

# NIH MedlinePlus®

SPRING/SUMMER 2010

Trusted Health Information  
from the National  
Institutes of Health

the magazine

## Plus, in this issue!

- **Fit or Fat?**

Help reduce childhood obesity

- **Hold the Salt!**

Too much of a good thing

- **Bite Fright**

Stop ticks to  
stay healthy  
this summer

## Tennis Superstar Martina Navratilova

in the match of  
her life—against  
breast cancer



# Surviving Breast Cancer

# ePatient Conference Explores Future of Personalized Medicine



Photo: NLM

**Donald West King, M.D.**  
FNLN Chairman

## Let Us Hear From You!

We want your feedback on the magazine, ideas for future issues, as well as questions and suggestions. E-mail your letters to Managing Editor Selby Bateman ([selby.bateman@vitality.com](mailto:selby.bateman@vitality.com)) or send mail to Editor, *NIH MedlinePlus Magazine*, P.O. Box 18427, Greensboro, NC 27419-8427. We will feature some of your letters in upcoming issues.

**H**ow are computer networks and digital technologies changing the future of health care? Will you and your healthcare provider communicate better in the digital future? What is personalized medicine?

Some of the nation's top health researchers, computer experts, and scientists offered answers to those questions during a conference April 6-7, held on the NIH campus in Bethesda, Md. "The ePatient: Digital and Genomic Technologies for Personalized Health Care" was co-sponsored by the Friends of the National Library of Medicine (FNLN), the National Library of Medicine (NLM), and South Jersey Healthcare.

"We are delighted with the success of this conference," says Donald A.B. Lindberg, M.D., director of the National Library of Medicine. "The presentations and discussions at the conference encompass some of the most important and dramatic challenges and opportunities that healthcare providers and patients will face in the next few years."

Presentations and panel discussions focused on defining personalized medicine and demonstrating how it has affected research on cancer and brain disorders. Patient advocates identified the characteristics of ePatients—"equipped, enabled, empowered, engaged, educated, expressive, expert, and electronic."

Educating and empowering our readers are also the goals of each issue of *NIH MedlinePlus* magazine. We hope you find this issue both useful and enlightening.

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

To read more about the conference, visit [www.fnln.org](http://www.fnln.org).



Photos: NIH

Conference keynote Dr. David Blumenthal (top) detailed the Obama administration's push for personalized medicine while "e-Patient Dave" deBronkart (below) described how it empowers cancer patients.

## Help Out for Health: Be a Friend

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

If you or your company can help to support and expand the publication and distribution of *NIH MedlinePlus* magazine, thousands and thousands more people will gain valuable, free access to the world's best online medical library, [www.medlineplus.gov](http://www.medlineplus.gov).

For more information, please visit [www.fnln.org](http://www.fnln.org) or call (202) 719-8094. Or, write to FNLN, 2801 M Street NW, Washington, DC 20007.

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

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

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

**Elliot Siegel, Ph.D.**  
Associate Director for Health Information  
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**Naomi Miller, M.L.S.**  
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NIH MedlinePlus, the Magazine is published by  
Vitality Communications  
407 Norwalk St.  
Greensboro, NC 27407  
(336) 547-8970

**William G. Moore**, President  
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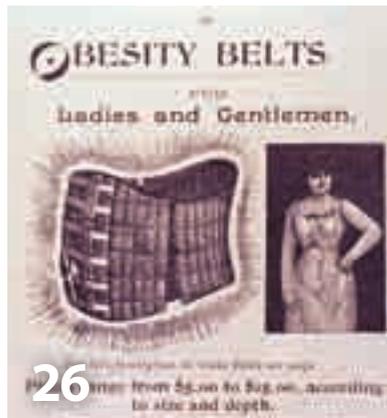
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**Correction:** In our Winter 2010 issue, the varicella  
zoster virus (VZV) was incorrectly listed in several  
places as VZV. VZV is correct.

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(center and cover) Martina Navratilova;  
(bottom) History of Medicine Division,  
National Library of Medicine



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From NIH Director Dr. Francis S. Collins

# Transforming Discovery into Health

**Testifying recently before Congress**, Dr. Francis S. Collins, M.D., Ph.D., Director of the National Institutes of Health, described advances in cancer therapy and obesity, and the future direction of biomedical research.

**S**cience is not a 100-yard dash. It is a marathon — a marathon run by a relay team that includes researchers, patients, industry experts, lawmakers, and the public. Although we have accomplished much, biomedical research still has an enormous amount of ground to cover before discovery is turned into health for all Americans.

## Meeting the Challenge of Cancer

Cancer still claims the lives of more than 500,000 Americans annually — about one every minute. But in 2007, for the first time in our nation's history, the absolute number of cancer deaths in the U.S. went down. And, over the past 15 years, cancer death rates have dropped 11.4 percent among women and 19.2 percent among men, which translates into some 650,000 lives saved — more than the population of Washington, D.C. These are very encouraging milestones, but they are not nearly enough.

## Revolution in Cancer Research

NIH-funded research has revolutionized how we think about cancer. A decade or two ago, cancer diagnosis was based on the organ involved and treatment depended on broadly aimed therapies that often greatly diminished a patient's quality of life. Today, basic research in cancer biology is moving treatment toward more effective, less toxic therapies tailored to the genetic profile of each patient's cancer.

## Breast Cancer Success

Among the early success stories in this area is the drug trastuzumab (Herceptin) for breast cancer. An NIH-sponsored clinical trial found that when breast cancer patients whose tumors were genetically matched to trastuzumab received the drug, along with standard chemotherapy, their risk of cancer recurrence fell 40 percent. This is the best improvement ever reported in post-surgical treatment of breast cancer.

## Personalizing Cancer Treatment

To accelerate development of more individualized strategies for more types of cancer, NIH has launched The Cancer Genome Atlas (TCGA). Over the next few years, TCGA researchers will build comprehensive maps of the key genomic changes in 20 major types and subtypes of cancer. The resulting information is being made rapidly available to the worldwide scientific community. It will provide a powerful new tool for developing better ways to diagnose, treat, and prevent cancer. Already, TCGA has produced a comprehensive molecular classification system for ovarian cancer and glioblastoma, the most common form of brain cancer.

## Taking on Obesity

More than one-third of adults in the U.S. are obese, according to the latest data from the Centers for Disease



Photo: NIH

“Today, basic research in cancer biology is moving treatment toward more effective, less toxic therapies tailored to the genetic profile of each patient’s cancer.”

### **Shortening the Pathway to Health**

Whatever the disease, be it depression, diabetes, or something much rarer, NIH’s emphasis will be on translating basic discoveries into new diagnostic and treatment advances in the clinic. For many disorders, there are new opportunities for NIH to shorten and straighten the pathway from discovery to health.

This expectation is grounded in several recent developments: the dramatic acceleration of our basic understanding of hundreds of diseases, the establishment of NIH-supported centers that enable academic researchers to use such understanding to screen thousands of chemicals for potential drug candidates, and the emergence of public-private partnerships to aid the movement of drug candidates identified by academic researchers into the commercial development pipeline.

### **Envisioning the Future**

In the world I envision just a few decades from now, we will use stem cells to repair spinal cord injuries; bioengineered tissues to replace worn-out joints; genetic information to tailor health outcomes with individualized prescriptions; and nanotechnology to deliver therapies with exquisite precision. I also dream of a day when, in ways yet to be discovered, we will be able to prevent Alzheimer’s, Parkinson’s, and other diseases that rob us much too soon of family and friends.

Control and Prevention (CDC). And there are signs that the next generation may face an even greater struggle. Since 1980, obesity has more than doubled among U.S. children ages two through five, nearly tripled among young people over age six. This translates into tens-of-millions of Americans who are at increased risk for type 2 diabetes, as well as cardiovascular disease, high blood pressure, certain cancers, osteoarthritis, and other serious health problems associated with excess body fat.

To address our growing national obesity, NIH has undertaken a variety of innovative approaches for weight control. One is the National Collaborative on Childhood Obesity Research, which has pulled together experts from four NIH institutes, the CDC, and the Robert Wood Johnson Foundation. They have begun the Trial of Activity for Adolescent Girls, a national study to develop and test school- and community-based interventions to get girls more involved in gym class, organized sports, or recreational activities.

Another NIH program, called *We Can!* (featured on page 6), provides families with practical tools for weight control at more than 1,000 community sites nationwide. How to get more people to lose weight is also among the questions being explored by OppNet, a new trans-NIH behavioral and social sciences research initiative.

# Healthy Weight, Healthy Child

Resources for parents and children to help in the fight for healthy weight, healthy foods, and healthy exercise

**National Institutes of Health programs include vital research and community outreach for healthy results.**

**A**t the National Institutes of Health (NIH), research on ending the epidemic of obesity is a high priority. In early 2003, NIH established the NIH Obesity Research Task Force to help coordinate the many ways that research could solve this health crisis.

In addition to the research, a number of institutes provide tools and information directly to the American people to help achieve healthier weights for our children.

## **Obesity in Children**

Obesity means having too much body fat. It is different from being overweight, which means weighing too much. Both terms mean that a person's weight is greater than what is considered healthy for his or her height. Children grow at different rates, so it isn't always easy to know when a child is obese or overweight. Ask your doctor to measure your child's height and weight to determine if he or she is in a healthy range.

If a weight loss program is necessary, the NIH recommends that you involve the whole family in healthy habits so your child doesn't feel singled out. You can encourage healthy eating by serving more fruits and vegetables and buying fewer sodas and high-calorie, high-fat snack foods. Physical activity can also help your child overcome obesity or being overweight. Kids need about 60 minutes each day.

## **FASTFACTS**

- One out of every three children in the United States is now overweight or obese. That places them at greater risk of developing diabetes, heart disease, and cancer over the course of their lives.
- Obesity is estimated to cause 112,000 deaths per year in the United States.
- One-third of all children born in the year 2000 are expected to develop diabetes during their lifetime.
- The current generation may be on track to have a shorter lifespan than their parents.
- Obesity-related medical conditions cost nearly \$150 billion per year. Overall, medical spending on adults attributed to obesity topped about \$40 billion in 1998, and by 2008, increased to an estimated \$147 billion.
- Excess weight during childhood costs an estimated \$3 billion per year.

# Get Involved

## How Parents and Kids Can Get Involved in Good Health

**“The childhood obesity epidemic in America is a national health crisis.”**

— White House Task Force on Childhood Obesity,  
May 2010

**A**mericans are all too aware that many of our children are overweight or even obese. For parents, the good news is that there are many resources now available to help keep our children at healthy weights or to help overweight children reduce their weight.

The recent White House Task Force report on childhood obesity targeted four priority areas for reducing childhood obesity. These are also the pillars of First Lady Michelle Obama’s national Let’s Move! campaign to end childhood obesity:

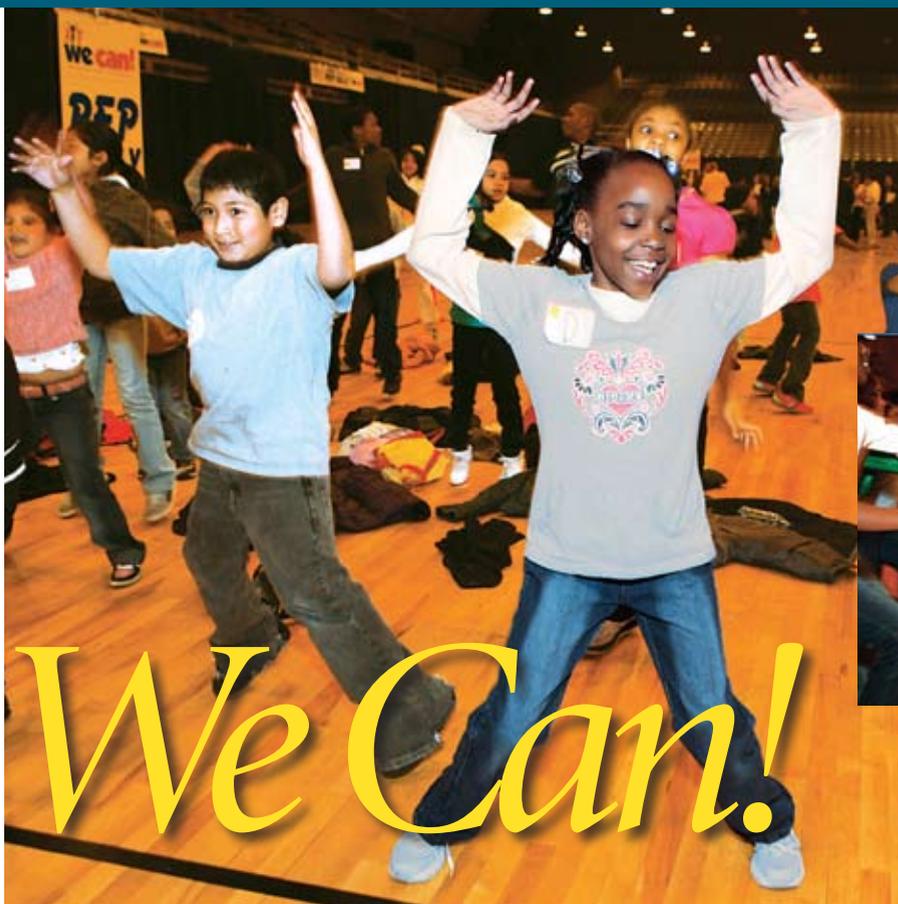
1. **empowering parents and caregivers**
2. **providing healthy food in schools**
3. **improving access to healthy, affordable foods**
4. **increasing physical activity**



**U.S. First Lady Michelle Obama heads the national *Let's Move!* campaign to help all children achieve healthy weight through good nutrition and exercise.**

Photos: Let's Move! Campaign





Photos: NHLBI

At a *We Can!* pep rally in Washington, DC, kids take part in games that promote physical activity as well as gain knowledge of healthy foods.



# We Can!

**We Can!** is a national education program that provides parents and caregivers of 8- to 13-year-olds with tools and strategies for maintaining a healthy weight, notes Karen Donato, coordinator of NHLBI's Overweight and Obesity Research Applications. "We focus on improved nutrition, increased physical activity, and reducing screen time to mobilize communities, partners, and the media around a common message. We think it will be helpful for everyone out there to rally around this cry for the need to reduce overweight in children."

Thousands of parents and their children in more than a thousand community sites around the country have taken part in the *We Can!* (Ways to Enhance Children's Activity & Nutrition) program over the past five years. The program has reached every

state, and includes outreach to populations such as Native Americans. A key part of the program is to involve

## June marks the fifth year for the *We Can!* child-centered nutrition and physical activity program from four NIH Institutes.

parents and children, together. (See "To Find Out More" at the end of this section for *We Can!* contact information about getting involved.)

"My mom and I work together as a team to stay healthy," says first-grader Joseph Grant. "We prepare a grocery list together, and always include fruits, vegetables for snacks, and we choose poultry and fish instead of red meat."

Grant recently won a *We Can!*-related essay contest on personal success stories about keys to healthy living; his essay was entitled "Staying Healthy Together."

## NIH Promotes Healthier Children

*We Can!* is a national childhood obesity prevention program sponsored by the National Heart, Lung, and Blood Institute, the National Institute of Diabetes and Digestive and Kidney Diseases, the Eunice Kennedy Shriver National Institute of Child Health and Human Development, and the National Cancer Institute.

The **Weight-control Information Network (WIN)**, sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases, provides the general public, health professionals, the media, and the U.S. Congress with up-to-date, science-based information on weight control, obesity, physical activity, and related nutritional issues.

# The Weight-control Information Network (WIN)

Resources for parents and kids to help drop pounds, eat healthier foods, and exercise more

## Helping Your Overweight Child

To help parents understand how they can help their overweight children, here are tips from the Weight-control Information Network (WIN), an information service of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK).

## Is My Child Overweight?

Healthy eating and physical activity are key to your child's well-being. Eating too much and exercising too little may lead to overweight and related health problems that may follow children into their adult years. You can take an active role to help your child—and your whole family—learn healthy eating and physical activity habits that last a lifetime.

Children grow at different rates at different times, so it is not always easy to tell if a child is overweight. If you think that your child is overweight, talk to your healthcare provider. He or she can tell you if your child's weight and height are in a healthy range.

## How Can I Help My Overweight Child?

Involve the whole family in building healthy eating and physical activity habits. This benefits everyone and does not single out the child who is overweight.

Do not put your child on a weight-loss diet unless your healthcare provider recommends one. If children do not eat enough, they may not grow and learn as well as they should.



## 3 Critical Keys for Helping Your Kids

- **Tell your child that he or she is loved, special, and important.** Children's feelings about themselves are often based on how they think their parents feel about them.
- **Accept your child at any weight.** Children are more likely to accept and feel good about themselves when their parents accept them.
- **Listen to your child's concerns about his or her weight.** Overweight children probably know better than anyone else that they have a weight problem. They need support, understanding, and encouragement from parents.



# 4 Top Healthy Snacks

Your child might enjoy trying the following foods:

- **Fresh fruit**
- **Small amounts of dried fruits, such as raisins, apple rings, or apricots**
- **Fresh vegetables, such as baby carrots, cucumber, zucchini, or tomatoes**
- **Low-sugar, whole-grain cereal with low-fat milk**

Foods that are small, round, sticky, or hard to chew—such as raisins, whole grapes, hard vegetables, hard chunks of cheese, nuts, seeds, and popcorn—can cause choking in children under age 4. You can still prepare some of these foods for young children by cutting grapes into small pieces and cooking and cutting up vegetables. Always watch your toddler during meals and snacks.

—Source: National Institute of Diabetes and Digestive and Kidney Diseases



Photo: iStock

## NIH Research to Results

**Most of the 27 NIH Institutes and Centers sponsor obesity and healthy weight research. Among their recent findings:**

- **Children who are obese** are far more likely to develop stiffer large arteries than children who are leaner, according to a study funded by the National Heart, Lung, and Blood Institute. Stiff arteries are associated with atherosclerosis, a condition in which blood vessels become clogged and one that usually doesn't occur until adulthood. Exercise and lower body mass can improve the condition, according to the study.
- **Two recent studies published in the journal *Pediatrics*** show that minority children have higher levels of obesity than their white counterparts. They also show more signs of inflammation, which in adults is associated with heart disease. Twenty percent of black and Hispanic children ages 2 to 19 are obese. Fifteen percent of white children are obese, according to the study. Factors such as infant eating and sleeping habits, mothers who smoke during pregnancy, and a dozen other circumstances were examined as a part of the study. This research was funded by NIH's National Center on Minority Health and Health Disparities.
- **Researchers are looking at** whether or not the risks for childhood obesity could actually start before birth. The subject needs more rigorous testing, but suggests that earlier interventions among infants and toddlers who become obese need to be a part of infant care. The research was funded by NIH's National Center on Minority Health and Health Disparities and the Robert Wood Johnson Foundation.

# Wanted: Active Role Models for Today's Kids

**F**or a generation of American children more likely to tap a video game controller than bounce a ball, problems of obesity should be no surprise. And with obesity already a growing problem for their parents, kids today need all the active role models they can get.

“With childhood obesity at an all-time high, we need to come together and really get people—especially kids—to be active,” says Handles Franklin, one of the stars of the world-famous Harlem Globetrotters. “Something so simple as going out to play is so important for kids today.”

While the Globetrotters are known all over the world for their basketball-handling wizardry and on-court entertainment, they're also making a name for themselves as exercise evangelists for children. In addition to the hundreds of games they play each year, they also make time to work with kids in schools to show them that fitness can be fun and rewarding. Wherever their shows take them, they visit schools and promote activities that get the children moving.

In 2008, the Globetrotters launched a program called S.P.I.N.—Some Playtime Is Necessary—a program designed to make fitness fun for kids, while promoting and encouraging an active lifestyle. To date, they have worked with thousands of children and adults to make exercise and healthy eating a lifetime goal.

“The children we work with love to exercise with us,” says Franklin. “They see that it's fun, and they feel better about themselves. They also see that we just don't tell them to eat healthy foods and to exercise, we do it ourselves.”

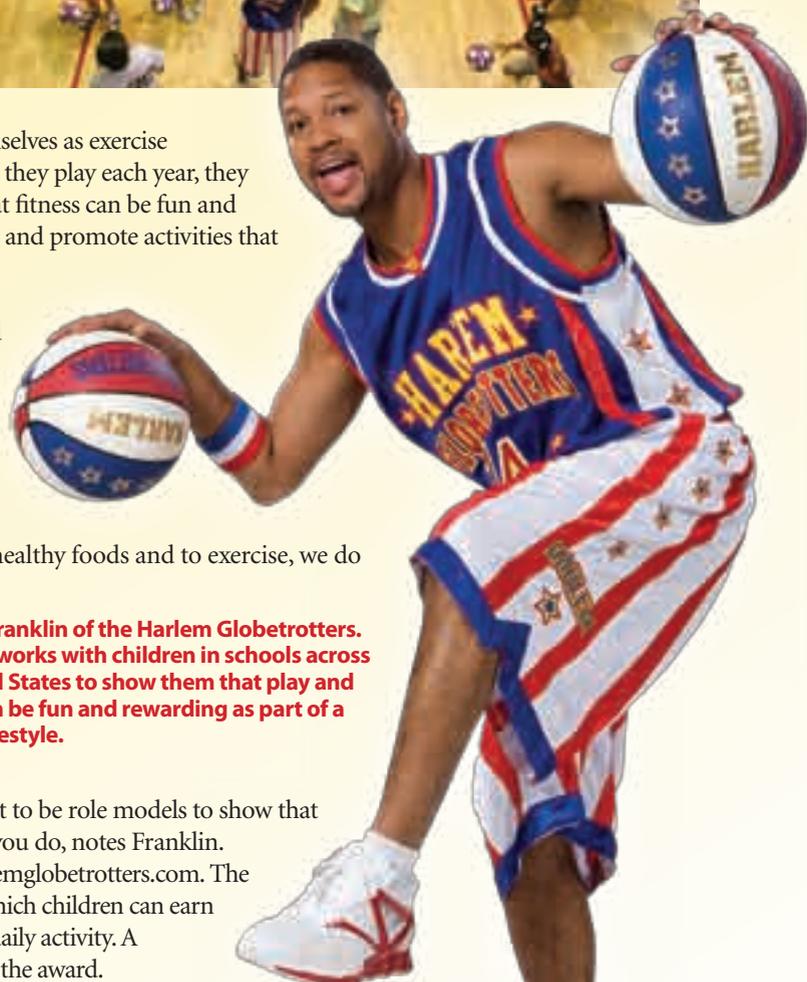
Franklin says that he grew up playing outside every day, and his parents encouraged that. “And that has changed nowadays,” he adds. “Kids are so engaged with video games and other activities that don't get them outside to play.”

The Globetrotters not only want kids to have fun, they want to be role models to show that healthy exercise will make a difference in life no matter what you do, notes Franklin.

To find out more about the S.P.I.N. program, visit [www.harlemglobetrotters.com](http://www.harlemglobetrotters.com). The Web site also has a link to the President's Challenge, through which children can earn an Active Lifestyle Patch by maintaining a goal of one hour of daily activity. A personal activity log helps kids track their progress and achieve the award.



Photos: Harlem Globetrotters



**Handles Franklin of the Harlem Globetrotters. The team works with children in schools across the United States to show them that play and fitness can be fun and rewarding as part of a healthy lifestyle.**

# 6 Easy Steps toward healthier eating



- 1. Buy and serve more fruits and vegetables (fresh, frozen, canned, or dried).** Let your child choose them at the store.
- 2. Buy fewer soft drinks and high-fat or high-calorie snack foods like chips, cookies, and candy.** These snacks may be OK once in a while, but always keep healthy snack foods on hand. Offer the healthy snacks more often at snack times.
- 3. Make sure your child eats breakfast every day.** Breakfast provides your child with the energy he or she needs to listen and learn in school. Skipping breakfast can leave your child hungry, tired, and looking for less healthy foods later in the day.
- 4. Eat fast food less often.** When you do visit a fast food restaurant, encourage your family to choose the healthier options, such as salads with low-fat dressing or small sandwiches without cheese or mayonnaise.
- 5. Offer your child water or low-fat milk more often than fruit juice.** Low-fat milk and milk products are important for your child's development. One hundred percent fruit juice is a healthy choice but is high in calories.
- 6. Be aware that some high-fat or high-sugar foods and beverages may be strongly marketed to kids.** Usually these products are associated with cartoon characters, offer free toys, and come in bright packages. Talk with your child about the importance of fruits, vegetables, whole grains, and other healthy foods—even if these foods are not often advertised on TV or in stores.

—National Institute of Diabetes and Digestive and Kidney Diseases

## To Find Out More

The following resources can help you help your child make good eating and exercise decisions:

- **BAM! Body and Mind** answers kids' questions about health, including physical activity and nutrition. (It also offers a "Teacher's Corner" for educators.)  
[www.bam.gov](http://www.bam.gov)
- **Fruits and Veggies—More Matters** is a collaboration between the Centers for Disease Control and Prevention (CDC) and the Produce for Better Health Foundation to encourage Americans to eat more fruits and vegetables. The Web site offers nutritional information, recipes, and tips.  
[www.fruitsandveggiesmatter.gov](http://www.fruitsandveggiesmatter.gov)
- **KidsHealth** offers nutrition and fitness information for kids.  
[www.kidshealth.org](http://www.kidshealth.org)
- **MedlinePlus Obesity in Childhood**  
[www.nlm.nih.gov/medlineplus/obesityinchildhood.html](http://www.nlm.nih.gov/medlineplus/obesityinchildhood.html)
- **MyPyramid** is an interactive tool that replaces the Food Guide Pyramid. The MyPyramid Web site offers information to help you make healthier food choices and find your balance between food and physical activity. The Web site also has materials just for kids.  
[www.mypyramid.gov](http://www.mypyramid.gov)

# Smooth and Healthy

Tasty, low-fat coolers for summer fun and family health

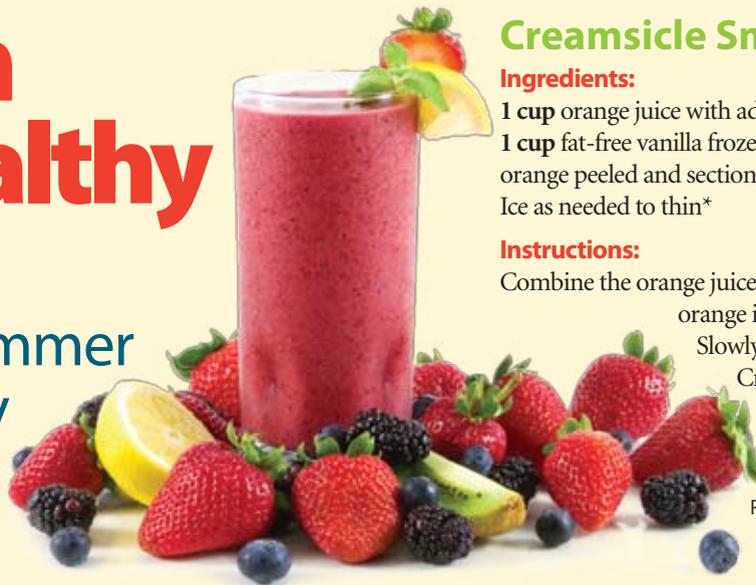


Photo: iStock

## Creamsicle Smoothie

### Ingredients:

1 cup orange juice with added calcium  
1 cup fat-free vanilla frozen yogurt  
orange peeled and sectioned (remove seeds)  
Ice as needed to thin\*

### Instructions:

Combine the orange juice, vanilla frozen yogurt, and orange in a blender and blend. Slowly add ice until your Creamsicle Smoothie is the consistency you like.

## Berry Berry Good Smoothie

### Ingredients:

1 cup low-fat strawberry yogurt  
1 cup orange juice with added calcium  
1 cup frozen strawberries  
1 cup frozen blueberries  
1 cup frozen raspberries

### Instructions:

Combine the low-fat yogurt and the orange juice in a blender and blend. Slowly add the frozen berries while blending. If your smoothie is too thick, add more orange juice until your Berry Berry Good Smoothie is the consistency you like.

## Tutti-Frutti Smoothie

### Ingredients:

1 cup fat-free milk  
1 cup low-fat fruit yogurt  
banana\*\* / 1 cup strawberries  
Ice as needed to thin

### Instructions:

Combine the fat-free milk, low-fat fruit yogurt, banana, and strawberries in a blender and blend. Slowly add ice until your Tutti-Frutti Smoothie is the consistency you like.

\* Freeze fruit juice (pineapple, orange, apple, white grape) in ice cube trays beforehand and then save them in a resealable bag. Substitute the frozen fruit juice for plain ice for an extra flavorful smoothie. \*\* Try peeling, slicing, and freezing the banana in a resealable bag for an extra cold and creamy Tropical Smoothie.

—Recipes from Eunice Kennedy Shriver National Institute of Child Health and Human Development

- **National Diabetes Education Program** provides information about diabetes and children to parents and healthcare professionals.  
[www.ndep.nih.gov/diabetes/youth/youth.htm](http://www.ndep.nih.gov/diabetes/youth/youth.htm)
- **We Can! Ways to Enhance Children's Activity and Nutrition** is a national program designed for families and communities to help children maintain a healthy weight.  
[wecan.nhlbi.nih.gov](http://wecan.nhlbi.nih.gov)
- **Helping Your Overweight Child**  
[www.win.niddk.nih.gov/publications/over\\_child.htm](http://www.win.niddk.nih.gov/publications/over_child.htm)  
(also available in Spanish)

- **Take Charge of Your Health! A Guide for Teenagers!**  
[www.win.niddk.nih.gov/publications/take\\_charge.htm](http://www.win.niddk.nih.gov/publications/take_charge.htm) (also available in Spanish)
- **Being Healthy is a Big Deal**  
[www.win.niddk.nih.gov/publications/PDFs/Big\\_Deal\\_flyer\\_508.pdf](http://www.win.niddk.nih.gov/publications/PDFs/Big_Deal_flyer_508.pdf)
- **Parents... Splash into a Healthy Summer with These Ideas**  
[www.win.niddk.nih.gov/publications/PDFs/Healthy\\_Summer\\_flyer\\_508.pdf](http://www.win.niddk.nih.gov/publications/PDFs/Healthy_Summer_flyer_508.pdf)

# Salt: Too Much of a Good Thing

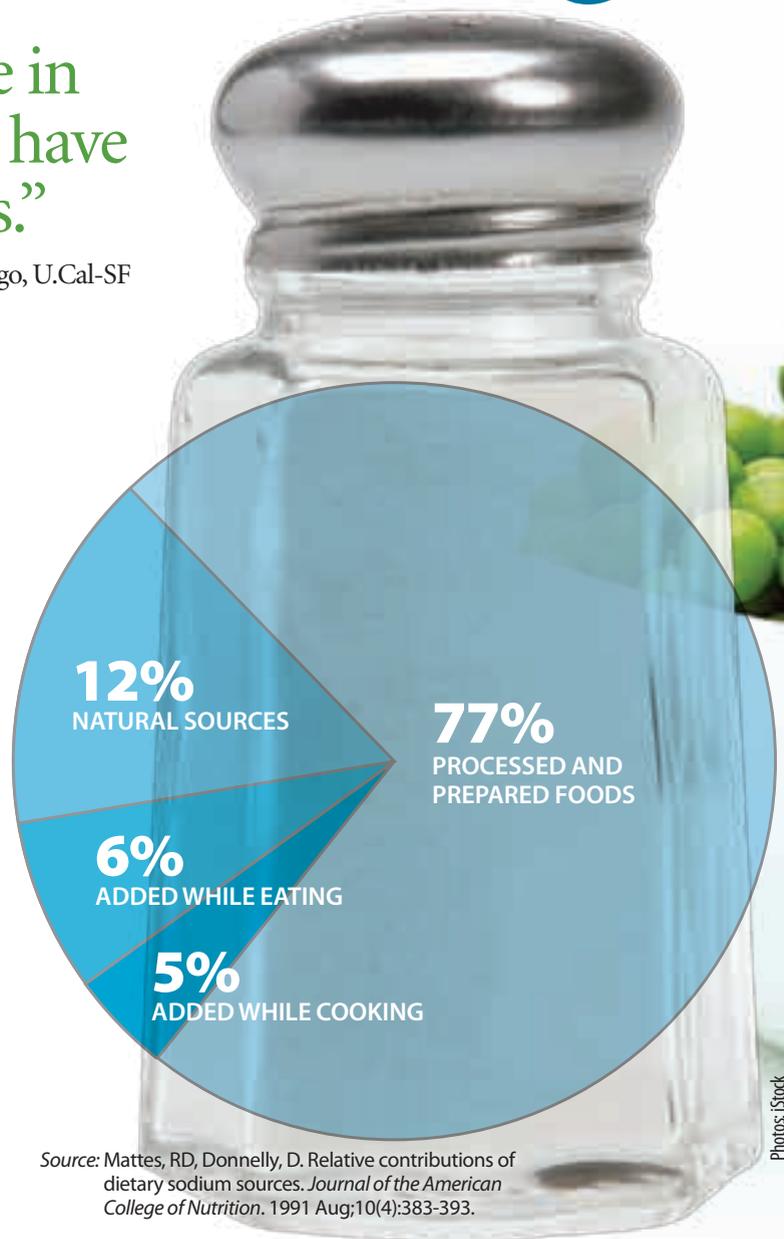
“A very modest decrease in the amount of salt...can have dramatic health benefits.”

— Dr. Kirsten Bibbins-Domingo, U.Cal-SF

**T**he salt in your shaker is actually the chemical compound sodium chloride. We can't live without it. Yet many studies show that too much is not good for our health. More than 90 percent of the salt we eat comes from our processed foods and prepared meals in restaurants or dining halls—not from the salt we sprinkle on our food.

“A very modest decrease in the amount of salt, hardly detectable in the taste of food, can have dramatic health benefits,” says Dr. Kirsten Bibbins-Domingo, a researcher at the University of California, San Francisco. She led a recent NIH-funded study that found that lowering salt intake by only 3 grams (about half a teaspoon) could prevent as many as 92,000 deaths nationwide each year. There would be fewer than 120,000 new cases of heart disease. Strokes would be cut by 66,000; heart attacks by 100,000.

Although every segment of the population would benefit, African Americans would see the most improvement, because they are at greater risk of high blood pressure, also called hypertension. This is the force of blood pushing against artery walls as the heart pumps blood. Over time, hypertension



Source: Mattes, RD, Donnelly, D. Relative contributions of dietary sodium sources. *Journal of the American College of Nutrition*. 1991 Aug;10(4):383-393.

Photos: iStock

can lead to heart disease, stroke, kidney failure, and other serious health problems.

Healthcare professionals concentrate on the effects of the sodium in salt. “The best known effect of sodium on health is the relationship between sodium and blood pressure,” says Dr. Catherine Loria, of NIH’s National Heart, Lung, and Blood Institute. Reducing salt intake lowers blood pressure. Almost one-third of American adults have high blood pressure and another 30 percent have pre-hypertension (blood pressure that is elevated but not high), Dr. Loria says, “It’s really important for the majority of the population to reduce their blood pressure.”

**To help lower blood pressure, experts recommend that people consume fewer than 2,400 milligrams of sodium a day—about the amount found in a teaspoon of salt. People with high blood pressure should aim for 1,500 milligrams.**

“Many people don’t realize that a lot of our salt comes from breads and cereals,” says researcher Bibbins-Domingo. She notes that more than 20 percent of the salt in the average American diet comes from breads, cereals, crackers, chips, and similar foods.

In view of this, NIH’s Dr. Loria advises consumers to choose foods with less than five percent of the daily value of salt per serving. “Pay attention to nutrition facts on the labels. The percent daily value is a better guide than the language that’s used on food labels like ‘low-salt,’” she says.

Beyond lowering sodium intake, both experts urge that more people maintain a healthy diet, exercise regularly, lose weight, stop smoking, and take steps to avoid stress. That makes it far more likely they will lower their blood pressure and lead healthier lives.

## Canned or Frozen: Which Has More Salt?

To find out, read the labels and compare.

### Answer

Canned peas have **three times more sodium** than frozen peas.

### Frozen Peas

Serving Size ½ cup  
Servings Per Container about 3

Amount Per Serving	
<b>Calories</b> 60	Calories from Fat 0
% Daily Value*	

<b>Total Fat</b> 0g	<b>0%</b>
---------------------	-----------

Saturated Fat 0g	<b>0%</b>
------------------	-----------

<b>Cholesterol</b> 0mg	<b>0%</b>
------------------------	-----------

<b>Sodium</b> 125 mg	<b>5%</b>
----------------------	-----------

<b>Total Carbonydrate</b> 11g	<b>4%</b>
-------------------------------	-----------

Dietary Fiber 6g	<b>22%</b>
------------------	------------

Sugars 5g	
-----------	--

<b>Protein</b> 5g	
-------------------	--

Vitamin A 15%	•	Vitamin C 30%
---------------	---	---------------

Calcium 0%	•	Iron 6%
------------	---	---------

\* Percent Daily Values are based on a 2,000 calorie diet.

### Canned Peas

Serving Size ½ cup  
Servings Per Container about 3

Amount Per Serving	
<b>Calories</b> 60	Calories from Fat 0
% Daily Value*	

<b>Total Fat</b> 0g	<b>0%</b>
---------------------	-----------

Saturated Fat 0g	<b>0%</b>
------------------	-----------

<b>Cholesterol</b> 0mg	<b>0%</b>
------------------------	-----------

<b>Sodium</b> 380 mg	<b>16%</b>
----------------------	------------

<b>Total Carbonydrate</b> 12g	<b>4%</b>
-------------------------------	-----------

Dietary Fiber 3g	<b>14%</b>
------------------	------------

Sugars 4g	
-----------	--

<b>Protein</b> 4g	
-------------------	--

Vitamin A 6%	•	Vitamin C 10%
--------------	---	---------------

Calcium 2%	•	Iron 8%
------------	---	---------

\* Percent Daily Values are based on a 2,000 calorie diet.

When possible, eat fresh vegetables.  
1 cup of raw peas has 4 mg sodium.

## Labels: For your health

### Sodium (Salt or Sodium Chloride)

Sodium has several functions in the food supply. Various forms of sodium, including sodium chloride, or salt, are used as preservatives to inhibit the growth of food-borne pathogens (especially in luncheon meats, fermented foods, salad dressings, and cheese products). Also read the ingredient list to watch for the words “soda” (referring to sodium bicarbonate, or baking soda), “sodium” and the symbol “Na” to see if the product contains sodium.

### Where’s the salt?

Sodium can come from natural sources or be added to foods. Most foods in their natural state contain some sodium. However, the majority (up to 75 percent) of sodium that Americans consume comes from sodium added to processed foods by manufacturers. While some of this sodium is added to foods for safety reasons, the amount of salt added to processed foods is clearly above and beyond what is required for safety and function of the food supply.



Photo: iStock

### Major food sources of sodium include:

- **Tomato sauce** (can or jar)
- **Soups** (can, dehydrated)
- **Condiments** (prepared, gravy, sauces)
- **Canned foods** (potatoes, peas, etc.)

### Know Your Sodium Terms

Some products include terms related to sodium. Here are some common terms and their meanings:

- **Sodium-free** – less than 5 milligrams of sodium per serving
- **Very low-sodium** – 35 milligrams or less per serving
- **Low-sodium** – 140 milligrams or less per serving
- **Reduced sodium** – usual sodium level is reduced by 25 percent
- **Unsalted, no salt added or without added salt** – made without the salt that’s normally used, but still contains the sodium that’s a natural part of the food itself

The U.S. Food and Drug Administration and U.S. Department of Agriculture state that an individual food that has the claim “healthy” must not exceed 480 mg sodium per reference amount. “Meal type” products must not exceed 600 mg sodium per labeled serving size.



Photo: iStock

## Chicken Salad

Serves 5

### Ingredients:

- |  |                             |
|--|-----------------------------|
| 3 1/4 cups chicken breast, cooked, cubed, and skinless | 1 Tbsp. lemon juice         |
| 1/4 cup celery, chopped                                | 1/2 tsp. onion powder       |
|  | 3 Tbsp. mayonnaise, low-fat |

### Instructions:

1. Bake chicken, cut into cubes, and refrigerate.
2. In a large bowl combine rest of ingredients, add chilled chicken and mix well.

**Nutrition Information Per Serving:** Calories: 176, Total Fat: 6 g, Saturated Fat: 2 g, Cholesterol: 77 mg, Sodium: 120 mg, Protein: 27 g, Carbohydrate: 2 g, Calcium: 16 mg, Magnesium: 25 mg, Potassium: 236 mg, Fiber: 0 g

Source: National Heart, Lung, and Blood Institute

### Children and Salt

The taste for salt is learned. Adding less or no salt and choosing foods lower in salt can help your preschooler learn to like foods with a less salty taste. Eating less salt is an important way to help growing preschoolers stay healthy. This may reduce their risk of chronic diseases when they are adults. The recommended daily limit for sodium is less than 1,500 milligrams for children 1 to 3 years old, and less than 1,900 milligrams for children 4 to 8 years old.

# Quiz: What's the buzz about salt?

**1. The body needs how much salt per day:**

- a. 1/4 teaspoon
- b. 1/2 teaspoon
- c. 1 teaspoon
- d. 1 tablespoon

**2. The maximum amount of salt recommended in the U.S. Dietary Goals:**

- a. 1/4 teaspoon
- b. 1 teaspoon
- c. 1 1/2 teaspoons
- d. 1 tablespoon

**3. The amount of salt that the average American consumes each day:**

- a. 2 teaspoon
- b. 3 teaspoons
- c. 4 teaspoons
- d. 5 teaspoons

**1 teaspoon of salt = 2,000 mg.**

**4. How much salt is in 3 oz. pork chop?**

- a. 52 mg.
- b. 100 mg
- c. 500 mg.
- d. 1,000 mg

**5. How much salt is in 3 oz. of ham?**

- a. 500 mg.
- b. 1,156 mg.
- c. 2,500 mg.
- d. 3,000 mg.

**6. How much salt is in a fast food Deluxe Burger?**

- a. 76 mg.
- b. 300 mg.
- c. 545 mg
- d. 918 mg.

**7. How much salt is in 20 potato chips?**

- a. 50 mg.
- b. 100 mg.
- c. 175 mg.
- d. 250 mg.

**8. How much salt is in a picnic meal \_\_\_\_\_?**

- 1 hot dog in a bun
- 1 teaspoon catsup
- 20 chips
- 1/2 cup canned baked beans

**ANSWERS**

- 1. 1/4 teaspoon
- 2. 1 1/2 teaspoons
- 3. 3.3 teaspoons
- 4. 52 mg
- 5. 1,156 mg
- 6. 918 mg
- 7. 250 mg
- 8. 1,620 mg

—National Agricultural Library



Photo: iStock

## Tasty Stand-Ins for Salt

Keep your kitchen stocked with the ingredients on this list to make it easier to plan and prepare meals. They are available in most grocery stores and are easy to use.

### Add Flavor with Herbs and Spices (fresh and dried)

- |                       |                      |                          |                           |
|-----------------------|----------------------|--------------------------|---------------------------|
| ■ Basil               | ■ Cinnamon           | ■ Ginger                 | ■ Parsley                 |
| ■ Ground black pepper | ■ Coriander          | ■ Mint                   | ■ Rosemary                |
| ■ Cayenne pepper      | ■ Crushed red pepper | ■ Nutmeg                 | ■ Salt-free seasoning mix |
| ■ Chili powder        | ■ Cumin              | ■ Oregano                | ■ Tarragon                |
| ■ Cilantro            | ■ Garlic             | ■ Paprika/smoked paprika | ■ Thyme                   |

### Use Condiments, Sauces, and Other Seasonings!

- |                                      |                 |  |                                      |
|--------------------------------------|-----------------|--|--------------------------------------|
| ■ Canned tomato paste, no salt added | ■ Capers        | ■ Low-sodium broth or stock (chicken, beef, vegetable) | ■ Light teriyaki sauce               |
| ■ Canned tomatoes, no salt added     | ■ Dijon mustard | ■ Lite soy sauce                                       | ■ Salsa or reduced-sodium taco sauce |
|                                      | ■ Fish sauce    |  |                                      |
|                                      | ■ Honey         |  |                                      |
|                                      | ■ Lemon juice   |  |                                      |
|                                      | ■ Lime juice    |  |                                      |

—National Institute of Diabetes and Digestive and Kidney Diseases

# The Match of Her Life

**Tennis superstar  
Martina Navratilova**  
stays strong in her battle against breast cancer and her work to help Americans live healthier, more active lives.

For 53-year-old Martina Navratilova, the diagnosis of breast cancer came as a total shock—just as the diagnosis does for many women. But with the same strength and positive attitude that helped her win 59 Grand Slam tennis titles and become one of *Sports Illustrated's* “Top 40 Athletes of All Time,” she met the challenge head on.

In addition to finding out as much as she could about her breast cancer and taking steps to get the best medical advice, she also began speaking out to help all Americans understand the many varieties of the disease. As Health and Fitness Ambassador for AARP—the nonprofit membership organization for people age 50 and over—Navratilova was already providing advice to Americans on ways to live healthier and more active lives. Now, she is emphasizing the importance for women to get regular, preventive health screenings for breast cancer.

Navratilova recently made time to answer questions for this issue of *NIH MedlinePlus* magazine about her breast cancer.

**You discovered you had breast cancer in February of this year. What were your first thoughts upon getting the diagnosis?**

**Navratilova:** It was February 24th when I got “the word,” and I realized my life would never be the same. This was always going to be hanging over my head. I wanted to know what it meant and how we were going to fix it.

**One thing we know about breast cancer is that there are really many different forms of the disease. Can you tell us about the type you were diagnosed with and your course of treatment?**

**Navratilova:** I was diagnosed with DCIS, which is ductal carcinoma in situ, Grade 3, which is the aggressive type. And the

treatment is a lumpectomy, which was done in March. I started six weeks of radiation on May 11th. Then I am done, hopefully for good.



Photo: Martina Navratilova

**You've said one of the keys to your tremendous success as a tennis player has been a positive attitude. How has that translated to your dealing with cancer?**

**Navratilova:** Well, immediately after I was told what the problem was, I wanted to get into the solution. And I've been in that mode of thinking ever since.

**You are keeping up a schedule that is quite amazing even through the course of your treatment. What do you do to keep your energy level up and maintain your health?**

**Navratilova:** I keep eating well, getting enough sleep and resting/napping when I feel like I need it, and more concentrating on breathing and slowing down a bit. Most of all, avoiding stress and accepting offers of help and support from friends.

**What is the message you'd most like to send to women recently diagnosed with breast cancer—and to their families?**

**Navratilova:** Don't be afraid to accept help from friends and family. And, of course, be positive. You can't control this, but make sure you don't get in the way of healing.

As this issue of the magazine went to press, Navratilova was receiving radiation therapy while helping to cover the French Open for The Tennis Channel. She also was scheduled to play in senior doubles matches during the Open.



Photo: iStock

# Breast Cancer Basics and You

**A**ccording to the National Cancer Institute (NCI), there were more than 194,000 new cases of breast cancer in the United States in 2009. More than 40,000 people died of the disease. It occurs in both men and women, although male breast cancer is rare.

## The Breasts

Inside a woman's breast are 15 to 20 sections called lobes. Each lobe contains many smaller sections called lobules. These are groups of tiny glands that make breast milk. Breast milk flows through thin tubes called ducts to the nipple. Fat and other tissue fills the spaces between the lobules and ducts. The breasts also contain lymph vessels, which are connected to small, round masses of tissue called lymph nodes. Lymph nodes produce cells that help the body fight infection. Groups of lymph nodes are near the breast in the underarm, above the collarbone, and in the chest behind the breastbone.

## Cancer Cells

Cancer begins in cells, the building blocks of body tissues. Cells grow and divide to form new cells. When normal cells grow old or get damaged, they die, and new cells take their place. Sometimes, new cells form when the body doesn't need them, and old or damaged cells don't die as they should. The extra cells often form a mass of tissue called a lump, growth, or tumor. Breast tumors can be benign (not cancer) or malignant (cancer).

### Benign tumors:

- are rarely a threat to life
- can be removed and usually don't grow back
- don't invade the tissues around them
- don't spread to other parts of the body

### Malignant tumors:

- may be a threat to life
- often can be removed but sometimes grow back

- can invade and damage nearby organs and tissues (such as the chest wall)
- can spread to other parts of the body

Breast cancer cells can break away from the original tumor and enter blood vessels or lymph vessels, which branch into all the tissues of the body. The cancer cells may spread to lymph nodes near the breast, or they may attach to other tissues, growing into new, damaging tumors.

## Risk Factors

No one knows what causes breast cancer. Risk factors for breast cancer include age, personal and family health history, genetic changes, prior radiation therapy, reproductive and menstrual history, race, breast density, overweight and obesity, physical inactivity, and alcohol consumption. You can avoid some risk factors, such as drinking alcohol. Having a risk factor does not mean that you will get breast cancer. Most women with risk factors never develop breast cancer.

## Symptoms

Early breast cancer usually doesn't cause symptoms. But as the tumor grows, it can change how the breast looks or feels, including:

- A lump or thickening in or near the breast or underarm area
- A change in the size or shape of the breast
- Dimpling or puckering in the skin of the breast. The skin may be ridged or pitted like an orange.
- A nipple turned inward into the breast
- Fluid discharge from the nipple, especially if it's bloody
- Scaly, red, or swollen skin on the breast, nipple, or areola (the dark area of skin at the center of the breast)

See your healthcare provider about any of these symptoms that do not go away.

## Breast Cancer Basics and You (continued)

### Detection and Diagnosis

You should have regular clinical breast exams and mammograms to find breast cancer early, when treatment is more likely to work well.

#### Clinical Breast Exam

During a clinical breast exam, your healthcare provider inspects your breasts, underarms, and collarbone area. She

- looks for differences in size or shape between the breasts
- checks your skin for a rash, dimpling, or other abnormal signs
- may squeeze your nipples to check for fluid
- uses the pads of her fingers to feel for lumps, pea-sized or larger
- checks the lymph nodes near the breast to see if they are enlarged

If there is a lump, your healthcare provider will feel its size, shape, and texture. She will also see if it moves easily. Lumps that are soft, smooth, round, and movable are likely to be benign. Hard, oddly shaped ones that feel firmly attached within the breast are more likely to be cancer, but you will need further tests to diagnose the problem.

#### Mammogram

Mammograms are x-ray pictures of breast tissue. They can often show a lump before it can be felt. They also can reveal clusters of tiny specks of calcium. Lumps or specks can be from cancer, precancerous cells, or other conditions. If you have a lump or calcium deposits, you may need further tests to detect the presence of abnormal cells. You should get regular screening mammograms to detect breast cancer early (see Screening for Breast Cancer, next page).

#### Other Imaging Tests

Ultrasound devices use inaudible sound waves to create images that show whether a breast lump is solid, filled with fluid (a cyst), or a mixture of both. Cysts usually are not cancer. Solid lumps may be. Magnetic resonance imaging (MRI) devices detail the difference between normal and diseased breast tissue.

#### Biopsy

Biopsies remove small amounts of breast tissue for inspection. They are the only sure way to tell if you have cancer. A pathologist analyzes the tissue or fluid to determine the type of cancer.



### Screening

#### Mammography

In November 2009, the United States Preventive Services Task Force updated recommendations on breast cancer screening, suggesting that women ages 50 to 74 who are at average risk for getting the disease undergo a routine screening mammogram every two years.

The new recommendations do not advise routine mammography for average-risk women ages 40 to 49.

#### Self-Examination

The updated 2009 recommendations also advise against teaching breast self-exam (BSE) because no clinical trials to date have shown that teaching of the technique reduces the number of deaths from breast cancer.

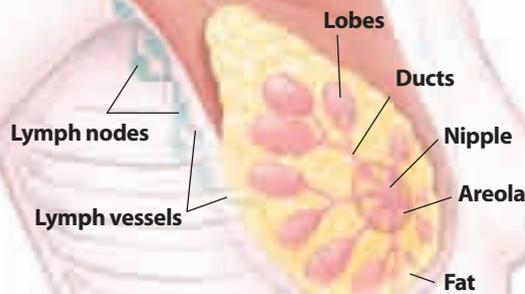
According to Dr. Stephen Taplin, senior scientist in NCI's Division of Cancer Control and Population Sciences' Applied Research Program (ARP), this recommendation "certainly does not mean that women shouldn't respond to lumps and bumps or other troublesome changes in their breasts that they discover on their own. Women should go to their healthcare provider when they have a concern."

#### Testing Breast Tissue

Special tests on the diseased tissue may help determine treatment:

**Hormone receptor tests:** Some breast tumors need the hormones estrogen, progesterone, or both, to grow. If they are found, your healthcare provider may recommend hormone therapy.

**HER2/neu test:** HER2/neu is a protein found on some types of cancer cells. This test shows whether the tissue either has too much HER2/neu protein or too many copies of its gene. If the breast tumor has too much HER2/neu, then targeted therapy, which uses drugs to block the growth of breast cancer cells, may be an option.



**The lobes and ducts of the breast, and nearby lymph nodes (above) are areas that cancer can attack. The temporary inconvenience of a mammogram (opposite page) can save you from troublesome and costly treatment and surgery by catching breast cancer early, when it is easiest to treat.**

## Staging

The extent (stage) of breast cancer needs to be determined to help choose the best treatment. The stage is based on the size of the cancer, whether it has invaded nearby tissues, or spread to other parts of the body. Staging may involve blood and other tests.

## Treatment

There are many options for treating breast cancer, including surgery, radiation therapy, hormone treatment, chemotherapy, and targeted therapy. A person may receive more than one type. What is best for one woman may not be best for another.

### Local Therapy

Surgery and radiation are types of local therapy, used to remove or destroy cancer in the breast.

### Systemic Therapy

Hormone therapy, chemotherapy, and targeted therapy are types of systemic therapy. They enter the bloodstream and destroy or control cancer throughout the body.

### Your Choices

The treatment that's right for you depends mainly on the stage of the cancer, the results of the hormone receptor tests, the result of the HER2/neu test, and your general health.

### Clinical Trials

You may want to talk with your doctor about taking part in a clinical trial, a research study of new treatment methods. Clinical trials are an important option at any stage of breast cancer.

If you are interested in a clinical trial, talk with your doctor. You may want to read the National Cancer Institute (NCI) booklet *Taking Part in Cancer Treatment Research Studies*. It describes how treatment studies are carried out and explains their possible benefits and risks (for details see page 21).

The NCI Web site includes a section on clinical trials at <http://www.cancer.gov/clinicaltrials>. It has general information about clinical trials, as well as detailed information about specific ongoing studies of breast cancer. Information specialists at 1-800-4-CANCER (1-800-422-6237) or at LiveHelp at <http://www.cancer.gov/help> can answer questions and provide information about clinical trials.

### Side Effects

Your doctor can describe your treatment choices, the expected results, and possible side effects. Because cancer therapy often damages healthy cells and tissues, side effects are common. Before treatment, ask your healthcare team how to prevent or reduce them, and how treatment may change your normal activities. Together, you and your healthcare team can develop a treatment plan that meets your medical and personal needs.

### Treatment Experts

Your doctor may refer you to a specialist, or you may ask for a referral. Specialists who treat breast cancer include surgeons, medical oncologists, and radiation oncologists. You may be referred to a plastic surgeon or reconstructive surgeon. Your healthcare team may also include an oncology nurse and a registered dietitian.

“You need to build a support system of family and friends. They make a world of difference.”

— Jana Brightwell

# Braving Breast Cancer: Just Do It!

By Christopher Klose

**A** couple of weeks after injuring her rib in a car accident, Jana Brightwell, 59, of Bethesda, Md., happened to notice a lump under her armpit. “Then I found one in my breast, deep down, and that shot me right to my doctor,” she says.

After a series of mammograms, MRIs, and biopsies, she was diagnosed with stage two infiltrating ductal carcinoma, one of the commonest forms of breast cancer in the United States. “Like most women, I had taken my body for granted, hadn’t examined myself regularly, and discovered the cancer by accident,” she admits.

Despite surviving an earlier bout of malignant skin cancer at age 49, she wasn’t prepared for her latest battle. “Breast cancer is not something you’d wish on anyone. It’s a family disease and affects everyone. It took the wind out of my husband David’s sails, but if it weren’t for him, I wouldn’t have gotten through it,” Brightwell says. “You need to build a support system of family and friends. They make a world of difference.”

Because the cancer had spread



Photo: Jana Brightwell

**Breast cancer survivor Jana Brightwell, pictured here on the NIH campus in Bethesda, Md., hopes her story helps other women.**

**Inset: with her husband and daughter.**





# Jana Brightwell says, “Just Do It!”

1. Examine your breasts every month. If you don't, you're not familiar with yourself.
2. Any doubts or questions—ask your healthcare provider.
3. Build a support system of family and friends.
4. Let them help you. It helps you and them.
5. Learn all about your cancer and the side effects of treatment.
6. Do what helps—meditation, yoga, a regular routine.
7. Look for humor where you can in the cancer process.
8. Do whatever it takes to get better.

to her lymph nodes, and the lump in her breast was large enough to warrant a mastectomy, Brightwell knew she would need to undergo surgery, chemotherapy, and radiation. But in what order? “My oncologist helped me prioritize. I chose to have chemotherapy first, to shrink the tumor so we could do a lumpectomy instead of removing my breast entirely.”

Over 18 weeks, she had six sessions of a three-drug combination chemotherapy. It was the roughest part of her treatment. “I lost my hair, my appetite, my bones ached, and I couldn't get out of bed after the first session. You don't realize how sick you can get,” she says. But she vowed to move on, despite the fatigue, forgetfulness caused by the chemotherapy, the anxiety, and fear.

Midway through her chemotherapy, her tumor had shrunk in half, as hoped (“I was very fortunate!”), and she could have her lumpectomy. On November 18, 2009, her surgeon successfully removed her tumor and, “to be on the safe side,” her underarm lymph nodes. Six weeks later, she began the final phase of her treatment: 45 minutes a day of radiation therapy, five days a week, for seven weeks in a row. Her therapy lasted until the end of February.

Up to now, she has only shared her story with close friends. But at her daughter's urging, Brightwell agreed to go public in this magazine. “During chemo, I sat with a roomful of women going through the same thing as me, and I was inspired by their stories. They were willing to do whatever it took to get better. I hope my story can help at least one woman deal with her fears.”

Photo: Naomi Miller

## For more information

### MedlinePlus: Breast Cancer

[www.nlm.nih.gov/medlineplus/breastcancer.html](http://www.nlm.nih.gov/medlineplus/breastcancer.html)

### National Cancer Institute, NIH, HHS

Phone Number(s): (800) 322-8615; (301) 496-5583

Internet Address: [www.cancer.gov/](http://www.cancer.gov/)

### American Cancer Society

Phone Number(s): (800) 227-2345; (404) 329-7520

Internet Address: [www.cancer.org/docroot/home/](http://www.cancer.org/docroot/home/)

### National Breast and Cervical Cancer Early Detection Program

Phone number(s): (888) 232-6348

Internet address: [www.cdc.gov/cancer/nbccedp/](http://www.cdc.gov/cancer/nbccedp/)

### Susan G. Komen Breast Cancer Foundation

Phone number(s): (800) 465-6636

Internet address: [www.komen.org](http://www.komen.org)

### Breast Cancer Network of Strength

Phone number(s): (800) 221-2141

Internet address: [www.networkofstrength.org/](http://www.networkofstrength.org/)

At any stage of disease, supportive care is available to control pain and other symptoms, to relieve the side effects of treatment, and to ease emotional concerns. Information about such care is available on the **NCI** Web site at [www.cancer.gov/cancertopics/coping](http://www.cancer.gov/cancertopics/coping) and from the **NCI Cancer Information Service** at 1-800-4-CANCER (1-800-422-6237) or at LiveHelp ([www.cancer.gov/help](http://www.cancer.gov/help)).

### NCI book Taking Part in Clinical Trials

Internet address: [www.cancer.gov/clinicaltrials/Taking-Part-in-Cancer-Treatment-Research-Studies](http://www.cancer.gov/clinicaltrials/Taking-Part-in-Cancer-Treatment-Research-Studies)

# Quiz: How much do you know about breast cancer?

- Breast cancer is more common in**
  - younger women
  - older women
  - adolescents
- In situ breast cancer refers to**
  - cancer that has spread throughout the body
  - cancer that has spread to local lymph nodes
  - cancer that appears in only one place in the body
- If cancer has metastasized, that means that it**
  - has disappeared from the body
  - exists only in the place where it started
  - has spread to other parts of the body
- Which of the following are possible symptoms of breast cancer?**
  - a change in the size or shape of the breast
  - nipple discharge or tenderness
  - ridges or pitting of the breast
  - all of the above
- Early signs of breast cancer**
  - are often painful
  - are often visible to the naked eye
  - don't cause any symptoms
- What percent of mammogram results are abnormal?**
  - 5 to 10 percent
  - 20 to 25 percent
  - 1 to 2 percent
- Stage 0 breast cancer is**
  - early stage breast cancer
  - late stage breast cancer
  - locally advanced breast cancer
- Stage III breast cancer is**
  - early stage breast cancer
  - late stage breast cancer
  - locally advanced breast cancer
- Stage IV breast cancer is**
  - early stage breast cancer
  - late stage breast cancer
  - locally advanced breast cancer
- Which of the following is a local treatment for breast cancer?**
  - surgery
  - hormone therapy
  - biological therapy
  - chemotherapy

—Source: NIHSeniorHealth.gov

## ANSWERS

- B is the correct answer.** Breast cancer is more common among older women than younger women.
- C is the correct answer.** In situ cancer remains at the site where it first occurs and does not spread to surrounding tissue.
- C is the correct answer.** If cancer has metastasized, that means that it has spread to other parts of the body. When cancer spreads from its original location in the breast to another part of the body such as the brain, it is called metastatic breast cancer, not brain cancer. Doctors sometimes call this "distant" disease.
- D is the correct answer.** Each of these symptoms gives important information to the doctor. But all symptoms together mean cancer could be there.
- C is the correct answer.** Most cancers in their early, most treatable stages don't cause any symptoms.
- A is the correct answer.** Only 5 to 10 percent of mammogram results are abnormal and require more testing. Most of these follow-up tests confirm that no cancer is present.
- A is the correct answer.** Stage 0 is very early breast cancer that has not spread within or outside the breast. Doctors often refer to this type of cancer as in situ or non-invasive cancer. Stage I and stage II also are early stages of breast cancer. Stage I means that the tumor has not spread beyond the breast. In stage II, the tumor may be larger and may have spread to the lymph nodes.
- C is the correct answer.** Stage III is called locally advanced cancer. Here the tumor has spread beyond the breast to lymph nodes or to other tissues near the breast.
- B is the correct answer.** Stage IV is metastatic cancer. In this stage the cancer has spread beyond the breast and the underarm lymph nodes to other parts of the body, most often the bones, lungs, liver, or brain.
- A is the correct answer.** Surgery only treats the cancer at the site on the body where the surgery is performed. Surgery on the breast cannot remove cancer that may have spread to other parts of the body. To treat cancer that has spread, doctors use systemic therapies, such as hormones, chemotherapy, and biological therapies that cover most of the body.



# Celebrating Leadership in Public Health and Medicine

*Friends of the National Library of Medicine (FNLM)*

The 2010 FNLM Annual Awards Dinner, held May 11 in Washington, DC, brought together hundreds of representatives of public, professional, and business sectors in healthcare to show their support for NLM. The 2010 Awards Dinner celebrated the advancements made in public health and medicine along with the individuals and organizations who are dedicated to this cause. FNLM also honored accomplishments made in the field of publishing and health communications. The 2010 Awards Dinner raised funds to support key NLM programs.

## 2 0 1 0   A N N U A L   A W A R D S   D I N N E R

### Guests of Honor

**Anthony S. Fauci, MD**, *Director, National Institute of Allergy and Infectious Diseases*

**Donald A. B. Lindberg, MD**, *Director, National Library of Medicine*



Donald A.B. Lindberg, Director,  
National Library of Medicine

### Distinguished Health Communications Award

**Eugene Braunwald, MD**, *Distinguished Hersey Professor of Medicine, Harvard Medical School Chairman, TIMI Study Group, Brigham and Women's Hospital*

Dr. Braunwald was honored for his outstanding leadership and contributions to the world of cardiology as well as his prolific work as editor and author of texts and journals.



Frank Bonner, M.D., FNLM  
President (left), with award winner  
Eugene Braunwald, M.D.

### Distinguished Medical Science Award

**Patrick Soon-Shiong, MD**, *Executive Chairman, Abraxis BioScience Chairman, the National Coalition for Health Integration (NCHI) Executive Director, UCLA Wireless Health Institute*

Dr. Soon-Shiong was honored for his medical research and development of ground-breaking treatments and therapies for diabetes and cancers.



Guest of Honor Anthony S. Fauci, M.D.,  
Director, National Institute of Allergy  
and Infectious Diseases (left), with award  
winner Robert Gallo, M.D.

### Paul G. Rogers Medical Science Award

**Robert Gallo, MD**, *Professor of Medicine and Director, The Institute of Human Virology, University of Maryland School of Medicine*

Dr. Gallo was honored for his discovery of the HIV virus and for his contributions to innovations in testing and treatments of the global AIDS epidemic.

### Michael E. DeBakey Medical Librarian Award

**Rita B. Smith, MLIS, AHIP**, *Outreach and Education Coordinator, Mercer University Medical Library and LRC*

Ms. Smith was honored for her outstanding service to the communities of Georgia through her work at the Mercer University Medical Library and LRC.



Award winner Patrick Soon-Shiong, M.D.



Donald West King, M.D.,  
FNLM Chairman, and award winner  
Rita B. Smith, MLIS, AHIP

Photos: NIH

# Bite Fright!

**A word to the wise this summer: Keep a sharp eye out for ticks.** Their bites can bring on serious health problems.

## What Are Ticks?

If you spend any time outdoors, you've probably crossed paths with ticks. Ticks are small bloodsucking parasites. They aren't insects; they're actually related to spiders and have eight legs. Many ticks don't carry diseases, but some transmit diseases to animals and people.

## Reducing Your Exposure

It's wise to check for ticks every day, especially in warmer months. Ticks can be very small, so carefully examine your skin for them. They may be as small as a poppy seed.

To reduce your chances of exposing yourself to ticks:

- Separate the "play areas" of your lawn and bushes, shrubs, high grasses, and other types of vegetation that ticks favor. Be sure to give your pets preventive flea and tick medicines, even if they stay indoors; you and your visitors can bring ticks along for the ride and into your home.
- When walking in a park or other outdoor natural setting, take a few precautions:
  - Wear long pants and long sleeves, and choose light colors in order to spot ticks easily.
  - Use insect sprays containing 20 percent DEET on skin and clothes (or permethrin on clothes only).
  - When walking on natural trails, stay on the trail.
  - Always check your skin carefully for ticks after any outing into a natural area.



Photo: World Health Organization (WHO)

This is a tick of the genus *Ixodes*, one of many types of ticks that can transmit Lyme disease to humans.

Photo: iStock

## FASTFACTS

- Ticks are small bloodsucking parasites that live off mammals, including humans and common household pets.
- Ticks can carry serious diseases. The most common is Lyme disease, with between 20,000 and 30,000 cases reported each year.
- Ticks are very common, so it's a good idea to check for ticks every day when working or playing outside—especially during warmer months.
- Correctly removing a tick and disinfecting the tick bite area are very important.



Lyme disease often appears as a “bull’s-eye” rash around the site on the skin where there has been a tick bite.

## How to Remove a Tick

1. Use tweezers with a good grasping end to remove the tick as close to the skin as possible. Do not use your bare hands. Wear gloves or use a tissue to protect your hands from the tick.
2. Grabbing the tick near the skin, pull upward with a slow, steady motion. Avoid sudden jerking or twisting motions.
3. Place the tick in a sealable plastic bag and put it in the freezer. Do not crush or destroy the tick, and avoid touching the tick or any fluid that comes from it, including blood. You want to keep it for identification in case the bitten person becomes sick. Make a note of the date you removed the tick.
4. Thoroughly disinfect the site of the tick bite, and wash your hands thoroughly.
5. If the bitten person shows signs of having the flu or a rash in the area around the bite, contact your healthcare provider.

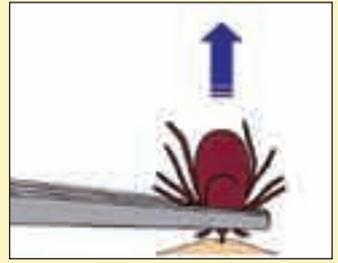


Illustration: CDC

## Tick-borne Diseases: The Big Two

### Lyme disease

Lyme disease is the most common tick-borne disease in the United States. It can cause fever, headaches, fatigue, and a “bull’s eye” skin rash. Left untreated, infection can spread to joints, the heart, and the nervous system. Permanent damage to the joints or the nervous system can develop in patients with late Lyme disease.

Lyme disease has different stages. The rash is a key early-stage symptom. This circular red patch usually appears at the bite site 3 to 30 days after the bite. It expands to 5 to 6 inches in diameter, and persists for 3 to 5 weeks. As the rash enlarges, it may take on a “bull’s-eye” appearance. In some people this rash never forms.

Other symptoms of early Lyme disease include:

- muscle and joint aches
- headache
- chills and fever
- fatigue
- swollen lymph nodes

Other symptoms may not appear until weeks or months after a tick bite occurs. They include:

- arthritis (usually as pain and swelling in large joints, especially the knee)
- nervous system abnormalities
- heart-rhythm irregularities

Antibiotics usually cure early stage Lyme disease. If not treated, the disease can cause problems with the joints, heart and nervous system.

### Rocky Mountain Spotted Fever

Rocky Mountain spotted fever (RMSF) is a serious disease caused by a tick bite. About 250-1200 cases have been reported annually over the last 50 years. Contrary to its name, more than half the cases of RMSF occur in the mid-Atlantic to southern region of the U.S. Symptoms include sometimes severe, flu-like symptoms, as well as muscle pain. The red-spotted rash usually happens 2 to 5 days after the fever begins. Antibiotics treat the infection. RMSF can be a very severe illness that requires hospitalization.

## NIH Research to Results

- Although Lyme disease can be effectively treated with antibiotics in its early stages, National Institute of Allergy and Infectious Diseases (NIAID) supported research showed that treatment of chronic Lyme disease with antibiotics is not helpful.
- In 1981, NIAID-funded research was responsible for identifying the bacterium that causes Lyme disease. Since then, the NIAID Lyme Disease Research Program has continued to support research that has continually improved the prevention, diagnosis, and treatment of the disease.

## To Find Out More

- **MedlinePlus:** [www.medlineplus.gov](http://www.medlineplus.gov); type “ticks” in the Search box.
- **Centers for Disease Control and Prevention (CDC):** [www.cdc.gov/Features/StopTicks/](http://www.cdc.gov/Features/StopTicks/) and [www.cdc.gov/ticks/index.html](http://www.cdc.gov/ticks/index.html)
- **NIAID:** <http://www.niaid.nih.gov/topics/tickborne/Pages/default.aspx>

# Back to the Future: Slimming Down the Old-Fashioned Way

In an extensive report on overweight and obesity in America, the U.S. Centers for Disease Control and Prevention finds that average adult Americans are 25 pounds heavier than they were in 1960.



Photos: iStock

## FASTFACTS

### According to the NIH:

- Globally, more than 1 billion adults are overweight, at least 300 million of them obese.
- An estimated 22 million children under five are overweight.
- Obesity and overweight pose a major risk for type 2 diabetes, cardiovascular disease, high blood pressure (hypertension) and stroke, and certain forms of cancer.
- Key causes: increased consumption of energy-dense foods high in saturated fats and sugars, and reduced physical activity.

Average Americans: Getting Taller, Heavier		
2002 (latest figures)	Height	Weight
Men (20 – 74 years)	5'9.5"	191 pounds
Women (20 – 74 years)	5'4"	164.3 pounds
1960	Height	Weight
Men (20 – 74 years)	5'8"	166 pounds
Women	5'3"	140 pounds

Of course, when it comes to good health, there's nothing like taking a leaf out of someone else's book—as this advice from 1908 clearly shows.

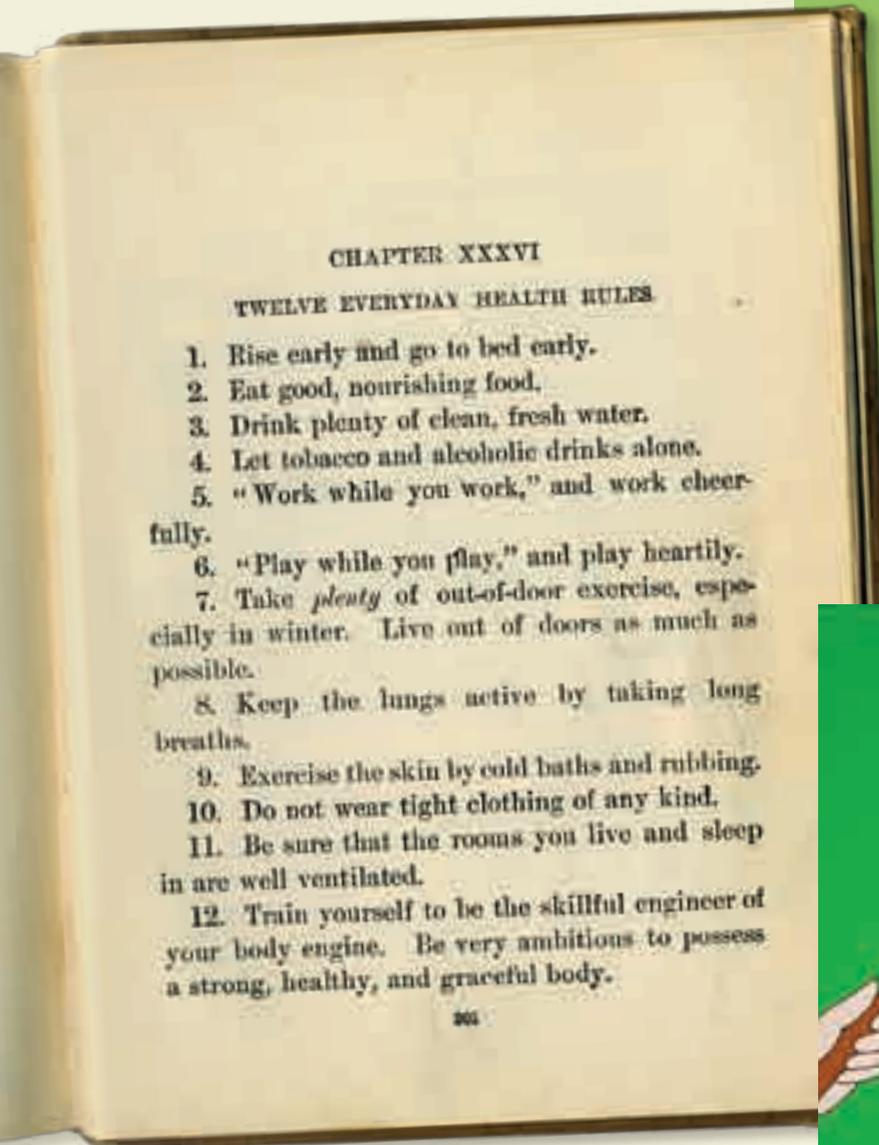
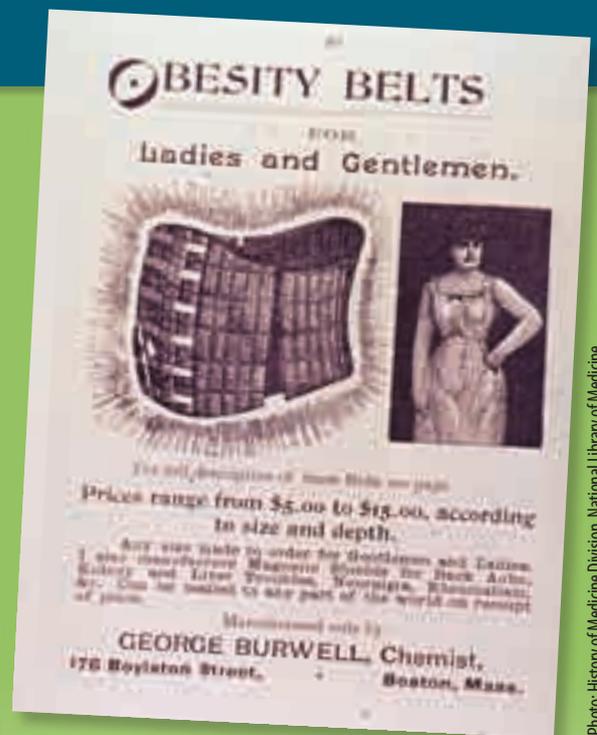


Photo: from Conn HW, *Introductory Physiology and Hygiene* (Silver, Burdett and Company, 1908)

## To Find Out More

For many more images from the history of medicine, visit the History of Medicine Division of the National Library of Medicine at [www.nlm.nih.gov/hmd/](http://www.nlm.nih.gov/hmd/).



As this 1892 ad for obesity belts illustrates, Americans have always had a passion for quick fixes.



But as the latest research demonstrates – and this modern poster from the American Dietetic Association urges – there are no short cuts to losing weight. Educating yourself and your family about obesity, eating right and exercising are the best ways to assure a healthy weight.

## Heavy Drinking, Poor Eating

A recent study finds that heavy drinkers make poor food choices. They eat less fruit and get more calories from alcoholic beverages and foods that have a lot of bad fats and sugar than moderate- or non-drinkers.

Researchers looked at information from 15,000 people across the country taking part in a U.S. government survey about health and nutrition. Researchers were able to identify specific parts of the diet that suffer with heavy drinking. For instance, men who drink a lot of alcohol are likely to consume less milk and whole grain foods. The study identifies these associations, but doesn't explain the causes for them.

Researchers at the National Institute on Alcohol Abuse and Alcoholism, The National Cancer Institute, and the U.S. Department of Agriculture conducted the study.

## Baby's Heart Defects Linked to Mom's Obesity

A woman who is obese has a greater chance of having a baby born with a heart defect. Researchers say on average, obesity increases the chances of having an infant with a heart defect by 15%. The risk goes up the more obese the mother is.

Congenital heart defects are problems with the structure of the heart that are present when a baby is born. Problems can range from mild to life threatening.

Researchers say the findings suggest that obese women can reduce the risk if they lose weight before getting pregnant.

The Eunice Kennedy Shriver National Institute for Child Health and Human Development funded the study.

## Scientists Discover First Genes for Stuttering

Scientists have unlocked the mystery of what causes stuttering in some people. For the first time, they've found mutations in genes that cause this speech problem in some study participants in Pakistan, England, and the United States. Other mutations in two of these genes are tied to two serious metabolic disorders. Researchers say the findings



Photo: iStock

may open up whole new ways of treating stuttering.

Stuttering affects more than three million Americans. People who stutter repeat or prolong words or syllables. Their eyes may blink rapidly, and their lips may tremble. Common treatments include reducing anxiety, regulating breathing, and learning to speak more slowly.

The gene mutations linked to stuttering were discovered by a team led by researchers within the National Institute on Deafness and Other Communication Disorders.

## Sleep Apnea Tied to Risk for Stroke

A landmark study finds that sleep apnea increases the risk of stroke, especially for men. People with sleep apnea experience breathing pauses, or shallow breathing, during sleep. More than 12 million Americans are believed to have the condition, but many may not know it.

Researchers say sleep apnea more than doubles the risk of stroke for men. The risk appears in men with mild to severe cases. For women, the risk appears only in severe cases. Researchers say men may be affected more because they tend to develop sleep apnea at younger ages.

This was the largest study to date to link sleep apnea with stroke. Untreated sleep apnea has also been linked to an increased risk of cardiovascular disease, death from any cause, and excessive daytime sleepiness. The National Heart, Lung, and Blood Institute funded the work.

# Info to Know

## NIH Quickfinder

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

### Institutes

- **National Library of Medicine (NLM)**  
www.nlm.nih.gov  
1-888-FIND-NLM (1-888-346-3656)
- **National Cancer Institute (NCI)** www.cancer.gov  
1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)** www.nei.nih.gov  
(301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**  
www.nhlbi.nih.gov (301) 592-8573
- **National Human Genome Research Institute (NHGRI)** www.genome.gov (301) 402-0911
- **National Institute on Aging (NIA)** www.nia.nih.gov  
Aging information 1-800-222-2225  
Alzheimer's information 1-800-438-4380
- **National Institute on Alcohol Abuse and Alcoholism (NIAAA)** www.niaaa.nih.gov  
(301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)** www.niaid.nih.gov  
(301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases** www.niams.nih.gov  
1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biomedical Imaging and Bioengineering (NIBIB)** www.nibib.nih.gov  
(301) 451-6772
- **Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)**  
www.nichd.nih.gov 1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**  
www.nidcd.nih.gov 1-800-241-1044 (voice)  
1-800-241-1055 (TTY)
- **National Institute of Dental and Craniofacial Research (NIDCR)** www.nidcr.nih.gov  
(301) 480-4098
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)** www.niddk.nih.gov  
Diabetes 1-800-860-8747  
Digestive disorders 1-800-891-5389  
Overweight and obesity 1-877-946-4627  
Kidney and urologic diseases 1-800-891-5390

- **National Institute on Drug Abuse (NIDA)**  
www.nida.nih.gov (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)** www.niehs.nih.gov  
(919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)** www.nigms.nih.gov  
(301) 496-7301
- **National Institute of Mental Health (NIMH)**  
www.nimh.nih.gov 1-866-615-6464
- **National Institute 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 on Minority Health and Health Disparities (NCMHD)** www.ncmhd.nih.gov  
(301) 402-1366
- **National Center for Research Resources (NCRR)**  
www.ncrr.nih.gov (301) 435-0888
- **NIH Clinical Center (CC)**  
www.cc.nih.gov (301) 496-2563
- **Office of AIDS Research (OAR)**  
http://www.oar.nih.gov (301) 496-0357
- **Office of Behavioral and Social Sciences Research (OBSSR)**  
http://obssr.od.nih.gov (301) 402-1146
- **Office of Rare Diseases Research (ORDR)**  
http://rarediseases.info.nih.gov  
Genetic and Rare Disease Information Center  
(888) 205-2311 Toll-free
- **Office of Research on Women's Health (ORWH)**  
http://orwh.od.nih.gov (301) 402-1770

## NIH MedlinePlus Advisory Group

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Watch a live Webcast of [minimally invasive surgery for colon cancer](#) on April 27 at 12:00 p.m. EDT, and check out the MedlinePlus health topic page on [colorectal cancer](#).



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