

Be Wary of Supplement Labels

The U.S. Food and Drug Administration (FDA) does not determine whether dietary supplements are effective before they are marketed. Be aware that manufacturers of nutritional supplements are not obligated to follow the strict government regulations written for drug manufacturers or have the contents of their products meet FDA approval. Because supplements are not drugs, they are not intended to treat, prevent or cure diseases.

That means supplements vary widely in content quality, purity and strength – even among different batches of the same brand. For example, herbal supplements vary because of variations in growing and harvesting conditions.

You may see words like “standardized,” “verified” or “certified” on labels. However, since the FDA doesn’t define these terms, they may be meaningless. A few independent organizations offer a “seal of approval” that you might see on a supplement label. If it has a seal of these three organizations, the product contains the ingredients on the label and has no harmful levels of contaminants – but it does not guarantee the product is safe or effective:

- U.S. Pharmacopeia
- ConsumerLab.com
- NSF International

NEED MORE HELP?

For more information about dietary supplements, visit the National Institutes of Health Office of Dietary Supplements: www.ods.od.nih.gov.

For more information about cancer prevention and survivorship, visit www.aicr.org.

You’ll find tools and recipes to help you eat a healthy diet, get more physical activity and maintain a healthy weight. Or call 1-800-843-8114 to request up to 3 individual copies of additional brochures, including:

- *10 Ways to Reduce Your Cancer Risk*
- *The Cancer Fighters in Your Foods*
- *The New American Plate*

These and other brochures can be downloaded for free at www.aicr.org. You can also visit the AICR Hotline online for answers to your questions about diet and cancer or call 1-800-843-8114 Monday-Friday, 9 am-5 pm ET. A registered dietitian will return your call.

American Institute for Cancer Research
1759 R Street, NW, P.O. Box 97167
Washington, DC 20090-7167
1-800-843-8114 or 202-328-7744



About AICR

The American Institute for Cancer Research (AICR) is the cancer charity that fosters research on the relationship of nutrition, physical activity and weight management to cancer risk, interprets the scientific literature and educates the public about the results. It has contributed more than \$96 million for innovative research conducted at universities, hospitals and research centers across the country. AICR has published two landmark reports that interpret the accumulated research in the field and is committed to a process of continuous review through the WCRF/AICR Continuous Update Project. AICR also provides a wide range of educational programs to help millions of Americans learn to make dietary changes for lower cancer risk. Its award-winning New American Plate program is presented in brochures and online at www.aicr.org. AICR is a member of the World Cancer Research Fund International.

THE FACTS ABOUT

Supplements



Dietary supplements, such as multivitamins, can sometimes help people with restricted diets or who have an impaired ability to eat to get essential nutrients; however, taking dietary supplements is not recommended for cancer prevention.

Dietary supplements can include vitamins, minerals, herbs, enzymes, amino acids, antioxidants and other substances. They are manufactured and sold in the form of pills, capsules, tablets, powders, drinks and energy bars.

THE RECOMMENDATION

For cancer prevention, don’t rely on dietary supplements.

Aim to meet nutritional needs through diet alone.

THE RESEARCH

Research indicates that high-dose nutrient supplements can be protective or can cause cancer. In some studies, specific supplements actually increased risk of certain cancers.

For many people, by eating a varied diet rich in vegetables, fruits and other plant-based foods, it is possible to obtain all the needed nutrients for good health.

However, some groups of people will benefit from taking supplements for specific health reasons. For example, your health-care provider may advise taking a calcium supplement if you are at risk for osteoporosis. Ask your health-care provider for more advice about supplements tailored to your specific needs.



Supplement Safety

It’s important to understand that supplements can frequently be ineffective and sometimes dangerous.

- **Be careful not to take supplements in combination with prescription medications** without consulting your health-care provider first. Some dietary supplements can interfere with chemotherapy and other medications, either speeding up these medications’ metabolism by the body, by reducing their concentration and effectiveness or by slowing their metabolism and increasing the possibility of toxicity or side effects. Vitamin E or other antioxidant supplements might interact with chemotherapy and radiation therapy. If you are undergoing these treatments, talk with your doctor before taking any supplements.
- In some studies, specific supplements actually increased risk of certain cancers. For example, alpha-tocopherol, a form of vitamin E, has been associated with increased risk for prostate cancer, and beta-carotene (which becomes vitamin A

in our bodies) increased risk for lung cancer in smokers. These findings indicate that **some vitamin supplements could increase risk of cancer under certain circumstances.**

- Check with your health-care provider about **supplements’ possible effects if you are scheduled to have any type of surgical procedure.**
- **Supplements labeled as “natural” aren’t necessarily safe.** Certain herbs (such as comfrey and kava) can harm the liver.
- **Don’t take supplements to treat a condition you have diagnosed yourself** without consulting a health-care provider.
- **Be as careful taking supplements as you are with prescription medications:** keep a record of the specific product name, the dose and how often you take it. Remember, taking more than the recommended dose won’t give you more health benefits and may cause harm. Bring the supplement package with you when you visit your health-care provider.

Who May Require Supplements

- People over age 50 who have trouble absorbing naturally occurring vitamin B12.
- Strict vegetarians (who consume no animal foods at all) may need a vitamin B12 supplement or B12-fortified foods.
- Pregnant women, who have increased need for folic acid, a B vitamin.
- Individuals who are dark-skinned, elderly or obese, or who are rarely outdoors and live in northern latitudes, may require supplemental vitamin D. (UV rays from sunlight trigger vitamin D synthesis in the skin.)
- Calcium supplements may benefit people at risk for osteoporosis.
- People with medical problems that limit the body’s ability to consume or absorb enough nutrients for health.



FOR A BALANCED DIET WITHOUT DIETARY SUPPLEMENTS

Eat whole plant foods.

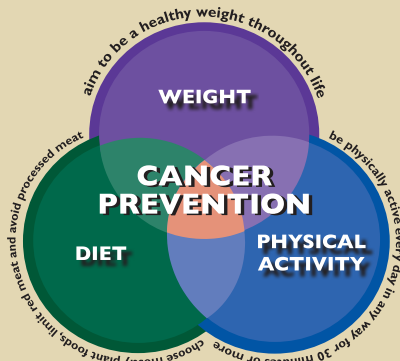
Every plant-based food contains many substances you need for good health, including fiber, vitamins, minerals and phytochemicals (plant chemicals), including antioxidants. Although some of these substances are isolated and sold as supplements, research suggests that we get the most protection from them when they are absorbed together from whole foods.

Eat a variety of vegetables and fruits.

Five servings of fruits and vegetables a day (2 ½ cups) is a good starting target for a diet linked to lower cancer risk. Then work on boosting that further to 2 to 2 ½ cups of a variety of vegetables and 1 ½ to 2 cups of different fruits each day for best overall health and a diet that helps you reach and maintain a healthy weight.

Eat a balance of plant foods, fish, poultry, meat and low-fat dairy foods.

Filling at least 2/3 of your plate with plant foods will help you to achieve a healthy balance with animal protein foods. For lower cancer risk, limit red meat to 18 ounces per week and avoid processed meats like ham, sausage, bacon, bologna and other preserved deli meats. Try vegetable-based protein foods, like beans and nuts, which also provide fiber.



AICR Guidelines for Cancer Prevention

The choices you make about food, physical activity and weight management can reduce your chances of developing cancer.

- Choose mostly plant foods, limit red meat and avoid processed meat.
- Be physically active every day in any way for 30 minutes or more.
- Aim to be a healthy weight throughout life.

And always remember—do not smoke or chew tobacco.

You can support AICR’s life-saving research and education efforts in a variety of ways:

- Make a donation online at www.aicr.org;
- Write to AICR, 1759 R Street, NW, P.O. Box 97167, Washington, DC 20090-7167; or
- Include a bequest in your will.

For more information, contact our Gift Planning Department at 1-800-843-8114.

No Sugar, No Cancer? A Look at the Evidence

Thursday, December 1, 2016, By Matthew Tontono



Sugary foods are plentiful in the modern Western diet. Do they increase one's cancer risk?

Summary: Memorial Sloan Kettering President and CEO Craig Thompson is an expert on [cancer metabolism](#). We spoke to him about common misconceptions regarding sugar and cancer.

Highlights: Obesity — having too much body fat — is a clear risk factor for cancer. Obesity is caused by consuming more calories than are expended over time. Eating lots of refined carbohydrates, including foods with added sugar, can lead to obesity. Body fat promotes inflammation, which can damage DNA and lead to cancer.

There's a lot of confusing and misleading information on the Internet about the relationship between sugar and cancer. The notion that refined sugar causes cancer or that cutting sugar from the diet is a good way to treat cancer are two common — and incorrect — claims that turn up in a Google search.

That's unfortunate, because there is important, real science to understand about diet and cancer. To help sort out fact from fiction, we spoke with MSK President and CEO [Craig Thompson](#), who studies the relationship between metabolism and cancer.

What, if any, is the link between sugar and cancer? : There is no question that [obesity is associated with an increased risk of cancer](#), and that the abundance of carbohydrates in our diet is one of the major foundations on which the worldwide epidemic of obesity is built.

The fundamental basis of obesity is eating more calories than you can burn over a period of time. Many people assume that if a person has a lot of body fat, it's because they ate too much fat. That makes intuitive sense, but it isn't the truth. Pretty much all you do with fats that you eat is burn them for energy.

The fats you put into your fat cells are by and large made from carbohydrates. But it took us 25 years to figure that out. And as we learned recently, some groups tried to [discourage or prevent that research](#).

How did we get into this obesity trouble? : As we emerged as a major agricultural nation after World War II, the United States was able to produce a tremendous amount of grains. And the caloric value of grains is not in their protein or in their fats primarily, but in their carbohydrates.

We also learned that we could refine those carbohydrates into things that were pleasurable to eat — sugar. So that was exploited, for good and for bad, to give us the soft drinks that we have today, to give us the kinds of high-caloric meals that allow people not to be malnourished. Because the first necessity in nutrition is not to have a balanced diet, but just to get enough calories to support us with the energy to live. Carbohydrates are the most immediate source of our ability to produce the energy needed to maintain our bodies.

But then the USDA developed the nutritional food pyramid and put carbohydrates at the base of it. The food pyramid wasn't based on science. It was just what we could produce as a nation. That's gotten us into trouble.

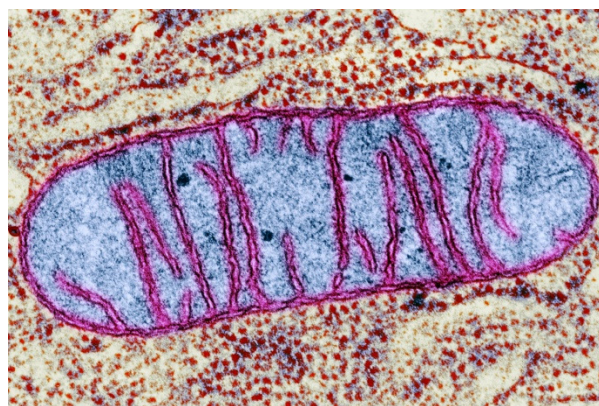
Why is having too much stored-away fat dangerous? : We've learned that fat cells themselves are signaling cells. We used to think they were just storage depots, like the garage where you put your car, but we now know that's not true. Fat cells, through the hormones they produce, [are a major regulator of inflammation](#) in the body.

Inflammation is a natural response to infection or injury. But inflammation also makes it more likely that you'll damage the DNA of cells that survive, and this increases the chances that a cell might turn cancerous. More and more we've come to understand that cancer grows out of areas of regeneration and repair, places where there's likely to be inflammation.

Carbohydrates raise insulin levels. Could abnormal levels of insulin lead to cancer? : Insulin's job is to tell the cells in our body, "Hey! There's a lot of glucose. We should use it." Therefore, if we could get people to produce less insulin, they might do better. But the real root problem of the worldwide obesity epidemic — and cancer as a result of obesity — has to do with too much caloric intake. It has little to do with abnormal insulin signaling.

Where does the idea that cancer is "addicted" to sugar come from? : About 90 years ago, a German scientist named Otto Warburg noticed that tumor cells in a dish tended to consume more glucose than non-dividing normal tissues. He also noticed that although the cancer cells were consuming massive amounts of glucose, they weren't taking advantage of the most efficient method of harvesting energy from that glucose, which is to essentially burn it using oxygen in the mitochondria. Instead, they converted the glucose to lactate, leaving much of the energy untapped. This has come to be known as the [Warburg effect](#) or Warburg metabolism.

Cancer Metabolism : Warburg assumed that cancer cells must have a defect in their mitochondria, because why else would they resort to this inefficient method of obtaining energy? But we now know that Warburg was wrong. Tumor cells possess functional mitochondria and rely on them for energy in some situations.



Explain why it's hard to "starve" cancer of sugar just by changing your diet. : Because your body has this interesting fail-safe system that never lets your blood glucose level drift below a certain number. So eating less sugar will just make the body use its remaining resources to produce the glucose on its own.

Everything about your biology has been naturally selected for at least 600 million years to make sure that no matter what you eat, you keep enough glucose in your system and don't become deficient. So it's very hard to affect the system by changing your diet.

What about ketogenic diets? Can they lower your risk of developing cancer? : A ketogenic diet is when you restrict carbohydrates and eat more fat. On a ketogenic diet, you're burning fats and your metabolic rate goes up just a little bit. It makes you use more calories from what you eat in just maintaining yourself every day. And you have very little ability to store the extra fats that you eat, so you pee them out as ketones. That's why it's called ketogenic. And it's why people lose weight on a ketogenic diet — they're getting rid of more of the calories that they consume.

So does a ketogenic diet help you decrease your chances of getting cancer? If you are overweight and it helps you lose weight, then yes, it does. If you can tolerate it, it's perfectly fine. I was on a ketogenic diet for two and a half to three years back in 2004, 2005. I lost 40 pounds. But I eventually gave it up and I've since gained back most of the weight. It's almost impossible to stay on a ketogenic diet for any significant length of time. Food just doesn't taste the same. But I still don't eat a lot of refined sugar in any way, form, or shape.

Now does a ketogenic diet matter once you have cancer? Does it help improve your cancer care? We have no evidence that that's true, or that you should use a ketogenic diet while you're receiving cancer treatment. In fact, a person going through cancer treatment might benefit from additional calories and nutritional support to help his or her body recover.

What's the bottom line for the average person? : Eat a balanced diet that avoids too many carbohydrates — especially refined carbohydrates that lack fiber and other foods with added sugars — and do your best to keep your weight down. That's my best advice.