

# NIH MedlinePlus

Trusted Health Information  
from the National  
Institutes of Health

Winter 2007

the magazine

*Cosby Show* star

Phylicia Rashad promotes

## Women's Heart Health

2007 Red Dress Campaign

**"Learn More,  
Breathe Better"**

COPD: Unknown Killer

**SPECIAL  
SECTION!**

The New Science  
of Aging Well



# Mary Tyler Moore Helps Launch *NIH MedlinePlus* Magazine

On behalf of the Friends of the National Library of Medicine (FNLM), we welcome you to the Winter issue of *NIH MedlinePlus* magazine.

In September, the FNLM was fortunate to have award-winning actress and tireless diabetes research advocate Mary Tyler Moore help launch the first official issue of the magazine at a press conference in the U.S. Capitol Building in Washington, DC. Also on hand for the event were National Institutes of Health (NIH) leaders and several key members of the U.S. Congress.

Among the speakers was Dr. Elias Zerhouni, NIH Director, who noted that the new magazine—which is sent to doctors' offices nationwide for their patients to read—helps fulfill Congress's call to publicize the fruits of NIH-sponsored research to patients, their families, and the public at large.

We could not be more delighted at the initial response to *NIH MedlinePlus* magazine. Requests for thousands of additional copies have been forwarded to the Friends' offices, and we are now in the process of soliciting sponsorships and grants in order to expand the distribution of this valuable, free consumer health publication to as many people as possible.

We hope that you enjoy this issue, which includes a special section on steps you can take that will help you as your body ages, an article on the latest information about the largely unknown impact of chronic obstructive pulmonary disease (COPD) and an update on the very successful Red Dress educational campaign on women and heart disease.

Please let us know if you have special requests about future topics in the magazine and if you would like to receive a free subscription to *NIH MedlinePlus*.

Sincerely,  
Paul G. Rogers  
Chairman  
Friends of the National Library of Medicine



Among those attending the *NIH MedlinePlus* magazine launch on Capitol Hill were (l-r) NIH Director Dr. Elias Zerhouni, Rep. Ralph Regula (R-OH), Mary Tyler Moore, former Rep. Paul Rogers, and NLM Director Dr. Donald Lindberg.



Sen. Tom Harkin (D-IA) joins Paul Rogers (right) at the podium during the magazine launch last fall.

## How You Can Help the Library Extend Medical Knowledge

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](http://www.medlineplus.gov).

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

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# The Promise of Personalized Medicine

NIH Director Elias A. Zerhouni, M.D., leads the NIH's 27 Institutes and Centers, with more than 18,000 employees and a 2006 budget of \$28.6 billion. A well-respected leader in the field of radiology and medicine, he has spent his career providing clinical, scientific, and administrative leadership. Recently, Dr. Zerhouni sat down with magazine coordinator Christopher Klose to discuss some of Dr. Zerhouni's own experiences and hopes for the future of medicine.

**Klose:** *What motivated you to become a doctor?*

**Dr. Zerhouni:** I just like people; the interaction and sense of being relevant. At first, I wanted to be a mathematician or a physicist. I was more interested in rocketry and some of the careers typical of the 1950s. Years later when I was in university, I volunteered in the poor areas. I saw what was going on with the poor and that touched me. That was when I realized that it's great to send rockets to the moon, but perhaps the most important thing is people. That's why I went into medicine.

**Klose:** *Why did you decide to specialize in radiology?*

**Dr. Zerhouni:** Sometimes, life is just a matter of encountering people who show you something interesting. I had a radiologist who showed me my first CAT [computed axial tomography] scan.



Right away, I realized this was important; this was something I could do.

Radiology has a direct impact on understanding the biology of disease. Here is the crux of my research. I'm not a biologist but I work in biology, I'm not a mathematician, yet I use mathemat-



ics. Every piece of work I've done has been to increase our ability to quantify – to use quantitative methods – to extract biological information. For example, I first discovered CAT scans could be used to measure calcium density within tissues, which led to my getting a patent. This paved the way for doing the same with lung cancer and then osteoporosis. And I discovered a technique in MRI [magnetic resonance imaging] that allows you to measure cardiac function very precisely.

For me, it has been this constant intermarriage of the physical and biological sciences in which the whole is greater than the sum of the parts.

If you look at the history of medicine, of science in general, we've always gone from being able to empirically observe to being able to measure accurately. The direction has always been to go from less precise to more precise tools, from less to more quantitative data, to inform yourself and increase your knowledge.

**Klose:** *How would you describe your own approach to research?*

**Dr. Zerhouni:** I'm sort of a hybrid because I believe that seeing trends is key. I don't like to just analyze things. I'm entrepreneurial and want to make a difference. And that really requires what I would call operational attention. So I'm not really a detail person; details are a tool for reaching endpoints, to drive a particular vision.

**Klose:** *How do you see medicine today changing?*

**Dr. Zerhouni:** The relationship between patient and doctor is changing quickly. Before, the patient was passive and receiving, the doctor all-knowing and giving. We tried to cure people of whatever had evolved in them. Now we need to be much more

predictive about what happens to whom, and when, because we're dealing with more long-term, chronic diseases.

Traditional one-size-fits-all treatments must be tailored to the individual because people don't react exactly alike. If we're smart enough, we will be able to preempt disease—to strike it before it strikes the patient.

**Klose:** *How do you see the doctor-patient evolution coming about?*

**Dr. Zerhouni:** This will require much more health education, more literacy on the part of patients, and much more communication. Look at heart disease, for example. In the past it was, "If you have chest pain, come and see me." Now it's "If you have high cholesterol you have to watch it; here is the kind you have and what you need to do."

In other words, there is an explanation relationship between doctor and patient. Every time a new element of complexity is added, the need for communication doubles. This is where I think we need to have a multiplicity of media to increase the health literacy of the public.



**Klose:** *How does this new need for communication affect the future of health literacy?*

**Dr. Zerhouni:** We are in a revolutionary period of medicine that I call the four Ps: predictive, personalized, preemptive and participatory. This requires patient involvement well before disease strikes. As opposed to the doctor-centric, curative model of the past, the future is going to be patient-centric and proactive. It must be based on education and communication.

This is what I am pushing for at NIH. I like to change things and believe we need to be ahead of the curve. The challenge is to channel the energy of this outstanding organization to help the public better care for itself.

No one knows exactly how to do this. It requires voluntary, intelligent participation, not passive acceptance. We can provide the information, but you have to do something for yourself.

**Klose:** *How does this new magazine—NIH MedlinePlus—fit into the four Ps model?*

**Dr. Zerhouni:** MedlinePlus is another link in our changing world, part of the hand-in-hand approach that NIH wants to extend to the public as we both travel this new era of health care – learning and working together.

**Klose:** *What advice would you offer our readers about the future of health care?*

**Dr. Zerhouni:** If you want a long and healthy life, take responsibility for yourself. NIH wants to give you the best tools to do that. That's our mission. So, the big thing is: No one has the answer but you. Take responsibility for your care because you can affect it more than any doctor or drug can by doing very simple things, and by knowing where to get more information if what you're doing is not enough.

Take charge with knowledge. We'll give you the knowledge; you provide the power. Knowledge with action is power.

**Klose:** *What is the prognosis for our ailing health care system?*

**Dr. Zerhouni:** That's a tough question. What's really amazing is it's not that people don't know or don't have an idea what to do. We know that if we could change behaviors then we could reduce the disease burden; that if you can stick to a diet and an exercise program and maintain certain parameters, such as not smoking, you'd be fine.

We know that prevention is more important than ever, yet the system does not fund prevention. The mystery to me is why the system is so resistant to change.

My total experience as a scientist, then as a science administrator and now as an institutional leader has been about managed change. It's clear to me that this is a revolutionary period of change, and there is no magic answer.

**Klose:** *What's to be done to improve the health care system?*

**Dr. Zerhouni:** Just like anything else, it is going to take the ability to free up the American genius in adapting itself to a challenge. Right now, everyone's focused on finding the magic answer. But health care is different from region to region across the country. We need to give people the degrees of freedom they need to experiment with different health care solutions.

We need to get back to the genius of our country. The more we free our ability to do that, the more we make sure that we don't become so bureaucratic and so rigid that there is only one solution – the one we've used for 50 years that says, "Well, we've been doing this for 50 years, it's worked! We're great! We're wonderful! Why don't we just rest on our laurels? Why try something else?"

The NIH must serve as the source of the most credible knowledge. Not to spoon-feed people, but to empower them to feel that there is no limit to what they can achieve for themselves in their own health — just like there is no limit to what you can achieve in this country.



**Female musical artists celebrate** the conclusion of The Heart Truth's Red Dress Collection 2006 Fashion Show on the runway at Olympus Fashion Week. Those wearing red dresses designed by America's top fashion houses included Amerie for Tommy Hilfiger (far left), Lindsay Lohan for Calvin Klein (second from left), Elaine Stritch for Charles Nolan (center left), Kelly Rowland for House of Dereon (center right), and Nelly Furtado for Betsey Johnson (far right).

# The Red Dress: Getting to the **Heart** of Women's Health

For the fifth consecutive year, The Heart Truth — a national awareness campaign about women and heart disease — launches its heart disease educational effort with the flair and style of the now-famous Red Dress symbol.



Heart disease may not be the first thing a woman thinks of when she considers her health risks. But it should be. In fact, heart disease is the No. 1 killer of American women.

This crucial health message is reaching a growing number of women through The Heart Truth national awareness campaign. The campaign created and introduced the Red Dress as the national symbol for women and heart disease awareness in 2002 to help deliver an urgent wake-up call to American women. The Red Dress calls women

to action and empowers them to protect their heart health and reduce their risk of heart disease.

Each year, The Heart Truth comes to life with the annual Red Dress Collection Fashion Show, which takes place during Fashion Week in February. The campaign includes a Red Dress pin, introduced by NHLBI in 2002 as the national symbol for women and heart disease awareness. The pin is available online at [www.hearttruth.gov](http://www.hearttruth.gov). As a part of Fashion Week, National Wear Red Day, held on Friday, February 2, unites women across the country in the fight against heart disease.

“Women may not be aware they have symptoms of heart disease, in large part because women's symptoms can be subtle and they overlap with other illnesses,” says Elizabeth G. Nabel, M.D., director of the National Heart, Lung, and Blood Institute, which sponsors

## Guidelines for Better Heart Health

In 2004, the American Heart Association (AHA) released new guidelines for preventing heart disease and stroke in women, based on a woman's individual cardiovascular health. Those guidelines, still in effect today, adopted the idea that cardiovascular disease (CVD) develops over time and that women fall somewhere along a continuum, based on a variety of factors. This concept replaced the earlier idea that women either had or did not have CVD.

### Guidelines at a Glance:

- Prevention should be tailored to a woman's individual level of risk for cardiovascular events.
- Smoking cessation, regular physical activity, a heart-healthy diet, and weight maintenance are a strong priority.
- ACE inhibitors and beta-blockers are recommended for all high-risk women.
- High-risk women should be prescribed statin therapy even if their LDL cholesterol levels are below 100 mg/dL.
- Niacin and fibrate therapies are given a strong recommendation for high-risk women with specific cholesterol abnormalities.
- Aspirin is recommended for prevention in all high-risk women and is not recommended for low-risk women. For intermediate-risk women, aspirin can be considered as long as blood pressure is controlled and the benefit is likely to outweigh the risk of side effects.
- Blood pressure-lowering drugs are recommended when blood pressure is greater than or equal to 140/90. Diuretics should be part of the drug regimen for more patients unless contraindicated.
- Women with atrial fibrillation and inter-

mediate or high risk for embolic stroke should take warfarin. If they cannot take warfarin, or if they are at low risk, they should be given aspirin.

- Women with diabetes must have their blood sugar carefully controlled, as defined by achieving near-normal glycosylated hemoglobin levels (less than 0.7 percent).
- Hormone therapy and antioxidant vitamin supplements are not recommended for CVD prevention.
- Women with cardiovascular disease should be evaluated for depression and treated or referred for treatment when indicated.
- In addition to a heart-healthy diet, supplementation with omega-3 fatty acids and folic acid may be considered in some high-risk women.

*NOTE: Talk to your doctor about what steps you should take.*

the campaign. "Women often don't feel the classic crushing chest pain that is associated with a heart attack—they might have shortness of breath, fatigue, or pain in the arm, shoulder, or jaw."

Over the past five years, The Heart Truth campaign has been educating women about the risks of heart disease, including how to recognize these danger signs. Now, the campaign is focusing on how women can take action to reduce their risk.

### The Red Dress

During last year's Red Dress Fashion Show, 23 celebrities walked the runway in stunning red dresses to their own music, including Lindsay Lohan, Lee Ann Womack, Christina Milian, Fergie, Sheryl Crow, Nelly Furtado, Eartha Kitt, LeAnn Rimes, Debbie Harry, and Kelly Rowland.

This year, leading celebrities and designers will debut "Celebrated Women 2007," the fifth collection of red dresses created to raise awareness about heart disease. The event takes place during Mercedes-Benz Fashion Week in New York City. Participating celebrities will include Angela Bassett, Danica Patrick, Phylicia Rashad, and Rachael Ray, all wearing red dresses from designers such as Calvin Klein, Donna Karan, Ralph Lauren, Luca Luca, and Betsey Johnson.

"In my own family, there is a history of cardiovascular disease associated with diabetes," says Phylicia Rashad, former *Cosby Show* TV personality and popular entertainer. "It's important for women to know that through a proactive involvement in your health and lifestyle, heart disease is something that can be approached with a positive attitude toward prevention and change."

Rashad, who also took part in the 2005 Red Dress fashion show, is looking forward to the 2007 events: "I am happy to support this issue and to help women to take action in protecting their health."

### Seeing Results

"The good news is, heart disease is preventable," Dr. Nabel says. "If everyone had low levels of risk factors, heart disease in America could be reduced by about 80 percent. But having even one risk factor increases the chances of getting heart disease, and having multiple risk factors greatly increases risk."

The Heart Truth is already making an impact. Surveys by the American Heart Association show that awareness of heart disease as the No. 1 killer of women is on the rise. In 2000, only 34 percent of women were aware of that. By 2005, awareness had increased to 55 percent of women.

Even more encouraging, heart disease deaths among American women are decreasing. Of the women who died in 2003, one in three died of heart disease. Preliminary data for 2004 (the most recent year for which data are available) show that one in four deaths in women was due to heart disease—a decrease of nearly 17,000 deaths.

Women's Red Dress activities are held throughout the United States each February, such as this heartfelt gathering of women from the University of Texas at Austin last year.



Women aren't just more aware of their heart risks — they're doing something about it. A recent study showed that women's knowledge about their personal risk of heart disease is associated with increased action to reduce their risk—they're more likely to step up their physical activity, eat healthier, and lose weight.

"In 2004, women's life expectancy at birth reached an all-time high at 80.4 years," Dr. Nabel says. "The decline in heart disease deaths has contributed to this trend."

## Challenges Ahead

Dr. Nabel hopes this year's Red Dress Collection and other outreach activities will attract the attention of African-American and Hispanic women. She notes that while heart disease deaths have declined among women, African-American women are more likely to die of the condition, and at younger ages, than white women. Both African-American and Hispanic women have higher rates of some risk factors for heart disease. More than 85 percent of African-American women and 78 percent of Hispanic women ages 40-60 are overweight or obese. Both groups of women have high rates of diabetes, and more than half of middle-aged African American women have high blood pressure.

"Women are living longer, starting to live healthier lives and are dying of heart disease at a much later age than in previous years," Dr. Nabel says. "But heart disease in women is still underdiagnosed and undertreated, and this is a particular problem in the African-American and Hispanic communities. Our goal is for all women to take their risk of heart disease personally and seriously—and to do something about it." ■



NASCAR driver Danica Patrick is among those taking part in this year's Red Dress Collection Fashion Show.

## Heart Disease Affects Women of All Ages

### Young Women:

- Lifestyle-related factors that increase heart disease risk are increasingly common among girls, teenagers, and young adults.
- Physical activity levels drop sharply as girls become teenagers. By the age of 15 or 16, 28 percent of Caucasian girls and 58 percent of African American girls report no habitual leisure-time physical activity.
- Almost 15 percent of girls ages 6-19 are overweight.
- About 25 percent of girls in grades 9-12 reported using tobacco in 2003; about 80 percent of smokers begin before age 18.

### Middle-Aged Women:

- At menopause, a woman's heart disease risk starts to increase significantly.
- Each year, about 88,000 women ages 45-64 have a heart attack.
- About half of women who have a heart attack before age 65 die within 8 years.
- Heart disease rates are 2-3 times higher for postmenopausal women than for those of the same age who have not yet undergone menopause.
- Menopausal hormone therapy, with estrogen alone or with progestin—once thought to lower risk—is not recom-

mended for long-term use to prevent heart disease.

- The lifetime risk of developing high blood pressure for women aged 55 is about 90 percent.
- Beginning at age 45, more women than men have a total cholesterol over 200 md/dL—borderline high or higher.

### Older Women:

- About 21 million women aged 60 and older have high blood pressure.
- Most women over age 65 have obvious heart disease or "silent" atherosclerosis ("hardening of the arteries"). In silent atherosclerosis, there are no symptoms but fatty plaques have built up in arteries.
- Each year, about 372,000 women aged 65 and older have a heart attack.
- The average age for women to have a first heart attack is about 70—and women are more likely than men to die within a few weeks of a heart attack.

### For Women with Heart Disease:

- About 6 million American women have coronary heart disease.
- Heart disease has no quick fix—even if a special procedure, such as an angioplasty, is performed, heart disease will worsen unless treated with lifestyle

changes and medication.

- Twenty-three percent of women will die within 1 year after having an initial recognized heart attack.
- About 35 percent of women who have had a heart attack will have another within 6 years.
- About half of women who have a heart attack will be disabled with heart failure within 6 years. Heart failure is a life-threatening condition in which the heart cannot pump enough blood to supply the body's needs.

### To learn more about heart disease and how to lower your risk:

- National Heart, Lung, and Blood Institute [www.hearttruth.gov](http://www.hearttruth.gov), 301-592-8573, TTY: 240-629-3255
- Office on Women's Health, DHHS National Women's Health Information Center [www.WomensHealth.gov](http://www.WomensHealth.gov), 1-800-994-WOMAN, TDD: 1-888-220-5446
- American Heart Association [www.americanheart.org](http://www.americanheart.org), 1-888-MY HEART
- WomenHeart: the National Coalition for Women with Heart Disease [www.womenheart.org](http://www.womenheart.org), 202-728-7199
- MedlinePlus: [www.medlineplus.gov](http://www.medlineplus.gov), type "heart disease in women" into search box.

YOUR GUIDE TO THE NEW SCIENCE OF

# Aging Well

**N**ever before have so many people lived for so long. Life expectancy has nearly doubled over the last century, and today there are 36.8 million Americans age 65 and older. The aging of the population — in past decades and in the foreseeable future — presents both a challenge and an opportunity for all of us as we seek to stay healthy throughout our longer lives. This special section presents some of the latest research findings on aging well and offers a checklist of ways to take even greater charge of staying healthy. This section also is a springboard to much more free, authoritative information available at [www.medlineplus.gov](http://www.medlineplus.gov).

# Welcome

to this special section of  
*NIH MedlinePlus* on "Aging Well."



Dr. Richard Hodes

**Page 10** 8 Areas of Age-Related Change

**Page 14** 7 Steps to Aging Well

**Page 17** Health Screening: What Tests You Need and When

**Page 17** A Note on Complementary Medicines

**Page 18** Nutrition and the Aging Eye

**Page 20** In the Genes? Searching for Methuselah

**A**ging well is more critical than ever as America—indeed, the world—grows older. While a significant portion of older Americans has not been able to hold disability at bay, the vast majority of people age 65 and older have maintained their health and are able to keep up with daily activities.

What is the difference between aging well and growing more frail and less independent with advancing years? The National Institute on Aging's (NIA) aim is to learn the factors contributing to a healthy old age and to understand the processes underlying increased risk of disease and disability associated with growing older. NIA's research program covers a broad range of areas, from the study of basic cellular changes with age to the examination of the biomedical, social, and behavioral aspects of age-related conditions, including Alzheimer's disease.

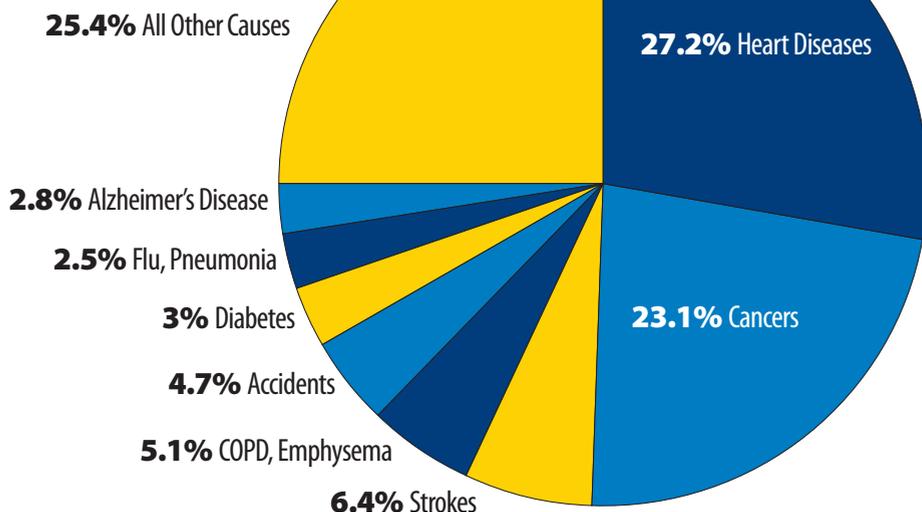
In this special report, *NIH MedlinePlus* presents some of the key elements that the NIA and its fellow Institutes at the NIH have identified as components of healthy aging. In addition to the brief research-based capsules of information and recommendations presented here, you will find much more, expanded information on all of these topics at MedlinePlus ([www.medlineplus.gov](http://www.medlineplus.gov)) and at the NIA Web site ([www.nia.nih.gov](http://www.nia.nih.gov)). Both Web sites offer links to [www.NIHSeniorHealth.gov](http://www.NIHSeniorHealth.gov). You also are invited to call the NIA Information Center toll free at 1-800-222-2225 to obtain a list of publications on aging and health that you can then order free of charge.

We hope that you will find this report useful in your personal efforts toward aging well.

Dr. Richard J. Hodes  
Director, National Institute on Aging

## Causes of Death in U.S.

**T**he Centers for Disease Control and Prevention (CDC) reported in late 2006 that, for adults, heart disease remains the No. 1 killer; however, deaths from heart disease dropped by 16 percent between 2000 and 2004. During the same period, deaths from the No. 2 killer of adults—cancer—fell by 8 percent. Deaths from diabetes, however, are on the rise. (<http://www.cdc.gov/nchs/hus.htm>).



# Helping You Age Well

**Brain:** Processing speed slows with age, but mental and physical exercises are being tested to see how they might slow age-related declines in certain thinking skills.

**Social/Psychological:** Social isolation and depression can occur as we age. Try to keep family relationships and friendships over time. Exercise can also help prevent depression or lift your mood. Stay active and involved in life. Talk to your physician if you are feeling depressed.

**Teeth & Gums:** Good dental hygiene (flossing, brushing) is the key. See your dentist twice a year.

**Lungs:** Regular aerobic exercise keeps lung capacity up. Smoking leads to chronic obstructive pulmonary disease and/or cancer.

**Digestive:** Whole grains, vegetables, and fruits help digestion and reduce chances of heartburn, gastritis, constipation, and colon cancer. Men and women over 50 should get a regular colonoscopy. Drink lots of water.

**Hormonal:** Imbalances may occur: pancreas (insulin), thyroid (thyroxin), ovary (estrogen), testes (testosterone).

**Bones & Joints:** Rheumatoid and osteoarthritis make joints swell. Osteoporosis in women can make bones brittle. Sprains, muscle pain, and tendonitis become more common. Stretching, heat, exercise, calcium, and surgery can help.

**Trauma:** Sprains, tendonitis, muscle pain become more common. Stretching, heat, and some surgeries can help. Stay active.

**Eyes & Ears:** At about 40, ability to see close up declines. Cataracts and glaucoma are common in those over 60. Get eye exams to check for that and macular degeneration. Hearing aids can help age-related hearing loss.

**Heart:** Exercise and keep weight down to avoid high blood pressure, narrowing of the arteries, & heart disease risk. Don't smoke.

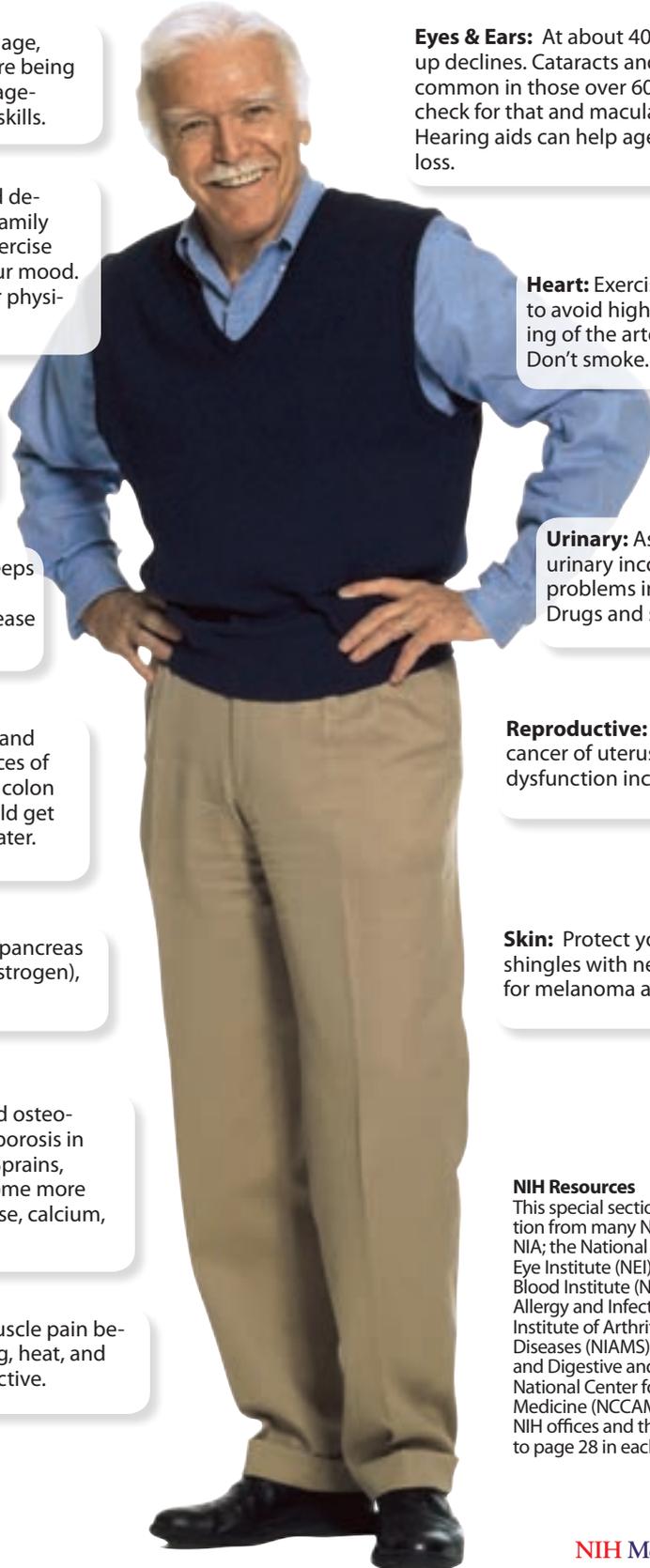
**Urinary:** As bladder support weakens, urinary incontinence can occur. Prostate problems in men are more common. Drugs and surgery can help.

**Reproductive:** Fibroids, ovarian cysts, and cancer of uterus can occur in women; sexual dysfunction increases for men and women.

**Skin:** Protect your skin from the sun; avoid shingles with new vaccine. See your doctor for melanoma and other skin cancer checks.

## NIH Resources

This special section has been compiled from information from many NIH Institutes and Centers, especially NIA; the National Cancer Institute (NCI); the National Eye Institute (NEI); the National Heart, Lung, and Blood Institute (NHLBI); the National Institute of Allergy and Infectious Diseases (NIAID); the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); and the National Center for Complementary and Alternative Medicine (NCCAM). For contact information for all NIH offices and their specialized research areas, turn to page 28 in each issue of *NIH MedlinePlus* magazine.



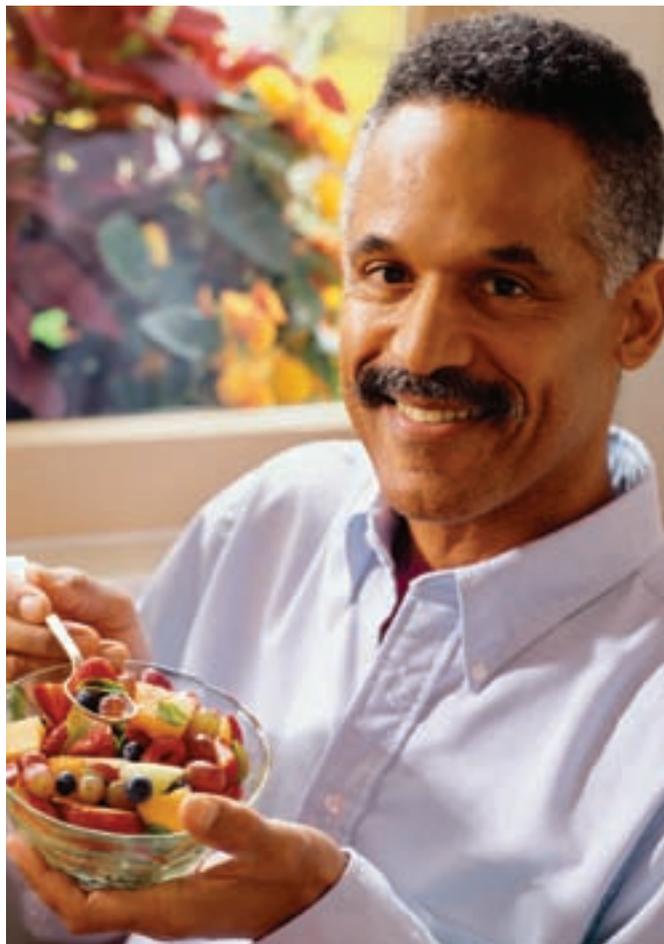
# 8 Areas of Age-Related Change

## 1. Brain: Memory and Alzheimer's Disease (AD)

As adults age, many worry that they are becoming more forgetful. They think forgetfulness is the first sign of Alzheimer's Disease (AD). In the past, memory loss and confusion were accepted as just part of growing older. However, scientists now know that people can remain both alert and able as they age, although it may take them longer to remember things.

### WHAT'S NEW:

- During the past several years, scientists have begun to focus on a type of cognitive change called MILD COGNITIVE IMPAIRMENT (MCI), which is different from age-related cognitive change and often, over years, may progress to AD. People with amnesic MCI (having a specific memory difficulty) do have ongoing memory problems, but they do not have other losses typical of AD, such as confusion, attention problems, and difficulty with language.
- The AD NEUROIMAGING INITIATIVE (ADNI) is a large study that will determine whether magnetic resonance imaging (MRI) and positron emission tomography (PET) scans, or other imaging or biological markers, best reveal early AD changes or measure disease progression in persons with AD. ADNI is seeking participants who (1) are in good general health and age 70-90 with no memory problems, OR (2) are in good general health but with memory problems, OR have a diagnosis of mild cognitive impairment or early Alzheimer's disease, and (3) minority participants. (Contact NIA at 1-800-438-4380 or go to [www.alzheimers.org/imagine](http://www.alzheimers.org/imagine).)
- The AD GENETICS STUDY seeks to learn more about risk factor genes for late onset AD. (NOTE: To participate in this study, families with two or more living siblings diagnosed with AD should contact the National Cell Repository for AD (NCRAD) toll-free at 1-800-526-2839. Information may also be requested through the study's Web site: <http://ncrad.iu.edu>.)



## 2. Bones and Joints

The weight-bearing bones and the movable joints take much wear and tear as the body ages. The most common age-related conditions are:

**Osteoporosis:** OSTEOPOROSIS is a disease that weakens bones to the point where they break easily—most often bones in the hip, backbone (spine), and wrist—and most often in women. As people enter their 40s and 50s, bones begin to weaken. The outer shell of the bones also gets thinner.

**Arthritis:** There are different kinds of ARTHRITIS, each with different symptoms and treatments. Arthritis can attack joints in almost any part of the body. Millions of adults and half of all people age 65 and older are troubled by this disease. Osteoarthritis (OA) is the most common type of arthritis in older people. OA starts when cartilage begins to become ragged and wears away. At OA's worst, all of the cartilage in a joint wears away, leaving bones that rub against each other. Rheumatoid Arthritis (RA) is an AUTOIMMUNE disease. In RA, that means your body attacks the lining of a joint just as it would if it were trying to protect you from in-

jury or disease. RA leads to inflammation in your joints. This inflammation causes pain, swelling, and stiffness that can last for hours.

#### WHAT'S NEW:

- To prevent weakened bones, it is important to consume enough calcium and vitamin D. It is also important to include regular weight-bearing exercise in your lifestyle. Getting enough calcium all through your life helps to build and keep strong bones.
- For RA, drug therapy that modifies the immune system response and lessens joint damage continues to be the most effective course of action. For OA, research now shows that lifestyle changes—weight loss and light resistance and flexibility exercises—can reduce the symptoms and provide better quality of life as we age.

### 3. Eyes and Ears

About the age of 40, eyesight weakens, and at around 60, cataracts and macular degeneration may develop. Hearing also declines with age.

#### Sight:

**Presbyopia** (prez-bee-OH-pee-uh) is a slow loss of ability to see close objects or small print. It is a normal process that happens as you get older. Holding the newspaper at arm's length is a sign of presbyopia. Reading glasses usually fix the problem.

**Cataracts** are cloudy areas in the eye's lens causing loss of eyesight. Cataracts often form slowly without any symptoms. Some stay small and don't change eyesight very much. Others may become large or dense and harm vision. Cataract surgery can help. Cataract surgery is safe and is one of the most common surgeries done in the United States.

**Glaucoma** comes from too much pressure from fluid inside the eye. Over time, the pressure can hurt the optic nerve. This leads to vision loss and blindness. Most people with glaucoma have no early symptoms or pain from the extra pressure. You can protect yourself by having annual eye exams that include dilation of the pupils.

**Retinal disorders** are a leading cause of blindness in the United States. The most common is age-related MACULAR DEGENERATION (AMD). AMD affects the part of the

retina (the macula) that gives you sharp central vision. PHOTODYNAMIC THERAPY uses a drug and strong light to slow the progress of AMD. Another treatment uses injections. Ask your eye care professional if you have signs of AMD. Approximately 4.1 million U.S. adults 40 years and older have DIABETIC RETINOPATHY, a degenerative disease affecting vision. Proper medical care, lifestyle changes, and frequent follow-ups can help reduce this alarming statistic.

#### WHAT'S NEW:

- Two new drugs, ranibizumab (Lucentis) and bevacizumab (Avastin) are being used to treat neovascular macular degeneration. The former has approval from the Food and Drug Administration (FDA) for that use, but the latter is approved only for treatment of metastatic cancer. However, some ophthalmologists are using bevacizumab for macular degeneration. (For more information, see page 19.)
- A nationwide study sponsored by the National Eye Institute (NEI) is evaluating the impact of nutrition on AMD. Nearly 100 clinical centers are now seeking 4,000 study participants ages 50 to 85 who have AMD. (To volunteer or get more information, see page 22.)

**Hearing:** About one-third of Americans between the ages of 65 and 74 have hearing problems. About half the people who are 85 and older have hearing loss.

**Presbycusis** (prez-bee-KYOO-sis) is age-related hearing loss. It becomes more common in people as they get older. The decline is slow.

**Tinnitus** (tih-NIE-tuhs) accompanies many forms of hearing loss, including those that sometimes come with aging. People with tinnitus may hear a ringing, roaring, or some other noise inside their ears. Tinnitus may be caused by loud noise, hearing loss, certain medicines, and other health problems, such as allergies and problems in the heart and blood vessels.

**WHAT'S NEW:** For a fifth consecutive year, the National Institute on Deafness and Other Communication Disorders (NIDCD) has taken part in the world's largest annual gathering of twins, this time to learn more about the genetics behind age-related hearing loss. The study is the first to address definitively an observation that most hearing health professionals and researchers have made but have yet to prove: that people tend to lose their hearing as they age and that this type of hearing loss seems to run in families.

### 4. Digestive and Metabolic

As we grow older, the prevalence of gastrointestinal problems increases. Gastroesophageal reflux disease, or GERD, occurs when the lower esophageal sphincter (LES) does not close

#### MORE INFORMATION

For much more information on any topic in this special section, go to [www.medlineplus.gov](http://www.medlineplus.gov) and type into the "Search MedlinePlus" box at the top of the Web page any of the CAPITALIZED KEYWORDS you see in this section.

properly and stomach contents leak back, or reflux, into the esophagus. Heartburn that occurs more than twice a week may be considered GERD, and it can eventually lead to more serious health problems. About 40 percent of adults ages 40 to 74 — or 41 million people — have pre-diabetes, a condition that raises a person's risk for developing type 2 diabetes, heart disease, and stroke.

#### WHAT'S NEW:

- Researchers involved in a large clinical trial with adults at increased risk for developing type 2 diabetes have confirmed that a variant in a specific gene appears to confer susceptibility to type 2 diabetes.
- In one study, lifestyle interventions such as losing a small amount of weight and increasing physical activity reduced the development of diabetes by 71 percent in people over 60 years.

## 5. Urogenital

**Incontinence:** Loss of bladder control is called urinary INCONTINENCE. It can happen to anyone, but is very common in older people. At least 1 in 10 people age 65 or older has this problem. Symptoms can range from mild leaking to uncontrollable wetting. Women are more likely than men to have incontinence. Aging alone does not cause incontinence. It can occur for many reasons: Urinary tract infections, vaginal infection or irritation, constipation, and certain medicines can cause bladder control problems that last a short time. In most cases urinary incontinence can be treated and controlled, if not cured. If you are having bladder control problems, don't suffer in silence. Talk to your doctor.



**Benign Prostatic Hypertrophy (BPH):** The PROSTATE GLAND surrounds the tube (URETHRA) that passes urine. This can be a source of problems as a man ages because the prostate tends to grow bigger with age and may squeeze the urethra. A tumor can also make the prostate bigger. These changes, or an infection, can cause problems passing urine. Sometimes men in their 30s and 40s may begin to have these urinary symptoms and need medical attention. For others, symptoms aren't noticed until much later in life.

**Prostate Cancer:** Prostate cancer is the second most common type of cancer among men in this country. Only skin cancer is more common. Out of every three men who are diagnosed with cancer each year, one is diagnosed with prostate cancer.

#### WHAT'S NEW:

- Researchers from 12 institutions, including the NIH's National Human Genome Research Institute (NHGRI), recently announced the results of the first genome-wide linkage study of prostate cancer in African Americans. Using genetic markers, researchers identified several regions of the human genome that likely contain genes that, when altered, increase the risk of developing prostate cancer.
- The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) is conducting a clinical trial on the effectiveness and safety of three minimally invasive surgical therapies to treat benign prostate enlargement, which is common in men as they age.

## 6. Dental: gingivitis, periodontitis, loss of teeth

Tooth decay is not just a problem for children. It can happen as long as you have natural teeth in your mouth. Tooth decay ruins the enamel that covers and protects your teeth. When you don't take good care of your mouth, bacteria can cling to your teeth and form a sticky, colorless film called dental PLAQUE. This plaque can lead to tooth decay and cavities. Gum disease can also cause your teeth to decay. FLUORIDE is just as helpful for adults as it is for children. Using a fluoride toothpaste and mouth rinse can help protect your teeth.

**Gum diseases** (sometimes called PERIODONTAL or GINGIVAL DISEASES) are infections that harm the gum and bone that hold teeth in place. When plaque stays on your teeth too long, it forms a hard, harmful covering, called TARTAR, that brushing doesn't clean. The longer the plaque and tartar stay on your teeth, the more damage they cause. This is called GINGIVITIS. If gingivitis is not treated, over time it can make your gums pull away from your teeth and form pockets that can get infected. This is called PERIODONTITIS. If not treated, this infection can ruin the bones, gums, and tissue that support your teeth. In time, it can cause loose teeth that your dentist may have to remove.

### WHAT'S NEW:

In late 2006, researchers funded by the National Institute of Dental and Craniofacial Research reported early success using stem cells to engineer a replacement root/periodontal complex that appeared capable of supporting a porcelain crown and provide normal tooth function. The findings suggest the feasibility of using a combination of these cells in conjunction with artificial dental crowns for functional tooth regeneration. The research is still in the preliminary stages.

## 7. Skin

The simplest and cheapest way to keep your skin healthy and young looking is to stay out of the sun. Sunlight is a major cause of the skin changes we think of as aging — changes such as wrinkles, dryness, and age spots. Your skin does change with age. For example, you sweat less, leading to increased dryness. As your skin ages, it becomes thinner and loses fat, so it looks less plump and smooth. It's never too late to protect yourself from the harmful effects of the sun. People who smoke tend to have more wrinkles than nonsmokers of the same age, complexion, and history of sun exposure. It may be because smoking also plays a role in damaging ELASTIN proteins. Facial wrinkling increases with the amount of cigarettes and number of years a person has smoked.

- **Dry Skin** affects many older people, particularly on their lower legs, elbows, and forearms. The skin feels rough and scaly and often is accompanied by a distressing, intense itchiness. Low humidity — caused by overheating during the winter and air conditioning during the summer — contributes to dryness and itching. The loss of sweat and oil glands as you age also may worsen dry skin. Anything that further dries your skin — such as overuse of soaps, antiperspirants, perfumes, or hot baths — will make the problem worse. Dehydration, sun exposure, smoking, and stress also may cause dry skin.
- **Skin cancer** is the most common type of cancer in the United States. According to current estimates, 40 to 50 percent of Americans who live to age 65 will have skin cancer at least once. There are three common types of skin cancers. Basal cell carcinomas are the most common, accounting for more than 90 percent of all skin cancers in the United States. They are slow-growing cancers that seldom spread to other parts of the body. Squamous cell carcinomas also rarely spread, but they do so more often than basal cell carcinomas. The most dangerous of all cancers that occur in the skin is melanoma. Melanoma can spread to other organs, and when it does, it often is fatal.
- **Shingles** is a disease that affects nerves and causes pain and blisters in adults. It is caused by the same varicella-zoster virus that causes chickenpox. After you recover from chickenpox, the virus does not leave your body, but continues to live in some nerve cells. For reasons that aren't totally

understood, the virus can become active instead of remaining inactive. When it's activated, it produces shingles.

Just like chickenpox, people with shingles will feel sick and have a rash on their body or face. The major difference is that chickenpox is a childhood illness, while shingles targets older people. Most adults live with the virus in their body and never get shingles. But about one in five people who have had chickenpox will get shingles later in life—usually after the age of 50.

### WHAT'S NEW:

- **Shingles vaccine.** A new vaccine is available to reduce the risk of shingles (herpes zoster) in people ages 60 and older. This new live virus vaccine, has been shown to boost immunity against varicella-zoster virus. This is thought to be the mechanism by which the vaccine protects against zoster and its complications. The vaccine is given as a single injection under the skin, preferably in the upper arm.
- At this time, the only products that have been studied for safety and effectiveness and approved by the Food and Drug Administration (FDA) to treat signs of sun-damaged or aging skin are TRETINOIN cream and carbon dioxide (CO<sub>2</sub>) and erbium (Er:YAG) lasers.

## 8. Functional Abilities

As we age, falls become an increasingly common reason for injuries. Just ask any of the thousands of older men and women who fall each year and break a bone. Falls can come as a result of other changes in the body: Sight, hearing, muscle strength, coordination, and reflexes aren't what they once were as we age. Balance can be affected by diabetes and heart disease, or by problems with your circulation or nervous system. Some medicines can cause dizziness. Any of these things can make a fall more likely. (See Osteoporosis on page 10.)

The more you take care of your overall health and well-being, the more likely you'll be to lower your chances of falling. Ask your doctor about a special test—called a bone mineral density test—that tells how strong your bones are. If need be, your doctor can prescribe new medications that will help make your bones stronger and harder to break.

**WHAT'S NEW:** Comprehensive approaches to reduce multiple fall risk factors in older persons have been shown in clinical trials to reduce risk of falling by up to 30 percent. Chronic disability among older Americans has dropped dramatically, and the rate of decline has accelerated during the past two decades, according to a new analysis of data from the National Long-Term Care Survey (NLTCS). The study found that the prevalence of chronic disability among people 65 and older fell from 26.5 percent in 1982 to 19 percent in 2004/2005.

# 7 Steps to Aging Well



## 1. Control Your Blood Pressure

**Why?** You can have high BLOOD PRESSURE (BP) — also called HYPERTENSION — and still feel fine. That’s because high blood pressure does not cause symptoms that you can see or feel. But high blood pressure, sometimes called “the silent killer,” is a major health problem. If not treated, it can lead to stroke, heart disease, eye problems, and kidney failure.

- **Normal BP**—Your systolic (top, or first, number) pressure is less than 120 and your diastolic pressure (bottom, or second, number) is less than 80—for example, 119/79.
- **Prehypertension**—Your top number is between 120 and 139 or the bottom number is between 80 and 89. You may be at risk for developing high blood pressure.
- **High BP**—Your blood pressure measures 140/90 or higher at two or more checkups.

### WHAT YOU CAN DO:

- **Keep a healthy weight.** Being overweight adds to your risk.
- **Exercise every day.** Moderate exercise can lower blood pressure. Check with your doctor before starting a new exercise plan.
- **Eat more fruits, vegetables, whole grains, and low-fat dairy foods.** To control high blood pressure, eat a diet rich in these foods. Fresh fruits and vegetables are high in potassium, which you need.
- **Cut down on salt and sodium.** Most Americans eat more salt and sodium than they need. A low-salt diet might help lower your blood pressure.
- **Drink less alcohol.** Drinking alcohol can affect blood pressure. As a general rule, men should have no more than two drinks a day; women no more than one a day.
- **Follow your doctor’s orders.** If lifestyle changes alone do not control your BP, your doctor may prescribe blood pressure pills.

## 2. Control Your Cholesterol

**Why?** CHOLESTEROL is a waxy, fat-like substance present in cell walls or membranes everywhere in the body, including the heart. Your body needs some excess cholesterol, but excess cholesterol deposited in your blood can raise your risk of HEART DISEASE OR STROKE. Excess cholesterol can build up in your arteries, including the coronary arteries, where it contributes to narrowing and blockage. Cholesterol travels through the blood in two “packages”: High-density lipoproteins (HDL) is the “good” cholesterol. It carries cholesterol in the blood from other parts of the body to the liver, which removes it. HDL keeps cholesterol from building up in the walls of the arteries. Low density lipoproteins (LDL), the “bad” cholesterol, leads to a buildup of cholesterol in the walls of your arteries. The higher the LDL level in your blood, the greater your chances of developing coronary heart disease.

**WHAT YOU CAN DO:** Reduce your LDL bad cholesterol and raise your HDL good cholesterol through diet and exercise. If that fails, you may need drugs.

- **Therapeutic Lifestyle Changes (TLC)**—TLC includes a cholesterol-lowering diet (called the TLC DIET), physical activity, and weight management. TLC is for anyone whose LDL is above the goal set by your physician.
- **Drug Treatment**—If cholesterol-lowering drugs are needed, they are used together with TLC treatment to help lower LDL.

## 3. Control Your Weight

**Why?** Research shows that extra weight puts you at higher risk for a multitude of health risks as you age: TYPE 2 DIABETES (high blood sugar), HIGH BLOOD PRESSURE, HEART DISEASE and STROKE, some types of cancer, SLEEP APNEA (when breathing stops for short periods during sleep), OSTEOARTHRITIS (wearing away of the joints), and many other problems.

**WHAT YOU CAN DO:** Losing as little as 5 to 15 percent of your body weight can do much to improve your health. For example, if you weigh 200 pounds, losing 5 percent of your body weight means losing 10 pounds. Losing 15 percent means losing 30 pounds. A safe rate of weight loss is 1/2 to 2 pounds per week. Try some of these ideas to support your weight-loss efforts:

- **Keep a food diary.**
- **Shop from a list and shop when you are not hungry.**
- **Store foods out of sight.**
- **Dish up smaller servings.** At restaurants, eat only half your meal and take the rest home.
- **Eat at the table and turn off the TV.**
- **Be realistic about weight-loss goals.** Aim for a slow, modest weight loss.
- **Seek emotional support from family and friends.**
- **Expect setbacks and forgive yourself.**
- **Make physical activity part of your weight-loss plan.**

## 4. Exercise

**Why?** Physical activity burns calories. When you burn more calories than you eat each day, you will take off pounds. As we age, most of us lose from 20 to 40 percent of muscle mass. The quality of muscle tissue in older adults is also decreased. Strength exercises can partly restore muscles and strength, often very quickly.

**WHAT YOU CAN DO:** Talk to your doctor about how much exercise is right for you. A good goal for many people is to work up to exercising 4 to 6 times a week for 30 to 60 minutes at a time. *Exercise: A Guide from the National Institute on Aging* is a publication from NIA that has strength, balance, and stretching exercises you can do at home.

## 5. Stop Smoking

**Why?** Tobacco use remains the single most preventable cause of death in the United States. Cigarette smoking accounts for nearly one-third of all cancer deaths in this country each year. Smoking is the most common risk factor for the development of lung cancer, which is the leading cause of cancer death. It is also associated with many other types of cancer. Smoking also increases the risk of other health problems, such as chronic lung disease and heart disease. Smoking during pregnancy can have adverse effects on the unborn child, such as premature delivery and low birth weight.

**WHAT YOU CAN DO:** All health care professionals agree that quitting smoking is the best gift you can give yourself and your loved ones.

The National Cancer Institute (NCI) has smoking cessation guidelines in its Cancer Topics online at [www.cancer.gov/cancertopics](http://www.cancer.gov/cancertopics). The American Lung Association's "Freedom From Smoking Online" program ([ffsonline.com](http://ffsonline.com)) offers a very thorough approach to smoking cessation, with support from many other smokers and former smokers.



## 6. Don't Drink Too Much

**Why?** The consequences of alcohol misuse are serious — in many cases, life threatening. Heavy drinking can increase the risk for certain cancers, especially those of the liver, esophagus, throat, and larynx (voice box). Heavy drinking can also cause liver CIRRHOSIS, immune system problems, brain damage,

and harm to the fetus during pregnancy. In addition, drinking increases the risk of death from automobile crashes as well as recreational and on-the-job injuries.

**WHAT YOU CAN DO:** Moderate alcohol use — up to two drinks per day for men and one drink per day for women and older people — is not harmful for most adults. (A standard drink is one 12-ounce bottle or can of either beer or wine cooler, one 5-ounce glass of wine, or 1.5 ounces of 80-proof distilled spirits.)

## 7. Follow Preventive Measures Proven to Help

**Why?** Taking responsibility for your own health as you age means being an active participant with your physician and other health care professionals. (Read about the “4 Ps” of tomorrow’s medicine: predictive, personalized, preemptive, and participatory on page 3.)

**WHAT YOU CAN DO:** Here are 5 preventive steps to follow:

- **Find and stay with a “medical home.”** With the growing use of retail-based and emergency walk-in clinics, many families are in danger of seeing a succession of health care professionals who have no history of them or their family members. Find a “medical home” physician or medical practice and stay with it over time.
- **Get vaccinated.** Pay attention to childhood immunization schedules, as well as established and emerging vaccines for adults. Ignoring them can be hazardous to your health as you age.
- **Save your skin.** With age come sunlight-related effects, from wrinkles and dermatitis to basal cell carcinomas and melanoma cancers. Aggressively protect your skin from over-exposure. See your physician regularly for changes in your skin.
- **Take your medicine.** Taking the correct amount of your prescribed medicine at the proper time is called medical compliance. Remember to take your medicine; it can only be effective when taken as prescribed.
- **Educate yourself.** Being proactive about your health as you age means continually learning about how you can stay healthy. One of the best ways to do this is to regularly visit [www.medlineplus.gov](http://www.medlineplus.gov) and [www.nihseniorhealth.gov](http://www.nihseniorhealth.gov) for the most trusted and latest health care information available.

## Know Your Body Mass Index (BMI)

As a part of healthy aging, it pays to understand your body mass index (BMI), a measure of body fat based on height and weight that applies to both adult men and women.

The National Heart, Lung, and Blood Institute (NHLBI) has a Web site that lets you easily calculate your BMI just by entering your current height and weight. **Visit [www.nhlbisupport.com/bmi/bmicalc.htm](http://www.nhlbisupport.com/bmi/bmicalc.htm) to learn your BMI.**

### BMI Categories:

- Underweight = <18.5
- Normal weight = 18.5-24.9
- Overweight = 25-29.9
- Obesity = BMI of 30 or greater

According to the NHLBI guidelines, assessment of overweight involves using three key measures:

- body mass index (BMI)
- waist circumference, and
- risk factors for diseases and conditions associated with obesity.

### Waist Circumference

Determine your waist circumference by placing a measuring tape snugly around your waist. It is a good indicator of your abdominal fat, which is another predictor of your risk for developing risk factors for heart disease and other diseases. This risk increases with a waist measurement of over 40 inches in men and over 35 inches in women.

Besides being overweight or obese, there are other risk factors to consider:

- high blood pressure (hypertension)
- high LDL-cholesterol (“bad” cholesterol)
- low HDL-cholesterol (“good” cholesterol)
- high triglycerides
- high blood glucose (sugar)
- family history of premature heart disease
- physical inactivity
- cigarette smoking

For people who are considered obese (BMI greater than or equal to 30) or those who are overweight (BMI of 25 to 29.9) and have two or more risk factors, the guidelines recommend weight loss. Even a small weight loss (just 10 percent of your current weight) will help to lower your risk of developing diseases associated with obesity. Patients who are overweight, do not have a high waist measurement, and have fewer than two risk factors may need to prevent further weight gain rather than lose weight.

# Health Screening: What Tests You Need and When

Screening tests, such as mammograms, Pap smears, and colorectal cancer tests, can find diseases and conditions early when they are easier to treat. Talk to your doctor about which of the tests listed below are right for you and when you should have them. The following recommendations are based on the work of the U.S. Preventive Services Task Force and NIH Institutes.

- **Blood Pressure:** Have your blood pressure checked at least every 2 years.
- **Cholesterol Checks:** Women should have their cholesterol checked regularly starting at age 45; men every 5 years beginning at 35. If you smoke, have diabetes, or if heart disease runs in your family, start having your cholesterol checked at age 20.
- **Colorectal Cancer Tests:** Have a test for colorectal cancer starting at age 50. Your doctor can help you decide which test is right for you.
- **Depression:** If you've felt "down," sad, or hopeless, and have felt little interest or pleasure in doing things for 2 weeks straight, talk to your doctor about whether he or she can screen you for depression.
- **Diabetes Tests:** Have a test to screen for diabetes if you have high blood pressure or high cholesterol.

- **Mammograms (Women):** Have a mammogram every 1 to 2 years starting at age 40.
- **Osteoporosis Tests (Women):** Have a bone density test at age 65 to screen for osteoporosis (thinning of the bones). If you are between the ages of 60 and 64 and weigh 154 lbs. or less, talk to your doctor about whether you should be tested.
- **Pap Smears (Women):** Have a Pap smear every 1 to 3 years if you have been sexually active or are older than 21.
- **Prostate Cancer Screening (Men):** Talk to your doctor about the possible benefits and harms of prostate cancer screening if you are considering having a prostate-specific antigen (PSA) test or digital rectal examination (DRE).
- **Sexually Transmitted Diseases:** Talk to your doctor to see whether you should be screened for sexually transmitted diseases, such as HIV, and, for women, also Chlamydia.

NOTE: Most authorities recommend that, after age 50, tests should include an annual fasting blood sugar check for diabetes and also the following for early diagnoses and treatments: regular colonoscopy for cancer of the colon, serum prostatic-specific antigen (PSA) for prostate cancer, mammography for breast cancer, and enhanced lung CT imaging for lung cancer.

## A Note on Complementary Medicines

**H**erbal supplements, meditation, chiropractic manipulation, and acupuncture are types of complementary and alternative medicine (CAM) currently being used by millions of Americans. More than a third of adults in the United States use CAM — defined as any medical system, practice, or product that is not currently considered part of standard care. Most people use CAM therapies together with conventional care, not as an alternative to conventional care.

The National Center for Complementary and Alternative Medicine (NCCAM), part of NIH since 1999, funds and conducts scientific research on CAM therapies. Through laboratory research, as well as studies with people, the Center has helped increase understanding of how CAM therapies work and if they are safe and effective. For example, NCCAM studies have shown that:

- Acupuncture can provide pain relief and improve function for people with osteoarthritis of the knee. It may be useful to include acupuncture along with standard care.
- Chiropractic provides some benefit for low back pain, however conventional and chiropractic care appear to be similar in effectiveness.
- Glucosamine-chondroitin does not provide pain relief for all patients with knee osteoarthritis, but does help those with moderate to severe pain.

The Center continues to study a variety of CAM practices for which there is unclear evidence of therapeutic value:

- Ginkgo biloba: to determine whether it prevents or delays the onset of dementia or related declines in cognitive (thinking) function
- Echinacea: for the treatment of upper respiratory infections
- Green tea: to find out if it can prevent heart disease
- Dark chocolate: to see if it affects the way patients with hypertension (high blood pressure) respond to insulin
- Ginger and turmeric: to see if they can reduce inflammation associated with arthritis and asthma

Whether a study result is positive or negative, NCCAM is making an important contribution to research. We not only learn about the tested therapy, but also learn more about the condition it is supposed to treat.

If you are using or considering any new therapies, it is important to tell your doctor. Some therapies can have an effect on conventional medicine. Giving your health care provider a full picture of what you do to manage your health helps you stay in control.

National Center for Complementary and Alternative Medicine (NCCAM) [www.nccam.nih.gov](http://www.nccam.nih.gov); 1-888-644-6226





Mardella Richey (right) talks with Dr. Emily Chew, deputy director of the Division of Epidemiology and Clinical Research at NEI, before an eye exam at the NIH Clinical Center. Richey participated in the first Age-Related Eye Disease Study, and Dr. Chew was lead investigator for that study as well as a new study involving the role of different nutritional factors in eye health.

# Nutrition and the Aging Eye

Nationwide trials gauge effects on age-related eye disease

**I** don't recognize people unless I'm almost nose to nose," says Mardella Richey. "When I go out to dinner, restaurants are so dark I wouldn't recognize my own mother." Even a daily task like cooking can be a problem. "I can't read what it says on the bottle—if it's curry powder or celery powder," says Richey, who recently confused one for the other when making tomato soup. (The curried soup wasn't bad!)

Richey is among some nine million Americans with age-related macular degeneration (AMD), the leading cause of vision loss for people over 60. 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

Richey participated in the Age-Related Eye Disease Study (AREDS), a nationwide clinical trial launched by the National Eye Institute (NEI) in 1992, results from which were published in 2001. The AREDS study 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.

Says AREDS lead investigator Emily Chew, M.D., deputy director of NEI's Division of Epidemiology and Clinical Research, "The results were of public health significance. 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

As a follow-up to AREDS, last October, in partnership with nearly 100 clinical centers nationwide, NEI began 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 are being sought for the study. The trial is "double-masked," meaning neither investigators nor participants know who is getting which combinations of the anti-oxidants and 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 five years, researchers will be testing the effects of the two kinds of nutrients – the vegetable-derived vitamins lutein and zeaxanthin, 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). They may also instead choose to participate in a second part of the study in which the original AREDS formulation will be further tested by eliminating beta carotene and/or reducing the amount of zinc.

**For more information about the participating clinics and/or to enroll in the AREDS2 study, call 1-877-273-3780 or look online at [www.nei.nih.gov/AREDS2](http://www.nei.nih.gov/AREDS2).**

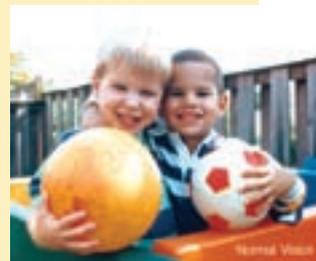
*Pat McNees is a freelance medical writer and editor.*

## What Is Macular Degeneration?

1) In "dry" macular degeneration, small yellowish deposits known as drusen form under the retina, affecting the macula, the small area near the center of the retina that helps produce the sharp central vision needed for reading or driving.

2) In "wet" macular degeneration, blood vessels growing up from below the retina leak blood under the retina. Pressure from these pockets of blood damage the light-sensing cells, destroying the ability to see straight ahead.

"Symptoms of AMD don't usually start until the 60s or later," says study chair Dr. Emily Chew of the National Eye Institute. "But you get signs in the 50s. In some cases, where it's genetic, you can get them younger than that."



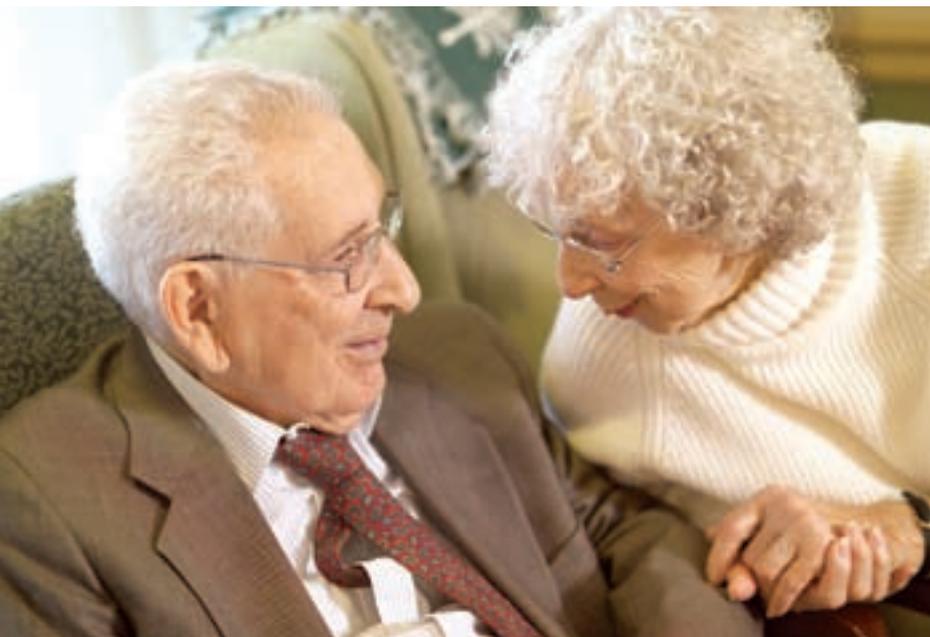
(Top) Normal vision, (bottom) macular degeneration

## Advances in Macular Degeneration Research

On June 30, of last year, the Food and Drug Administration (FDA) approved a promising new drug—ranibizumab (marketed as Lucentis) — for treatment of neovascular age-related macular degeneration (AMD). Though the neovascular form of AMD represents only about 10 percent of AMD cases, it is the form that causes most vision loss.

Now, a similar drug—bevacizumab (marketed as Avastin) — from the same manufacturer is also being used successfully by many ophthalmologists to treat AMD. This second drug is currently only FDA-approved for treatment of metastatic cancer, but ophthalmologists continue to use it "off-label" (not yet officially approved) for AMD treatment. The second drug is considerably cheaper for patients than ranibizumab.

"The good news for patients is that there are two new medications for neovascular age-related macular degeneration, both of which appear to work better than the alternatives," stated Robert Steinbrook, M.D., in the October 5, 2006, issue of *The New England Journal of Medicine*. "But since they have never been directly compared, physicians can only speculate about which drug is superior with regard to safety, efficacy, and frequency of administration."



Anthony Mutschler, 95, and his wife, Laura, 80, are participants in the National Institute on Aging's (NIA) Long Life Family Study (LLFS), which examines what factors contribute to long, healthy lives.

# In The Genes?

## Searching for Methuselah

NIA Studies  
Long-Lived Families  
for Clues to  
Aging Well

**B**ack in biblical times, Methuselah reputedly lived to be 969 years old.

But today it's rare for anyone to reach 100 or more, especially in good health. And researchers are finding that those who do aren't just lucky. They often have company ... in their very own families.

To find out what makes these people so unique, the National Institute on Aging (NIA) has begun the Long Life Family Study (LLFS), a five-year, \$18 million effort to learn more about the genes, lifestyle or other factors that contribute to long, healthy lives.

Winifred K. Rossi, deputy director of NIA's Geriatrics and Clinical Gerontology Program and director of the LLFS, says, "We want to learn why these exceptional families age so well."

Inaugurated last July, the LLFS is recruiting families to participate. While most studies typically look at health



problems, Rossi says the LLFS is unique because, by following exceptional families over time, the researchers are focusing on what protects against disease and disability.

“We want to understand more about their health, lifestyle and genes,” Rossi explains. “We hope that the LLFS will identify factors that can help other people live as healthy as possible, as long as possible.”

### **How you can participate**

If you are 80 years of age or older and have at least one living brother or sister also aged 80 or older, please go to the study web site <http://www.longlifefamilystudy.org/> or make a toll-free call to one of the recruitment offices listed below to enroll in the LLFS:

- Boston University: 1-888-333-6327

Members of the extended Mutschler family in this photo range in age from 49 to the eldest, Alberta (seated, second from right) who is 101 years of age.

- University of Pittsburgh: 1-800-872-3653
- Columbia University, New York: 1-800-304-4317

After signing up, you will be called for more information about your family. Researchers may follow these calls with home visits to record your physical measurements and take blood for analysis.

“We want to enroll as many families with long-lived members as possible. The more families we have, the better chance we have of finding robust results,” emphasizes Rossi.



# Do you have AMD?

Join the **AREDS2** Study!

The Age-Related Eye Disease Study 2 (AREDS2) will test oral supplements of vitamins and fish oil to prevent vision loss from age-related macular degeneration (AMD).

The AREDS2 study is sponsored by the National Eye Institute, National Institutes of Health.

To learn more:

- Ask your eye care professional
- Call 1-877-AREDS-80 (877-273-3780)
- Go to [www.nei.nih.gov/AREDS2](http://www.nei.nih.gov/AREDS2)



# COPD:

When You Learn More, You'll  
Breathe Better

In January, the NIH's National Heart, Lung, and Blood Institute launched a major public awareness program to increase everyone's knowledge about COPD (chronic obstructive pulmonary disease). Are you at risk for COPD?

You would think that the nation's fourth leading cause of death would be better known. Yet, COPD (chronic obstructive pulmonary disease) has remained off the public radar, despite recognizable symptoms and treatments that can control symptoms and prolong life.

"COPD is not well understood by the general public," says James Kiley, Ph.D., director of the Division of Lung Diseases at the National Heart, Lung, and Blood Institute (NHLBI). "Learn More, Breathe Better," a new educational program from NHLBI and more than 20 other organizations, is intended to remedy that. The campaign's goal is to raise public awareness of COPD so that people at risk will talk to their doctors and get a simple breathing test.

COPD most often occurs in people over age 45 and with a history of cigarette smoking (either current or former smokers), although as many as 1 out of 6 people with COPD never smoked. Smoking is the most common cause of COPD—it accounts for as many as 8 out of 10 COPD-related deaths.

"COPD is more than just the sum of its parts," Dr. Kiley says. "COPD [as a whole] is a disease of declining lung function caused by persistent airflow obstructions. It is not fully reversible, although there are treatments that do help people breathe easier."

In COPD, the airways (the tubes that make it possible for air to enter and leave your lungs) become blocked, making it difficult to breathe. COPD is sometimes known



## Spirometry: A Simple Breathing Test

Everyone at risk for COPD—especially those over age 45 with a history of smoking or those experiencing shortness of breath—should be tested for COPD with a simple breathing test. Spirometry is one of the best and most common lung function tests. The test is done with a spirometer, a machine that measures how well your lungs function, records the results and displays them on a graph for your doctor. You will be asked to take a deep breath, then blow out as hard and as fast as you can using a mouthpiece connected to the machine with tubing. The spirometer then measures the total amount of air exhaled, called the forced vital capacity or FVC, and how much you exhaled in the first second, called the forced expiratory volume in 1 second or FEV1. Your doctor will use the results to assess how well your lungs are working and whether or not you have COPD.



as emphysema or chronic bronchitis. It claims more than 120,000 lives per year, and causes millions of others to restrict their physical activities, be unable to work, and confine themselves to their homes. People realize too late that quality of life is directly related to quality of breathing.

“This is a serious and life-threatening condition,” says Dr. Kiley. And unlike many diseases that are showing declining death rates as new therapies and treatments are introduced, COPD’s death rate continues to climb. Current estimates are that more than 12 million Americans have COPD. An additional 12 million more may have the disease but haven’t been correctly diagnosed.

Early detection is crucial. “Coughing, shortness of breath, excess sputum or phlegm production, and other signs of respiratory difficulty are good indications that a physician should be consulted,” Dr. Kiley says. Testing for COPD is simple and non-invasive. The test itself is called spirometry, and involves taking a deep breath and then exhaling into a tube connected to a machine, which then provides a reading of lung function.

Once diagnosed with COPD, a patient has several options, depending upon the severity of the obstruction. “There are treatments that can control symptoms,” Dr. Kiley says, “and that can slow the decline in lung function, improving the patient’s quality of life.” Those treatments include medications, such as bronchodilators, inhaled steroids, oxygen, pulmonary rehabilitation and, in a fraction of the most severe instances, surgery.

Lifestyle management and adaptation should accompany medical treatment. COPD patients can coordinate or alter their physical activities to match their pulmonary capabilities and take part in programs of lung rehabilitation and exercise.

“The benefits of early detection are undeniable,” he says. “The sooner COPD is diagnosed and treatment begins, the better the chance of slowing the decline in lung function.”

It’s important to note that former smokers are also at risk. Tobacco smoke damages the lungs at the cellular level—damage that not always can be reversed. Also, COPD’s more severe effects may not appear until later in life, accompanying the natural decline in lung function that occurs as we age. Consequently, former smokers may face declining lung function and COPD years or decades after they quit.

Although COPD is at the moment incurable, large strides are being made in its treatment, and in our understanding of it. Learn More, Breathe Better is meant to help make those strides even larger. ■

*Keith Ferrell is a freelance medical writer.*

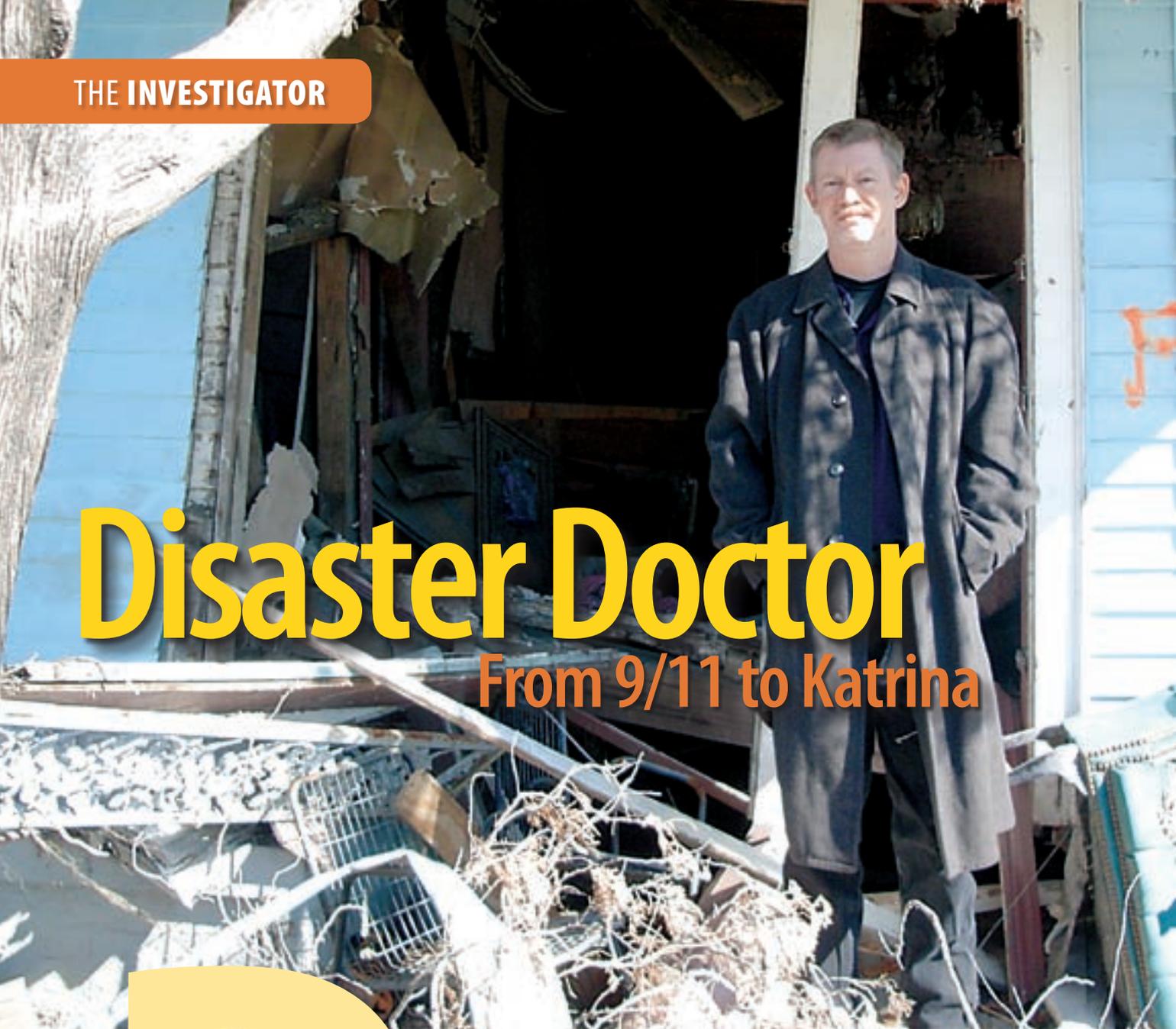
## What’s New: Large Clinical Trial to Look at Home Oxygen Therapy for COPD

The National Heart, Lung, and Blood Institute (NHLBI) and the Centers for Medicare & Medicaid Services (CMS) are launching the largest randomized clinical trial of the effectiveness and safety of long-term, home oxygen therapy for COPD. The six-year, \$28 million project will study patients with moderate disease.

In the Long-term Oxygen Treatment Trial, researchers across the United States will study approximately 3,500 patients with moderate COPD to determine whether supplemental oxygen will help them lead longer, more active, and better quality lives. The results will help Medicare decide whether to extend coverage for home oxygen treatment to patients with moderate disease. Currently, Medicare limits coverage of home oxygen therapy to beneficiaries with severe COPD (very low blood oxygen levels while resting). Medicare is extending coverage of home oxygen treatment to Medicare-eligible patients enrolled in the study, however.

Although oxygen therapy has been shown to improve survival in patients with severe COPD, the effects of treatment have not been adequately studied in patients with less severe disease. Patient recruitment for the Long-term Oxygen Treatment Trial is expected to begin in late 2007.

**You can learn more about COPD at [www.LearnAboutCOPD.org](http://www.LearnAboutCOPD.org) and at [www.MedlinePlus.gov](http://www.MedlinePlus.gov) (type COPD into the search box).**



# Disaster Doctor

## From 9/11 to Katrina

### D National Library of Medicine Scientist Helps Identify Disaster Victims, Eases Grieving

Dr. Stephen Sherry will never forget meeting in the New York City mayor's office a couple of years after 9/11 with a woman whose husband had died in the tragedy. Still distraught, she kept asking how she could be certain that his remains had really been discovered.

"The State medical examiner pulled up our software and there on the screen were the matching lines and curves of the identifying DNA profile. Somehow

it made sense to her and she was greatly relieved," Sherry recalls.

A physical anthropologist who'd done his Ph.D. fieldwork examining the DNA of ethnic and kinship groups, Sherry had been tapped after 9/11 to lead a team from NLM's National Center for Biotechnology Information (NCBI) to devise software that could quickly verify individual DNA profiles despite their being damaged by environmental, bacterial or other



Dr. Stephen Sherry stands in front of a house destroyed by Hurricane Katrina in the devastated Ward Nine of New Orleans. Note the orange markings on the right side of the photo that indicate the house has been searched for human remains.

contaminants, conditions that make accurate genetic “reading” difficult.

### DNA Testing

Composed of two long “strings” of intertwined building blocks—the nucleotides adenine, thymine, guanine and cytosine—DNA (deoxyribonucleic acid) is life’s chemical instruction manual, governing how cells grow, divide, live and die. The patterns in which the strings are arranged are unique to every person, and thus make up an individual’s genetic code, or DNA “fingerprint.”

After mass disasters like 9/11 or Hurricane Katrina, Sherry believes it is very important to identify the dead as quickly as possible for both forensic and humanitarian reasons. “Losing a loved-one without tangible remains for the funeral can thwart the grieving process for family and friends, and it’s difficult for society to return to normal if the dead cannot be identified.”

“Except for slight variations in patterns between ethnic groups, races and genders, DNA is the same in most people,” Sherry points out. “The greatest similarities are to be found among family members.”

### Working with Damaged DNA

In DNA analysis of families, for example, cells are swabbed from inside a parent’s cheek then scanned by computer for the DNA genetic markers or identifiers that might prove relationship, such as that between father and child. Typically, this type of testing uses pristine, high-quality DNA samples.

With 9/11 and later with Hurricane Katrina, Sherry and his team had no such advantage. There were virtually no intact bodies from 9/11, most remains having been fragmented by falling debris or burned to the point of charcoal.

“It was like looking at smudged fingerprints; you couldn’t be sure they belonged to a certain individual,” Sherry says. “We had to develop software that would work with the lab results from badly damaged human remains, to see if a match could be made between a living relative and the deceased, or between the dead and, say, the hair from a hair brush.”

### Ancient Egypt and Modern Analysis

So he and his team developed OSIRIS, for Open Source Independent Review and Interpretation

System. Named after the Egyptian god of the underworld, OSIRIS’s job is to make educated guesses—assessments—about an individual’s genetic markers. Being able to make accurate assessments is the cornerstone of successful DNA matching. OSIRIS is able to analyze 10,000 DNA samples in two minutes (whereas an analyst takes a whole day just to complete 14 samples by hand).

“Think of OSIRIS as a code breaker, able to take the mystery out of a mass of data and put a name on human remains,” urges Sherry. Because it can evaluate the results from other DNA sampling software, he says OSIRIS offers a kind of “second opinion” in the world of forensic analysis.

“Steve and his team did a tremendous job in developing OSIRIS to meet the immediate need of victim identification,” says NCBI Director David Lipman, M.D. “Their work also has important applications in disease research, as well as other forensic uses.”

### Katrina Analysis Difficult, Poignant...

Sherry found identifying the dead from Hurricane Katrina particularly poignant because he’d done his post-doctoral studies in New Orleans. Unlike in 9/11, most personal effects—hair or tooth brushes, razors, or even letters that could yield DNA traces that could specifically link victim to identity—had vanished in Katrina’s wake. Gone, too, were the medical and dental records traditionally used to establish identity.

“A team under supervision of the Louisiana State Police tested the OSIRIS software, but their task was complicated because the kin of many of the dead had scattered to other cities. Communication between family members was difficult, as was providing DNA samples.”

To facilitate the analysis, the National Human Genome Research Institute trained several groups of student genetic counselors from Sarah Lawrence College to help track down the far-flung families and gather the necessary DNA.

Reflecting on the broader implications of his software, Sherry says, “I think identifying the dead, no matter how difficult or expensive, is absolutely necessary for the conduct of a civilized society.” ■

*Judith Folkenberg is a staff writer at the National Library of Medicine.*

# 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 Cancer Institute (NCI)** [www.cancer.gov](http://www.cancer.gov)  
1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)** [www.nei.nih.gov](http://www.nei.nih.gov)  
(301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov) (301) 592-8573
- **National Human Genome Research Institute (NHGRI)** [www.genome.gov](http://www.genome.gov)
- **National Institute on Aging (NIA)**  
[www.nia.nih.gov](http://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](http://www.niaaa.nih.gov)  
(301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)** [www.niaid.nih.gov](http://www.niaid.nih.gov)  
(301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases** [www.niams.nih.gov](http://www.niams.nih.gov)  
1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biological Imaging and Bioengineering (NIBIB)**  
[www.nibib.nih.gov](http://www.nibib.nih.gov) (301) 451-6772
- **National Institute of Child Health and Human Development (NICHD)** [www.nichd.nih.gov](http://www.nichd.nih.gov)  
1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**  
[www.nidcd.nih.gov](http://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](http://www.nidcr.nih.gov)
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)** [www.niddk.nih.gov](http://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](http://www.nida.nih.gov) (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)** [www.niehs.nih.gov](http://www.niehs.nih.gov)  
(919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)** [www.nigms.nih.gov](http://www.nigms.nih.gov)  
(301) 496-7301
- **National Institute of Mental Health (NIMH)**  
[www.nimh.nih.gov](http://www.nimh.nih.gov) [niminfo@nih.gov](mailto:niminfo@nih.gov)  
1-866-615-6464
- **National Institute of Neurological Disorders and Stroke (NINDS)** [www.ninds.nih.gov](http://www.ninds.nih.gov)  
[braininfo@ninds.nih.gov](mailto:braininfo@ninds.nih.gov) 1-800-352-9424
- **National Institute of Nursing Research (NINR)**  
[www.ninr.nih.gov](http://www.ninr.nih.gov) (301) 496-0207

## Centers & Offices

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

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# Your Guide to Better Health Series

**T**he *Your Guide* series offers attractive, easy-to-read booklets that motivate people to take action for good health. They include step-by-step action plans for establishing and maintaining

heart and sleep health. The *Your Guide* series is produced by the National Heart, Lung, and Blood Institute, part of the National Institutes of Health of the U.S. Department of Health and Human Services.

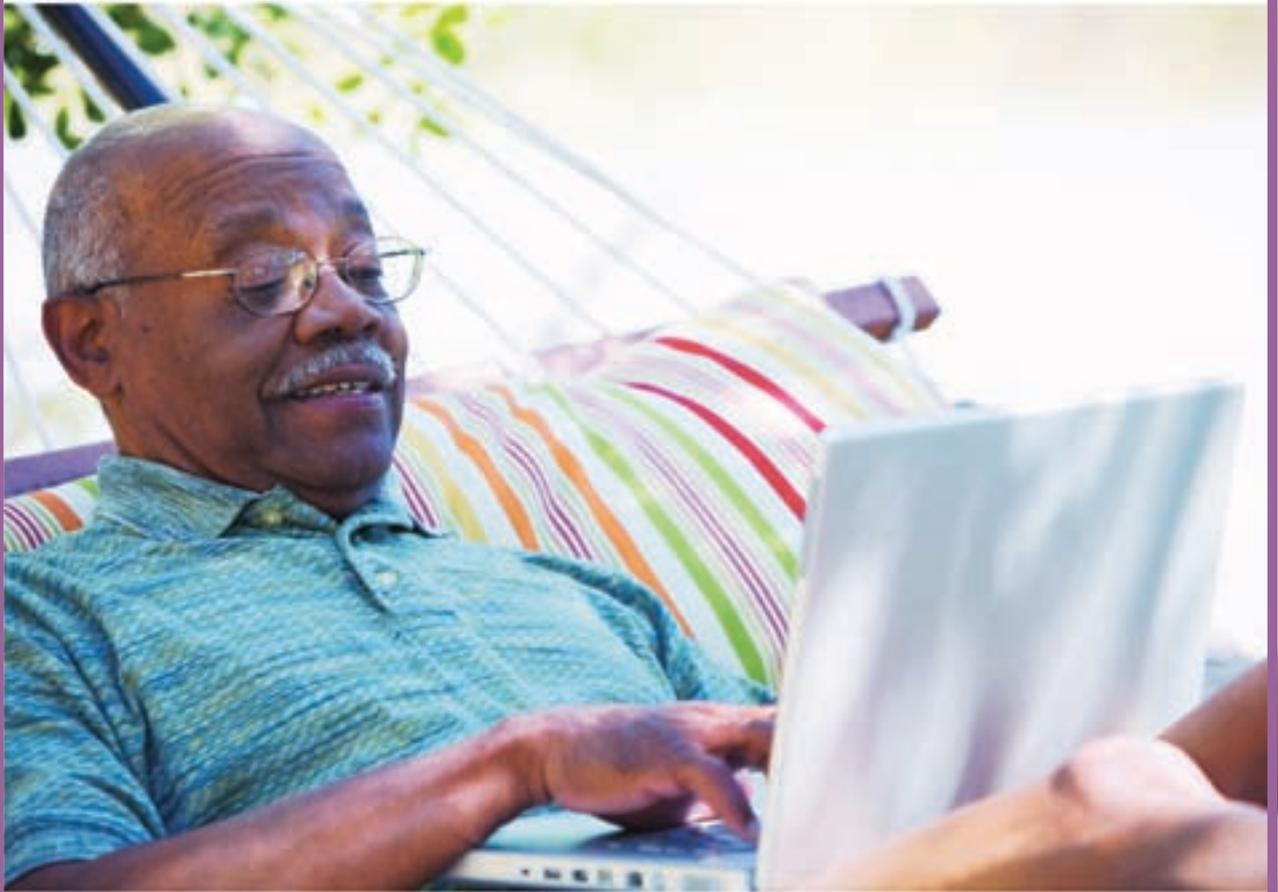


Visit the *Your Guide* Series Web site at:  
<http://hp2010.nhlbi.nih.net/yourguide> for more information  
and ordering your copies. Or call: 301-592-8573.



U.S. Department of Health and Human Services  
National Institutes of Health  
National Heart, Lung, and Blood Institute

# At last, a medical website designed for grown-ups.



NIHSeniorHealth is the premier government health website for older Americans. It's packed with easy-to-read information about conditions that are more common as we get older. And it's easy to use: You can make the text bigger. You can make the contrast better. You can even make it talk. In other words, it was built with you in mind.

The website was developed by the National Institutes of Health – the *Nation's Medical Research Agency*. NIH is a part of the U.S. Department of Health and Human Services.

For up-to-date health information tailor-made just for you, visit [www.nihseniorhealth.gov](http://www.nihseniorhealth.gov) – the first senior-friendly medical website.



**NIHSeniorHealth.gov**  
Built with you in mind