

NIH News in Health

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Lowering Your Cancer Risk

Healthy Living for Cancer Prevention

Most people know someone who's had cancer: a family member, a friend, a loved one. Who gets it can sometimes seem random. But there are many things you can do to reduce your risk.

Cancer can start almost anywhere in the body. Normally, your cells grow and divide to form new cells as the body needs them. When a cell is old or becomes damaged, it dies. Then a new cell takes its place.

But when cancer develops, this orderly process breaks down. Cancer cells divide without stopping. They can then spread into surrounding tissues or other parts of the body.

Causes of Cancer • Cancer starts with damage to the **genes** that control the way cells function. Many things you're exposed to over your lifetime can damage genes. These include chemicals, radiation, tobacco, alcohol, and others. Your body has ways to repair the damage, but they don't always work perfectly.

As you age, your body has had more time to build up damage. And the normal aging process causes other changes in cells that help cancer



develop. These factors make cancer more likely to appear as you age.

"Fortunately, most cancers do not develop as a result of a single exposure," explains NIH researcher Dr. Erikka Loftfield, who studies cancer prevention. "Typically, you don't have just one cause for a given cancer. And some potential risk factors, like cigarette smoking and diet, are changeable."

Because damage to your genes builds up slowly over time, there are many opportunities for prevention.

"Not smoking, maintaining a healthy weight, getting enough physical activity, limiting alcohol, and eating a nutritious diet are all intertwined in cancer prevention," Loftfield says. "These are all things that also help us live a healthy life."

Quit Tobacco • Tobacco use is the leading cause of cancer in the U.S. This includes smoking and use of other tobacco products, like chewing tobacco. Many chemicals in tobacco

products can damage your genes.

"Smoking is one of the the most dangerous health behaviors there is," says Dr. Johannes Thrul, a tobacco researcher at Johns Hopkins University.

Using tobacco also increases your risk of heart attack, stroke, lung disease, and many other conditions. But it can be very hard to stop—even if you know the risks.

Tobacco products contain an addictive substance called nicotine. But

there are medications that can help you quit. They can reduce nicotine withdrawal and cravings. Some are available by prescription. Others can be found over-the-counter, like nicotine replacement gums or patches. Using medications with counseling can be even more effective.

Thril and others are looking for new ways to help people quit smoking. They're developing smartphone apps that track when smokers are close to places that trigger nicotine cravings. The apps then send personalized support messages.

"We're trying to deliver support to smokers in these critical situations, in real time," he says.

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Definitions

Genes

Segments of DNA that contain instructions for building the molecules that make the body work.

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These apps are still being tested. You can get free help now by visiting smokefree.gov, calling 1-800-QUIT-NOW (1-800-784-8669), or by texting QUIT to 47848.

"No matter how long you've smoked, no matter how old you are, quitting smoking will always benefit your health," Thrul says.

Eat Smart, Keep Moving • When it comes to cancer prevention, the saying "you are what you eat" applies, says NIH researcher Dr. Jill Reedy, who studies diet and cancer. But it's not just diet. Your overall lifestyle—including weight and physical activity—also matters.

"There's a lot of evidence that maintaining a healthy lifestyle has the potential to reduce cancer risk," Reedy says.

Diet and related factors can raise your risk in many ways. For example, excess weight can increase **inflammation** in the body, Reedy explains. Long-term inflammation is thought to increase cancer risk.

Excess weight can also cause the levels of certain **hormones** to rise. High levels of these hormones can raise the risk of some types of can-

cer, such as breast cancer.

How diet itself affects cancer risk is complicated, Reedy explains. What we eat gets broken down and used by our cells to keep the body running. Chemicals in some foods—like highly processed meats—may raise the risk of cancer. But overall, there aren't many single foods to avoid.

Other chemicals in food may lower your risk. But no single food, nutrient, or vitamin alone can protect you from cancer. "It would be great if there was a magic bullet, but there isn't," Reedy says.

"It's really about the overall quality of your diet. Choose fruits and vegetables, whole grains, lean proteins, and healthy oils. Limit alcohol, added sugars, saturated fats, and sodium," she explains.

You can learn more about healthy eating patterns from the Dietary Guidelines for Americans (go.usa.gov/xAGpe). Healthy eating appears to reduce cancer risk even if you have trouble losing weight, Loftfield explains. And the same seems to be true for physical activity.

"We've seen that physical activity lowers the risk of some types of cancers, independent of its effects on weight," she says. This may be because exercise can reduce inflammation, stress, and other things that can harm your cells.

Loftfield and Reedy are studying new ways to measure what happens in the body after eating different

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D Definitions

Inflammation

Heat, swelling, and redness caused by the body's protective response to injury or infection.

Hormones

Substances sent through the bloodstream to signal another part of the body to grow or react a certain way.

Web Links

For more about cancer prevention,
see "Links" in the online article:
newsinhealth.nih.gov/2021/02/lowering-cancer-risk



Ask Your Doctor

Ask about reducing your cancer risk:

- What can you recommend to help me quit smoking?
- Have I had all the recommended vaccinations to prevent cancer?
- What cancer screening tests should I have at my age?
- What dietary changes can I make to help reduce my risk of cancer?
- How can I safely exercise to improve my health?
- Does my family medical history put me at higher risk for cancer?
- Is there anything else I should know about my cancer risk?

types of foods. This will help them learn more about how diet impacts cancer risk.

Prevention Tips • There are other simple actions you can take to reduce your risk of specific cancers.

To lower your chances of skin cancer, wear sunscreen and sun protective clothing, limit your time in the sun, and avoid tanning beds.

Certain vaccines can reduce your risk of cervical, liver, and other cancers. This is because some viruses, like human papillomavirus (HPV), can damage your genes in ways that lead to cancer.

"Getting vaccinated against HPV and other cancer-related viruses is a very practical way to modify your cancer risk," Loftfield says.

Common screening tests can also reduce your risk. These let doctors find and remove small growths that may turn into cancer. A colonoscopy, which looks for growths in the colon and rectum, is one example. Cervical cancer screening is another. For tips on talking about your risk for cancers, see the Ask Your Doctor box. ■

Chocolate Health Claims

Sweet Truth or Bitter Reality?

Love chocolate? Most of us do. It's a delicious treat. Or a quick pick-me-up after a long day. You may have heard that dark chocolate has health benefits. But is that true or just wishful thinking?

Small studies suggest that cocoa, an ingredient in chocolate, may have health benefits. It's possible that certain nutrients in cocoa could improve heart health and boost brain function, especially in older adults.

Researchers think this may be due to compounds called flavanols. Cocoa beans contain high levels of flavanols. The beans are dried and roasted to make the cocoa powder used in chocolate. Dark chocolate contains more cocoa and flavanols than other types of chocolate. Flavanols are also found in tea, red wine, apples, and berries.

The evidence linking cocoa beans and heart health has interesting origins. Much of it is based on studies of the Kuna people, who live on islands off the coast of Panama. They consume a lot of cocoa.

"They pull cocoa beans off the

tree, they grind them up, and they basically make a hot chocolate," explains Dr. Laura Baker, an expert in aging at Wake Forest University. "And they treat that like their water, drinking many, many cups per day."

Scientists discovered that the Kuna people had much lower rates of heart disease, even compared to people in the same region. This sparked interest in the health properties of cocoa beans.

Today, researchers are studying whether concentrated doses of cocoa flavanols can improve health. Thousands of participants are involved in studies of how cocoa supplements affect everything from eye disease to heart health, cancer risk, and **cognitive** abilities.

Cocoa flavanols are believed to improve heart function and blood flow, so scientist think they may also benefit the tiny blood vessels in the brain. Baker is studying whether cocoa supplements can prevent cognitive decline in older adults. She's examining their impacts on short-term memory, focus, and overall brain function.

More than 2,000 older adults have participated in the three-year study. But it's too soon to tell whether cocoa supplements are beneficial for brain health. The study is still ongoing.

"If it works, there are no side effects for cocoa flavanols," Baker notes. "So imagine, if this works for both heart health and cognition—or just one—this would be a very simple



supplement that people could add to their diet."

But you won't get nearly the same amount of cocoa flavanols in that chocolate bar—even if it is dark chocolate.

"The cocoa supplements are way more potent than the darkest of the dark chocolate bars," Baker says. Eating chocolate just isn't the same, she explains.

And there's more bitter news. Because of the added sugar and cocoa butter, chocolate contains a lot of calories and saturated fat. So it's best to enjoy those Valentine's Day chocolates in small amounts, as part of a balanced diet.

For tips on enjoying chocolate, see the Wise Choices box. ■



Wise Choices

Eating Chocolate

If you eat chocolate as a sweet treat, try to keep it as healthy as you can:

- Watch your total calories. Chocolate has a lot of calories, and gaining weight will more than wipe out any benefits you might get from the compounds in chocolate.
- Eat as dark a chocolate as you can.
- Avoid white and milk chocolates. These contain little or no cocoa.
- Make hot chocolate with unsweetened cocoa, water or non-fat milk, and little added sugar.



Definitions

Cognitive

Related to the ability to think, learn, and remember.



Web Links

For more about chocolate and cocoa, see "Links" in the online article: newsinhealth.nih.gov/2021/02/chocolate-health-claims



Health Capsules

For links to more information, please visit our website and see these stories online.

Financial Problems Can Be Sign of Dementia

A new study found that financial problems can be an early sign of dementia. Some older adults had such problems years before being diagnosed with Alzheimer's disease or a related condition.

Dementia causes changes to the brain that can interfere with daily life. These includes the ability to manage bills and other finances. Researchers looked at when these problems begin.

The team examined medical

and credit information from about 80,000 adults. The people were 65 and older, lived alone, and received healthcare through Medicare. The research team recorded late bill payments and drops in credit scores.

People who developed dementia were more likely to have had late bill payments. This began six years before being diagnosed.

They were also more likely to have their credit scores drop below 620 (called "subprime"). This started

two and a half years before getting their diagnosis.

"Our study is the first to provide large-scale quantitative evidence of the medical adage that the first place to look for dementia is in the checkbook," says Dr. Lauren Nicholas of Johns Hopkins University. "Earlier screening and detection, combined with financial education, are important to protect the financial well-being of the patient and their families." ■

Eating Plan for a Healthy Heart

What you choose to eat can affect your heart health. Eating well can be confusing with all the diet information out there.

The DASH food plan—Dietary Approaches to Stop Hypertension—is supported by NIH research. It's a flexible and balanced eating plan designed to improve the health of your heart, especially if you have high blood pressure (hypertension).

Following the DASH food plan doesn't require any special foods. It has easy-to-understand guidelines and nutritional goals. And it's

tailored to your calorie needs, based on your age and physical activity level. You can also find sample meal plans to help you make heart-healthy choices.

The DASH plan has several recommendations. Eat vegetables, fruits, and whole grains. Include healthy foods like fat-free or low-fat dairy products, fish, poultry, beans, nuts, and vegetable oils.

The plan limits foods high in saturated fats. It also encourages you to cut back on sugar-sweetened beverages and sweets. Limiting

sodium is a key part of the plan. Too much sodium can raise your blood pressure.

The DASH eating plan is just one part of a heart-healthy lifestyle. Experts recommend combining the plan with physical activity to control blood pressure. Staying a healthy weight, limiting your alcohol intake, and managing stress will also help your heart health.

Learn more about the science behind DASH at www.nhlbi.nih.gov/DASH. Find recipes at healthyeating.nhlbi.nih.gov. ■



Featured Website

NIH COVID-19 Research
covid19.nih.gov

Learn about COVID-19 research at NIH. Read about the vaccines, treatments, and testing that are now available.

Explore NIH-funded research by state. You can also find information about how to join clinical trials.

The screenshot shows the NIH COVID-19 Research website. At the top, there are links for NIH Strategic Response, Funding, Testing, Treatments and Vaccines, and News. Below that is a "Latest News" section with a large image of a scientist in a lab. The main headline reads "COVID-19 Vaccine Development: Behind the Scenes". There are three news items listed:

- JANUARY 5, 2021** News Release Large clinical trial will test combination monoclonal antibody therapy for mild/moderate COVID-19.
- DECEMBER 30, 2020** News Release Peer-reviewed report on Moderna COVID-19 vaccine publishes.
- DECEMBER 30, 2020** News Release MRI study explores blood vessel damage and inflammation in COVID-19 patients' brains but no infection.

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