NIH MedlinePlus
the magazine
WINTER 2015

Trusted Health Information from the National Institutes of Health

When the heart is not in rhythm AFib

Game show host and comedian Howie Mandel speaks out about atrial fibrillation (AFib)—a condition he knows firsthand.

More than 2.5 million adults have atrial fibrillation (AFib), the most common form of heart arrhythmia in the United States.

Alzheimer's Disease Research And Caregiving Advice

Learn the latest research about the disease and tips for effective caregiving.

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Tips for Healthy Aging

It's easier now than ever before to make lifestyle changes that can add years to your life—and life to your years.

A publication of the **NATIONAL INSTITUTES OF HEALTH** and the **FRIENDS** of the **NATIONAL LIBRARY OF MEDICINE**

National Library of Medicine Welcomes 500 Students to "Science Pathfinders" Event at the National Institutes of Health

What does 3-D printing have to do with health and medicine? How do forensic scientists use DNA to genetically "fingerprint" and identify crime and disaster victims? How can a high school science student start a career at the National Institutes of Health?

The answers to these and other questions were revealed at a lively all-day event, "Science Pathfinders at NLM/NIH," September 26, 2014, on the NIH campus in Bethesda, Maryland. The VIP guests were more than 500 middle and high school students at public and private schools in Maryland and the District of Columbia, who heard presentations from top scientists and medical doctors on the latest advances in medical research.

This was the second in a series of symposia to be convened at NLM, in partnership with the Friends of the National Library of Medicine (FNLM) and Mentoring In Medicine, a non-profit organization that works with students in disadvantaged areas, with a mission to diversify the biomedical workforce by mentoring and introducing underrepresented students to careers in science and health care.

Photos: NIH

▶ (Top to bottom) **Lynne Holden**, MD, president of Mentoring in Medicine, explains the day's activities to the more than 500 student attendees. NLM Director **Donald A.B. Lindberg**, MD, gives opening remarks to the students. **Hassan Tetteh**, MD, talks about his experiences as a cardiothoracic surgeon. **Yvonne Maddox**, PhD, delivers the keynote speech. **Terry Yoo**, PhD, uses the Hoberman sphere to illustrate the symmetry of some virus shapes.

MedlinePlus
the magazine

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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.

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NIH Research

By Dr. Richard Hodes

Exercise Is Key to Healthy Aging

Dr. Richard J. Hodes is the Director of the National Institute on Aging (NIA) at the National Institutes of Health (NIH), the principal federal agency for studies of the basic, clinical, epidemiological, and social aspects of aging. In a recent interview with ***NIH MedlinePlus*** magazine, Dr. Hodes talked about how important it is to exercise regularly—at any age!

Why is exercise so important?

Exercise is perhaps the best demonstrated way to maintain good health, fitness, and independence. Research has shown that regular physical activity improves quality of life for older adults and decreases the risk of cardiovascular disease and many other illnesses and disabilities. In many ways, it is the best prescription we have for healthy, successful aging.

Does exercise make a difference?

Yes, staying active is important throughout life. Regular exercise and physical activity help you stay fit enough to keep doing the things you enjoy. No matter your age, you can find activities that meet your fitness level and needs.

How much physical activity is good?

Aim for 150 minutes a week of moderate-intensity endurance activity (such as brisk walking) and muscle-strengthening activities on two or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms). You can do balance and flexibility exercises any time.

Is it safe to exercise?

Exercise is safe for almost everyone. Studies show that people with arthritis, high blood pressure, diabetes, or heart disease benefit from regular physical activity. If you haven't been active for a long time, it's important to start out at a low level. You may want to talk with your doctor if you decide to start a vigorous exercise program or significantly increase your activity.

What do you plan to do in the New Year to stay fit and healthy?

For as long as I can remember, and over the years, my exercise routine has changed very little, always including both strength training and aerobic exercise. Strength training involves upper body exercises to strengthen arms, shoulders, back, chest, and neck; lower body strength exercises build leg strength for walking, hiking, and sports, as well as climbing stairs and other everyday activities. For endurance, I use an exercise bike ergometer, but some prefer walking or running on a treadmill in the gym or out-of-doors. The key is to make exercise as much a part of the day as eating or sleeping. I feel great when I exercise, and I urge you to give it a try, or to stick with it if you're already hooked. Do it carefully and regularly and see for yourself how fun and rewarding it can be.

Photo: National Institute on Aging

▲ Dr. Hodes, Director of the National Institute on Aging, does regular strength training and aerobic exercise.

What You Need to Know About Exercise

What is the best kind of exercise?

Most people tend to focus on one activity or type of exercise. The goal, however, is to be creative and do all four types of exercise—endurance, strength, balance, and flexibility. (See "Healthy Aging with Go4Life," starting on page 4.)

Endurance, or aerobic, activities increase your breathing and heart rate. They help keep you healthy, improve fitness, and carry out everyday tasks.

To strengthen your muscles, you need to lift or push weight. Even very small changes can make a real difference. Stronger muscles can make it easier to get up from a chair, carry groceries, open jars, work in the garden, and even play with your grandchildren.

Each year, more than 2 million older Americans go to the emergency room because of fall-related injuries. Balance exercises are one way to help prevent falling.

Flexibility, or stretching, exercises give you more freedom of movement for everyday activities.

How can I find time to exercise?

There are a number of ways to fit exercise and physical activity into your schedule. For example, exercise first thing in the morning, or combine physical activity with a task that's already part of your day, such as walking the dog.

Do I need any equipment?

For many activities, you don't need any equipment or special clothing. All you need for brisk walking, for example, is a pair of comfortable, non-skid shoes. For strength training, you can make your own weights from unbreakable household items.

Is it better to exercise in a group or alone?

The key is to do what you truly enjoy, which could be with others or on your own. A team activity like basketball or a group exercise class might be appealing. Or, on their own, some people find going to a gym regularly or working with a trainer helps them stay motivated.

What should people who are overweight or obese do?

Try walking, water exercises, dancing, or weight lifting, varying your activities to include endurance, strength, balance, and flexibility. Anything that gets you moving—even for only a few minutes a day in the beginning—is a healthy start. Feel good about what you can do, and pat yourself on the back for trying. It should get easier.

For More Information

- ✔ National Institute on Aging Information Center
  P.O. Box 8057
  Gaithersburg, MD 20898-8057
  1-800-222-2225 (toll-free) | 1-800-222-4225 (TTY/toll-free)
  www.nia.nih.gov
  www.nia.nih.gov/espanol
  www.nia.nih.gov/Go4Life
- ✔ National Library of Medicine MedlinePlus
  "Exercise for Seniors"
  "Exercise and Physical Fitness"
  www.medlineplus.gov
- ✔ Centers for Disease Control and Prevention
  1600 Clifton Road
  Atlanta, GA 30333
  1-800-232-4636 (toll-free)
  1-888-232-6348 (TTY/toll-free)
  www.cdc.gov

For more health and wellness information, sign up for free "**Healthy Aging Tips**" at

NIH SeniorHealth

Go to www.nihseniorhealth.gov and click the "Sign Up" button near the top of any page.

Healthy Aging with Go4Life®

Go4Life from the National Institute on Aging at NIH is a national exercise and physical activity campaign aimed at people over 50. The goal is to make physical activity a cornerstone of healthy aging, for a simple reason. Being physically active is vital for maintaining health and independence as we age.

Go4Life offers sample exercises to try, motivational success stories, interactive tracking, online coaches, print materials, and more to help you get ready, start exercising, and keep going.

Go to www.nia.nih.gov/Go4Life.

How Exercise Can Help You

Exercise and physical activity are good for just about everyone, including older adults. No matter your health and physical abilities, you can gain a lot by staying active. In fact, in most cases you have more to lose by not being active.

Here are just a few of the benefits. Exercise and physical activity:

- Can help maintain and improve your physical strength and fitness.
- Can help improve your ability to do the everyday things you want to do.
- Can help improve your balance.
- Can help manage and improve diseases like diabetes, heart disease, and osteoporosis.
- Can help reduce feelings of depression and may improve mood and overall well-being.
- May improve your ability to shift quickly between tasks, plan an activity, and ignore irrelevant information.

The key word in all these benefits is YOU—how fit and active you are now and how much effort you put into being active. To gain the most benefits, enjoy all four types of exercise, stay safe while you exercise, and be sure to eat a healthy diet, too!

Go4Life® is a registered trademark of the U.S. Department of Health and Human Services.

4 Types of Exercise

Exercise and physical activity fall into four basic categories—endurance, strength, balance, and flexibility. Each type is different, though. Doing them all will give you more benefits.

Though we've described each type separately, some activities fit into more than one category. For example, many endurance activities also build strength. Strength exercises also help improve balance.

Endurance, or aerobic, activities increase your breathing and heart rate. They keep your heart, lungs, and circulatory system healthy and improve your overall fitness. Building your endurance makes it easier to carry out many of your everyday activities.

- Brisk walking or jogging
- Yard work (mowing, raking, digging)
- Dancing

Strength exercises make your muscles stronger. Even small increases in strength can make a big difference in your ability to stay independent and carry out everyday activities, such as climbing stairs and carrying groceries. These exercises also are called "strength training" or "resistance training."

- Lifting weights
- Using a resistance band
- Using your own body weight

Balance exercises can help prevent falls, a common problem in older adults. Many lower-body strength exercises also will improve your balance.

- Standing on one foot
- Heel-to-toe walk
- Tai chi

Flexibility exercises stretch your muscles and can help your body stay limber. Being flexible gives you more freedom of movement for other exercises as well as for your everyday activities.

- Shoulder and upper arm stretch
- Calf stretch
- Yoga

Go4Life®

Everyday Fitness Ideas from the National Institute on Aging at NIH
www.nia.nih.gov/Go4Life

Making Smart Food Choices

Regular physical activity and a healthy diet go hand in hand. *Go4Life* points you to wise food choices important for good health: eat a variety of healthy foods, fill up half of your plate with fruits and vegetables, and limit solid fats and added sugars.

The Dietary Guidelines for Americans suggest you:

- Try to choose grain products made from whole grains.
- Vary your veggies. Brighten your plate with vegetables that are red, orange, and dark green.
- Eat more fruit. Try some you haven't eaten before.
- Choose lean meats, poultry, seafood, beans, eggs, and nuts.
- Choose low-fat or fat-free dairy products.
- Get plenty of fluids each day such as water, fat-free or low-fat milk, and low-sodium broth-based soups.
- Limit saturated fats, trans fats, cholesterol, salt, and added sugars.

Some tips to help you get started:

- Breakfast is a good time to enjoy foods with fiber. Try unsweetened, whole-grain, or bran cereals and add fruit such as berries and bananas.
- Snack on unpeeled apples, pears, and peaches. Don't forget to rinse them before eating.
- Season foods with lemon juice, herbs, or spices.
- Broil, roast, bake, steam, microwave, or boil foods instead of frying.
- Use oils instead of solid fats, like butter, when cooking.
- Read *What's On Your Plate?*, the National Institute on Aging guide to healthy eating. Order your free copy at www.nia.nih.gov.

Quick Tip

To maintain a healthy weight, balance the calories you take in from food and beverages with the calories burned through physical activity.

VISIT
www.nia.nih.gov/Go4Life

- Read more tips for adding physical activity to your day.
- Print useful tools.

National Institute on Aging
National Institutes of Health
U.S. Department of Health & Human Services

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What's On Your Plate? is based on the nutrition recommendations for older adults in the Dietary Guidelines for Americans, 2010 from the U.S. Department of Agriculture (USDA) and the U.S. Department of Health and Human Services (HHS).

What's On *Your* Plate?

Smart Food Choices for Healthy Aging

www.nia.nih.gov/health/publication/whats-your-plate

Important Nutrients to Know

To survive and stay healthy, your body needs important nutrients including proteins, carbohydrates, fats, vitamins and minerals, and water. Learn what these nutrients do in your body and what foods they are found in.

Plans for Healthy Eating

You can find trusted nutrition information in the Dietary Guidelines for Americans, which contain advice about what and how much to eat and which foods to avoid.

Healthy Lifestyle

Learn about nutrient-dense vs. calorie-dense foods, balancing "calories in" and "calories out," and making good food choices as you age.

Shopping Tips

See how planning ahead can help you choose healthier foods and get the most for your money.

Food Safety

Reduce the risk for food-related illnesses with tips on how to safely handle, prepare, store and consume foods.

Common Questions

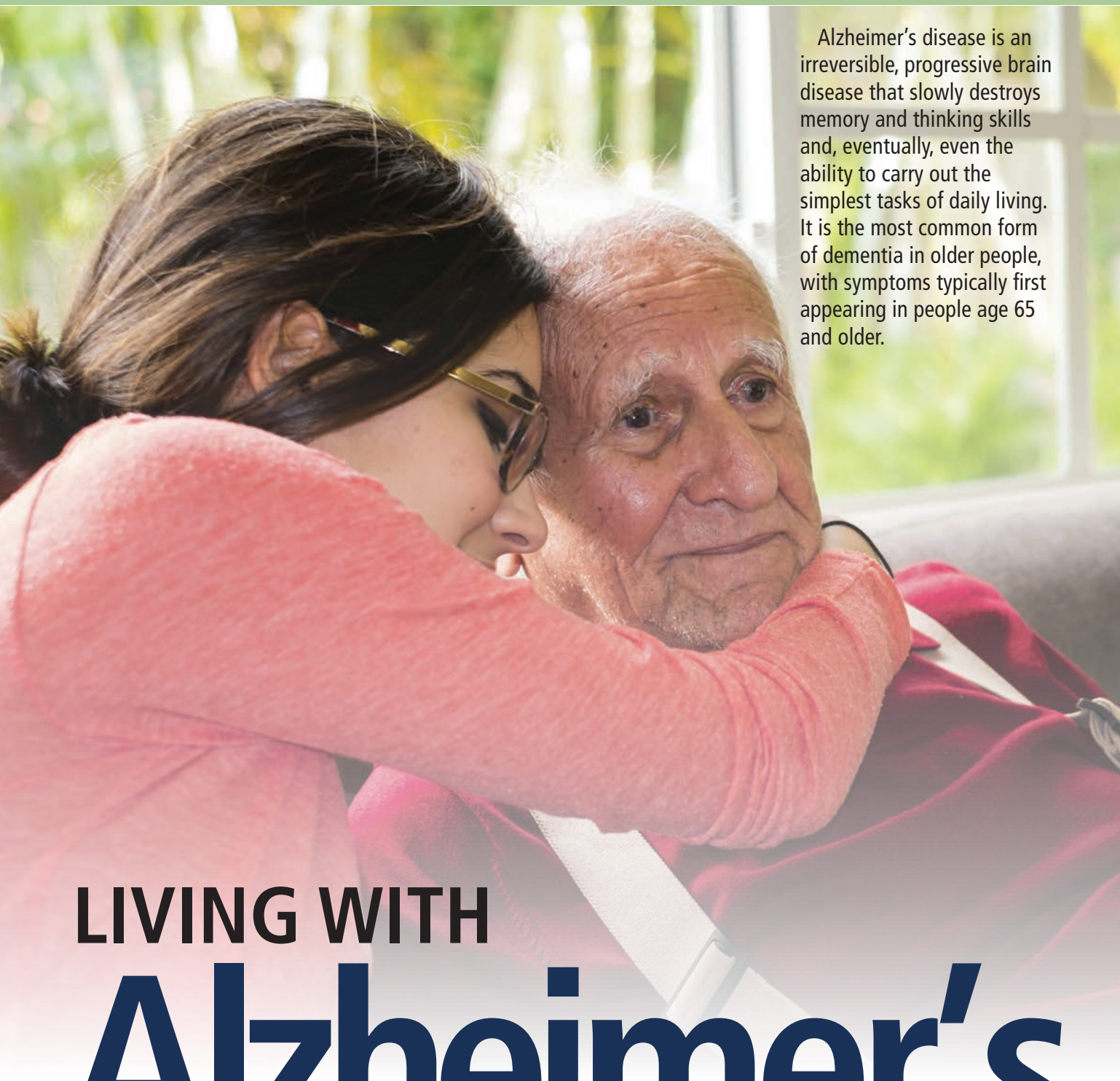
Find answers to problem-solving questions such as:

- Tired of cooking or eating alone?
- Food tasting different?
- Just not hungry?

Sample Menus

Plan nutritious meals based on 2,000 calories a day with these smart food choices.

Get more nutrition information online with *What's On Your Plate? Smart Food Choices for Healthy Aging* from the National Institute on Aging.



Alzheimer's disease is an irreversible, progressive brain disease that slowly destroys memory and thinking skills and, eventually, even the ability to carry out the simplest tasks of daily living. It is the most common form of dementia in older people, with symptoms typically first appearing in people age 65 and older.

LIVING WITH Alzheimer's Disease

The disease is named after Dr. Alois Alzheimer. In 1906, Dr. Alzheimer noticed changes in the brain tissue of a woman who had died of an unusual mental illness. Her symptoms included memory loss, language problems, and unpredictable behavior. After she died, he examined her brain and found many abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary tangles).

Plaques and tangles in the brain are two of the main features of Alzheimer's disease. The third is the loss of connections between nerve cells (neurons) in the brain.

Although treatment can help manage symptoms in some people, currently there is no cure for this devastating disease.

Estimates vary, but experts suggest that as many as 5 million Americans age 65 and older have Alzheimer's disease. Unless the disease can be effectively treated or prevented, the number of people with it will increase significantly if current population trends continue. That's because the risk of Alzheimer's increases with age, and the U.S. population is aging.

Alzheimer's is a slow disease that progresses in three stages—an early preclinical stage with no symptoms, a middle stage of mild cognitive impairment, and a final stage of Alzheimer's dementia. The time from diagnosis to death varies—as little as three or four years if the person is older than 80 when diagnosed to as long as 10 or more years if the person is younger.

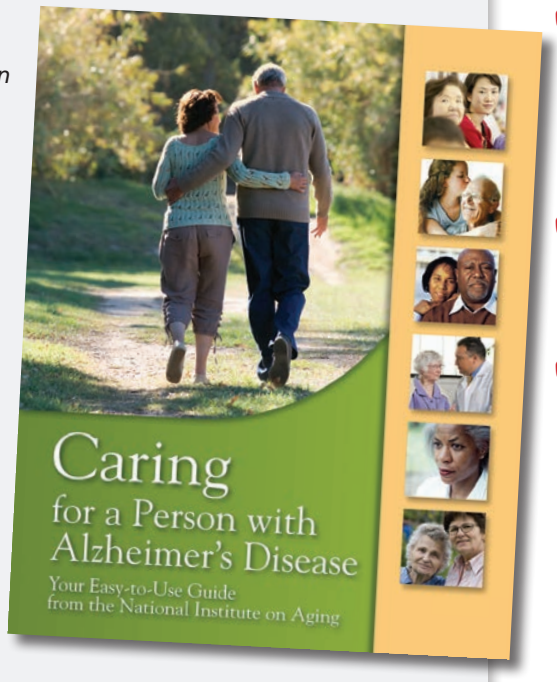
Alzheimer's disease is the most common cause of dementia among older people.

Free Guide for Alzheimer's Caregivers

Caring for a person with Alzheimer's disease at home is a difficult task and can become overwhelming at times. Each day brings new challenges, as the caregiver copes with changing levels of ability and new patterns of behavior. Research has shown that caregivers themselves often are at risk for depression and illness if they don't receive adequate support from family, friends, and the community.

The National Institute on Aging (NIA) offers an easy-to-use guide, ***Caring for a Person with Alzheimer's Disease***, for people who care for family members or others with Alzheimer's disease at home. The guide can help caregivers learn about and cope with the many challenges of AD.

You can read or download this book online at www.nia.nih.gov/alzheimers/publication/caring-person-alzheimers-disease or order a free copy from the Alzheimer's Disease Education and Referral (ADEAR) Center, a service of the National Institute on Aging; Phone: 1-800-438-4380.



Fast**Facts**

- Alzheimer's disease is a progressive brain disease that slowly destroys a person's memory, thinking skills, and the ability to perform simple, everyday tasks. In the final stage of the disease, called Alzheimer's dementia, people are completely dependent on others for care.
- Alzheimer's is the most common form of dementia among older people. Estimates vary, but experts suggest as many as 5 million Americans 65 and older may have Alzheimer's. In most cases, the first symptoms appear after age 65.
- About 5 percent of men and women ages 65 to 74 have Alzheimer's, and nearly half of those age 85 and older are estimated to have the disease.
- Researchers are seeking volunteers with Alzheimer's and healthy older adults for studies of possible treatments, including drugs and lifestyle interventions—like exercise—to see if they can delay or prevent the disease.

What Are the Signs of Alzheimer's Disease?

It's important to know the signs of Alzheimer's disease. If you know the signs, you can get help right away. Some signs of the disease are listed here:

Early Signs

- finding it hard to remember things
- asking the same questions over and over
- having trouble paying bills or solving simple math problems
- getting lost
- losing things or putting them in odd places

Later Signs

- forgetting how to brush your teeth or comb your hair
- being confused about time, people, or places
- forgetting the names of common things, such as a desk, house, or apple
- wandering away from home

Mild Cognitive Impairment

Some older people have a condition called mild cognitive impairment, or MCI. It can be an early sign of Alzheimer's. But, not everyone with MCI will develop Alzheimer's disease.

People with MCI can still take care of themselves and do their normal activities. MCI memory problems may include:

- losing things often
- forgetting to go to events or appointments
- having more trouble coming up with words than other people the same age

If you have MCI, it's important to see your doctor or specialist every 6 to 12 months. Ask him or her to check for changes in your memory and thinking.

Diagnosis

Doctors now have several methods and tools to help them determine fairly accurately whether a person who is having memory problems has "possible Alzheimer's dementia" (dementia may be due to another cause) or "probable Alzheimer's dementia" (no other cause for dementia can be found).

To diagnose Alzheimer's, doctors may:

- Ask questions about overall health, past medical problems, ability to carry out daily activities, and changes in behavior and personality
- Conduct tests of memory, problem solving, attention, counting, and language
- Carry out standard medical tests, such as blood and urine tests, to identify other possible causes of the problem
- Perform brain scans, such as computed tomography (CT) or magnetic resonance imaging (MRI), for research studies or to distinguish Alzheimer's from other possible causes for symptoms, like stroke or tumor

Early, accurate diagnosis can tell people whether their symptoms are from Alzheimer's or another cause, such as stroke, tumor, Parkinson's disease, sleep disturbances, side effects of medications, or other conditions that may be treatable and possibly reversible.

How Alzheimer's Changes the Brain

Currently, the most definite diagnosis of Alzheimer's disease is made after death, by examining brain tissue for plaques and tangles. The brain also shrinks (See right). Scientists now realize that many other cellular changes also occur in the brain, such as inflammation and blood vessel disease.

What Do We Know About Preventing Alzheimer's?

Unlike age and genetics, certain health and lifestyle factors associated with Alzheimer's disease risk may be controlled. Scientists are exploring prevention strategies to determine whether or not things like exercise, diet, and "brain games" can help delay or prevent Alzheimer's disease and age-related cognitive decline. They are also investigating how certain medical conditions, such as high cholesterol, high blood pressure, and diabetes, influence risk for cognitive impairment.

So far, studies have not demonstrated that, over the long term, health or lifestyle factors can prevent or slow Alzheimer's disease or age-related cognitive decline. Similarly, clinical trial results do not support the use of any particular medication or dietary supplement to prevent these conditions.

Promising research in these areas is under way. The NIA supports more than 30 clinical trials, including many that are investigating possible ways to prevent or delay Alzheimer's disease or age-related cognitive decline. Learn more about what the research shows about preventing Alzheimer's at www.nia.nih.gov/alzheimers/publication/preventing-alzheimers-disease.

Latest NIH Research

- NIH's National Institute on Aging (NIA) leads the federal government's research efforts on AD. Scientists at NIA-supported Alzheimer's Disease Centers and other research institutions conduct clinical trials and carry out a variety of studies, looking at the causes, diagnosis, and management of AD. NIA also sponsors the Alzheimer's Disease Cooperative Study, a group of leading AD researchers throughout the United States and Canada who conduct clinical trials on promising AD treatments.
- Today, at least 70,000 volunteers are urgently needed to participate in more than 150 active clinical trials and studies in the United States that are testing ways to understand, treat, prevent, or cure Alzheimer's disease. All kinds of people, including healthy volunteers, are needed.
- One current trial, Anti-Amyloid Treatment in Asymptomatic Alzheimer's Disease Trial, or A4, is among a new generation of clinical trials testing therapies that might prevent, or at least delay, Alzheimer's disease in cognitively normal people at risk for the brain disorder. Previous trials have tested a variety of drugs in people who already had Alzheimer's dementia, but results have shown no significant improvement in cognition or daily functioning. This study is currently seeking volunteers to participate. Visit: http://a4study.org
- To learn more about participating in trials or studies, read Participating in Alzheimer's Research: For Yourself and Future Generations http://www.nia.nih.gov/alzheimers/publication/participating-alzheimers-research/introduction. You can also contact the NIA Alzheimer's Disease Education and Referral (ADEAR) Center at 1-800-438-4380 or go to http://www.nia.nih.gov/alzheimers/clinical-trials/ to search currently available research studies.
- You can also ask your doctor, who may know about local research studies that may be right for you, or sign up for a registry (such as the Alzheimer's Prevention Registry, www. endAlznow.org) or a matching service (such as ResearchMatch, www.researchmatch.org, or the Alzheimer's Association's TrialMatch, www.alz.org/trialmatch) to be invited to participate in studies or trials when they are available in your area.

Quiz: Alzheimer's Disease

1. How many Americans over age 65 may have Alzheimer's disease?

A. as many as 5 million
B. as many as 50 million
C. as many as 100 million

2. The most well-established risk factor for Alzheimer's disease is

A. increasing age
B. depression
C. poor diet

3. Another risk factor for Alzheimer's disease is

A. poor vision
B. arthritis
C. family history of the disease

4. What approaches to healthy aging are being studied for preventing AD?

A. lowering high blood pressure
B. being physically active
C. eating a healthy diet
D. all of the above

5. It is important to have an early diagnosis of Alzheimer's disease

A. so that patients and families can plan for the future
B. so that the symptoms can be better managed
C. so that other diseases can be ruled out
D. all of the above

6. With Alzheimer's disease, the time from diagnosis to end of life

A. can be as little as 3 years
B. may be as long as 10 years or more
C. both of the above

7. People with mild Alzheimer's disease may be helped in day-to-day living by

A. a list of daily plans
B. notes about simple safety measures
C. written directions describing how to use common household items
D. all of the above

8. A person's genetic makeup can affect the risk of developing

A. early-onset Alzheimer's disease.
B. late-onset Alzheimer's disease.
C. both early- and late-onset Alzheimer's disease.

Answers

1. A is the correct answer. Estimates vary, but experts suggest that as many as 5 million people in the United States may have Alzheimer's disease. Most of them are age 65 or older, but those with a rare, inherited form may be in their 30s, 40s, and 50s.

2. A is the correct answer. Increasing age is the most important known risk factor for Alzheimer's disease. The disease usually begins after 65, and the risk goes up with age.

3. C is the correct answer. Family history is another risk factor for Alzheimer's disease. Scientists have found genetic links to both early-onset and late-onset Alzheimer's disease. Over recent years, more than a dozen gene variants have been linked to late-onset Alzheimer's disease, the most common form of the disease. Researchers have also identified genes involved in the rare, early-onset form of Alzheimer's. Discovery of genes—both that confer risk and offer protection—may help researchers to more effectively test possible treatments and prevention strategies in people who are at risk of developing Alzheimer's—ideally, before symptoms appear.

4. D is the correct answer. Some observational studies have linked controlling blood pressure, being physically active, and eating a healthy diet with a reduced risk of developing Alzheimer's disease. Currently, there are no lifestyle treatments, drugs, or pills that have been shown to prevent Alzheimer's disease.

5. D is the correct answer. Although there is no cure for Alzheimer's disease, early diagnosis makes it possible to consider treatment options and make legal and financial arrangements while the person with Alzheimer's can still take part in making decisions. Early treatment may help the person function independently for longer. Also, doctors may find other possible causes of the person's symptoms, such as thyroid problems, drug reactions, depression, brain tumors, or blood-vessel disease in the brain. Some of these other conditions can be treated successfully.

6. C is the correct answer. With Alzheimer's disease, the time from diagnosis to end of life varies. It can be as little as 3 years if the person is over 80 years old when diagnosed, or as long as 10 years or more if the person is younger.

7. D is the correct answer. Memory aids may help some people with mild Alzheimer's disease with day-to-day living. A big calendar, a list of daily plans, notes about simple safety measures, and written directions describing how to use common household items can be useful.

8. C is the correct answer. A person's genetic make-up can affect the risk of developing both early- and late-onset forms of Alzheimer's disease. Early-onset Alzheimer's, a rare form of the disease affecting 5 percent or fewer of people with Alzheimer's, can be directly inherited. One gene—apoE4— may increase a person's risk of having the common, late-onset form of the disease, which occurs after age 65.

Treatment

Currently, there is no cure for Alzheimer's. Because it is a complex disease, scientists believe that it may take more than one approach—perhaps a combination of drugs and lifestyle—to prevent or treat it. Extensive research is being done to develop and test a variety of possible treatments for Alzheimer's.

Current treatments: These focus on ways to slow symptoms of the disease. The Food and Drug Administration (FDA) has approved four drugs to treat Alzheimer's disease:

- for mild to moderate symptoms, rivastigmine, galantamine, and donepezil may help maintain mental abilities and control specific behavioral symptoms for varying periods of time.
- memantine is designed to help with the symptoms of moderate and severe Alzheimer's dementia.
- donepezil is also used for severe Alzheimer's dementia.

Potential treatments: Scientists are now conducting research studies to see if they can find ways to delay or prevent the disease by targeting the underlying disease process.

Now being tested:

- drugs that interfere with basic processes that may be involved in Alzheimer's, including immunization therapy and other interventions designed to lower the levels of Alzheimer's pathologies in the brain
- treatments for health issues that may be linked to Alzheimer's, such as heart disease and type 2 diabetes
- cognitive training
- eating a healthy diet
- exercise and physical activity

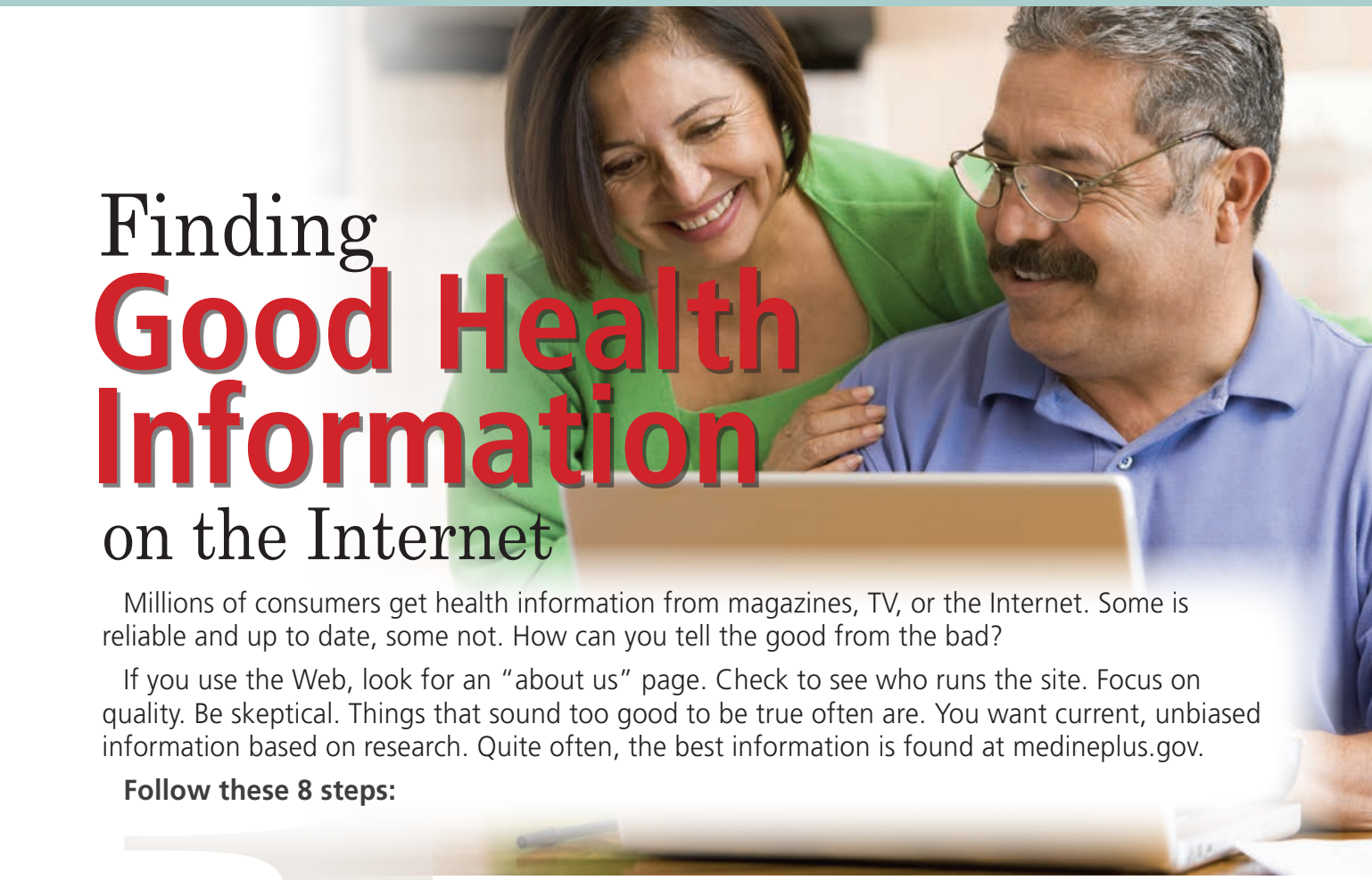
Summary—What you need to know

- Know the signs of Alzheimer's disease.
- See your doctor if you are worried about your memory or think you might have Alzheimer's disease. It's important to find out what is causing your memory problems.
- Take medicines to help treat the symptoms of Alzheimer's disease. Right now, there is no cure.
- Think about joining a clinical trial if you are healthy or if you have Alzheimer's disease.
- Get help if you are caring for someone with Alzheimer's.

To Find Out More

To learn about support groups, services, research centers, research studies, and publications about AD, contact the following resources:

- ✔ National Institute on Aging's (NIA) Alzheimer's Disease Education and Referral (ADEAR) Center for answers to your questions, free publications, referrals to support organizations, Spanish-language resources, clinical trials, and more: www.nia.nih.gov/alzheimers or toll-free 1-800-438-4380 (8:30 am–5:00 pm EST/EDT, Mon–Fri) or email to adear@nia.nih.gov
- ✔ A listing of clinical trials, sponsored by the NIH, other federal agencies, and private industry: www.ClinicalTrials.gov
- ✔ NIH Senior Health: http://nihseniorhealth.gov/alzheimersdisease/toc.html
- ✔ The National Institute of Neurological Disorders and Stroke: www.ninds.nih.gov
- ✔ MedlinePlus, a service of the NIH and National Library of Medicine: http://medlineplus.gov
- ✔ Alzheimer's Association: www.alz.org
- ✔ Alzheimer's Foundation of America: www.alzfdn.org
- ✔ U.S. Administration on Aging's Eldercare Locator: www.eldercare.gov



Finding Good Health Information on the Internet

Millions of consumers get health information from magazines, TV, or the Internet. Some is reliable and up to date, some not. How can you tell the good from the bad?

If you use the Web, look for an "about us" page. Check to see who runs the site. Focus on quality. Be skeptical. Things that sound too good to be true often are. You want current, unbiased information based on research. Quite often, the best information is found at medineplus.gov.

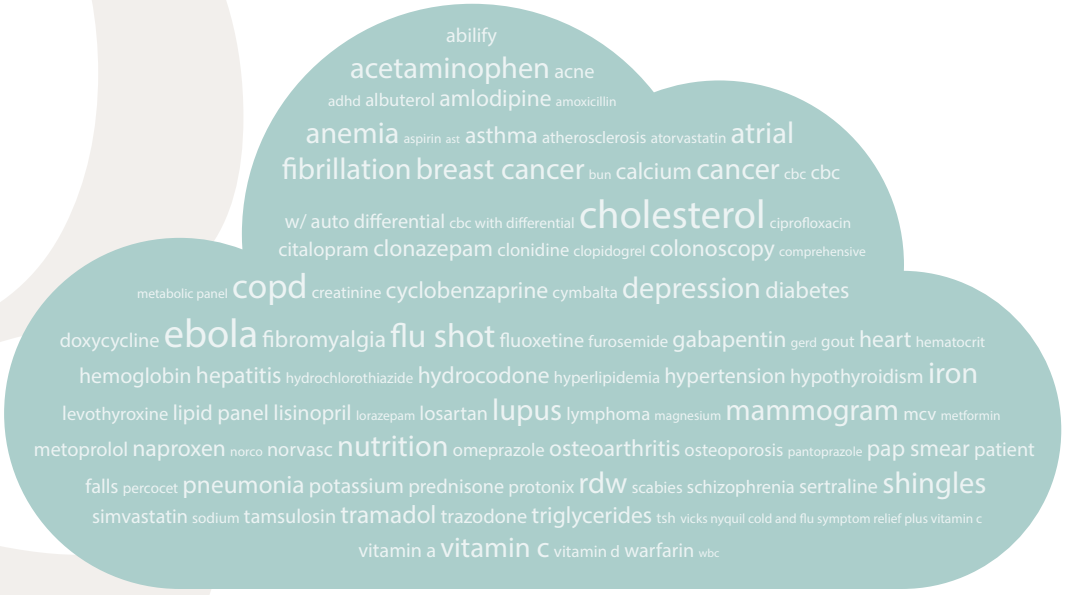
Follow these 8 steps:

1 Consider the source

—Use recognized, responsible authorities.

- Is it a branch of the federal government, a non-profit institution, professional organization, health system, commercial organization, or an individual?
- There is a big difference between a site that says, "I developed this site after my heart attack" and one stating, "This page on heart attack was developed by health professionals at the American Heart Association."
- Web sites should display contact information for the organization or Web master. If there is no contact information, be careful.

Focus on quality



—All Web sites are not created equal.

- Does the site have an editorial board? Is the information reviewed before it is posted?
- This information is often on the "about us" page, or under the organization's mission statement, or in the annual report.
- Are the board members experts in the subject of the site? A site on osteoporosis whose medical advisory board is composed of attorneys and accountants is not medically authoritative.
- Look for a description of the process of selecting or approving information on the site. It is usually in the "about us" section and may be called "editorial policy" or "selection policy" or "review policy."
- Sometimes the site will have information "about our writers" or "about our authors" instead of an editorial policy. Review this section to find out who has written the information.

3 Be a cyber-skeptic

—If it sounds too good to be true.

- Beware of remedies that claim to cure a variety of illnesses, are "breakthroughs," or rely on "secret ingredients."
- Use caution if the site uses a sensational writing style (lots of exclamation points, for example.)
- Consumer health Web sites should use simple language.
- Get a second opinion! Check more than one site.

4 Look for the evidence

—Rely on medical research, not opinion.

- Look for the author of the information, either an individual or an organization, such as "By Jane Smith, RN," or "Copyright 2013, American Cancer Society."
- Case histories or testimonials should have the organization or individual's contact information such as an email address or telephone number. Beware of anonymous or hard-to-track testimonials, such as "Jane from California."

Check for timeliness

—Is the information current?

- Look for dates on documents. Those on coping with loss of a loved one need not be current, but ones detailing the latest treatment for AIDS should be.
- Click on a few links on the site. If a number are broken, the site may not be kept up-to-date.

Beware of bias

—Who pays for the site? What is the purpose?

- Is the site supported by public funds or through commercial advertising?
- Advertisements should clearly state "Advertisement" or "From our Sponsor."
- For example, if a page about treatment of depression recommends a drug by name, is the information from the drug's manufacturer? If so, you should consult other sources to see what they say about the same drug.

Protect your privacy

—Health information should be confidential.

- Does the site have a privacy policy describing what information they collect?
- There should be a link saying "Privacy" or "Privacy Policy." Read the policy to verify your privacy is protected. For example, if it says "We share information with companies that can provide you with useful products," then your information isn't private.
- If registration is required, notice what questions you must answer before you can view content. If it is personal—name, address, date of birth, gender, mother's maiden name, credit card number—read the privacy policy to see what they can do with your information.

Consult with your health professional

—Patient/provider partnerships lead to the best medical decisions.

- Write down any important questions you want to ask before you go to your next appointment, so you will remember to ask them.
- For each appointment, take a written list of the medications you are currently taking—prescription and over-the-counter.
- If you are concerned about remembering what your healthcare provider tells you, take along a family member or close friend to also hear what you are told.

For further information: Visit the MedlinePlus page

http://www.nlm.nih.gov/medlineplus/evaluatinghealthinformation.html

on Evaluating Health Information and Evaluating Internet Health Information: A Tutorial from the National Library of Medicine.

Want to learn more?

Guide to Healthy Web Surfing
www.nlm.nih.gov/medlineplus/healthywebsurfing.html

The MedlinePlus Advantage

MedlinePlus is the National Institutes of Health's website for patients and their families and friends. Produced by the National Library of Medicine, it brings you information about diseases, conditions, and wellness issues in language you can understand. MedlinePlus offers reliable, up-to-date health information, anytime, anywhere—for free.

You can use MedlinePlus to learn about the latest treatments, look up information on a drug or supplement, find out the meanings of words, or view medical videos or illustrations. You can also get links to the latest medical research on your topic or find out about clinical trials on a disease or condition.

The MedlinePlus Web site is a comprehensive public health information resource from the world's largest medical library, NIH's National Library of Medicine. MedlinePlus has extensive information from the NIH and other trusted sources on more than 950 diseases and conditions. There are also lists of hospitals and physicians, a medical encyclopedia and a medical dictionary, health information in Spanish, extensive information on prescription and nonprescription drugs, health information from the media, and links to thousands of medical clinical trials.

This magazine will provide you with a gold standard of reliable, up-to-date health information in a very user-friendly format that can act as a springboard to the Web site. Each issue highlights four major health conditions, offering the latest advice on prevention, diagnosis, treatment and research findings. Regular features will include the latest information on how to stay healthy for a lifetime and will also profile some of the most fascinating people—from laboratory scientists and public figures to patients just like you—who are making a difference in the search for medical advances.

Atrial Fibrillation

When the heart is not in rhythm

Photo: TBS/Deal

For more than 30 years, **Howie Mandel** has been a popular presence on television talk and game shows, comedy clubs, and in movies. As a host, performer, and producer, Mandel keeps a nonstop schedule, performing as many as 200 shows a year. But when his doctor told him he had atrial fibrillation, or AFib, not caused by a heart valve problem, the comedian learned it was no laughing matter. He educated himself about AFib and now helps to educate others about the condition. He lives in Los Angeles with his wife, Terry, and their three children. Mandel recently answered questions about his AFib for *NIH MedlinePlus* magazine.

You were diagnosed with AFib. Can you tell us about how that happened?

I found out by chance at a physical that I had to do before starting a new TV show. The doctor put a stethoscope to my chest and said, "Uh oh." That's something you never want to hear. The doctor found out that I had an irregular heartbeat called atrial fibrillation, or AFib, not caused by a heart valve problem.

What were your first thoughts upon getting the diagnosis?

At first I didn't think there was any big deal. Then the doctor explained to me what it was and what it can cause. I panicked. I learned that this could possibly cause a stroke, and I thought I better educate myself. I had no idea that this could make me five times more likely to have a stroke than somebody who doesn't have it.

Looking back, did you have any symptoms before you were diagnosed that you either didn't notice or dismissed?

Looking back, I was not aware of my symptoms. I run seven miles a day, so I thought I pushed it a little hard. If I was a little dizzy or had a little flutter, I just thought that was part of my workout. I didn't really put two and two together.

You lead a very active and busy life. How do you manage your AFib? Did you change any lifestyle habits?

Since my diagnosis, I've continued to have a healthy diet and exercise regularly. I run seven to 10 miles a day. While I've learned about my risks, I haven't let AFib slow me down.

What is the message you'd most like to send to people who have been diagnosed with AFib or may have its symptoms?

Education is key. For those who have AFib not caused by a heart valve problem, it is important to work with your doctor to discuss treatment options to help reduce the risk of stroke.

I'm excited to be part of the ***Fibs or Facts*** campaign, in association with the National Stroke Association, to raise awareness about AFib and its increased risk for stroke. The fact is that education is the best weapon against any health problem that one may have. Let's face it, ignorance is not bliss. Now that I've learned about it, and know what the signs are and can manage it, I feel healthy. And that's what the ***Fibs or Facts*** campaign is about—teaching people the facts and educating people to help prevent AFib-related stroke.

Photo: TNBS/Americas Got Talent

You have done just about everything—producing, writing, acting, hosting, judging, stand-up, and much more. What does the future hold for Howie Mandel?

I'm still involved in ***America's Got Talent*** and proud that the show was number one in the ratings this past summer. I also serve as executive producer of the TBS series ***Deal With It,*** which is a hidden-camera ambush show where unsuspecting members of the public are secretly dared to pull a prank on their unwitting companions with absolutely no time to prepare.

◀◀ (Opposite Page) Howie Mandel and co-host Theo Von on the set of their TV show, *Deal With It.*
◀ Mandel keeps a rapid schedule, from *America's Got Talent* and *Deal With It* to his almost 200 shows per year.

Understanding Atrial Fibrillation

Atrial fibrillation (AFib) is the most common type of arrhythmia—a problem with the rate or rhythm of the heartbeat. During an arrhythmia, the heart can beat too fast, too slow, or with an irregular rhythm. AFib occurs if rapid, disorganized electrical signals cause the heart's two upper chambers—called the atria—to fibrillate. The term "fibrillate" means to contract fast and irregularly in an uncoordinated manner that does not effectively pump blood through the atria.

In AFib, blood pools in the atria. It isn't pumped completely into the heart's two lower chambers, called the ventricles. As a result, the heart's upper and lower chambers don't work together as they should. People who have AFib may not feel symptoms. However, even when AFib isn't noticed, it can increase the risk of stroke. In some people, AFib can cause chest pain and eventually lead to heart failure, especially if the heart rhythm is very rapid.

AFib may happen rarely or every now and then, or it may become an ongoing or long-term heart problem that lasts for years. AFib may be brief, with symptoms that come and go and end on their own. Or, the condition may be chronic and require treatment. Sometimes AFib is permanent, and medicines or other treatments can't restore a normal heart rhythm.

People who have AFib can live normal, active lives. For some people, treatment can restore normal heart rhythms. For people who have permanent AFib, treatment can help control symptoms and prevent complications. Treatment may include medicines, medical procedures, and lifestyle changes.

What Causes Atrial Fibrillation?

Atrial fibrillation occurs if the heart's electrical signals don't travel through the heart in a normal way. Instead, they become very rapid and disorganized.

Damage to the heart's electrical system causes AFib. The damage most often is the result of other conditions that affect the health of the heart, such as high blood pressure and coronary heart disease.

The risk of AFib increases as you age. Inflammation also is thought to play a role.

Sometimes, the cause of AFib is unknown.

Who Is at Risk for Atrial Fibrillation?

Atrial fibrillation affects millions of people, and the number is rising. Men are more likely than women to have the condition. In the United States, AFib is more common among Whites than African Americans or Hispanic Americans.

The risk of AFib increases as you age. This is mostly because your risk for heart disease and other conditions that can cause AFib also increases as you age. However, about half of the people who have AFib are younger than 75.

AFib is uncommon in children.

Major Risk Factors

AFib is more common in people who have:

- high blood pressure
- coronary heart disease (CHD)
- heart failure
- rheumatic heart disease
- structural heart defects, such as mitral valve prolapse
- pericarditis: a condition in which the membrane, or sac, around your heart is inflamed
- some congenital heart defects
- sick sinus syndrome (a condition in which the heart's electrical signals don't fire properly and the heart rate slows down; sometimes the heart will switch back and forth between a slow rate and a fast rate)

AFib also is more common in people who are having heart attacks or who have just had surgery.

What Are the Signs and Symptoms of Atrial Fibrillation?

Atrial fibrillation usually causes the heart's lower chambers, the ventricles, to contract faster than normal.

When this happens, the ventricles can't completely fill with blood. Thus, they may not be able to pump enough blood to the lungs and body. This can lead to signs and symptoms, such as:

- palpitations (feelings that your heart is skipping a beat, fluttering, or beating too hard or fast)
- shortness of breath
- weakness or problems while exercising
- chest pain
- dizziness or fainting
- fatigue (tiredness)
- confusion

Atrial Fibrillation Complications

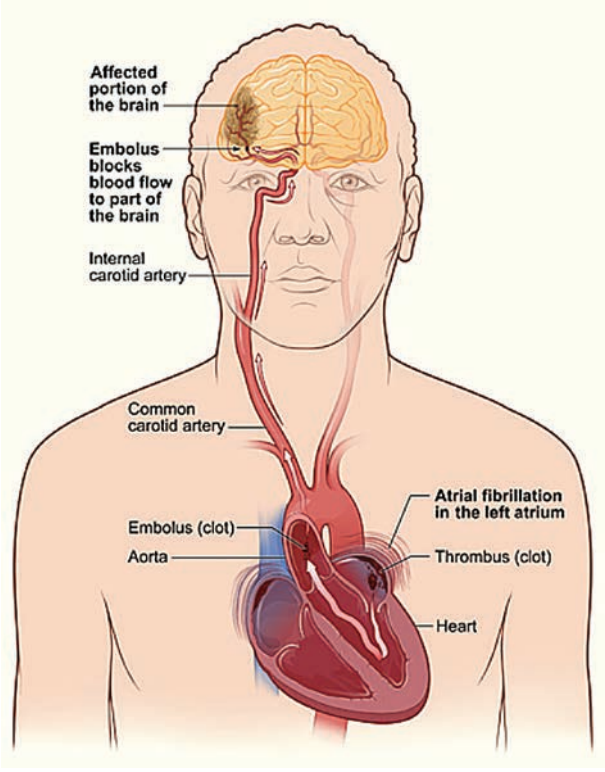
AFib has two major complications—stroke and heart failure.

Stroke

During AFib, the heart's upper chambers, the atria, don't pump all of their blood to the ventricles. Some blood pools in the atria. When this happens, a blood clot (also called a thrombus) can form.

If the clot breaks off and travels to the brain, it can cause a stroke. (A clot that forms in one part of the body and travels in the bloodstream to another part of the body is called an embolus.)

Blood-thinning medicines that reduce the risk of stroke are an important part of treatment for people who have AFib.



Atrial Fibrillation and Stroke

This illustration shows how a stroke can occur with atrial fibrillation. A blood clot (thrombus) can form in the left atrium of the heart. If a piece of the clot breaks off and travels to an artery in the brain, it can block blood flow through the artery. The lack of blood flow to the portion of the brain fed by the artery causes a stroke.

Heart Failure

Heart failure occurs if the heart can't pump enough blood to meet the body's needs. AFib can lead to heart failure because the ventricles are beating fast and can't completely fill with blood and empty during each beat. Thus, the heart's ventricles may not be able to pump enough blood to the lungs and body.

Fatigue and shortness of breath are common symptoms of heart failure. A buildup of fluid in the lungs causes these symptoms. Fluid also can build up in the feet, ankles, and legs, causing weight gain.

Lifestyle changes, medicines, and procedures or surgery (rarely, a mechanical heart pump or heart transplant) are the main treatments for heart failure.

Clinical Trials

The National Heart, Lung, and Blood Institute (NHLBI) is strongly committed to supporting research aimed at preventing and treating heart, lung, and blood diseases and conditions and sleep disorders.

NHLBI-supported research has led to many advances in medical knowledge and care. However, many questions remain about various diseases and conditions, including atrial fibrillation.

The NHLBI continues to support research aimed at learning more about AFib. For example, NHLBI-supported research on AFib includes studies that explore:

- ways to improve catheter ablation procedures in people who have AFib
- whether fish oil supplements can lower the risk of repeat episodes of AFib
- whether genetic factors can help determine the best dosing strategies for warfarin, a blood-thinning medicine
- ways to predict the risk of complications, such as stroke, for people with AFib
- whether an implantable cardiac monitor provides the ability to remotely and continuously evaluate a person for repeat episodes of AFib
- the effectiveness of a new drug therapy for people with AFib who must stop taking their blood thinning drug prior to surgery

This research very much depends on the willingness of volunteers to take part in clinical trials to determine the effectiveness of new ways to prevent, diagnose, or treat AFib and other diseases and conditions.

For more information about clinical trials related to AFib, talk with your doctor. You also can visit the following Web sites to learn more about clinical research and to search for clinical trials:

- http://clinicalresearch.nih.gov
- www.clinicaltrials.gov
- www.nhlbi.nih.gov/studies/index.htm
- www.researchmatch.org

Diagnosis

Physical Exam

Your doctor will do a complete cardiac exam. He or she will record the rate and rhythm of your heartbeat and take your pulse and blood pressure reading. Your doctor will likely check for any signs of heart muscle or heart valve problems. He or she will listen to your lungs to check for signs of heart failure.

Your doctor also will check for swelling in your legs or feet and may look for an enlarged thyroid gland or other signs of hyperthyroidism (too much thyroid hormone).

Tests and Procedures

EKG—An EKG is a simple, painless test that records the heart's electrical activity. It's the most useful test for diagnosing AFib.

An EKG shows how fast different regions of your heart are beating and the heart's rhythm (steady or irregular). It also records the strength and timing of electrical signals as they pass through your heart.

The two most common types of portable EKGs for long-term recording are Holter and event monitors.

Holter and Event Monitors—A Holter monitor records the heart's electrical activity for a full 24- or 48-hour period. You wear small patches called electrodes on your chest. Wires connect these patches to a small, portable recorder. The recorder can be clipped to a belt, kept in a pocket, or hung around your neck.

An event monitor is similar to a Holter monitor. You wear an event monitor while doing your normal activities. However, an event monitor only records your heart's electrical activity at certain times while you're wearing it.

Stress Test—Some heart problems are easier to diagnose when your heart is working hard and beating fast. During stress testing, you exercise to make your heart work hard and beat faster while heart tests are done. If you can't exercise, you may instead be given medicine to make your heart work hard and beat fast.

Echocardiography—Echocardiography (echo) uses sound waves to create a moving picture of your heart. The test shows the size and shape of your heart and how well your heart chambers and valves are working together to pump blood to your lungs and body.

Transesophageal Echocardiography—Transesophageal echo, or TEE, uses sound waves to take pictures of your heart through your esophagus (the passage leading from your mouth to your stomach).

Your heart's upper chambers, the atria, are deep in your chest. They often can't be seen very well using transthoracic echo. Your doctor can see the atria better using TEE.

TEE is used to detect blood clots that may be forming in the atria because of AFib.

Chest X-Ray—A chest X-ray is a painless test that creates pictures of the structures in your chest, such as your heart and lungs. This test can show fluid buildup in the lungs and signs of other AFib complications.

Blood Tests—Blood tests check the level of thyroid hormone in your body and the balance of your body's electrolytes. Electrolytes are minerals that help maintain fluid levels and acid-base balance in the body. They're essential for normal health and functioning of your body's cells and organs.

Treatment

Treatment for atrial fibrillation depends on how often you have symptoms, how severe they are, and whether you have other forms of heart disease. General treatment options include medicines, medical procedures, and lifestyle changes.

Blood Clot Prevention

People who have AFib are at increased risk for stroke. This is because blood can pool in the heart's upper chambers (the atria), causing a blood clot to form. If the clot breaks off and travels to the brain, it can cause a stroke.

Preventing blood clots from forming is an important part of treating AFib and preventing strokes. The benefits of this type of treatment have been proven in multiple studies.

Doctors prescribe blood-thinning medicines to prevent blood clots. These medicines include warfarin (Coumadin®), dabigatran, heparin, apixaban, rivaroxiban, and aspirin.

People taking warfarin and heparin need regular blood tests to check how well the medicines are working.

Rate Control

Doctors can prescribe medicines to slow down the rate at which the ventricles are beating in people with AFib. These medicines help bring the heart rate to a normal level.

Rate control is the recommended treatment for most patients who have AFib, even though an abnormal heart rhythm may continue and the heart doesn't work as well as it should. Most people feel better and can function well if their heart rates are well controlled.

Medicines used to control the heart rate include beta blockers (for example, esmolol, propranolol, metoprolol, and atenolol), calcium channel blockers (diltiazem and verapamil), and digitalis (digoxin). Several other medicines also are available.

Rhythm Control

Restoring and maintaining a normal heart rhythm is a treatment approach recommended for people who aren't doing well with rate control treatment. This treatment also may be used for people who have only recently started having AFib. The long-term benefits of rhythm control have not been proven conclusively yet.

The longer you have AFib, the less likely it is that doctors can restore a normal heart rhythm. This is especially true for people who have had AFib for 6 months or more.

Medicines

Medicines used to control the heart rhythm include amiodarone, sotalol, flecainide, propafenone, dofetilide, and ibutilide. Sometimes other medicines—such as quinidine, procainamide, and disopyramide—are used.

Your doctor will carefully tailor the dose and type of medicines he or she prescribes to treat your AFib. This is because medicines used to treat AF can cause a different kind of arrhythmia.

Procedures

Doctors use several procedures to restore a normal heart rhythm. For example, they may use electrical cardioversion to treat a fast or irregular heartbeat. For this procedure, external low-energy electrical shocks are given to your heart to trigger a normal rhythm. You're temporarily put to sleep before you receive the shocks.

Catheter ablation may be used to restore a normal heart rhythm if medicines or electrical cardioversion don't work. For this procedure, a wire is inserted through a vein in the leg or arm and threaded to the heart.

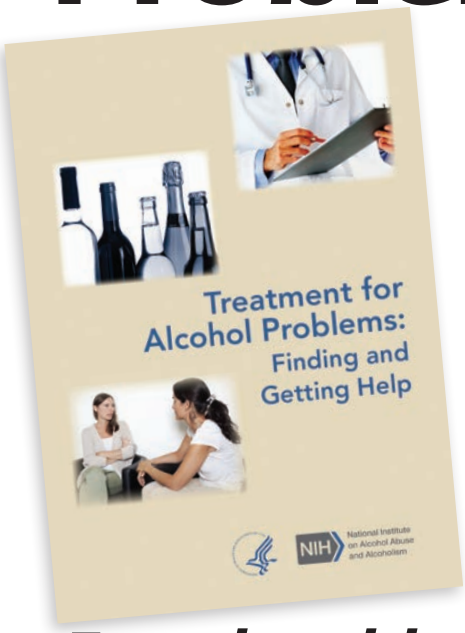
Radio wave energy is then sent through the wire to destroy abnormal tissue that may be disrupting the normal flow of electrical signals. An electrophysiologist usually does this procedure in a hospital. Your doctor may recommend a TEE before catheter ablation to check for blood clots in the atria.

Sometimes doctors use catheter ablation to destroy the atrioventricular (AV) node. The AV node is where the heart's electrical signals pass from the atria to the ventricles (the heart's lower chambers). This procedure requires your doctor to surgically implant a device called a pacemaker, which helps maintain a normal heart rhythm.

To Find Out More

- ✔ MedlinePlus: medlineplus.gov. Type "afib" in the search box.
- ✔ National Heart, Lung, and Blood Institute: Under the Public tab, click on Health Topics.
- ✔ Heart Rhythm Society: www.hrsonline.org.
- ✔ American Heart Association: www.heart.org.
- ✔ American Stroke Association: www.strokeassociation.org
- ✔ National Stroke Association: www.strokes.org.

Treating Alcohol Problems



◀The new publication, *Treatment for Alcohol Problems: Finding and Getting Help*, complements the information in NIAAA's Rethinking Drinking, an easy-to-use website and publication.

Free booklet offers treatment options

A new resource from NIH's National Institute on Alcohol Abuse and Alcoholism (NIAAA),*Treatment for Alcohol Problems: Finding and Getting Help*, will help individuals and families understand available treatment options for alcohol problems.

"The popular concept of alcohol treatment is often limited to knowledge of few, if any, programs," says NIAAA Director George Koob, PhD Dr. Koob is an internationally recognized expert on alcohol and stress, and the neurobiology of alcohol and drug addiction. "There are diverse treatment options of which people may be less aware, many of which can be undertaken with minimal disruption to home and work life."

"A greater understanding of these options represents a contemporary approach to this problem and an important step toward improving the way we treat alcohol use disorders," adds Robert Huebner, Ph.D., Acting Director of NIAAA's Division of Treatment and Recovery Research.

This new publication is a key part of NIAAA's efforts to reach out to the general public with information about the varied approaches to treating alcohol addiction. The topics covered include the latest research-based treatments and what to consider when choosing among them.

Rethinking Drinking

The new publication, ***Treatment for Alcohol Problems: Finding and Getting Help,*** complements NIAAA's Rethinking Drinking products, an easy-to-use website and publication.

Rethinking Drinking helps you analyze your own drinking and offers the latest research-based information on the most effective ways to cut down, if necessary. Why not take a look now at your drinking habits and how they may affect your health? Rethinking Drinking can help you get started.

www.RethinkingDrinking.niaa.nih.gov

▶ George Koob, PhD, is Director of the National Institute of Alcohol Abuse and Alcoholism (NIAAA).

Q&A with Dr. Koob about *Treatment for Alcohol Problems*

What is the primary goal that you want to achieve with this new publication?

Our primary goal is to help individuals and families understand that there are diverse treatment options for alcohol problems and that integrating different types of treatments can—and should—become the norm for people who need them.

Is the historical stigma of addiction diminishing as alcohol research teaches us more about its chemical and genetic foundations?

We would certainly hope so. However, stigma remains a significant problem for people addicted to alcohol and other substances, and a major obstacle to seeking treatment. We believe that stigma will continue to diminish as more and more people see the benefit of treatment for alcohol problems.

What are the major reasons that many people don't know about FDA-approved medications that can help curb alcohol problems?

It may be because medications are still a relatively recent addition to alcohol treatment modalities, "competing" against more well-known options. Even many treatment providers are unaware of the various medications that have become available for treating alcohol problems.

What does the future of alcohol abuse research hold?

The future holds promise for a substantially reduced public health burden of alcohol misuse to our society, through carefully targeted therapies, such as traditional counseling as well as medicines that can help fight alcohol addiction. Ideally in the future, health professionals would be able to identify which treatment will be most effective for each person based on genetics and other factors.

On the research side, NIAAA will continue to study the underlying causes of alcoholism in the brain and body, and we are confident that we will develop additional medications and therapies as a result of these efforts.

Fast**Facts**

- ✔ An estimated 17 million Americans currently have alcohol problems, clinically diagnosed as an "alcohol use disorder" (AUD).
- ✔ About 1.4 million adults received treatment for an AUD at a specialized facility in 2012 (8.4 percent of adults in need).
- ✔ Nearly 88,000 people (approximately 62,000 men and 26,000 women) die from alcohol related causes annually, making it the third leading preventable cause of death in the United States.
- ✔ In 2006, alcohol misuse problems cost the United States $223.5 billion. Alcohol contributes to over 200 diseases and injury-related health conditions, most notably alcohol dependence, liver cirrhosis, cancers, and injuries. In 2012, alcohol accounted for 5.1 percent of disability-adjusted life years (DALYs) worldwide.

To Find Out More

- ✔ *Treatment for Alcohol Problems: Finding and Getting Help* PDF for download at http://pubs.niaaa.nih.gov/publications/Treatment/treatment.pdf
  To receive hard copies, call 1-888-MY-NIAAA (888-696-4222) or go to http://pubs.niaaa.nih.gov/publications/english-order.htm
- ✔ To receive hard copies, call 1-888-MY-NIAAA (888-696-4222) or go to http://pubs.niaaa.nih.gov/publications/english-order.htm
- ✔ Rethinking Drinking: Interactive website and downloadable PDF of the Rethinking Drinking booklet: http://rethinkingdrinking.niaaa.nih.gov/

NIH researchers report promising results in prevention and treatment of Ebola virus disease

◀ (from left) NIH Director Dr. Francis Collins, NIAID Director Dr. Anthony Fauci, and NIH Clinical Center Director Dr. John Gallin exit the Clinical Center with recently discharged Ebola patient Nina Pham (next to Dr. Fauci).

▼In early December, Dr. Nancy Sullivan of NIAID discussed Ebola research with President Barack Obama, as NIAID Director Dr. Anthony Fauci and HHS Secretary Sylvia Burwell look on at NIH's Vaccine Research Center in Bethesda, Maryland.

NIH's National Institute of Allergy and Infectious Diseases (NIAID) and the Pharmaceuticals division of GlaxoSmithKline (GSK), a global healthcare company, have developed a promising experimental vaccine to prevent Ebola virus disease. Twenty healthy adult volunteers took part in a small phase 1 clinical trial of the vaccine. Researchers say the vaccine was well-tolerated, and produced immune responses in all 20 people. The experimental vaccine is not made from the whole Ebola virus, so it cannot cause Ebola virus disease. The findings are published in the ***New England Journal of Medicine.***

"The unprecedented scale of the current Ebola outbreak in West Africa has intensified efforts to develop safe and effective vaccines, which may play a role in bringing this epidemic to an end and undoubtedly will be critically important in preventing future large outbreaks," said NIAID Director Anthony S. Fauci, MD. "Based on these positive results from the first human trial of this candidate vaccine, we are continuing our accelerated plan for larger trials to determine if the vaccine is efficacious in preventing Ebola infection."

The experimental vaccine was tested at the NIH Clinical Center, the nation's research hospital located on the NIH campus in Bethesda, Maryland. That is the same facility where Texas nurse Nina Pham was successfully treated for Ebola virus disease in October.

"We like to think of the National Institutes of Health as also the National Institutes of Hope," said NIH Director Francis S. Collins, MD, PhD, at a press conference the day of Ms. Pham's release. "And hope just went up a notch today."

Two months later, in December, President Barack Obama visited the NIH campus to see the progress being made in Ebola research. The President toured NIH's Vaccine Research Center and met with scientists working to develop ways to prevent Ebola virus disease.

The President's visit took place just days after NIH researchers reported the promising results from the initial tests of the experimental vaccine.

Find Out More

- ✔ NLM Information Resources for the 2014 Ebola Outbreak
  www.nlm.nih.gov/news/ebola_resources_2014.html
- ✔ NIH news release on vaccine
  www.nih.gov/news/health/nov2014/niaid-28.htm
- ✔ NIH Clinical Center
  http://clinicalcenter.nih.gov
- ✔ Dr. Francis Collins' blog about President Obama's NIH visit
  http://directorsblog.nih.gov/2014/12/02/presidents-visit-to-nih-highlights-research-on-ebola/

Info to Know

NIH Quickfinder

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

Institutes

- **National Library of Medicine (NLM)**
  www.nlm.nih.gov
  1-888-FIND-NLM (1-888-346-3656)
- **National Cancer Institute (NCI)**
  www.cancer.gov
  1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)**
  www.nei.nih.gov | (301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**
  www.nhlbi.nih.gov | (301) 592-8573
- **National Human Genome Research Institute (NHGRI)**
  www.genome.gov | (301) 402-0911
- **National Institute on Aging (NIA)**
  www.nia.nih.gov
  Aging information 1-800-222-2225
  Alzheimer's information 1-800-438-4380
- **National Institute on Alcohol Abuse and Alcoholism (NIAAA)**
  www.niaaa.nih.gov | (301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)**
  www.niaid.nih.gov | (301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases**
  www.niams.nih.gov
  1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biomedical Imaging and Bioengineering (NIBIB)**
  www.nibib.nih.gov | (301) 451-6772
- ***Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)**
  www.nichd.nih.gov | 1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**
  www.nidcd.nih.gov
  1-800-241-1044 (voice)
  1-800-241-1055 (TTY)
- **National Institute of Dental and Craniofacial Research (NIDCR)**
  www.nidcr.nih.gov | (301) 480-4098
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)**
  www.niddk.nih.gov
  Diabetes 1-800-860-8747
  Digestive disorders 1-800-891-5389
  Overweight and obesity
  1-877-946-4627
  Kidney and urologic diseases
  1-800-891-5390
- **National Institute on Drug Abuse (NIDA)**
  www.nida.nih.gov | (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)**
  www.niehs.nih.gov | (919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)**
  www.nigms.nih.gov | (301) 496-7301
- **National Institute of Mental Health (NIMH)**
  www.nimh.nih.gov | 1-866-615-6464
- **National Institute on Minority Health and Health Disparities (NIMHD)**
  www.nimhd.nih.gov | (301) 402-1366
- **National Institute of Neurological Disorders and Stroke (NINDS)**
  www.ninds.nih.gov | 1-800-352-9424
- **National Institute of Nursing Research (NINR)**
  www.ninr.nih.gov | (301) 496-0207

Centers & Offices

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

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