

Cancer-Fighting Plant Foods

Eating more fruits and vegetables, exercise, and maintaining a healthy weight can help safeguard you against cancer.

Beyond avoiding tobacco, how much can you reduce cancer risk? Researchers now calculate that nutritious dietary choices, maintaining a healthy weight, and regular physical activity can prevent about a third of the most common cancers. The annual conference of the American Institute for Cancer Research (AICR) brought researchers from around the world to discuss the latest findings. *EN* brings you an update from the November 2011 conference held in Washington, D.C.

Research suggests many nutrients, phytochemicals and dietary fiber work synergistically, meaning they do more together than independently. For example, in laboratory studies, tomatoes inhibit cancer development but tomatoes and broccoli combined reduce cancer risk even more. Emerging research presented at the AICR conference suggests omega-3 fatty acids and dietary fiber may work together synergistically to reduce colon cancer.

Nutrients, Fiber and Phytochemicals Help Fight Cancer

The latest research suggests that food choices can fight cancer development at many different stages:

- ▶ **Nutrients** such as folate from dark green vegetables, oranges and legumes (beans, tofu,) and phytochemicals (compounds found in plant foods) such as allyl sulfur found in garlic, and isothiocyanates, found in cruciferous vegetables like broccoli, help turn on tumor suppressor genes and turn off genes that lead to cancer development and its ability to spread.
- ▶ Healthy bacteria in your gut use **dietary fiber and resistant starch** (a type of fiber abundant in dried beans) to produce butyrate, a fatty acid that seems to protect colon cells.
- ▶ Some **phytochemicals** stimulate inactivation of carcinogens or self-destruction of abnormal cells.
- ▶ Phytochemicals can provide **antioxidant** protection against DNA damage and fight inflammation.

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Boost Mood with Whole Foods

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The connection between diet and mood is becoming increasingly clear. Research suggests that eating a diet rich in whole foods, including fruits, vegetables, and whole grains, can help improve mood and reduce the risk of depression. This is because these foods are rich in nutrients that support brain health, such as omega-3 fatty acids, B vitamins, and antioxidants. For example, omega-3 fatty acids found in fish and flaxseed have been shown to reduce inflammation and improve brain function. B vitamins, found in whole grains and leafy greens, are essential for the production of neurotransmitters like serotonin and dopamine, which regulate mood. Antioxidants, found in fruits and vegetables, help protect the brain from oxidative stress, which can lead to depression.

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Health

How much does your diet affect your health? The answer is: a lot. Research shows that eating a diet rich in whole foods, including fruits, vegetables, and whole grains, can help improve health and reduce the risk of chronic diseases like heart disease, diabetes, and cancer. This is because these foods are rich in nutrients that support overall health, such as fiber, antioxidants, and healthy fats. For example, fiber found in whole grains and vegetables helps regulate blood sugar and cholesterol levels. Antioxidants found in fruits and vegetables help protect the body from oxidative stress, which can lead to chronic diseases. Healthy fats found in fish and nuts help reduce inflammation and improve heart health.

Boost Brain Function with B Vitamins

B vitamins are essential for brain function and overall health. They play a key role in the production of neurotransmitters, which are chemicals that send signals between nerve cells. B vitamins also help regulate the body's metabolism and energy levels. Research suggests that eating a diet rich in B vitamins can help improve brain function and reduce the risk of cognitive decline. Good sources of B vitamins include whole grains, leafy greens, and animal products like meat, eggs, and dairy. For example, whole grains are rich in B vitamins like thiamine, riboflavin, and niacin. Leafy greens like spinach and kale are rich in B vitamins like folate and B6. Animal products like meat, eggs, and dairy are rich in B vitamins like B12 and B6.

Cancer-Fighting Foods Include Fruits & Veggies

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Cancer-fighting plant foods. Experts' advice is to expand both the amount and variety of the plant foods you eat. Cruciferous vegetables, dark green leafy vegetables (including kale, spinach and romaine lettuce), garlic and onions, carrots, tomatoes, berries, citrus, apples, grapes, whole grains, dried beans, and green tea each contain compounds that provide some of the benefits listed above. Scientists are discovering potentially protective compounds in more foods, such as walnuts, mushrooms and chili peppers, and herbs and spices. Combining these foods into a healthful eating pattern is more beneficial than loading up on individual nutrients.

"People used to believe in the concept of taking extra nutrients as an 'insurance' policy for health. However, carefully controlled nutrient supplementation trials have shown quite clearly that this is not necessarily a good idea. The people who are 'low' in a nutrient often have better outcomes with supplementation, while the people who are not low in that nutrient not only do not have better outcomes, instead they have worse outcomes," noted Susan Mayne, Ph.D., F.A.C.E., Professor of Epidemiology at Yale School of Public Health.

TAKE-HOME TIPS for healthy eating:

- ▶ Double the vegetables in stir-fries and casseroles.
- ▶ Add beans or tofu to soups and stews.
- ▶ Switch to whole-grain bread (including whole-grain pita and tortillas.)
- ▶ Limit red meat (beef, lamb and pork) to no more than 18 ounces per week, and processed meat (bacon, hot dogs, sausage) to occasional use. Greater amounts of both are linked to colon cancer.

Vitamin D. Vitamin D's role in cancer protection was a major topic at the conference. JoAnn Manson, M.D., Dr.PH., Professor at Harvard Medical School, explained, "The latest federal recommendations on vitamin D [600 International Units/day for adults up to age 70 and 800 IU for older adults] are based primarily on bone health. Before we assume there's any cancer protection from higher amounts, we need rigorous controlled testing." Dr. Manson is directing the VITamin D and Omega-3 Trial, the first

large-scale randomized trial of vitamin D (2,000 IU daily) in cancer and cardiovascular disease prevention.

Demetrius Albanes, M.D., Senior Investigator in the Division of Cancer Epidemiology and Genetics at National Cancer Institute (NCI,) says "Although laboratory research shows beneficial effects of vitamin D against cancer in cell culture and animal studies, optimal amounts in humans for cancer prevention are not yet clear." Randomized trials to date tested low doses of vitamin D and were not designed to assess cancer.

For now, experts advise that you meet vitamin D's RDA of 600 IU (or 800 IU if you're over age 70) through some combination of diet (such as fish and mushrooms exposed to UV light), fortified foods (including milk and orange juice) and supplements. If you prefer to aim for 1,000 IU, or some other level under 4000 IU, (identified as safe), it is not considered harmful, but may or may not provide any greater cancer protection.

Why weight & waist matter. Diet's impact on the balance between calories consumed and burned, and on hormones related to calorie balance, is likely to be by far the strongest impact of diet and nutrition on cancer risk, said Edward Giovannucci, M.D., Sc.D. in reviewing population studies at the AICR conference. Giovannucci, Professor at Harvard's School of Public Health, noted that excess body fat, especially around the waist, can promote cancer cell growth due to increases in insulin, insulin-like growth factors, and sex hormones. In the Women's Health Initiative study, fasting levels of insulin were 28 percent higher among overweight women, and 78 percent higher among obese women compared to

TAKE-HOME TIPS on weight:

- ▶ Include plenty of vegetables and fruits to feel full without too many calories.
- ▶ Cut your usual portions of everything else by about 25 percent. Studies show that even if you're not hungry, the bigger your portion, the more you eat.
- ▶ Cut back on calorie-containing drinks, since you generally don't compensate for those calories by eating less.
- ▶ Boost your 30 minutes of moderate activity daily to 60 minutes if you can, for better weight control.

healthy-weight postmenopausal women.

Waists above 35 inches in women and 40 inches in men—commonly recommended limits—are strong risk factors associated with obesity. However, health-damaging effects seem to begin with relatively moderate increases in waistline fat. Tighter cut-offs of 31.5 inches in women and 37 inches in men are recommended by AICR and the World Health Organization as targets for lower cancer risk.

How much you move, how much you sit. Regular physical activity seems to reduce chronic low-grade inflammation that can lead to DNA damage and promotes unhealthy cell growth that can lead to cancer, as well as reduce levels of hormones such as estrogen and insulin that, at unhealthy levels, promote cancer development. Greater physical activity also is linked with a 25 to 35 percent lower risk of breast, colon and endometrial cancers. Evidence shows smaller drops in prostate, ovarian and lung cancer risk.

TAKE-HOME TIPS on activity:

- ▶ Create time each day for at least 30 minutes of brisk walking, dancing, gardening, swimming or biking; strive for 60 minutes. Break it into 10- or 15-minute blocks, if you prefer.
- ▶ Reduce sitting time such as watching television, deskwork, and being in a car or on public transportation.
- ▶ Put short breaks in your sitting time. For example, stand when you talk on the phone.

But there's a caveat: "A number of studies suggest that even people exercising at recommended levels may not be fully protected if they sit a lot each day," says Charles Matthews, Ph.D., epidemiologist at the NCI. "In addition to focusing on exercise, it may also be important to reduce sedentary time." Matthews presented analysis of a study of more than 4,700 people that links higher amounts of daily sitting time with poor glucose and insulin metabolism, increased triglycerides, and greater waist size. Data suggests that interrupting extended sitting with one- or two-minute breaks can reduce negative metabolic changes—so if you work at a desk much of the day, get up and take a short break every hour or so. [EN](#)

—Karen Collins, M.S., R.D., C.D.N.