

Word on Health

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

April 2003

What's Next for Women's Health Research?

By **Carla Garnett**

Is women's health relevant to the general health of everybody or should it stay rooted merely in women's health centers? That's the question the medical science community must now ask, according to Dr. Marianne Legato, who lectured recently at the National Institutes of Health. Dr. Legato, a cardiologist who founded and directs the Partnership for Gender-Specific Medicine at Columbia University's College of Physicians and Surgeons in New York City, said the answer is both simple and complicated: Gender matters.

"You never would imagine the scope and significance of the differences between men and women in all the systems of the body," Dr. Legato said. "Being male or female is not simply a question of hormones."

For example, the size, structure and function of the brain differs in women and men, Dr. Legato said. Whole brain volume and the corpus callosum (the broad, thick band containing millions of nerve fibers running from side to side in the brain) are about 20 percent larger in males than in females. Women, however, have more neural connections across the corpus callosum.

"The variations in the gross volume of the brain are most significant in the areas that have to do with mood and behavior," she explained. These differences could have implications for diagnosing and treating such disorders as depression.

Men and women also sometimes use different areas of the brain to perform the same tasks. For instance, when asked to use verbal memory skills, women activate the left hemisphere of the brain and men activate the right hemisphere. Dr. Legato said reaction time is slower in women, but accuracy is

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Using Saris To Fight Cholera

Using Plants to Clean up Arsenic

Older Homes Encourage Walking

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higher.

"What does it mean?" she asked. "Does it mean differences eventually in the way that we will educate and communicate with men and women? We don't know. Does it mean that there are real gender differences in ability? That's a hotly debated issue. What is clear is that in some instances men and women recruit different areas of their brain to perform equal tasks."

Differences Throughout the Body

The biological differences between men and women extend through many systems in the body. For example, bone mass in a woman peaks at a distinct age, usually when she is in her early 20s. By contrast, a man reaches his maximum bone density much more gradually and plateaus later, by age 30. A period of accelerated bone loss occurs in women at menopause and continues for about five years afterward. These differences could prove important to understanding such disorders as osteoporosis.

"What is not clear is whether the bone loss is related only to estrogen deficiency," Dr. Legato explained. "Counseling therefore could differ [for men and women] on how and when to adjust lifestyle to achieve and preserve

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maximum bone density.”

A woman’s cardiovascular system, too, is different from a man’s. The size, shape and electrical systems of the heart all vary in some respects by gender. Women have faster heart rates than men. These differences could prove to be crucial considerations in preventing, diagnosing and treating heart disease, the nation’s top killer of both sexes, Dr. Legato said.

The differences don’t end there. Women experience pain in different ways than men do, females seem more prone to autoimmune disorders than do males, and a woman’s responses to infection varies from a man’s responses. Even some specific diseases, such as malaria and HIV/AIDS, manifest themselves differently in women and men, Dr. Legato noted. These variations – and others yet to be discovered – are why scientists should examine the emphasis placed on women’s health in the past two decades, she said, and determine whether research has taken into account all aspects of female biology.

Moving Beyond the “Bikini View”

“What does women’s health really mean?” Dr. Legato asked. “Does it go beyond the ‘bikini view,’ that is, breast health and reproductive biology?” She suggested that new forays into gender-specific research must take broader, multidisciplinary approaches and look at women across their entire lifespans.

The Agenda for Research on Women’s Health for the 21st Century, a report prepared by the NIH Office of Research on Women’s Health (ORWH) with the input of more than 1,500 women’s health professionals and advocates in the US, reflects Dr. Legato’s suggestion. Spanning behavioral and social as well as biomedical research, the agenda recommends addressing health issues across a woman’s life, “from prenatal stages to the frail elderly.” The report also emphasizes the importance of understanding both genetic and environmental factors in determining how diseases develop, grow and spread.

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The Word on NIH

The National Institutes of Health (NIH) is one of the world’s premier biomedical research organizations. A government agency within the U.S. Department of Health and Human Services, NIH is composed of 27 Institutes and Centers, each with its own research focus.

NIH supports and conducts medical research to understand how the human body works and to gain insight into diseases and disorders. NIH translates research results into medical interventions and distributes current medical information to patients, health care providers and the general public.

NIH provides leadership and financial support to researchers in every state and throughout the world, investing billions of dollars in scientific research each year. About 10% of NIH’s budget supports over 2,000 research projects in its own laboratories. Most of its budget, however, is awarded through almost 50,000 competitive grants and contracts to researchers at over 2,800 hospitals, universities, medical schools, and other research institutions.

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 received Nobel Prizes in recognition of their achievements.

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- National Heart, Lung, and Blood Institute
- National Human Genome Research Institute
- National Institute on Aging
- National Institute on Alcohol Abuse and Alcoholism
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- National Center on Minority Health and Health Disparities
- National Center for Research Resources
- Center for Information Technology
- Center for Scientific Review
- John E. Fogarty International Center
- Warren G. Magnuson Clinical Center

A Word to the Wise...

Participating in Clinical Trials

If you are a woman interested in participating in clinical health studies, go to <http://clinicaltrials.gov/>. There, you can search for studies on particular diseases and conditions, or you can type the word "women" in the search box and browse through the hundreds of clinical trials listed. The web site also includes other information to help you understand more about clinical trials and how to participate in them.

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Major diseases – heart disease, cancer, mental disorders and musculoskeletal problems – top the agenda. Several “emerging directions for improving women’s health” – such as prevention and disparities among diverse groups – are also suggested in the

report. Experts are convinced that implementing such a comprehensive plan for women’s health will profit everyone’s health.

“The women’s health movement is a movement that I think can and will bring benefits to all members of our society,” concludes Dr. Vivian Pinn, NIH associate director for research on women’s health and ORWH director. ♦

–a report from *The NIH Word on Health*, April 2003

For copies of the *Agenda for Research on Women’s Health for the 21st Century*, an eight-volume report and forecast on womens’ health issues, visit <http://www4.od.nih.gov/orwh/report.pdf> or contact:

Office of Research on Women’s Health
Office of the Director
National Institutes of Health
1 Center Drive, Room 201, MSC 0161
Bethesda, Maryland 20892-0161
fax: 301-402-1798

Attitudes, Models of Women’s Health Continue to Evolve

Dr. Marianne Legato, founder and director of the Partnership for Gender-Specific Medicine at Columbia University’s College of Physicians and Surgeons in New York City, lists several milestones in the “short, powerful and recent” history of women’s health:

- ⇒ In 1900 the average life expectancy for a woman was 48. At the time, menopause or diseases of aging were not a priority. “The focus was on maternal survival in childbirth, survival of infants and small children, infectious disease, and conditions that arose from poor public sanitation,” Dr. Legato said.
- ⇒ World War II and the period immediately after triggered a number of significant gains for both women and medicine, Dr. Legato said. “It was inevitable that the parallel phenomena of feminism and the explosion of American science and technology would grow out of World War II.”
- ⇒ In 1979, the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research said in its Belmont Report that if women were to reap the benefits of research, then as a matter of justice, they would have to take the risks of participating as subjects in clinical investigation.
- ⇒ Efforts to study the biology of women exclusively are far more recent, Dr. Legato said. “The preeminence of women’s health has only been accomplished since 1985,” she noted, citing conclusions from the Public Health Service Task Force on Women’s Health Issues. The task force found that “heightened emphasis on disease prevention and health promotion in areas beyond the pregnancy and infant health category can provide a significant source of information for women, as well as facilitate longer term benefits.”
- ⇒ In 1994, the Institute of Medicine (IOM) released a monograph titled *Women and Health Research: Legal and Ethical Issues of Including Women in Clinical Studies*, which Dr. Legato called “the first thoughtful reflection on the possibility that men and women might experience disease differently.” The document also forecast where a limited view of women’s health might lead: “Our moral analysis of our practices considering the inclusion of women in clinical research will fail to capture all that it should, if we restrict our focus to the charge of exclusion and underrepresentation.”
- ⇒ Last year, an IOM Committee on “Understanding the Biology of Sex and Gender Differences” concluded in its 2001 report: “Sex does matter. It matters in ways that we did not expect. Undoubtedly, it also matters in ways that we have not begun to imagine.”

Choosing a Doctor

by Calvin Jackson

Choosing a doctor is a very important decision, yet most people choose doctors based on little more than a recommendation from a friend. "Most of us do more research and spend more time figuring out which refrigerator we want to buy, rather than what doctor we want to take care of us," according to Dr. Judith Salerno, deputy director of the National Institute on Aging, a component of NIH.

It is important to have a doctor who knows you and your health problems and who understands your special health care needs. A personal physician, or primary care physician, can help you make medical decisions and oversee the care you get from other, more specialized physicians.

Choosing a doctor is a decision that is probably best made while you are healthy and have some time to think about a number of possibilities. If you don't have a doctor or are thinking about changing doctors, now may be the best time to look for one.

What Should You Look for?

Many personal likes and dislikes are involved in choosing a doctor. In general, you want a doctor who is well trained and competent. You also want a doctor who cares about you, who will listen carefully to your concerns, who can explain things clearly and fully, and who can anticipate your health problems. Other things that might affect your choice of a doctor include the type of health insurance you have, the hospital where the doctor treats patients, and the languages the doctor speaks.

There are different types of doctors. You might choose a family practitioner, an internist, or a geriatrician. Family practitioners provide health care to all family members, regardless of age. An internist is a doctor for adults. Some internists take additional training to become specialists; for example, cardiologists are internists who specialize in diseases of the heart. Geriatricians specialize in the care of older adults; they first train in family practice or internal medicine and then undergo additional training in caring for older people.

Dr. Salerno says a good first step is to make a list of the things that matter to you. Then, go back over your list and decide which are most important. See the accompanying side box for some suggestions of things you might want to think about.

Who Can Help You Find a Doctor?

After you have a general sense of what you are looking for in a doctor, ask relatives, friends, cowork-

A Word to the Wise...

Things to think about when choosing a doctor:

- Do you prefer a male or female doctor?
- Do you prefer a younger doctor or an older doctor?
- Where is the location of the doctor's office? Is it easy for you to get to?
- Is the doctor part of a group or is he a solo practitioner?
- If he or she is a solo practitioner, who covers for them when they're away?
- Does he or she accept your health insurance?
- What hospital(s) is the doctor affiliated with?
- How comfortable do you feel talking about your health problems with them?

ers, and other health professionals for recommendations. Ask about the person's experiences with the doctor. For example, "What do you like about Dr. Smith?" A doctor whose name comes up often might be a strong possibility.

It may be helpful to have several names to choose from, in case the doctor you select is not currently taking new patients or does not participate in your health insurance plan. You can usually get a list of participating doctors from your plan's membership services office. Depending on what insurance plan you have, your choices may be limited to those doctors affiliated with the plan. If a doctor you are interested in is not on the list, however, check with their office; provider lists are not always up to date.

Making an Informed Choice

Once you have chosen two or three doctors, it's a good idea to call their offices. The office staff are often a good source of information about the doctor's education and training, office policies, and payment procedures. Try make an appointment to talk to the doctor, if you can. Dr. Salerno says, "You'll probably have to pay for that appointment to come and sit and meet them. But if you choose to do that, it may give you helpful information. You may find that there's good rapport, or that there's not with the particular physician who came up on the top of your list."

Board certification is another way to tell about a doctor's expertise. Doctors who are board certified have had training after medical school and have passed

Continued

Help Finding a Doctor

The following professional groups may be able to help you find a doctor (note that these organizations are not affiliated with NIH):

American Academy of Family Physicians
8880 Ward Parkway
Kansas City, MO 64114
<http://www.aafp.org>

American College of Physicians-American Society of Internal Medicine
190 North Independence Mall West
Philadelphia, PA 19106-1572
800-523-1546
<http://www.acponline.org>

American Geriatrics Society
770 Lexington Avenue
Suite 300
New York, NY 10021
<http://www.americangeriatrics.org>

American Medical Association
515 North State Street
Chicago, IL 60610
<http://www.ama-assn.org>

American Osteopathic Association
142 East Ontario Street
Chicago, IL 60611
800-621-1773
<http://www.am-osteo-assn.org>

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an exam certifying them as specialists in certain fields of medicine. These include the primary care fields of family practice, internal medicine, and geriatrics.

Dr. Salerno says, "You can go to some libraries and look up the credentials of your physician. There are directories of medical providers and there are also a number of web sites that can provide you information about the specific credentials – for instance, where a physician went to medical school, whether they have other degrees, and if they're Board Certified."

Remember, once you have found a doctor you are happy with, your job is not finished. A good doctor/patient relationship is a partnership, with both you and your doctor working together to solve your medical

problems and maintain your good health. Make sure that you feel comfortable working with your doctor. ♦
—a report from *The NIH Word on Health*, April 2003

The National Institute on Aging (NIA) has a free booklet called *Talking With Your Doctor: A Guide for Older People* and other information on health and aging. To get a free copy of these materials, go to <http://www.nia.nih.gov/health/pubs/talking/> or contact:

NIA Information Center
P.O. Box 8057
Gaithersburg, MD 20898-8057
800-222-2225
800-222-4225 (TTY)

Teaching Old Muscles New Tricks

by Carol E. Torgan, Ph.D.

Lee strode across the exercise room to the next weight machine. She leaned over and set the stack of weights to the thickness of several New York City phone books. She sat down and slowly curled her body forward, lifting the weights with the strength of her stomach muscles. After repeating this a dozen times she smiled, patted her belly, and said "I'm trying to work on this area a bit." Then she made her way to the next machine.

Lee Warren Shipman of Maryland is 80 years old, and has three grandchildren. She's had a complete knee replacement and lives "up 22 steps" in a house she designed herself. She has been lifting weights twice a week for over five years. "I think this prevents osteoporosis" she says.

Lee knows that strength exercises — defined as any exercise that builds and strengthens muscles — improve bone density and combat the effects of osteoporosis. Strength exercises are also referred to as strength training, resistance training, weight training, and weight-lifting. But whatever you call them, research funded by NIH's National Institutes of Aging (NIA) shows that older people, even those in their nineties, benefit greatly from them.

The list of health benefits from strength exercise reads like a visit to the fountain of youth. More muscle burns more calories and thus can help with weight control. The increased muscle mass can also help control blood sugar. Strength exercises can improve mood and relieve depression. They can help increase

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balance, and make getting around a whole lot easier, therefore potentially preventing injury.

Around since the times of ancient Greece, strength exercises are now proving popular among older adults who have learned it's never too late to start.

Preserving Muscle Strength

Research shows that muscle strength declines by 15 percent per decade after age 50, and 30 percent per decade after age 70. Scientists have found that people lose strength and muscle tissue not because they grow older, but because they stop doing activities that use muscle power. The combination of reduced strength and lower activity levels can lead to an increased incidence of falls and decreased walking ability.

Muscle strength training can be done by virtually anyone, according to Dr. William Evans, Director of the Nutrition, Metabolism and Exercise Laboratory at the University of Arkansas for Medical Sciences. In research funded in part by NIA, he has shown that frail nursing home residents as old as 98 years (many with multiple chronic diseases) have remarkable increases in muscle strength and size following only a few months of strength training. The results are exciting for scientists because they reveal that even aging skeletal muscle retains its amazing adaptive ability. But perhaps more importantly, the findings have enormous practical significance. Strength gains can lead to greater walking speed, stair climbing power, and balance. An increase in strength can make the difference between being able to get up from a chair by yourself, or having to wait for someone to help you get up.

The list of health benefits from strength exercise reads like a visit to the fountain of youth.

Start Now

You don't need to own spandex clothes, barbells, or a gym membership to do strength exercises. All you need is a positive attitude and a few spare minutes. Exercises can be done at little or no cost in your home. A guidebook and companion video put out by NIA (see Resources below) offer clear step-by-step instructions for exercises. Alternatively, structured programs are often available through local health clubs, universities, hospitals, churches or synagogues, senior or civic centers, or park and recreation associations.

Strength exercises are one important component of overall fitness. The other components include aerobic

A Word to the Wise... Exercise Tips

- ✔ Check with your doctor before starting any exercise program.
- ✔ Do strength exercises for all your major muscles groups (shoulders, arms, back, stomach, hips, legs) at least twice a week. Don't do exercises of the same muscle group two days in a row. Give your muscles time to recover and rebuild.
- ✔ Start out slow. You may need to start with 1-2 pounds of weight, or no weight at all. Don't start out with too much weight, which can lead to injuries. You should feel like you're challenging yourself, but aren't near your limit.
- ✔ You may experience some muscle soreness and fatigue at the beginning. This is normal, and indicates your muscles are rebuilding to become stronger. However, you should not experience sore joints or exhaustion, nor should you experience any pain.
- ✔ You can use hand or ankle weights sold in sporting goods stores. Or you can be creative and fill empty milk jugs with sand or water, fill socks with beans, or use canned goods.
- ✔ Do 8-15 repetitions in a row of each exercise. Use smooth and steady movements. Once you can easily lift the weight 15 times, increase the amount of weight (usually every 2-3 weeks). Your muscles will get continuously stronger as you progress.
- ✔ Take 3 seconds to lift or push a weight, hold the position for 1 second, and then take another 3-5 seconds to lower the weight (don't just let the weight drop).
- ✔ Breath out (exhale) as you lift or push the weight, and breath in (inhale) as you relax or lower the weight. You will have to think about this at first, but soon it will become natural. Don't hold your breath during the exercises.

exercise, balance and flexibility, which are also featured in the NIA book and video. Helpful hints that answer how much and how often to do strength

Continued

Lifting Lingo

If you spend time in a weight room or around people that regularly do strength exercises, you might overhear the following terms:

- Y One Repetition Maximum (1RM): The maximum amount of weight that can be lifted one time. Some strength programs are designed based on this amount. For example, a person may train with an amount of weight that is 50% or 80% of 1RM.
- Y Repetition (rep): The number of times in a row a weight is lifted. Eight to 15 repetitions are usually done.
- Y Set: A series of repetitions. For example, doing ten repetitions would be one set. Resting and then doing ten more repetitions would be another set, for a total of 2 sets. One set is all that is needed to get substantial benefits.
- Y Frequency: This refers to the number of work-outs per week. A frequency of at least 2 times/week is recommended.
- Y Concentric Contraction: A type of muscle contraction where your muscle fibers shorten to produce force. This happens when you lift or raise a weight.
- Y Eccentric Contraction: A type of muscle contraction where your muscle fibers lengthen while they produce force. This happens when you lower the weight back down. This type of contraction is mainly responsible for the feeling of soreness after exercise. The soreness results from microscopic damage to the muscle cells that then stimulates them to regenerate and get stronger.
- Y Sarcopenia (pronounced sar-ko-PEEN-ya): The decrease in muscle tissue that occurs with aging. This is an active area of research and you will probably hear this term increasingly used as scientists learn more about it.

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exercises are listed in "A Word To The Wise". Remember to check with your doctor before starting any exercise program.

Even small improvements in muscle size that you can't see can have a big impact on the quality of your life. Lee, the weight lifting grandma, has already figured this out. She proudly proclaims, "I am an optimist!" as she makes her way to the next machine. With strength exercises, you can add life to your years in addition to adding years to your life. ♦

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

The National Institute on Aging (NIA) and the National Library of Medicine (NLM), both part of the NIH, maintain a website for older adults that includes a section on exercise for older adults at <http://www.nihseniorhealth.gov/exercise/toc.html>.

"Exercise: a Guide from the National Institute on Aging" has a chapter full of strength exercises that can be done at

home. The guide is available on the web at <http://www.nia.nih.gov/exercisebook/>. It can be ordered by calling toll-free 1-800-222-2225 or 1-800-222-4225 (TTY), or by sending an email request to niaic@jbs1.com with the name of the document you want and your mailing address.

A 48-minute exercise video is also available from NIA. For more information about the video, visit <http://www.nia.nih.gov/exercisevideo/>. To order the video and 80-page companion booklet, send a check or money order for \$7.00 to NIAIC
P.O. Box 8057
Gaithersburg, MD 20898-8057



The Widespread Effects of Depression

by Mary Sullivan

Depression is one of the leading causes of disability worldwide. That's the word from NIH's National Institute of Mental Health (NIMH), the component of the federal government that studies depression and other mental illnesses.

You probably know depression as a medical condition that primarily affects the brain. Its symptoms include a persistent sad, anxious or "empty" mood, feelings of hopelessness, pessimism and worthlessness, and a loss of interest in hobbies and activities once enjoyed. The "Symptoms of Depression" side box contains a more complete description.

But according to Dr. Husseini Manji, chief of NIMH's Laboratory of Pathophysiology, the psychological symptoms of depression are just the "tip of the iceberg." Because the brain is the body's "control center," the effects of depression spread throughout the body, often resulting in problems with sleep, appetite, energy level, motivation, memory, and concentration. Performing everyday activities can be an enormous challenge for people who are depressed.

Where To Get Help

- ◆ Family doctors
- ◆ Mental health specialists, such as psychiatrists, psychologists, social workers, or mental health counselors
- ◆ Health maintenance organizations
- ◆ Community mental health centers
- ◆ Hospital psychiatry departments and outpatient clinics
- ◆ University- or medical school-affiliated programs
- ◆ State hospital outpatient clinics
- ◆ Family service, social agencies, or clergy
- ◆ Private clinics and facilities
- ◆ Employee assistance programs
- ◆ Local medical and/or psychiatric societies

Source: National Institute of Mental Health

Symptoms of Depression

Symptoms vary from person to person and vary over time. Not everyone who is depressed has every symptom. Some people have a few, and some have many.

- ☹ Persistent sad, anxious or "empty" mood
- ☹ Feelings of hopelessness, pessimism
- ☹ Feelings of guilt, worthlessness, helplessness
- ☹ Loss of interest or pleasure in hobbies and activities that were once enjoyed, including sex
- ☹ Decreased energy, fatigue
- ☹ Difficulty concentrating, remembering and making decisions
- ☹ Insomnia, early-morning awakening, or oversleeping
- ☹ Appetite and/or weight loss or overeating and weight gain
- ☹ Thoughts of death or suicide, suicide attempts
- ☹ Restlessness, irritability
- ☹ Persistent physical symptoms that do not respond to treatment, such as headaches, digestive disorders, and chronic pain

Source: National Institute of Mental Health

A Devastating Illness

"Depression needs to be recognized as a devastating illness," Dr. Manji explains. "It can occur with other diseases, but it is a very real medical condition in its own right."

Research shows that depression increases the risk of death for people of all ages. For those with other illnesses such as type 2 diabetes and certain infections, depression can make their symptoms worse. Elderly people with depression may be at higher risk for Alzheimer's disease, and depression may increase their chance of being admitted into a nursing home.

No one knows better the ravages of depression than the estimated 20 million Americans of every age who suffer from depression. Although women and older people seem to have higher rates of depression, depression can strike anyone at any time. Those who have recently experienced a traumatic event, such as a divorce, job loss or sudden death of a loved one, may be at higher risk.

Continued

A Word to the Wise...

Tips for Coping With Depression

Depression can make you feel exhausted, worthless, helpless, and hopeless. Negative thoughts and feelings can make some people feel like giving up. It is important to realize that these negative views are part of the depression and typically do not reflect the actual circumstances. Negative thinking begins to fade as treatment takes effect. In the meantime:

- * Break large tasks into small ones, set some priorities, and do what you can.
- * Try to be with other people and confide in someone; it is usually better than being alone.
- * Participate in activities that make you feel better. Mild exercise, going to a movie, a ball game, or participating in religious, social, or other activities may help.
- * Expect your mood to improve gradually. Feeling better takes time. People rarely “snap out of” depression, but they can feel a little better day-to-day.
- * Postpone important decisions until the depression has lifted. Before deciding to make a significant decision, such as changing jobs, getting married or divorced, discuss it with others who know you well and have a more objective view of your situation.
- * Remember, as your depression responds to treatment, positive thinking will replace the negative thinking that is part of the depression.
- * Let your family and friends help you.

Source: National Institute of Mental Health

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More Than Stressed Out

Dr. Manji emphasizes that depression is *not* a character flaw, a lack of willpower or a sign of emotional weakness. “You can’t simply wish or will depression away,” he says.

People who are “stressed out” may think that their current situation is to blame, but a prolonged case of the blues that interferes with normal functioning is usually the result of a chemical imbalance in the brain,”

he explains.

That’s why treatment is so important – and the sooner the better. There are a variety of treatments that work, including medications and psychotherapy. NIMH researchers and others are constantly looking at new ways to treat and prevent depression.

If you think you may be depressed, seek professional help (see “Where to Get Help”) and learn ways to cope to help you feel better (see “Tips for Coping With Depression”). Don’t let depression keep you down. ♦

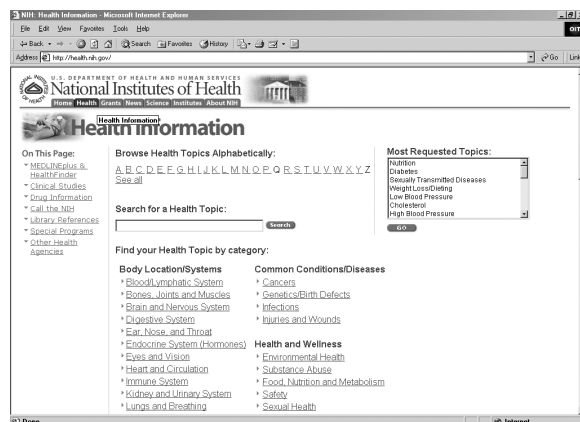
—a report from *The NIH Word on Health*, April 2003

For more information on depression, see NIMH’s booklet on depression at <http://www.nimh.nih.gov/publicat/depression.cfm>. Links to other depression publications from NIH can be found at http://health.nih.gov/result.asp?disease_id=183.

You can also phone, fax or send e-mail to:

National Institute of Mental Health
 Information Resources and Inquiries Branch
 6001 Executive Boulevard, Room 8184, MSC 9663
 Bethesda, MD 20892-9663
 Telephone: 301-443-4513
 FAX: 301-443-4279
 TTY: 301-443-8431
 E-mail: nimhinfo@nih.gov

**For authoritative health information,
 visit the new Health page from
 The National Institutes of Health at:
[http://health.nih.gov/.](http://health.nih.gov/)**





Tox Town

Tox Town: Exploring Toxic Chemicals and Environmental Health

by **Cindy Love, MLS** and
Colette Hochstein, D.M.D., MLS
Division of Specialized Information Services,
National Library of Medicine

Looking for information about toxic chemicals and environmental hazards that might be found in your school, home or office building? NIH's National Library of Medicine (NLM) has created a non-technical, easy-to-navigate web site called *Tox Town* (<http://toxntown.nlm.nih.gov/>) which helps you explore potential hazards in your environment like radon, asbestos and carbon monoxide. The new web site aims to help people make connections between chemicals, the environment and human health.

Tox Town greets visitors with a friendly picture of "Hometown, USA". Users can click all around the town to find answers to their questions about environmental hazards.

Someone with questions about her local river, for example, could click on the town's river and choose information on drinking water, parasitic diseases, chemicals in water, and other information provided by a variety of federal agencies. At the bottom of the screen is a list of some common environmental toxins. A high school student writing a paper about the health effects of lead could choose the "Lead" button, for example, to find out what lead and lead poisoning are, and how

to prevent lead poisoning in children.

Tox Town is a companion to *TOXNET* (<http://toxnet.nlm.nih.gov/>), a popular set of databases for toxicologists and other scientists which NLM has provided for years. Chemical descriptions in *Tox Town* are based on *TOXNET* and are reviewed by NLM's toxicology staff. In addition to easy-to-understand descriptions of toxic chemicals and information about "everyday" locations where they can be found, the new web site provides links to authoritative Internet resources on toxins and environmental health topics.

Tox Town's use of color, graphics, sound and animation adds special appeal. These special effects require Macromedia Flash (instructions for downloading the program for free can be found in the "Intro" section), but a text-only version is also available at http://toxntown.nlm.nih.gov/text_version/. *Tox Town* has resources available in Spanish as well at <http://toxntown.nlm.nih.gov/espanol/index.html>.

Tox Town continues to evolve with input from users and from more formal evaluations. It will grow to include more chemicals and new locations such as an urban community and a farming region. Try it out, and send your comments to tehip@tehl.nlm.nih.gov. ♦
—a report from *The NIH Word on Health*, April 2003



Tox Town

An interactive guide to
commonly encountered
toxic substances

Research Capsules

Using Saris To Fight Cholera

by Harrison Wein, Ph.D.

A major global health problem may have found its match in a simple piece of cloth. Research supported by NIH's National Institute of Nursing Research (NINR) found that filters made from old cotton saris cut the number of cholera cases in rural Bangladesh villages almost in half. Other inexpensive cloth should work just as well in other parts of the world where cholera is endemic.

Cholera is a waterborne disease that causes severe diarrhea and vomiting, killing thousands of people around the world every year. It was prevalent in the US in the 1800s but has been virtually eliminated in this country by modern sewage and water treatment systems. Unfortunately, it remains common in poor areas around the world that depend on untreated surface water. Boiling water before drinking is the best way to kill the bacteria that cause the disease, but fuel wood in places like rural Bangladesh is in short supply and costly. When there is severe flooding, which is common in many areas, building fires to boil water is simply not possible.

The bacteria that cause cholera often live attached to plankton, with each plankton carrying up to 10,000 of the tiny bacteria. An international research team led by scientists at the University of Maryland reasoned that if they could filter enough plankton out of the water, they might also remove enough cholera bacteria to keep people from getting sick.

They first did an electron microscope study and found that one inexpensive piece of sari cloth, folded four to eight times, could create a filter with holes small enough to remove most plankton. They then embarked on a three-year study in 65 villages in rural Bangladesh involving a total of about 133,000 people. They trained families to create and use filters when filling their water-collecting pots, called kalashes, from ponds, canals and rivers. All study participants were guaranteed medical treatment, and stool samples from patients with diarrhea were tested for the presence of cholera bacteria.

Cholera rates were reduced by almost half when people filtered their water. Cultural barriers didn't prevent the villagers from filtering their water according to instructions; about 90% followed the procedure. This simple preventive measure has the potential to make a significant impact on a global health problem. ♦

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 100,3:1051-1055

For information about cholera and how travelers can avoid the disease, visit http://www.cdc.gov/ncidod/dbmd/diseaseinfo/cholera_g.htm at the National Center for Infectious Diseases, part of the Centers for Disease Control and Prevention (not a part of NIH).

Using Plants to Clean up Arsenic

by Harrison Wein, Ph.D.

Arsenic pollution is a serious health problem, affecting hundreds of millions of people around the world. The methods currently used to clean this element from contaminated soil are expensive and inefficient. A team of scientists supported by NIH's National Institute of General Medical Sciences (NIGMS) have developed a method using plants that has the potential to be easier and more economical.

Arsenic is found naturally in soil and groundwater, but it is spread further through the environment by pesticide use, mining operations and other industrial activities. Arsenic is a poison, as you may know if you're a mystery fan, and high levels can cause an array of health problems like sore throat, nausea, vomiting and death. It has also been linked to many types of cancers, including lung, skin, bladder, liver and kidney.

Arsenic is toxic to most plants, just as it is to animals, but a team of scientists centered at Wayne State University School of Medicine in Detroit and the University of Georgia in Athens believed they could use genetic engineering to create plants that could clean contaminated soil of arsenic, a process called phytoremediation (phyto means plant). To do this, they took two genes from the bacterium *Escherichia coli* that allow it to grow in the presence of arsenic and put them into the small mustard weed *Arabidopsis thaliana*, a plant commonly used for genetic engineering.

The resulting plants grow well in the presence of arsenic and, because of the way they have been designed to process the arsenic, are able to accumulate it in their leaves. This is a necessary step if the plants are to be used for phytoremediation. Leaves rich in arsenic can be harvested relatively easily and disposed of safely.

An important aspect of the new technique is that it may be applicable to a wide variety of plant species able to grow in different environments. It holds great promise for improving human health, especially in developing countries where arsenic pollution affects so many people. ♦

—a report from *The NIH Word on Health*, April 2003
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For more information on arsenic, visit the MEDLINEplus information page on arsenic at <http://www.nlm.nih.gov/medlineplus/arsenic.html>. MEDLINEplus is a service of NIH's National Library of Medicine.

Older Homes Encourage Walking

by Carol Torgan, Ph.D.

As the number of Americans who are sedentary and overweight continues to grow at an alarming rate, health professionals are trying to take a broader look at what factors shape our physical activity choices. One relatively new avenue of research focuses on understanding the environmental factors that encourage physical activity. The surprising finding of one recent study is that people are more likely to walk if they live in an older home.

Drs. David Berrigan and Richard Troiano, researchers from NIH's National Cancer Institute (NCI), took an intriguing look at data from the Third National Health and Nutrition Examination Survey (NHANES III), a nationally representative sample of the U.S. population. They examined the association between home age and walking behavior in over 14,000 adults. Homes were placed into three categories according to when they were built: before 1946, 1946-1973, and 1974-present. Walking patterns were determined by questions such as, "In the past month, how often did you walk a mile or more at a time without stopping?"

Adults who lived in homes built before 1974 in

either urban or suburban areas were more likely to walk one or more miles twenty or more times per month than residents of homes built in 1974 or later. Home age didn't influence walking activity for people in rural counties. Home age was not associated with other activities such as jogging, running, swimming, weight lifting, or dancing.

The researchers believe that the explanation for their finding is that older urban and suburban homes are typically in neighborhoods that have more sidewalks, networks of streets, and a combination of business and residential uses. They conclude that community planning decisions can have an influence on physical activity levels and therefore on the health of the population. So although a health club nearby may encourage exercise, it can also help to have tree-lined sidewalks right outside the front door. ♦

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

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For information about starting a walking program, see the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) booklet *Walking...A step in the Right Direction* at: <http://www.niddk.nih.gov/health/nutrit/walking/walkingbro/walking.htm>.

To learn more about how community design influences physical activity choices, visit the web site of Active Community Environments (ACEs), an initiative sponsored by the Centers for Disease Control and Prevention (CDC), at <http://www.cdc.gov/nccdphp/dnpa/aces.htm>.

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