THE NIH

Word on Health

Consumer Health Information Based on Research from the National Institutes of Health

August 2003

Prehypertension

New Category in Blood Pressure Guidelines

By Carla Garnett

The advice for keeping a healthy blood pressure has long been to exercise, lose weight, eat healthy foods and cut back on salt. But what doctors consider to be a healthy range for blood pressure has now changed significantly, according to an expert panel assembled by NIH's National Heart, Lung, and Blood Institute (NHLBI). A review of the latest evidence led the panel to establish a new category, "prehypertension", to warn people whose blood pressure readings place them at higher risk for serious health problems. That's why it's more important than ever for people to have their blood pressure taken regularly and to understand the reading.

"The first step in preventing and/or controlling high blood pressure is to know your blood pressure reading in numbers, not just in words," says Dr. Ed Roccella, coordinator of the National High Blood Pressure Education Program, a component of NHLBI. Knowing your numbers will help you assess what you need to do to lower your risk of developing future health problems. Dr. Roccella explains, "People must be aware that an elevated or rising blood pressure number is cause for action."

Reading the Numbers

Blood pressure readings are given in two numbers—"systolic" over "diastolic". Systolic pressure, the top number in a blood pressure reading, is the force of blood in the arteries as the heart beats. Diastolic pressure, the bottom number, is the force of blood in the arteries as the heart relaxes between beats. Both numbers are important to help your doctor determine your risk of health problems.

People with blood pressure 140/90 and over are said to have high blood pressure, or hypertension. Before now, most people with blood pressure readings lower than 140/90 were considered to be in the normal blood pressure range. However, in an extensive review of more than 30 medical studies worldwide during the last 6 years, a scientific panel learned a lot more about the risks associated with rising blood pressure.

The panel found that problems in the cardiovascular system, (the heart and blood vessel system that carries blood throughout the body) can begin at much lower blood pressure levels than previously believed. Studies have shown that the risk of death from heart disease or stroke can begin to rise when blood pressures increase past 115/75. In addition to heart attack and stroke, elevated blood pressure can lead to several other serious health conditions, including kidney disease. And the damage only gets worse as people age and their rising blood pressure becomes more difficult to treat.

That's why the panel developed a new range—called "prehypertension"—for blood pressure readings between 120/80 and 139/89. People who have readings in this range are now encouraged to adopt lifestyle changes to help lower their blood pressure and hopefully prevent hypertension.

Changing Your Lifestyle

The main goal of establishing the new prehypertension category, Dr. Roccella says, is to alert people and their doctors that early action can prevent serious health consequences later.

According to the panel's report, 122 million people

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Inside Word

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in the United States are overweight or obese, which adds to the rise in blood pressure. Changing the way you eat and getting more exercise can make a big difference.

You can start by cutting back on the amount of sodium in your diet. That means not only resisting the salt shaker, but also reading food labels more carefully when shopping; many canned and packaged foods contain a lot of sodium.

Use the Dietary Approaches to Stop Hypertension (DASH) eating plan as a guide. DASH encourages you to eat more fresh fruits, vegetables and low fat dairy products, and to limit saturated fat and salt. The DASH eating plan can help you lose weight and maintain a healthier body. In fact, according to the report, sticking to the DASH eating plan can be as effective as some medications in lowering your blood pressure.

Reducing the amount of alcohol you drink is another good way to help lose weight and lower blood pressure. Yet another proven way to help lower your risk of hypertension is increasing your daily exercise.

If you already have high blood pressure, your doctor may prescribe medications to help control it. But even if you take medication regularly, the changes you make in your eating habits and exercise regimen can work with your medicine to help you maintain a healthy blood pressure.

Dr. Roccella says, "People with hypertension can work with their doctors to select an appropriate regimen of lifestyle changes and medications to control their high blood pressure."

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NIH's own scientists, and scientists working with support from NIH grants and contracts, have made countless medical advances in the last century. More than 100 of these scientists have received Nobel Prizes in recognition of their achievements.

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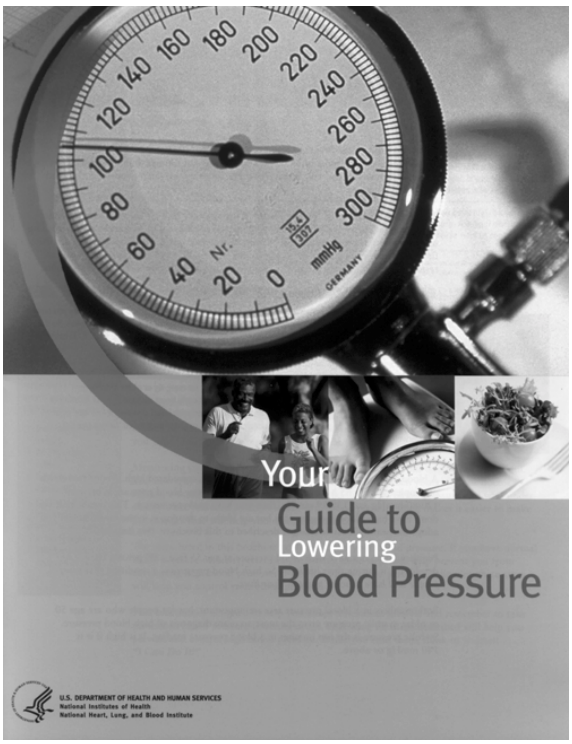
The Silent Killer

High blood pressure usually doesn't cause symptoms, so many people pay little attention to their blood pressure until they become seriously ill. It's important to know your blood pressure numbers so that you can take action to keep your numbers in a safer range.

"Changing one's lifestyle—such as losing weight if overweight, increasing physical activity and reducing salt intake—can prevent the progressive rise in blood pressure and even lower it," Dr. Roccella concludes. "Raising awareness among patients and the public is a key step to prevent and control high blood pressure, an important public health problem."◆

—a report from *The NIH Word on Health*, August 2003

For more information about hypertension, understanding your blood pressure readings or about health problems related to high blood pressure, visit *Your Guide to Lowering High Blood Pressure* , a web page updated regularly by NHLBI's National High Blood Pressure Education Program, at http://www.nhlbi.nih.gov/hbp/index.html.



For information about the DASH eating plan, visit http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf.

You can call the NHLBI Health Information Center for these and other publications at 301-592-8573 or 240-629-3255 (TTY).

A Word to the Wise...

Prevent High Blood Pressure

High blood pressure (also known as "hypertension") can almost always be prevented, according to NIH's National Heart, Lung, and Blood Institute (NHLBI). The following steps are important even if you do not have high blood pressure:

- Maintain a healthy weight.
- Be physically active.
- Follow a healthy eating plan.
- Eat foods with less sodium (salt).
- Drink alcohol only in moderation.
- Take prescribed drugs as directed.

Cancer: Ounce of Prevention Worth a Pound of Cure

by Carol E. Torgan, Ph.D.

Cancer—just hearing the word can make you anxious. Chances are you know someone with it, and worry about getting it. The statistics are frightening; one of every four deaths in the United States is due to cancer, and this year more than 1,500 people will die from it each *day*.

However, about a third of these deaths will be due to cigarette smoking. Another third will be related to lifestyle factors such as nutrition, physical activity, and obesity. Added together, the numbers reveal a clear message: By making simple changes in some of your daily habits, you can greatly reduce the odds of being among the grim statistics.

What Causes Cancer

Changes in genes that control cell growth and death are the underlying causes of cancer. Genes, the basic physical and functional units of heredity, are specific pieces of DNA that contain information to make proteins. A misspelling (or mutation) in certain genes

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can increase the risk of getting some cancers. Our bodies have a repair system that normally recognizes damaged DNA and fixes it, like an automatic spell-checker. However, some DNA misspellings can go uncorrected and, as mutations accumulate, the chance of a cell losing control of its growth goes up.

Cells are the building blocks of the body, and the majority of cells continually divide and grow—which is, for example, why you need to trim your toenails and cut your hair. When you break a bone or cut yourself, new cells are made to heal the fracture or wound. However, if new cells are made when they aren't needed, or old cells don't die when they should, the result could be cancer. The extra cells can form a mass, called a growth or tumor. Tumors can secrete chemicals that interfere with other processes in the body and destroy normal tissues.

In benign tumors, the cells don't spread; often the tumor is removed, and it's not considered cancer. In malignant tumors, the abnormal cells divide and multiply like rabbits. They can invade surrounding tissues and travel to other parts of the body to form new tumors. This process, termed metastasis, usually occurs over many years.

Cancer can run in a family when an abnormal gene is passed from one generation to the next. But having a family history of cancer (for example, an aunt and sister that have been diagnosed with breast cancer) doesn't necessarily mean you're next in line to get it. It's just one factor that can interact with others such as age and lifestyle habits to influence your likelihood of getting it.

While the link between genetics and cancer has received a lot of attention, it's important to remember that only about 5-10% of cancers are inherited. It's the interaction of genes with the environment and lifestyle that typically causes cancer to develop. You have the power to alter your risk of getting cancer by the lifestyle choices you make.

Increasing Your Cancer Risk

If you'd like to increase your odds of getting cancer, sit in the sun and puff on a cigarette while sipping cocktails.

Sun exposure is a major risk factor for skin cancer, which is the most commonly occurring cancer in the U.S. Sitting in the sun subjects you to ultraviolet (UV) radiation, which can cause DNA damage to the cells in your skin and lead to cancer. To reduce UV exposure, wear protective clothing (long sleeves, long pants, a wide-brimmed hat, sunglasses with UV-absorbing lenses), use sunscreen, try to avoid exposure to the midday sun (10 am to 4 pm), and don't use tanning booths or sunlamps, which also expose you to UV radiation.

A Word to the Wise...

Ten steps you can take to reduce your risk of getting cancer

- Don't use tobacco products (cigarettes, cigars, pipes, chew)
- Don't use sunlamps or tanning beds
- Don't consume excessive alcohol
- Do limit exposure to second-hand smoke
- Do protect yourself from the sun
- Do eat 5-9 servings of fruits and vegetables a day
- Do choose foods with less fat and more fiber
- Do watch your weight
- Do exercise regularly
- Do visit your doctor for regular checkups and screenings

Cigarettes, chewing tobacco, snuff and cigars contain dozens of chemicals called carcinogens that can cause genetic damage to cells and interfere with normal cell development and growth, leading to cancer. To avoid this risk, avoid tobacco products, including exposure to second hand smoke.

Heavy alcohol consumption has also been linked to a number of cancers. Alcohol can impair a cell's ability to repair DNA, and can enhance the carcinogenic effects of other chemicals. Alcoholism may suppress the immune system, which attacks and eliminates abnormal cells. If you drink, limit your intake to no more than two drinks per day for men and one drink per day for women. A drink is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80 proof distilled spirits.

Decreasing Your Cancer Risk

Exciting new findings are shedding light on many lifestyle habits you can adopt to help protect against cancer. Researchers are discovering that being physically active can help you reduce the risk of getting a number of different cancers. Regular exercise helps control levels of various chemicals such as growth factors and hormones that encourage cancer. It can boost the immune system, and it can help you maintain body weight, which is important since obesity is an important risk factor for cancer.

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"Maintaining a healthy weight and avoiding weight gain during adult life, a very common occurrence in the US, may reduce risk for a number of cancers," according to Dr. Rachel Ballard-Barbash of NIH's National Cancer Institute (NCI). "Research suggests that avoiding excess weight may reduce cancer mortality in the population by 14% in men and 20% in women, and have an even greater benefit in reducing the initial occurrence of cancer."

General recommendations for overall health are to strive for at least thirty minutes of moderate activity most days of the week. Emerging evidence suggests that up to an hour a day of physical activity may be needed to control obesity and some types of cancer. The activities should be vigorous enough to raise your heart rate, and may cause sweating. Exercises such as brisk walking, swimming, yoga, bicycling or dancing are all good choices. Routine activities such as taking the stairs, pushing a stroller, washing a car, and cleaning windows are beneficial as well.

In addition to exercise, one of the best things you can do to reduce your cancer risk is eat plenty of fruits and vegetables. They contain phytochemicals with names like lycopenes, flavanoids, and zeaxanthins, that may decrease cancer risk by protecting DNA from being damaged. The phytochemicals come conveniently packaged alongside vitamins and minerals to provide a one-stop buffet of cancer-fighters. Since many of the chemicals work best in combination, they offer an advantage you can't get in many supplements. "In fact," Dr. Ballard-Barbash says, "recent reviews have found no evidence of any benefit for cancer or heart disease prevention for several types of vitamin supplements."

Eating lots of fruits and vegetables not only decreases your risk of some cancers, but also heart disease, diabetes, and hypertension. View the vegetable crisper in your refrigerator as a medicine cabinet full of disease fighting, age-defying nutrients.

It's Not That Hard

Unfortunately, many of us don't follow our mother's advice to eat our veggies. This holds especially true for men, who typically eat only about four servings of fruits and vegetables a day. While the old 'strive for five' adage still applies, it's now recommended that women try to aim for seven servings and teenage boys and men shoot for nine servings of fruits and vegetables.

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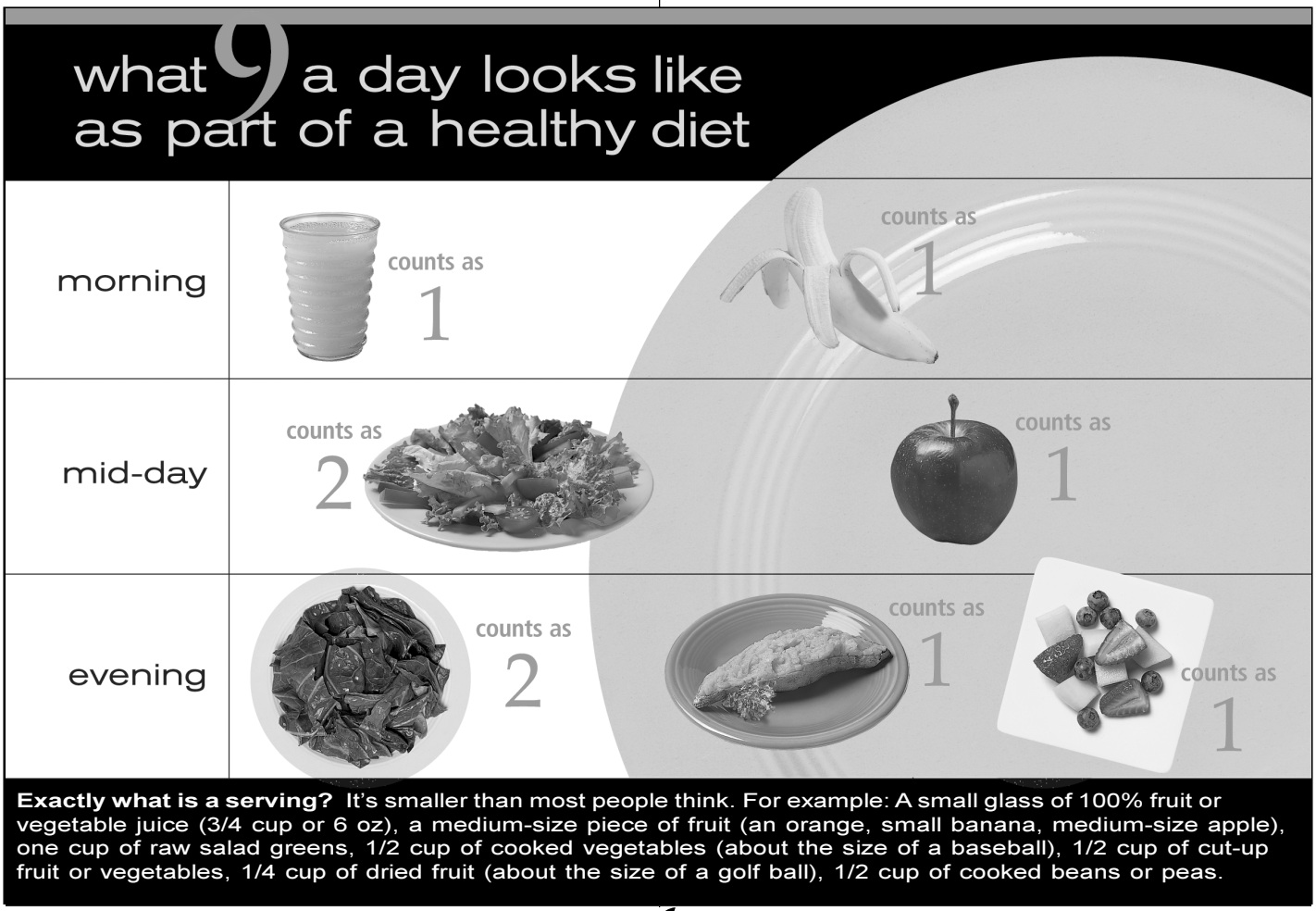

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These numbers can seem daunting, but it's actually easy to accomplish (see picture). What you may consider a 'portion' most likely counts for at least two servings, according to Valerie Green, nutrition program manager for the NCI's *5 A Day for Better Health* program. She suggests stocking up on frozen vegetables and then simply adding them to dishes such as pastas and soups. She further advises that frozen, as well as canned, fruits and vegetables won't go bad, and can actually be as nutritious as fresh foods.

The thought of getting cancer is scary. While you can't influence your genetics by choosing your parents, you can greatly influence your risk of developing cancer by some of the simple lifestyle choices you make. The bottom line is that cancer is not inevitable for most of us.◆

—a report from *The NIH Word on Health*, August 2003

For more information about the *5 A Day* program, visit http://www.5aday.gov/index-quick.shtml. For more information about the *9 A Day* program for men, visit http://5aday.gov/9aday/index.html.

The National Cancer Institute offers numerous free booklets on cancer, including information on genetic testing and diet. To get a free copy of any of these materials, go to https://cissecure.nci.nih.gov/ncipubs/ or call 1-800-4-CANCER (1800-422-6237).

Test Your Baby's Hearing

Early Detection Important for Speech and Language Development

Most children hear and listen from birth. But that's not true for all children. In fact, about two or three out of every 1,000 children in the United States are born deaf or hard-of-hearing. More lose their hearing later during childhood. Many of these children may need to learn speech and language differently, so it's important to detect deafness or hearing loss as soon as possible.

If you have a new baby, in addition to counting the number of fingers and toes it's also a good time to have his or her hearing screened, according to the experts at NIH's National Institute on Deafness and Other Communication Disorders (NIDCD).

How early should I have my baby's hearing screened?

Your baby should have a hearing screening within the first month of life. If hearing loss is suspected, make sure a hearing expert (called an audiologist) tests your baby's hearing by three months of age. If hearing loss is confirmed, it's important to consider the use of hearing devices and other communication options by six months of age.

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Asian American Health

http://asianamericanhealth.nlm.nih.gov

New Health Web Site for Asian Americans

Asian Americans are the fastest growing minority population in the United States—currently over 12 million—and are extremely diverse, coming from nearly 50 countries and ethnic groups. They are disproportionately affected by cardiovascular disease, cancer, hepatitis B, tuberculosis and other respiratory diseases.

A new web site sponsored by NIH's National Library of Medicine features links to consumer health information specific to Asian Americans, including some in Chinese and other Asian languages. It also offers census data on major Asian American populations, background on cultural traditions and heritage, links to health policy offices, online medical databases, publications and other organizations.

This new web site is the second in a series of special population sites, designed to increase public awareness of the health concerns of minority groups. Visit the *Asian American Health* web site at http://asianamericanhealth.nlm.nih.gov or contact: tehip@teh.nlm.nih.gov for more information.

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Where can my baby's hearing be screened?

Ask your doctor or hospital if they plan to do the test on your newborn. Many hospitals automatically screen all newborns for hearing loss. Some normally screen only those at high risk for hearing loss, such as babies with a family history of deafness or hearing problems, low birth weight, or certain other medical conditions. Even if your baby doesn't have risk factors, being screened is important, because many children with no risk factors have hearing loss.

How will my baby's hearing be screened?

Two hearing tests are used to screen babies. In both tests, no activity is required from your child other than lying still. **Otoacoustic emissions (OAE)** tests can show whether parts of the ear respond properly to sound. **Auditory brain stem response (ABR)** tests check how the brain stem (the part of the nerve that carries sound from the ear to the brain) and the brain respond to sound. If your child doesn't respond consistently to the sounds presented during either of these tests, your doctor may suggest a follow up hearing screening and a referral to an audiologist for a more comprehensive hearing evaluation.

How can I recognize hearing loss during early childhood?

Even though screening is designed to detect hearing loss as early as possible, some children don't develop hearing loss until later in life. Even if you've had your baby's hearing tested, you should look for signs that your baby is hearing well.

For example, during the first year, notice whether your baby reacts to loud noises, imitates sounds, and begins to respond to his or her name. At age two, ask yourself whether or not your toddler imitates simple words and enjoys games like peek-a-boo and pat-a-cake. Is he or she using two-word sentences to talk about and ask for things? At age three, notice whether or not he or she begins to understand "not now" and "no more" and follows simple directions. If for any reason you think your child is not hearing well, talk to your doctor.

Even if your baby doesn't have risk factors, being screened is important, because many children with no risk factors have hearing loss.

If my child has a hearing loss, can hearing be improved?

A variety of devices and strategies are helpful for children who are hard-of-hearing. An audiologist can help you to decide whether these or other devices can help your child:

Hearing aids are instruments that make sounds louder. They are worn in or behind the ear and come in several different shapes and sizes. Hearing aids can be used for varying degrees of hearing loss. An audiologist will fit a hearing aid that will work best for your child's hearing loss. Hearing aids can be expensive, so you'll want to find out whether they have a warranty or trial period. You'll also want to talk with your insurance provider to understand what is covered and what isn't.

Cochlear implants have three parts: a headpiece, a speech processor, and a receiver. The headpiece is worn just behind the ear where it picks up sound and sends it to the speech processor. The speech processor, a beeper-sized device that can fit in a pocket or on a belt, converts the sound into a special signal that is sent to the receiver. The receiver, a small round disc about the size of a quarter that a surgeon has placed under the skin behind one ear, sends a sound signal to the brain.

Not all children who have hearing loss should get cochlear implants. Doctors and hearing experts think they're best for children who have a profound hearing loss and won't benefit from hearing aids.

How can I help my child communicate?

There are a variety of ways to help children with hearing loss express themselves and interact with others. The option you choose will depend on how you want your child to learn and communicate. Find out about all of the choices and talk to lots of experts:

Oral/Auditory Options combine hearing, lip-reading, and hearing devices such as hearing aids and cochlear implants. The goals of oral/auditory options are to help children develop speech and English-language skills.

American Sign Language (ASL) is a visual language used by some deaf children and their families. ASL consists of hand signs, body movements, facial expressions, and gestures. It's a language with its own grammar and syntax, which are different from English. ASL has no written form.

Signed English is similar to ASL, using the same visual vocabulary of signs, but it adheres more strictly to the sentence structures of spoken and written English.

Cued Speech is a system that uses handshapes in different locations along with the natural mouth movements to represent speech sounds. Watching the mouth movements and the handshapes can help some children learn to speech-read English; this is especially

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important in discriminating between sounds that sound different but look the same on the lips.

Combined Options use portions of the various methods listed above. For example, some deaf children who use oral/auditory options also learn signed English. Children who use ASL also learn to read and write in English. Combined options can expose children who are deaf or hard of hearing to many different ways to communicate and express themselves.◆

—a report from *The NIH Word on Health*, August 2003

For more information if your baby has hearing problems, see *What to Do if Your Baby's Screening Reveals a Possible Hearing Problem* at http://www.nidcd.nih.gov/health/hearing/baby_screening.asp.

For additional information on speech and language development, communication options, cochlear implants, hearing aids, ASL, and other topics, visit NIDCD at http://www.nidcd.nih.gov/, send e-mail to nidcdinfo@nidcd.nih.gov or contact:

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Healthy Heart Handbook for Women

The Path to a Healthy Heart

By Jan Ehrman

What factors increase a woman's risk of heart disease? What tests do women need to find out if they have heart disease? How can women better talk with their doctor about heart disease? What do they need to know about postmenopausal hormone therapy? What's a heart-healthy eating plan?

The answers to these and many other questions can be found in the newly updated edition of *The Healthy Heart Handbook for Women*. Published by NIH's National Heart, Lung, and Blood Institute (NHLBI), the popular handbook has 100-plus pages packed with the latest information about heart disease and its risk factors, as well as "action steps" women can take to protect their heart. It tells how to eat for heart health, aim for a healthy weight, learn to become physically active, kick the smoking habit, and even prepare for a heart attack. Further, it includes personal stories from women who have had a heart attack or changed their lives to lower their risk of heart disease.

As the handbook notes, most American women aren't aware of the health threat posed by heart disease. It's the #1 killer of American women—1 in 2 women in the United States will die of heart disease or stroke. By comparison, 1 in 30 American women will die of breast cancer.

The Healthy Heart Handbook for Women offers women an easy-to-use, one-stop source for the latest information about how to lower their risk of heart disease. Often, all it takes are some lifestyle changes.

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WHAT'S *your* RISK?

Here is a quick quiz to find out your risk of a heart attack. If you don't know some of the answers, check with your health care provider.

	Yes	No	Don't Know
Do you smoke?			
Is your blood pressure 140/90 mmHg or higher, OR have you been told by your doctor that your blood pressure is too high?			
Has your doctor told you that your total cholesterol level is 200 mg/dL or higher, OR your HDL (good cholesterol) is less than 40 mg/dL?			
Has your father or brother had a heart attack before age 55, OR has your mother or sister had one before age 65?			
Do you have diabetes OR a fasting blood sugar of 126 mg/dL or higher, OR do you need medicine to control your blood sugar?			
Are you over 55 years old?			
Do you have a body mass index (BMI) score of 25 or more? (To find out, see page 35.)			
Do you get less than a total of 30 minutes of physical activity on most days?			
Has a doctor told you that you have angina (chest pains), OR have you had a heart attack?			

If you answered "yes" to any of these boxes, you're at an increased risk of having a heart attack. Talk to your doctor about what you can do to lower your risk.

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So don't wait to check out the handbook and begin taking steps to keep your heart strong.◆
—a report from *The NIH Word on Health*, August 2003

To obtain *The Healthy Heart Handbook for Women*, visit www.nhlbi.nih.gov/health/public/heart/other/hhw/index.htm. Contact the NHLBI Health Information Center for this and other information on heart disease and its risk factors at:

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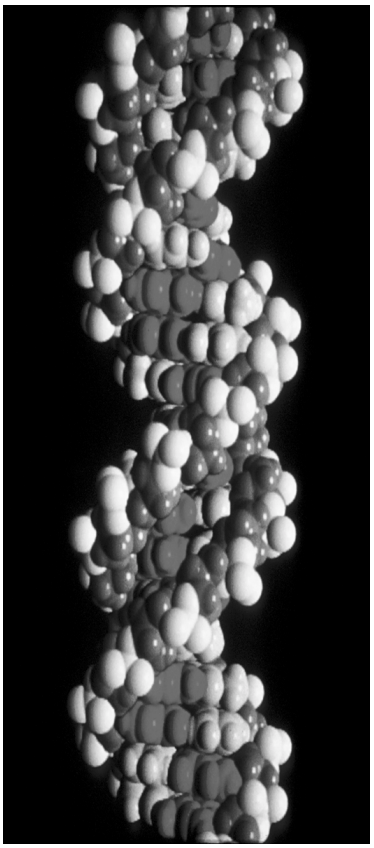
New Genetics Home Reference

New NIH Web Site Takes the Mystery Out of Genes, Chromosomes and DNA

by Melanie Modlin



What *is* a gene, exactly? And what's a chromosome? How does DNA come into this picture? And now that you're asking, how can it be that diseases like Alzheimer's and breast cancer are inherited in some cases, but not in all?

By now, most of us have heard and read about the mapping of the human genome—the "instructional manual," if you will, for a person. You probably have countless questions about the genome and other topics in genetics now that genes are making headlines on an almost daily basis.

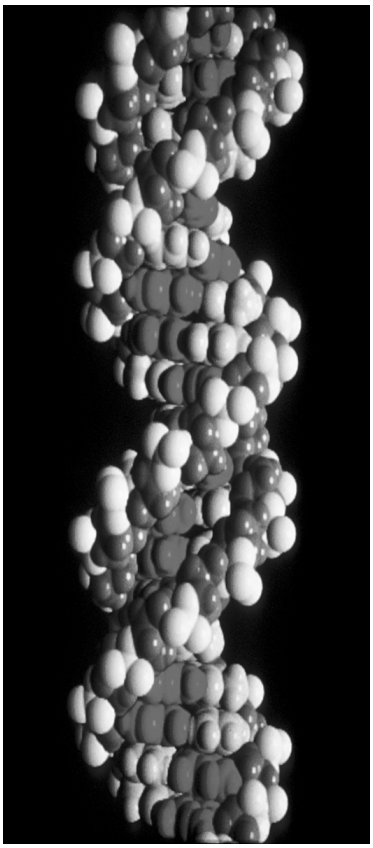
A new web site from NIH's National Library of Medicine (NLM) called *Genetics Home Reference,* at http://ghr.nlm.nih.gov, is a great place to start looking for answers. Created for the general public, the site's explanations are straight and simple, and written in easily understandable, jargon-free English.

Many of you may grasp the basics of genetics but want to learn more. If you're the sort of person who remembers "a little from their high school biology class," you can take a quick refresher course by clicking the "Help Me Understand Genetics" page. There you will learn about, for example, how genes can be turned on and off in cells, what it means if a disorder seems to run in a family, and the principles of gene mutation.

If you have questions about a specific disease, you can browse by disease/condition or even by gene. If you type in "Alzheimer's disease," for instance, a page appears where the information is written in a question and answer format. You'll find out how people inherit Alzheimer's, the disease's symptoms, and what treatments are available. There's also a geographic listing of genetic counselors and information for caregivers. In addition, you can easily find details on the specific genes related to Alzheimer's.

Other features of the new web site are a glossary of genetic terms, links that take you to clinical trials related to the disorder you're researching, and more advanced genetic information. *Genetics Home Reference* will be adding genetic diseases on a regular basis, and the information will be updated as needed.

"The American public is increasingly turning to the Web for medical information," Dr. Donald A.B. Lindberg, director of the National Library of Medicine, explains. "The launch of *Genetics Home Reference* was a logical step in making genetics and its relationship to disease more understandable to the general public."



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More and more, genetics will become a key component of medicine and science. Many people already need to make life-altering decisions because of their genetic background. The biotechnology revolution is well underway and will unquestionably continue to alter medical practice. If you want a better grasp of genetics, here's your chance. Visit *Genetics Home Reference* at http://ghr.nlm.nih.gov.◆

—a report from *The NIH Word on Health*, August 2003

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Research Capsules

by Harrison Wein, Ph.D.

Feeling Pain in the Brain

Some people seem to be more sensitive to pain than others. Do these people really feel more pain, or are they more vocal about their discomfort? For health providers, assessing how much pain a patient feels can be a real challenge when doing a diagnosis or trying to determine a course of pain medication. In a new study funded by NIH's National Institute of Neurological Disorders and Stroke (NINDS), scientists used brain imaging to show that people feel pain to different degrees, and that their descriptions of the pain they feel accurately reflects their levels of brain activity.

Seventeen people were recruited for the study. They were subjected to hot probes and asked to assess on a visual scale how intense their pain was. Researchers looked at the activity in their brains during painful stimulation using a technology called functional magnetic resonance imaging.

The scientists found that individual experiences of pain differed substantially. The most sensitive person in the study ranked the pain at almost nine on a scale of ten, while the least sensitive person ranked the same heat as causing pain of only a bit over one. Three regions of the brain— the anterior cingulate cortex, the primary somatosensory cortex, and the ipsilateral prefrontal cortex— were significantly more active in the sensitive people when they were exposed to pain. These three regions are all involved somehow in a person's conscious perception of pain. Interestingly, some brain regions that are involved in the transmission and processing of pain signals from the body weren't associated with differences in pain sensitivity.

Whatever the reasons some people feel pain more than others, their brains show that the phenomenon is real. This small study does not prove the case for everyone, but the researchers say that, in general, their findings validate people's own reports of the amount of pain they are feeling. The patient's own report, they write, "will likely remain the single most reliable index of the magnitude of pain."◆

—a report from *The NIH Word on Health*, August 2003

Proceedings of the National Academy of Sciences 100,14:8538-8542

For more information on pain, see *Pain — Hope Through Research*, a publication from NIH's National Institute of Neurological Disorders and Stroke, at http://www.ninds.nih.gov/health_and_medical/pubs/pain.htm or contact the Institute's Brain Resources and Information Network (BRAIN) at:

BRAIN
P.O. Box 5801
Bethesda, MD 20824
1-800-352-9424
www.ninds.nih.gov

Gene Linked to Depression

Researchers have found a gene that influences whether people become depressed when faced with major life stresses such as relationship problems, financial difficulties and illness. The gene by itself does not cause depression, but it does affect how likely people are to get depressed when faced with major life stresses.

Researchers funded in part by NIH's National Institute of Mental Health (NIMH) were interested in a gene called 5-HTT because it codes for a protein called a serotonin transporter, which recycles serotonin back into brain cells after the chemical has been released into the synapse, the gulf between brain cells. Serotonin is an important chemical messenger in the brain. The most widely-prescribed class of antidepressants target the serotonin system.

Everybody has two copies of 5-HTT. There are two versions of the gene, a short and a long version. Previous brain imaging studies, along with animal research, led the researchers to hypothesize that the short version may predispose people to depression. They followed 847 Caucasian New Zealanders, tracking their stressful life events—employment, financial, housing, health and relationship woes—from the ages of 21 to 26.

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The researchers found that those who carried at least one short version of 5-HTT had more symptoms of depression, more diagnoses of depression, and more thoughts or attempts at suicide after stressful life events than those with two copies of the long version of the gene. Those with the short version of the gene were also at higher risk for depression if they had been abused as children. Significantly, among those who hadn't experienced major life stresses during the study, the gene played no detectable role in their risk of depression or suicide.

Depression, the researchers conclude, develops through a mix of genes and life events. Genes other than 5-HTT are doubtless involved in depression, and events in a person's life still play a primary role. Nevertheless, studies like this one may one day help scientists identify people who are more at risk for depression, and might eventually help doctors figure out which medications will help which patients.◆

—a report from *The NIH Word on Health*, August 2003

Science 301:386-389

For more information about depression, visit http://www.nimh.nih.gov/publicat/depressionmenu.cfm or contact:

National Institute of Mental Health (NIMH)
Office of Communications
6001 Executive Boulevard, Room 8184, MSC 9663
Bethesda, MD 20892-9663
Phone: 301-443-4513 or 1-866-615-NIMH (6464), toll-free
TTY: 301-443-8431; FAX: 301-443-4279
FAX 4U: 301-443-5158
E-mail: nimhinfo@nih.gov
Web site: http://www.nimh.nih.gov

Update—Lazy Eye Treatments

In the June 2002, issue of *The NIH Word on Health* (http://www.nih.gov/news/WordonHealth/jun2002/capsules.htm#lazyeye), we reported that eye drops could be used to treat amblyopia, or "lazy eye," the most common cause of visual impairment in childhood. Patching the unaffected eye has been the standard treatment for amblyopia, but many kids don't like the teasing or the skin irritation that comes with wearing an eye patch.

Now the same research team has found another effective treatment: reduced daily eye patching. After four months of treatment, children with moderate amblyopia who wore a patch daily for two hours over their unaffected eye showed the same improvement in vision as those who wore a patch for six hours. This finding should lead to better compliance with treatment and improved quality of life for children with amblyopia.◆

—a report from *The NIH Word on Health*, August 2003

Archives of Ophthalmology 121:603-611

For more information on amblyopia from NIH's National Eye Institute, visit http://www.nei.nih.gov/health/amblyopia/index.htm or contact:

National Eye Institute
2020 Vision Place
Bethesda, MD 20892-3655
301-496-5248

Image courtesy of the National Eye Institute, National Institutes of Health

New and Notable

The following new or revised NIH publications are available free to the public:

Airborne Allergens: Something in the Air. National Institute of Allergy and Infectious Diseases, NIH Publication 03-7045, April 2003. E-mail ocpostoffice@niaid.nih.gov or call 301-496-5717. View online at: http://www.niaid.nih.gov/publications/allergens/airborne_allergens.pdf.

Alzheimer's Disease: Unraveling the Mystery. National Institute on Aging, NIH Publication 02-3782, Oct. 2002. Call 1-800-438-4380. View online at: http://www.alzheimers.org/unraveling/02.htm#unraveling.

Facts About The DASH (Dietary Approach To Stop Hypertension) Eating Plan. National Heart, Lung and Blood Institute, NIH Publication 03-4082, May 2003. E-mail nhlbipriority@prospectassoc.com or call 301-592-8573. View online at: http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf.

Genetic Testing for Breast Cancer Risk: It's Your Choice. National Cancer Institute, NIH Publication 03-4252, June 2003. E-mail cis@icic.nci.nih.gov or call 1-800-4-CANCER. View online at: http://cis.nci.nih.gov/fact/3_62.htm.

Harmful Interactions: Mixing Alcohol with Medicines. National Institute on Alcohol Abuse and Alcoholism, NIH Publication 03-5329, Feb. 2003. E-mail niaaaweb-r@exchange.nih.gov or call 1-800-729-6686. View online at: http://www.niaaa.nih.gov/publications/Medicine/medicine.htm.

Helping the Student with Diabetes Succeed—A Guide for School Personnel. National Diabetes Education Program, National Institute on Diabetes and Digestive and Kidney Diseases and the Centers for Disease Control and Prevention, NIH Publication 03-5217, June 2003. E-mail ndic@info.niddk.nih.gov or call 1-800-438-5383.

La radioterapia y usted (Radiation Therapy and You). Spanish edition, National Cancer Institute, NIH Publication 03-2227S. E-mail cis@icic.nci.nih.gov or call 1-800-422-6237.

Narcolepsy Fact Sheet. National Institute of Neurological Disorders and Stroke, NIH Publication 03-3637, April 2003. E-mail ninds@iqsolutions.com or call 1-800-352-9424. View online at: http://www.ninds.nih.gov/health_and_medical/pubs/narcolepsy.htm.

Nerve Disease and Bladder Control. National Kidney and Urologic Diseases Information Clearinghouse, National Institute of Diabetes, Digestive and Kidney Diseases, NIH Publication 03-4560, May 2003. E-mail nkudic@info.niddk.nih.gov or call 1-800-891-5390. View online at: http://kidney.niddk.nih.gov/kudiseases/pubs/nervedisease/index.htm.

When Cancer Recurs: Meeting the Challenge. National Cancer Institute, NIH Publication 03-2709, June 2003. Call 1-800-422-6237. View online at: http://cancer.gov/cancerinfo/when-cancer-recurs.

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