuse and Alcoholism.

Prevent the Flu; Get Vaccinated

If you want to avoid the seasonal flu, the single best thing you can do is get a flu vaccine every year. Experts recommend that everyone 6 months of age and older get vaccinated. Healthy people 2 through 49 years old can receive the vaccine in a nasal spray instead of a shot. People should talk to their doctor first if they have life-threatening allergies; Guillain-Barré Syndrome; or have had a severe reaction to a flu vaccine in the past. The flu

season often peaks in January and February, so it's still not too late to protect yourself with a shot or a spray vaccine.

Is 90 the New 85?

The number of people aged 90 and older in the United States is growing rapidly. In 1980, there were 720,000 people aged 90 and older. In 2010, the number was 1.9 million. And by 2050, it could be 9 million. That's according to a U.S. Census Bureau report commissioned by NIH's National Institute on Aging. Among the findings for the 90+ crowd:

- Most are widowed white women living alone or in a nursing home
- Whites are 88.1% of the group, Blacks 7.6%, Hispanics 4%, Asians 2.2%
- Average median income is \$14,760 (\$20,133 for men, \$13,580 for women)
- Most have health insurance through Medicare and/or Medicaid
- Most have one or more disabilities

Previous research designated 85 as the "oldest old." The new report provides data for the consideration of moving that yardstick up to 90. NIA Director Richard J. Hodes, Maryland, says it's important to have a detailed picture of the oldest population. "The information on a variety of factors—income, health status, disabilities, and living arrangements—will be particularly useful to researchers, planners, and policy makers."

Oh, My Aching Back!

A new study finds yoga and stretching classes are comparable, reasonable options for treating moderate, chronic low back pain. Researchers in Washington state studied nearly 230 people who tried to ease their low back pain one of three ways: taking yoga classes, taking conventional stretching classes, or using a self-care book containing advice on exercising and lifestyle changes. Yoga proved better than the self-care book and similar to—but not better than—stretching classes. Back pain is a big problem in the United States. It's the second-most common neurological ailment, next to headache. The study comparing low back pain treatments was funded by NIH's

National Center for

Complementary and
Alternative
Medicine.

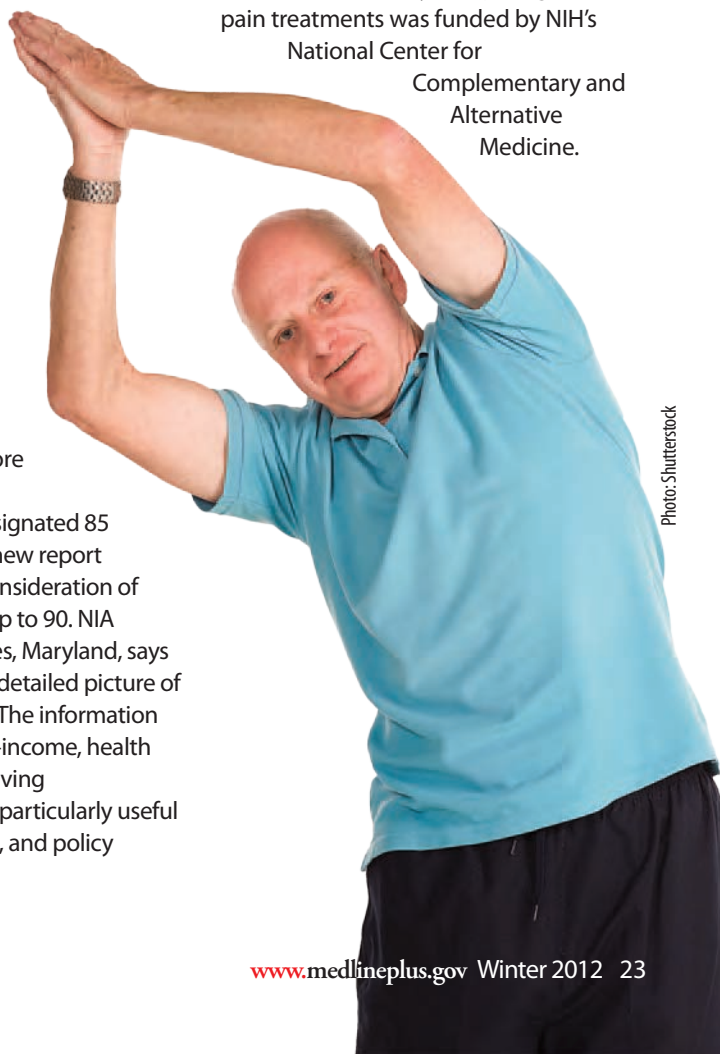


Photo: Shutterstock

NATIVE VOICES

NATIVE PEOPLES' CONCEPTS OF HEALTH AND ILLNESS

The Library opens an exhibition examining concepts of health and medicine among contemporary American Native populations.



The Healing Totem

Healing totem pole installed in front of the National Library of Medicine. It was carved by Lummi Nation master carver Jewell James—sculptor of the totem poles honoring the September 11th victims.

A new exhibition examining concepts of health and medicine among contemporary American Indians, Alaska Natives, and Native Hawaiians, is open and free to the public at the National Library of Medicine, part of the National Institutes of Health.

Native Voices: Native Peoples' Concepts of Health and Illness, explores the connection between wellness, illness, and cultural life through a combination of interviews with Native people, artwork, objects, and interactive media.

“This is a unique exhibition, dedicated to raising awareness of the historical and contemporary concepts of health and wellness among American Indians, Alaska Natives, and Native Hawaiians.”

—Dr. Yvette Roubideaux, U.S. Indian Health Service

The National Library of Medicine has a history of working with Native communities as part of the Library's commitment to make health information resources accessible to people no matter where they live or work. The Native Voices exhibition concept grew out of meetings with Native leaders in Alaska, Hawaii and the contiguous United States.

“This exhibition honors the Native tradition of oral history and establishes a unique collection of information,” says Donald A.B. Lindberg, MD, director of the National Library of Medicine. “We hope visitors will find Native Voices educational and inspirational, and we hope Native people will view it with pride. The Library is excited to open this exhibition, and to do it during our 175th anniversary year.”

Topics featured in the exhibition include: Native views of land, food, community, earth/nature, and spirituality as they relate to Native health; the relationship between traditional healing and Western medicine in Native communities; economic and cultural issues that affect the health of Native



“Native Voices” Exhibition Opens

Guests gather for the ribbon-cutting ceremony to open the National Library of Medicine’s exhibition on “Native Voices: Native Peoples’ Concepts of Health and Illness” on October 5, 2011. From left to right are Ralph Foquera, Executive Director, Seattle Indian Health Board; Maynard Eaken, Alaska Native elder; Katherine Gottlieb, President, Anchorage, Alaska Southcentral Foundation; Yvette Roubideaux, M.D., M.P.H., Director, Indian Health Service; Donald A.B. Lindberg, M.D., Director, National Library of Medicine; Virginia Tanji, Chair, NLM Board of Regents; Cynthia Lindquist, President, Cankdeska Cikana Community College; and Native American dancers.

communities; efforts by Native communities to improve health conditions; and the role of Native Americans in military service and healing support for returning Native veterans.

A Dual Vision of Health Care

“As a Harvard-trained physician and a member of the Rosebud Sioux Tribe, I have a dual vision of Native health care,” says Yvette Roubideaux, M.D., M.P.H., Director of the U.S. Indian Health Service, “seeing the importance of both traditional medicine and modern technology in healing and promoting wellness among Native people.”

Although improvements have been made in the health status of American Indians and Alaska Natives, health disparities continue to persist for Native Americans compared to other populations, notes Dr. Roubideaux.

“For instance, life expectancy is still more than five years below that for the general population,” she says. “Diabetes mortality rates are nearly three times higher, and suicide rates are nearly twice as great.

“We are grateful for this exhibit, as it will help to educate the general public, legislators, and researchers about the health challenges in Indian Country and the need for appropriate resources and knowledge to meet those challenges.”



Dr. Yvette Roubideaux

Yvette Roubideaux, M.D., M.P.H., Director of the U.S. Indian Health Service, was one of the “Native Voices” interviewed about health, wellness, and Native culture for the new exhibition at the National Library of Medicine.

All photos not otherwise credited are from J.S.A. Photography.

NATIVE VOICES

NATIVE PEOPLES' CONCEPTS
OF HEALTH AND ILLNESS



Photo: Sam Low

Nainoa Thompson (above) learned the art and science of non-instrument navigation of ancient double-hulled voyaging canoes that were used for long-distance travel across the Pacific Ocean. Today, the Polynesian Voyaging Society reconnects Native Hawaiian youth to their natural environment by giving them sailing opportunities that reawaken their observational skills, and help them understand the value of nurturing their own spirituality and physical well being.

In 1976, the ancient tradition of voyaging was revived with the 60-foot Hokulea canoe. Pictured with builder Tay Perry (left) is a 10-foot model of the Hokulea that was constructed in Honolulu for the exhibition using authentic Native materials. Located in the lobby of the Library, it serves as the entry point for visitors to the exhibition.

In the exhibition, learn how diverse lifestyles and shared experiences have helped sustain the health and well being of Native populations for generations.



(Above) A young traditional dancer performs during the dance program at the exhibition's opening at the Library.



Visit the "Native Voices" Web Site www.nlm.nih.gov/nativevoices

To make the Native Voices information accessible to people who can't come to the Library, there is an online version of the exhibition at www.nlm.nih.gov/nativevoices. The Library hopes to develop a travelling version consisting of a series of banners with information.

For people interested in Native health issues in general, the Library's collection of free online information contains material on Native health including:

- An American Indian Health portal to issues affecting the health and well being of American Indians (<http://americanindianhealth.nlm.nih.gov/>)
- An Arctic Health Web site with information on diverse aspects of the Arctic environment and health of northern peoples (www.arctichealth.org/)
- A Native American Health page on MedlinePlus.gov, the Library's consumer health website (www.nlm.nih.gov/medlineplus/nativeamericanhealth.html)

Healing Images

The "Native Voices" exhibition includes interactive touch-screen technology, with interviews conducted by Library Director Dr. Donald A.B. Lindberg, and videos, such as this image from a Native healing ceremony video. Native Voices speak of the responsibilities of individuals and the interconnectedness of communities, of reverence for Nature, tradition, and the Great Spirit. You will also hear about the challenges and opportunities of balancing traditional healing with Western medicine.



Video: National Library of Medicine



Understanding the Healing Totem

The totem outside the National Library of Medicine was designed and carved by master carver Jewell Praying Wolf James. From the time the tree left the forest in Washington State to travel to the Lummi Nation to be carved, and then to its present site in the NLM Herb Garden, it traveled 4,400 miles. Here, on the same campus where doctors and scientists dedicate their lives to solving the questions of medicine, it will fulfill its mission of symbolizing and promoting good health and healing.

The stories depicted on the totem use symbols of the sky (raven, sun, moon, stars, fire), the earth (bear, plants, habitat), water (ocean, river, moon cycles with tides), and the creative power and wisdom of women as leaders and healers. Totems display these symbols to awaken our awareness of the meaning and interconnectedness of life and the environment, and the collective knowledge of all races of humanity.

The bottom of the totem depicts a woman with a gathering basket. She represents the women who traditionally gathered plants and herbs to heal human illness.

The center portion of the totem is a tree, representing the Tree of Life and the forests that provide natural healing medicines. Nature is the first source of cures for human ailments.

The top of the totem pole depicts the Algonquin story of the Medicine Woman in the Moon. The moon is the protector and guardian of the earth by night.

The colors in the totem pole also have deep meaning:

- **Red** is the color of blood, representing war or valor
- **Blue** is for the skies and waters, including rivers and lakes
- **White** is for the skies and spacious heavens
- **Yellow** is the color of the sun, bringing light and happiness
- **Green** is the earth with its hills, trees, and mountains
- **Black** represents power.

More “Native Voices” Stories
www.nlm.nih.gov/nativevoices

The exhibition and Web site contain many stories related to Native healing, including:

Ceremony and the Medicine Wheel

Ceremony is an essential part of traditional Native healing. Because physical and spiritual health are intimately connected, body and spirit must heal together. The ‘Medicine Wheel’ symbolizes health and the cycles of life.

A Continuum of Health Care

Today, Native Americans can access a continuum of health care practiced by traditional healers and Western-trained physicians. The Waiānae Coast Comprehensive Health Center in Oahu, Hawaii, provides a range of traditional healing practices that are overseen by a Council of Elders. The Center is co-located alongside a Western primary medical care clinic offering comprehensive health and wellness services.

The Traditional Healing Center of the Southcentral Foundation in Anchorage, Alaska received an award in 2011 from the Indian Health Service for demonstrating how traditional doctors, elders, and traditional healing practices can work side-by-side with Western medicine.

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 Research Resources (NCRR)**
www.ncrr.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

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

Jody Engel, Office of Dietary Supplements

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

Lakshmi Grama, National Cancer Institute

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

Jo-Ann Kriebel, National Institute of Alcohol Abuse and Alcoholism

Lonnie Lisle, National Institute on Deafness and Other Communication Disorders

Ann London, National Institute of Allergy and Infectious Diseases

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

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

Trish Reynolds, National Institute of Arthritis and Musculoskeletal and Skin Diseases

Ann Taubenheim, National Heart, Lung, and Blood Institute

Chris Thomsen, National Center for Complementary and Alternative Medicine

Larry Thompson, National Human Genome Research Institute

Tune in to NIH for Health!



U.S. Department of Health & Human Services

National Institutes of Health
NIH...Turning Discovery Into Health

For Employees | Staff Directory | En Español

Health Information | Grants & Funding | News & Events | Research & Training | Institutes at NIH | About NIH

NIH Home | News & Events | NIH Radio

NIH RADIO

ON AIR

NIH Radio

NIH Audio Reports
NIH Podcasts
NIH Health Matters
Newsletters & Feeds
Get RealPlayer

"NIH Research Radio" Podcasts

NIH Podcast Archive | Subscribe | RSS Feed | (What is RSS?)

CURRENT EPISODE

December 2, 2011
Episode #0148 (MP3 | 00:24:59, 23.4 MB)

- News Update
- Cigarette smoking implicated in half of bladder cancers in women
- NIH study examines nicotine as a gateway drug
- NIH study finds stroke risk factors may lead to cognitive problems
- New GoLife campaign focuses on fitness of older adults
- Research study finds risk factors for TAUJ

This NIH Research Radio Podcast is updated every other Friday.

TECHNICAL HELP

What is Podcasting?

Podcasting is a way to share audio files on the Internet for free. You can listen to the files on your computer or on a portable device. Once you have downloaded the files, you can listen to them on your PC or Mac by using a podcasting application. You can also listen to the files on your MP3 player.

How to Download

To download a podcast, click on the link next to the episode title. This will download the MP3 file to your computer. You can then listen to the file on your computer or on a portable device.

Search NIH Radio

Find ANY word

Go

Search Tips

Contact Us

Questions? Send e-mail to:
Joe Balinty
NIH News Media Branch
301-435-7557

About NIH Radio

NIH Radio offers free MP3 audio reports from the National Institutes of Health.

Free podcast
audio reports
available 24/7
on your computer or any
personal audio player

www.nih.gov/news/radio/nihpodcast.htm

NIH: The World's Leader in Biomedical Research and Information



NIH...Turning Discovery Into Health

Brought to you by the National Library of Medicine (NLM), part of the National Institutes of Health (NIH),
U.S. Department of Health and Human Services.