

## Preventing Cancer Learn How to Lower Your Risk

Do you know people who've smoked their whole lives and thrived well into old age without any sign of lung cancer? Or someone who never seemed to go near fruits and veggies but lived a long, full life? When you think of them, you might decide that cancer will come when it comes and there's nothing you can do about it. That's where you'd be wrong.

There will always be someone you know whose health flies in the face of conventional medical wisdom. But clinical studies of cancer risks can involve thousands of people and last several years. They give scientists a far broader perspective on cancer risk and prevention than you could ever get yourself.

You might also believe there's little you can do to lower your cancer risk because you've heard that **genes** play a role in many cancers. It's true that people who have certain versions of particular genes can be more susceptible to some cancers and the factors in the **environment** that trigger them. While you can't



change the genes you inherited from your parents, you can change factors in the environment.

Not all people are equally susceptible to a given type of cancer, and different people will get different benefits from cancer prevention strategies. But there are several general lifestyle changes that researchers have proven lower your risk of cancer. There are others they suspect may lower your risk. Researchers are studying those further. So why not make some changes now and lower the chance you'll have to go through a rough, costly and potentially fatal battle with cancer?

"On average, about 30 to 35% of cancers relate to smoking," says Dr. John A. Milner of NIH's National Cancer Institute. "About 30 to 35% relate to diet. Overall, it's estimated

that about 90% of cancers are due to factors in the environment. Something other than our genes are triggers."

So what are the environmental factors? Milner explains, "The air we breathe, the water we drink and the food we eat are all environmental factors."

The greatest cancer risk factor through the air comes from cigarette smoke. Cigarette smoking is the leading preventable cause of death in the United States. It leads to an estimated 438,000 deaths—or about 1 out of every 5 deaths—each year. Some people are particularly susceptible to lung cancer from smoking. A recent NIH-funded study found that both African Americans and Native Hawaiians had significantly greater risks of lung cancer related to smoking than whites, Hispanics and Japanese Americans.

*continued on page 2*

### Definitions

#### Genes

Stretches of DNA, a substance you inherit from your parents. Genes affect characteristics like height, eye color and how likely you are to develop certain cancers.

#### Environment

Everything outside the body that affects you, such as the air you breathe, the food you eat and water you drink.

### Inside News

- 1 Preventing Cancer
- 3 Soothing the Sting of Shingles
- 4 Health Capsules

- Brain Injuries and PTSD Risk
- Sealing Out Tooth Decay
- Web Site: My Family Health Portrait



## Wise Choices Preventing Cancer: Steps You Can Take

- **Don't smoke.** Quit now if you do. For help, explore the *NIH News in Health* links online or call the National Cancer Institute's Smoking Quitline at 1-877-44U-QUIT.
- **Eat well.** A healthy diet includes whole-grain breads and cereals and 5 to 9 servings of fruits and vegetables every day.
- **Be active and maintain a healthy weight.** Be physically active for at least 30 minutes on 5 or more days each week.
- **Avoid UV radiation** from the sun, sunlamps and tanning booths.
- **Avoid chemicals and other substances that raise your risk of getting cancer.** Follow instructions and safety tips on the products you use.
- **Avoid and treat infections that can cause cancer.** Talk to your doctor about avoiding viruses that cause cancer, and about any stomach problems.

### continued from page 1

So don't smoke, and avoid second-hand smoke, too.

People who have a poor diet, don't get enough physical activity or are overweight may be at increased risk of several types of cancer. Studies suggest that people who eat high-fat diets with few fruits and vegetables have an increased risk of cancers of the colon, uterus and prostate. Be sure to eat 5 to 9 servings of fruits and vegetables every day along with whole-grain breads and cereals. Limit foods that are high in fat, such as butter, whole milk and fried foods.

Lack of physical activity and being overweight are risk factors for cancers of the breast, colon, esophagus, kidney and uterus. Some studies

have also reported links between obesity and cancers of the gallbladder, ovaries and pancreas. Physical activity can help control your weight and reduce body fat. Most scientists agree that adults should engage in moderate physical activity (such as brisk walking) for at least 30 minutes on 5 or more days each week.

**Ultraviolet (UV) radiation**, which



## Definition

### Ultraviolet (UV) Radiation

Invisible rays that are part of the energy that comes from the sun. Sun lamps and tanning beds also make UV radiation.



## Web Links

For links to more information about what you can do to lower your risk for cancer, see this story online:

- [http://newsinhealth.nih.gov/2008/February/docs/01features\\_01.htm](http://newsinhealth.nih.gov/2008/February/docs/01features_01.htm)

comes from the sun, sunlamps and tanning booths, causes skin damage that can lead to skin cancer. Limit your time in the sun, use sun protection and avoid other sources of UV radiation.

Some chemicals and other substances can raise your risk of getting cancer. People who have certain jobs—such as painters, construction workers and those in the chemical industry—have an increased risk of cancer. You can be exposed to hazardous chemicals in your home as well. Follow instructions and safety tips to avoid or reduce contact with harmful substances such as pesticides, used engine oil, solvents and other chemicals.

Some bacteria and viruses may also increase the risk of developing cancer. If you have a stomach ulcer, it could be a sign that you have bacteria that can also cause stomach cancer. Human papillomaviruses (HPVs) are the main cause of cervical cancer and may also be a risk factor for other types of cancer. Hepatitis B or C infections can lead to liver cancer. HIV, the virus that causes AIDS, raises the risk of certain cancers. Don't have unprotected sex or share needles, and consider getting the vaccines for hepatitis B and HPV.

It's important to talk to a health professional about your specific cancer risks and what you can do to lower them. Make sure to discuss the cancers that people in your family have had. Your doctor can also help you figure out if you have particular risks because of your lifestyle. Together, you can put together a plan to lower your risk of getting cancer. ■

## NIH News in Health (ISSN 1556-3898) [newsinhealth.nih.gov](http://newsinhealth.nih.gov)

**Editor:** Harrison Wein, Ph.D.

[wein@od.nih.gov](mailto:wein@od.nih.gov)

Tel: 301-435-7489 Fax: 301-480-4026

**Assistant Editor:**

Vicki Contie

**National Institutes of Health**

Office of Communications

& Public Liaison

Building 31, Room 5B64

Bethesda, MD 20892-2094

**Contributors:** Vicki Contie, Margaret Georgiann (illustrations) and Harrison Wein

**Get email updates** when new issues are posted online. Go to <https://list.nih.gov/cgi-bin/wa?SUBED1=nihnewsinhealth-I&A=1> and follow the instructions or send an email to [listserv@list.nih.gov](mailto:listserv@list.nih.gov) with the words "Subscribe NIHNewsInHealth-L" in the message body.

**Get print copies** free of charge within the U.S. for display in offices, libraries or clinics. Please contact us for more information. You can also download copies for printing at our web site.

**Reprint our articles.** Material published in *NIH News in Health* is not copyrighted. We encourage you to reprint our articles and illustrations in print or web publications. Please acknowledge *NIH News in Health* as the source and send us copies of your publication.

# Soothing the Sting of Shingles

## When a Childhood Virus Comes Back to Bite You

It's an unpleasant part of childhood you can never really leave behind. Even when chickenpox is gone, the virus that causes it stays with you for life, hidden and inactive in your nerve cells. As you get older, the virus may make a second, unwelcome appearance and cause a painful disease called shingles. The second time around can be far more complicated and miserable than the first.

Once you've had chickenpox, caused by the varicella-zoster virus, you're unlikely to get it again, thanks to your **immune system**. But as you get older, the virus may re-emerge and cause shingles, also known as herpes zoster. Shingles can strike at any age, but it usually affects adults after age 50. Each year more than 1 million Americans get shingles or its complications.

The most obvious symptom of

shingles is a painful, itchy red rash with fluid-filled blisters, which generally appear on just 1 side of the body or face. The rash looks similar to chickenpox and can last from 3 to 5 weeks. After the rash fades, the pain sometimes persists for months or years. This lingering nerve pain, called post-herpetic neuralgia, affects nearly 1 out of every 3 older people with shingles. The pain can be so severe that even the gentlest touch or breeze can feel excruciating.

It's impossible to "catch" shingles from someone else. But a person with an active shingles rash can pass the varicella-zoster virus to someone who's never had chickenpox or a chickenpox vaccine. If that happens, the other person would get chickenpox, not shingles.

Fortunately, a new vaccine is now available to prevent shingles. A large clinical study showed that the Zostavax vaccine could cut the risk of getting shingles in half. NIH researchers helped with the clinical testing, which involved more than 38,000 older adults. When vaccinated

people did get shingles, they generally had less pain and discomfort, and the risk of post-herpetic neuralgia was cut by two-thirds.

The U.S. Centers for Disease Control and Prevention now recommends that all adults get the vaccine at age 60 or older, but only if they have a healthy immune system. Unfortunately, the vaccine is expensive, and the costs are not always covered by health insurance. If you're considering it, be sure to discuss the pros and cons of the vaccine with your doctor and check with your insurance provider about coverage. ■



### Definition

#### Immune System

The system that protects your body from invading viruses, bacteria and other microscopic threats.

### Wise Choices

#### Feeling Better with Shingles

See your doctor at the first sign of shingles. It often begins as burning or shooting pain and tingling or itching on 1 side of the body, followed by a blistering rash. Early treatment can help shorten the length of infection and reduce the risk of other problems. Your doctor may prescribe:

- Antiviral drugs to help kill the varicella-zoster virus.
- Steroids to lessen pain and shorten the time you're sick.

- Antidepressants, anticonvulsants or analgesics to reduce pain.

Things you can do:

- Get enough rest and eat well-balanced meals.
- Try to relax. Stress can make the pain worse.
- Dip a washcloth in cool water and apply it to your blisters to ease the pain.
- Do things that take your mind off your pain. Watch TV, read books, talk with friends or work on a hobby.

### Web Links

For links to more information about shingles, see this story online:

- [http://newsinhealth.nih.gov/2008/February/docs/01features\\_02.htm](http://newsinhealth.nih.gov/2008/February/docs/01features_02.htm)

## Health Capsules

### Brain Injuries and PTSD Risk

Scientists have found that combat veterans injured in certain brain regions are less likely to later develop post-traumatic stress disorder (PTSD). The findings suggest that PTSD might be treated by trying to reduce brain activity in these regions.

PTSD is a chronic anxiety disorder that affects millions of Americans. Many traumatic events can trigger it, including assault, rape, traffic accidents and military combat. People with PTSD relive their traumatic experiences through repeated nightmares and flashbacks that may seem real. They may become emotionally numb. They may startle easily and be constantly on guard.

NIH scientists and their colleagues studied how changes in the brain can affect PTSD. They analyzed brain scans from nearly 250 Vietnam War veterans who had been in combat. About 200 had received head wounds while fighting. The rest had no head injuries.

The researchers found that veterans rarely got PTSD if they had injuries in either of 2 brain regions. One region, the amygdala, plays a role in fear and anxiety. None of the

15 veterans with amygdala damage developed PTSD. The other brain region, a part of the prefrontal cortex, is involved in higher mental functions and planning. Only about 18% of veterans with damage to this region developed PTSD. In contrast, PTSD affected at least 40% of veterans with injury to other brain regions or no brain injury at all.

This study looked only at male veterans, but the scientists believe their findings might also apply to other types of people and trauma. Future PTSD treatments may try to suppress activity in the 2 brain regions, possibly through drugs or pacemaker-like devices. ■



### Web Links

For links to more information from NIH about post-traumatic stress disorder and dental sealants, visit this Health Capsules page online:

- <http://newsinhealth.nih.gov/2008/February/docs/02capsules.htm>



### Featured Web Site My Family Health Portrait

<http://familyhistory.hhs.gov>

Tracing the illnesses suffered by your parents, grandparents and other blood relatives can help your doctor predict the disorders you may be at risk for, and help you take action to keep you and your family healthy. This Web-based tool, developed by the U.S. Surgeon General and NIH, helps you build a drawing of your family tree and a chart of your family health history that you can print and share with your family members and doctor.



### Sealing Out Tooth Decay

When you eat or drink foods that contain sugar, germs in your mouth use the sugar to make acids. Over time, the acids can cause tooth decay, or **cavities**.

Fluoride in toothpaste and drinking water can protect the smooth surfaces of teeth, but back teeth need extra protection. Food

and germs get stuck in their rough and uneven chewing surfaces, and toothbrush bristles can't always get them clean. That's where sealants come in.

Sealants are thin, plastic coatings painted on the chewing surfaces of back teeth to keep out germs and food. They prevent cavities from forming. And if a small cavity is accidentally covered by a sealant, the decay won't spread because new germs are sealed out and germs trapped inside are sealed off from their food supply.

Many people still don't know about sealants. In fact, only 30% of children in the United States have sealants on their teeth.

Children should get sealants on their permanent molars as soon as the teeth come in, before decay attacks them. Teenagers and young adults who are prone to decay may also need sealants. Sealants can save you time and money in the long run by helping you avoid the fillings, crowns and caps used to fix decayed teeth. Talk to your dentist about sealants for your family. ■



### Definition

#### Cavities

Small holes in teeth caused by decay.



For more health information from NIH, visit

<http://health.nih.gov>