Cancer

Cancer Prevention

Cancer develops when normal cells become cancer cells and grow out of control. This usually happens because of changes in a cell's genetic material (DNA), especially mutations involving genes that play a role in cell multiplication and repair. Genetic mutations can have a variety of causes, including radiation, chemical exposure and random changes that accumulate with age.

Some cancer risk factors cannot be controlled, such as age, sex, race or ethnicity, family history and inherited genetic characteristics. However, only about 5 to 10 percent of cancers are caused by inherited genetic mutations, with the rest attributable to spontaneous changes that happen during a person's lifetime.

Other risk factors are related to environmental exposures like smoking, which may be simple to change—but not always easy! Risk factors may also be related to lifestyle, especially diet and exercise. Some factors, like body weight, are influenced by genetics, environment and behavior. Certain cancers seem to be linked to social and economic status, which can affect things like the type of work a person does, stress levels and access to health care.

Smoking and Tobacco Use

Smoking tobacco is a major risk factor for cancer, accounting for about 30 percent of cancer deaths in the United States, according to the American Cancer Society. Not only do smokers themselves have a higher risk of cancer, but so do nonsmokers who are exposed to second-hand smoke.

In addition to lung cancer, tobacco use can also cause other types of cancer, according to the Centers for Disease Control and Prevention (CDC), including cancers of the mouth and throat, stomach, liver, pancreas, kidney, bladder and colon. Some studies have seen an increased risk of breast cancer in women who smoke.

Nicotine is addictive, and quitting smoking can be challenging. Some people find nicotine replacement using gum or patches helpful. Vaping, or inhaling nicotine vapor using an e-cigarette or other device, is less harmful than smoking, but the inhaled aerosols can contain harmful chemicals. Prescription medications including Zyban (bupropion) and Chantix (varenicline) can reduce the urge to smoke. Telephone hotlines and support groups may also be helpful. Many people find that it takes several tries before they can quit smoking for good.

The health benefits of smoking cessation begin soon after quitting, and lung cancer risk is cut in

half after 10 years. The sooner you stop smoking, the better for your health, but quitting is beneficial at any age.

Diet and Exercise

A healthy diet and regular physical activity can reduce the risk of cancer. People who are overweight or obese are at higher risk for at least 13 different types of cancer, according to the CDC. These include cancers of the breast, thyroid, liver, pancreas, kidneys, uterus, ovaries and colon.

Body size and weight are influenced by genetics, environment and behavior and can't be fully controlled. But a healthy diet and exercise are beneficial at any weight.

The American Cancer Society recommends a well-balanced diet that is high in vegetables, fruits and whole grains. Limit red meat, which has been linked to colon cancer, and especially processed or smoked meats. High doses of vitamins, minerals and nutritional supplements have not been shown to prevent cancer, and in some cases they can be harmful.

The benefits of physical activity go beyond weight loss. People who do more physical activity have a lower risk of breast, endometrial, prostate and colon cancer. Conversely, sedentary activity—especially sitting for long periods—has been linked to cancer and other health risks, even among people who exercise regularly.

The American Cancer Society recommends that adults get at least 150 minutes of moderate intensity activity (such as walking, yoga or gardening) or 75 minutes of vigorous activity each week. Children and teens should get at least one hour of moderate or vigorous activity each day. Additional activity above this level can provide extra benefits.

Alcohol

Drinking alcohol contributes to about 4 percent of cancer-related deaths in the United States, according to the American Society of Clinical Oncology.

A large research review showed that alcohol is linked to an increased risk of cancers of the mouth and throat, breast, liver and colon, and probably also the stomach and pancreas. Heavy drinking can cause cirrhosis of the liver, which is a major risk factor for liver cancer. But even moderate or light drinking can raise the risk of some cancers.

The American Cancer Society recommends that people who drink should limit the amount of alcohol to no more than two drinks per day for men or one drink per day for women. A beer, a glass of wine and a mixed cocktail contain about the same amount of alcohol.

Sun Protection

Exposure to ultraviolet (UV) radiation from the sun or tanning beds is the major risk factor for skin cancer. People with pale skin are at greatest risk, but darker-skinned people of all ethnicities can

still get skin cancer.

Reducing sun exposure is the best way to prevent skin cancer. Stay out of the sun during midday, when the rays are more intense. When outdoors, wear long sleeves and pants, a hat with a brim and sunglasses that block UV rays.

Apply sunscreen to exposed skin, including easily overlooked areas like the ears and back of the neck. Sunscreen with a higher sun protection factor, or SPF, offers more protection. An SPF of 15 means you get the same amount of exposure in 15 minutes as you would in one minute without protection. Look for products with an SPF of at least 15 that block both UV-A and UV-B rays. But remember that even the best sunscreen does not block ultraviolet rays completely.

Infections and Vaccines

Some types of cancer are caused by viruses or bacteria, and preventing or treating the infection can reduce the risk of cancer.

Human papillomavirus (HPV) is the main cause of cervical cancer, as well as anal cancer, vaginal and penile cancer and some oral cancers. There are more than 100 types of HPV, about a dozen of which are considered high-risk, or cancer-causing. HPV is commonly sexually transmitted, but this can also occur through nonsexual skin-to-skin contact.

Cervical cancer deaths are uncommon in the United States thanks to routine screening starting in the 1960s. HPV vaccines can prevent cervical dysplasia (precancerous cell changes) and cancer, and probably other HPV-related cancers as well.

The newest HPV vaccine, Gardasil 9, protects against nine types of HPV, including seven that cause cancer and two that cause genital warts. The CDC recommends that adolescent girls and boys should be vaccinated at age 11 or 12, with eligibility continuing through age 27.

Hepatitis B and C, two blood-borne infections, are among the major causes of liver cancer. To prevent infection, don’t share needles to inject drugs, use condoms and take steps to protect yourself from exposure to blood.

Hepatitis B can be prevented with a vaccine, which is now a routine childhood vaccine in the United States. The CDC also recommends the vaccine for people at risk who were not vaccinated as children. Hepatitis B can be treated with antiviral medications, which lowers the risk of cirrhosis and liver cancer, but it usually cannot be cured.

There is no vaccine for hepatitis C, but it can be treated with new antiviral medications that cause few side effects and can cure most people in two or three months. Successful treatment lowers the risk of developing cirrhosis and liver cancer, but it does not protect against future reinfection.

Heliobacter pylori are bacteria that cause stomach ulcers and raise the risk of stomach cancer. Antibiotics can kill the bacteria, and some research suggests this may lower the risk of cancer. But antibiotics also kill off beneficial bacteria, and researchers do not fully understand the link between the types of bacteria in the gut and cancer risk.

Environmental Risk Factors

Exposure to certain chemicals in the environment can increase cancer risk—for example, exposure to industrial chemicals in the workplace and exposure to vehicle exhaust in air pollution.

Substances with a known link to cancer include asbestos (mineral fibers found in some construction materials), arsenic (present in drinking water in some areas), benzene (present in gasoline fumes and cigarette smoke) and formaldehyde (a preservative and disinfectant).

Radon, a radioactive gas, is the second leading cause of lung cancer after smoking. It is released from radioactive elements naturally found in rocks and soil in some areas. Invisible and odorless, the gas can seep into homes, especially basements. You can measure radon levels with a kit available at hardware stores.

Despite widespread myths, there is no convincing evidence that artificial sweeteners, deodorants or antiperspirants, power lines or radiation from cell phones are associated with increased cancer risk.

Cancer Screening

Regular cancer screening is an important way to prevent cancer. Some cancers are preceded by precancerous abnormalities, such as cervical dysplasia or polyps in the colon. Treating these promptly can prevent them from progressing to cancer. Other cancers can be detected at an early stage, when they are easier to treat.

Experts recommend routine screening for breast cancer, cervical cancer and colon cancer, as well as regular visual exams for skin cancer; opinions are mixed about prostate cancer screening. Lung cancer and liver cancer screening are recommended only for people at high risk. See Cancer Screening for more information.

For more information on cancer prevention, visit:

American Cancer Society: Eat Healthy and Get Active

American Cancer Society: Stay Away From Tobacco

American Cancer Society: Be Safe in the Sun

National Cancer Institute: Causes and Prevention

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