Physical Activity and Cancer Risk

This section has been reviewed and approved by the Cancer.Net Editorial Board [1], June / 2011

Key Messages:

- Physical activity reduces the risk of cancer in several ways, including lowering obesity, inflammation, and hormone levels and improving insulin resistance and immune system function.
- Research studies show that physical activity lowers the risk of several types of cancers, including breast cancer and colon cancer.
- Talk with your doctor about an exercise and eating plan that is appropriate for you.

Physical activity influences cancer risk and development, and being active can lower a person's risk of cancer. Learn about the following links between physical activity and cancer.

Obesity. Being obese (extremely overweight, defined as having a body mass index [BMI] of 30 or higher, which is a ratio of height and weight) increases a person's risk of developing and dying from certain types of cancer, including postmenopausal breast cancer, colon cancer, uterine cancer, kidney cancer, and some types of esophageal cancer. Other cancers that may be linked to obesity include pancreatic cancer, prostate cancer, thyroid cancer, liver cancer, gallbladder cancer, ovarian cancer, cervical cancer, multiple myeloma, and lymphoma.

Several studies have shown that regular aerobic exercise combined with a low-calorie diet can help people with cancer lose weight and keep it off. Even when a person doesn't eat less, aerobic exercise results in small amounts of weight loss and a significant reduction in intra-abdominal fat (a dangerous fat that forms deep in the center part of the body and is associated with increased risk of several diseases). Talk with your doctor about an exercise and eating plan that is appropriate for your medical history and goals. Read more about weight control [2].

Insulin resistance. Insulin is a hormone made by the pancreas that helps the body use blood sugar for energy. Insulin resistanceâ€"when the body doesn't respond to insulin properly resulting in a rise in blood sugarâ€"increases the risk of some cancers. Exercise has been shown to improve insulin resistance.

Inflammation. Inflammation is the body's response to injury and disease. Ongoing low-grade inflammation and chronic inflammatory diseases, such as inflammatory bowel disease, are associated with several cancers. Exercise may help reduce inflammation, which may help lower the risk of cancer.

Immune system function. Moderate-intensity exercise has been shown to improve the function of the immune system, which the body uses to fight infectious disease and cancer.

Hormones. Being overweight and inactive increases the risk of cancers regulated by hormones, such as breast and uterine cancers. For instance, overweight and obese postmenopausal women have higher levels of estrogen in the blood compared with thinner postmenopausal women. One clinical trial (research studies involving people) found that postmenopausal women who were inactive and overweight or obese had their hormone levels drop after exercising for 45 minutes each day, five days a week, for 12 months. However, the hormone levels dropped only in women who had also lost body fat, suggesting a connection between exercise, hormone levels, and body fat.

Research shows that physical activity may be particularly useful for reducing the risks of certain types of cancer, including colon and breast cancers.

Colon cancer and physical activity

More than 50 studies involving 40,000 people with colon cancer have found that people who exercise regularly have a 40% to 50% lower risk of colon cancer, compared with those who don't exercise regularly. Regular exercise also reduces the risk of polyps, growths in the colon that can turn into cancer.

While the benefits of exercise in preventing colon cancer appear slightly greater for men, they have also been seen in women of all age groups and in various racial and ethnic groups. There is some evidence that suggests people who maintain active lifestyles throughout their lives have the most protection from colon cancer.

Exercise may prevent colon cancer by:

- Reducing the amount of time colon cells are exposed to substances in the diet that can cause cancer, and decreasing the exposure of the colon to biliary acids. Bile acid can damage the lining of the bowel and may lead to abnormal cell growth and cancer. More research is needed on whether a person needs to participate in high-intensity exercise to reduce food transit time, or if moderate-intensity exercise is enough.
- Decreasing prostaglandin levels. Prostaglandins are a group of hormone-like substances that affect several body processes. High

prostaglandin levels have been found in colon tumor cells. A study of men and women who had a history of colon polyps found that increasing physical activity from approximately one-and-a-half hours of walking per week to approximately six hours per week lowered prostaglandin levels.

Breast cancer and physical activity

Studies in North America, Europe, and Asia show that women who exercise at moderate-to-vigorous levels for more than three hours per week have a 30% to 40% lower risk of breast cancer. The reduced risk was found in women regardless of their family history of breast cancer, and in women at every level of risk for breast cancer.

Most studies show that the higher the level of activity, the more risk is reduced. Although activity throughout a person's lifetime is important, activity at any age can help lower breast cancer risk.

Other cancers and physical activity

In a small number of studies, increased physical activity has been associated with a reduced risk of several other cancers.

Uterine cancer. Exercise can help lower obesity and decrease estrogen levels. Both obesity and elevated estrogen levels are factors that may be related to uterine cancer development. Some studies have found a 30% to 40% reduced risk of this type of cancer in active women.

Lung cancer. Studies show that there are lower rates of lung cancer among people who are physically active. However, it isn't clear why this link exists, although one reason may be that people who exercise are less likely to use tobacco.

For other cancers, an association between prevention and exercise has not been proven. Several studies show there is no connection between physical activity levels and rectal cancer risk, and studies on prostate cancer and exercise to date have been inconclusive. Although there have been studies related to physical activity and testicular cancer, ovarian cancer, kidney cancer, pancreatic cancer, and melanoma, none is conclusive, and more studies are needed.

More Information

Physical Activity: Suggestions and Tips [3]

Last Updated: June 08, 2011

Links:
[1] http://www.cancer.net/about-us
[2] http://www.cancer.net/node/25008
[3] http://www.cancer.net/node/24996