

The Future of Cancer Prevention **By the American Institute of Cancer Research**

Imagine it's the year 2024. After your annual physical exam, your doctor reads the result from the computer printout and gives you your health prescription. According to the computer's analysis of your genetic profile, you could avoid cancer by eating two carrots each day for vitamin A, as well as a couple of Brazil nuts for selenium and 16 ounces of soy milk for isoflavones. Your spouse, on the other hand, shows a genetic risk for colon cancer that could be prevented by eating beans and leafy, dark greens for folate each day.

The New World of Nutrigenomics

Although a custom-tailored diet to prevent a genetic tendency for cancer or other chronic illnesses is years away, the area of health research known as nutrigenomics is rapidly advancing. Even before the major scientific breakthrough of 2000, when the entire sequence of human genes was mapped for the first time, scientific had been studying the connections between genes, disease and diet. Now, new findings surface almost daily. New technology helps scientists test tissue and blood and blood at a microscopic level and process huge amounts of data extremely fast.

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The progress in nutrigenomics so far refutes a common misconception. People mistakenly believe that cancer is largely inherited. Heredity is actually the least important factor in gene mutations that lead to cancer. Factors that people can control, like diet, smoking and physical activity, play far more important roles. Only a small percentage of cancers are attributed to inherited, high-risk gene mutations.

Eating more vegetables and fruits, exercising regularly and maintaining a healthy weight could cut cancer rates by up to 40 percent. Because everyone's genes differ, our bodies react to nutrients and other substances in food differently. In nutrigenomics, scientists are trying to determine what food components are most important to protect an individual's health and under what circumstances.

Should You Test Your Genes?

Currently, gene tests exist for about 900 inherited diseases or conditions. For cancer, gene testing is still in an early stage of development.

DNA tests can miss mutations about 20 percent of the time. Even if a gene mutation is found, it's not clear what a person should do then. Even for individuals at high risk, the American Institute for Cancer Research (AICR) advises a mostly plant-based diet. But what foods would be best for that individual's gene makeup to inhibit cancer development is yet unknown. Nutrigenomic researchers are looking for answers.

If you decide to go for a gene test, especially if there is a history of cancer in your family, experts advice that both individuals and their families receive counseling before and after a gene test. Patients can feel devastated if told they have a high-risk gene. Even a negative test result can leave feeling of guilt, or other family members test positive.

For an in-depth discussion of the pros and cons of cancer and gene testing, order the brochure *Talking Sense about Genes and Cancer*. Call AICR at 1-800-843-8114, ext. 110, to request a free copy.

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