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Nutrition and Physical Activity During and After Cancer Treatment: Answers to Common Questions

The source content for this page comes from two articles written for health care professionals:

- *Nutrition and Physical Activity Guidelines for Cancer Survivors*, published in the April/May 2012 issue of *CA: A Cancer Journal for Clinicians*. It is available for free online at <http://onlinelibrary.wiley.com/doi/10.3322/caac.21142/abstract>¹.
- *American Cancer Society Guideline for Diet and Physical Activity for Cancer Prevention*, published in 2020 in *CA: A Cancer Journal for Clinicians* and available for free online at: <https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21591>².

Cancer survivors often look for information and advice from their health care providers about food choices, physical activity, and dietary supplement use to improve their quality of life and long-term survival. But many people also look to news reports and studies for information like this. The best advice about diet and physical activity is that it's rarely a good idea to change diet or activity levels based on a single study or news report.

No single study is the last word on any subject. News reports may focus on what seem to be conflicting results because they are new or different, or they challenge conventional wisdom. And in brief news stories, reporters can't always put new research findings in their proper context.

In the questions and answers listed here, we have tried to address some common

concerns that cancer survivors have about diet and physical activity. As you read this, keep in mind that a cancer survivor is defined as anyone who has been diagnosed with cancer, whether or not the person is in treatment.

Alcohol

Does alcohol increase the risk of cancer recurrence (coming back)?

Studies have found a link between alcohol intake and the risk of getting a number of cancers, such as cancer of the:

- Mouth
- Throat (pharynx)
- Voice box (larynx)
- Esophagus
- Liver
- Colon and rectum
- Breast

Alcohol use may be linked to stomach cancer, too.

In people who have already been diagnosed with cancer, alcohol intake could affect the risk for these new cancers.

Alcohol intake can also increase levels of estrogens in the blood. In theory, this could increase the risk of estrogen receptor-positive breast cancer coming back after treatment. But only a few studies have looked at alcohol use in breast cancer survivors. About half of them link it to worse outcomes, while the other half either showed no harm or a benefit. One study found that the effect of alcohol may be worse in women who are overweight or obese.

Should I avoid alcohol during cancer treatment?

It's best not to drink alcohol, as it can increase the risk of a number of types of cancer. For people who do drink, the cancer type and stage (extent), as well as the type of treatment should be taken into account when deciding whether it's OK to drink alcohol during treatment. Many of the drugs used to treat cancer are broken down by the liver, and alcohol, by causing liver inflammation, could impair drug breakdown, increasing side effects. It's a good idea to avoid or limit alcohol during treatment to prevent interactions with the drugs used to treat cancer.

Alcohol, even in the small amounts used in mouthwashes, can irritate mouth sores and even make them worse. If you have mouth sores, you may be advised to avoid or limit alcohol. It may also be best to avoid or limit alcohol if you are starting treatment that will put you at risk for mouth sores, such as head and neck radiation or many types of chemotherapy.

Antioxidants

What do antioxidants have to do with cancer?

Antioxidants include vitamin C, vitamin E, carotenoids (compounds that give vegetables and fruits their colors), and many phytochemicals (plant-based chemicals). They help prevent cell damage caused by chemical reactions with oxygen. Because this damage may play a role in cancer development, it has long been thought that antioxidants may help prevent cancer.

Studies suggest that people who eat more vegetables and fruits, which are rich sources of antioxidants, may have a lower risk for some types of cancer. Because cancer survivors may be at increased risk for second cancers, they should eat a variety of antioxidant-rich foods each day. (Second cancers are new, different cancers, not the same cancer coming back.)

So far, studies of antioxidant vitamin or mineral supplements have not found that they reduce cancer risk. The best advice at this time is to get antioxidants through foods rather than supplements.

Is it safe to take antioxidant supplements during cancer treatment?

Many dietary supplements contain levels of antioxidants (such as vitamins C and E) that are much higher than the recommended Dietary Reference Intakes for optimal health.

At this time, many cancer doctors advise against taking high doses of antioxidant supplements during chemotherapy or radiation. There is a concern that the antioxidants might repair the damage to cancer cells that these cancer treatments cause, making the treatments less effective. But others have noted that the possible harm from antioxidants is only in theory. They believe that there may be a net benefit in helping to protect normal cells from damage caused by these cancer treatments.

Whether antioxidants or other supplements are helpful or harmful during chemotherapy or radiation treatment is a major question without a clear science-based answer right now. Until more evidence is available, it's best for cancer survivors getting these

treatments to avoid dietary supplements except to treat a known deficiency of a certain nutrient, and to avoid supplements that give more than 100% of the Daily Value for antioxidants.

Fat

Will eating less fat lower the risk of cancer coming back or improve survival?

Several studies have looked at the link between fat intake and survival after breast cancer. Results have been mixed. Early results of one large study of early stage breast cancer survivors suggested that a low-fat diet may lower the chance of the cancer coming back. This effect was strongest in women whose cancers were estrogen receptor negative.

Although it's not clear that total fat intake affects cancer outcomes, diets very high in fat tend to be high in calories, too. This can lead to obesity (being very overweight), which is linked to a higher risk of many types of cancer, a higher risk of certain cancers coming back after treatment, and worse survival for many types of cancer.

Do different types of fat affect cancer risk and survival?

There is evidence that certain types of fat, such as saturated fats, may increase cancer risk. There is little evidence that other types of fat, such as monounsaturated fats, omega-3 fatty acids, and other polyunsaturated fats reduce cancer risk. (Monounsaturated fats can be found in canola and olive oil, olives, avocados, peanuts, and many other nuts and seeds; omega-3 fatty acids can be found in fish and walnuts.)

In one study, high saturated fat intake reduced survival from prostate cancer. In another study, monounsaturated fat intake lowered the risk of death from prostate cancer.

Excess saturated fat intake is a known risk factor for heart disease, a major cause of death in all populations, including cancer survivors.

Although trans fats have harmful effects on the heart, such as raising blood cholesterol levels, their link to cancer risk or survival is not clear. Still, survivors (especially those at increased risk of heart disease) should eat as few trans fats as possible due to their effects on heart disease. Major sources of trans fats are margarines, baked goods, and snack foods that contain partially hydrogenated oils.

Fiber

Can dietary fiber prevent cancer or improve cancer survival?

Dietary fiber includes many different plant carbohydrates that are not digested by humans. Fibers are either *soluble* (like oat bran) or *insoluble* (like wheat bran and cellulose). Soluble fiber helps lower the risk of heart disease by reducing blood cholesterol levels. Fiber is also linked with improved bowel function.

Good sources of fiber are beans, vegetables, whole grains, nuts, and fruits. Eating these foods is recommended because they contain other nutrients that may help reduce cancer risk. They also have other health benefits, such as reduced risk of heart disease. At this time we don't know if fiber intake can affect cancer risk or survival.

Flaxseed

Flaxseed is a good source of vitamins, minerals, and fiber, and is also high in omega-3-fatty acids and phytoestrogenic lignans (compounds that act like estrogen in the body).

In the lab, flaxseed (and compounds from flaxseed) seems to have slowed cancer cell growth and helped certain treatments work better. In 2 small studies, patients with breast or prostate cancer who were put on a flaxseed rich diet before surgery had lower rates of cancer cell growth (in their tumors) than the patients on other diets. More research is still needed to see the effect of flaxseed on outcomes.

Food safety

Are there special food safety precautions for people getting cancer treatment?

Infection is of special concern for cancer survivors, especially when the immune system is weak. (Blood tests are done often during cancer treatment to check this.) Certain cancer treatments, such as chemotherapy, can weaken the immune system. When their immune systems are weak, survivors should be careful to avoid eating foods that may contain unsafe levels of germs. Food should be handled safely; for example:

- Wash your hands before eating or preparing foods.
- Wash vegetables and fruits well.
- Keep foods at the right temperatures.
- Use special care in handling raw meats, fish, poultry, and eggs, keeping them away from other foods.
- Thoroughly clean all utensils, countertops, cutting boards, and sponges that have contact with raw meat.

- Cook foods to proper temperatures. Meat, poultry, and seafood should be thoroughly cooked. Use a food thermometer to check the internal temperatures of meats before serving.
- Avoid raw honey, milk, and fruit juice, and choose pasteurized versions instead.
- Store foods in a refrigerator or freezer (below 40°F) right after buying them to limit the growth of germs.
- When eating out, avoid salad bars; sushi; and raw or undercooked meat, fish (including shellfish), poultry, and eggs—these foods are more likely to contain harmful bacteria.
- If you are concerned about the safety (purity) of the well water in your home, ask your public health department to check it for bacteria.

For more on food safety and precautions, see [Infections in People With Cancer](#)³ and [Nutrition for the Person With Cancer During Treatment](#)⁴.

Meats

Should I avoid meats?

Studies have linked eating large amounts of red meat and processed meats (like bacon, hot dogs, and deli meats) with increased risk of colorectal and some other cancers. Some research suggests that frying, broiling, or grilling meats at very high temperatures creates chemicals that might increase the risk of some types of cancer (especially meats that are higher in fat and poultry with skin).

For these reasons, the American Cancer Society Guideline for Diet and Physical Activity for Cancer Prevention recommends avoiding or limiting your intake of processed and red meats. Cancer survivors may also want to follow this recommendation for general good health.

No studies have looked at the effect of processed meat, meat cooked at high temperature, or meat in general on cancer coming back or getting worse (progressing or growing).

Obesity

Does being overweight increase the risk of cancer coming back or getting another cancer?

More and more evidence suggests that being overweight or obese raises the risk for recurrence (the cancer coming back) and reduces the odds of survival for many cancers. Increased body weight has been linked with higher death rates for all cancers combined.

Because of other proven health benefits to losing weight, people who are overweight are encouraged to get to and stay at a healthy weight. Avoiding weight gain as an adult is important, too, not only to reduce cancer risk and risk of cancer coming back, but to reduce the risk of other chronic diseases as well.

Organic foods

Are foods labeled organic recommended for cancer survivors?

The term “organic” is often used for foods grown without pesticides and genetic modifications (changes). It’s also used for meat, poultry, eggs, and dairy products that come from animals that are not given antibiotics or growth hormones. The use of the term organic on food labels is controlled by the US Department of Agriculture.

It’s commonly thought that organic foods may be better for you because they reduce exposure to certain chemicals. It has also been suggested that their nutrient makeup may be better than non-organic foods. Whether this means health benefits for those who eat organic foods is unknown.

At this time, there are no studies in humans to show whether organic foods are better than other foods in terms of reducing the risk of cancer, the risk of cancer coming back, or the risk of cancer progression.

Physical activity

Should I exercise during cancer treatment and recovery?

Research strongly suggests that exercise is not only safe during cancer treatment, but it can also improve physical functioning and many aspects of quality of life. Moderate exercise has been shown to improve fatigue (extreme tiredness), anxiety, and self-esteem. It also helps heart and blood vessel fitness, muscle strength, and body composition (how much of your body is made up of fat, bone, or muscle).

People getting chemotherapy and radiation who already exercise may need to do so at a lower intensity and build up more slowly than people who are not getting cancer

treatment. The main goal should be to stay as active as possible and slowly increase your level of activity over time after treatment.

Are there special precautions survivors should consider?

Certain issues for cancer survivors may prevent or affect their ability to exercise. Some effects of treatment may increase the risk for exercise-related problems. For instance:

- People with severe anemia (low red blood cell counts) should delay activity until the anemia is better.
- Those with weak immune systems should avoid public gyms and other public places until their white blood cell counts return to safe levels.
- People getting radiation should avoid swimming pools because chlorine may irritate the skin at the treatment area.

If you were not active before diagnosis, you should start with low-intensity activities and then slowly increase your activity level. Certain people should use extra caution to reduce their risk of falls and injuries:

- Older people
- Those with bone disease (cancer in the bones or thinning bones, such as osteoporosis)
- People with arthritis
- Anyone with nerve damage (peripheral neuropathy)

Can regular exercise reduce the risk of cancer coming back?

This has not been looked at for all types of cancer, but there have been studies of survivors of breast, colorectal, prostate, and ovarian cancers. In these studies, people with higher levels of physical activity after diagnosis lived longer and had less chance of the cancer coming back. Still, more studies are needed to see if exercise has a direct effect on cancer growth.

In the meantime, since physical activity is known to prevent heart and blood vessel disease, diabetes, and osteoporosis, cancer survivors should try to have a physically active lifestyle.

Is yoga helpful to cancer survivors?

Most of the studies of yoga in cancer have been in breast cancer patients. They have found that yoga can be helpful in terms of anxiety, depression, distress, and stress. It didn't seem to be as helpful for more physical outcomes, such as body composition, fitness, and muscle strength.

More research is needed, but to get the most benefit, it may be best to combine yoga with aerobic exercise and resistance (weight) training.

Phytochemicals

What are phytochemicals, and do they reduce cancer risk?

Phytochemicals are a wide range of compounds made by plants. Some have either antioxidant or hormone-like actions. Only a few studies have looked at the effects that phytochemicals (or the plants that contain them) may have on cancer coming back or getting worse (progressing).

Eating lots of vegetables and fruits reduces the risk of some types of cancer, so researchers are looking for the specific plant compounds that might account for this. At this time there is no evidence that phytochemicals taken as supplements are as helpful as the vegetables, fruits, beans, and grains they come from.

Soy products

Should cancer survivors include soy-based foods in their diet?

Soy foods are an excellent source of protein and can be a good option for meals without meat. Soy contains many phytochemicals, some of which have weak estrogen activity and seem to protect against hormone-dependent cancers in animal studies. Other compounds in soy have antioxidant properties and may have anticancer effects.

There's a great deal of interest in the possible role of soy foods in reducing cancer risk, especially breast cancer risk. But the evidence at this time is mixed.

For the breast cancer survivor, current research finds no harmful effects from eating soy foods. These foods may even help tamoxifen work better. There is less known about the effects of soy supplements.

Sugar

Does sugar “feed” cancer?

No, sugar intake has not been shown to directly increase the risk of getting cancer or having it get worse (progress). Still, sugars and sugar-sweetened drinks add large amounts of calories to the diet and can cause weight gain, which we know can affect cancer outcomes.

There are many kinds of sugars, including honey, raw sugar, brown sugar, corn syrup, and molasses. Many drinks, such as soft drinks and fruit-flavored beverages contain sugar. Most foods and drinks that are high in added sugar do not offer many nutrients and may replace more nutritious food choices. For this reason, limiting the intake of foods and drinks with added sugar is recommended.

Supplements

Would survivors benefit from using vitamin and mineral supplements?

Survivors should try to get the nutrients they need through food, not supplements. Dietary supplements should be used when your doctor tells you to take them because of a deficiency of a certain nutrient. Do not take vitamins or other supplements to get higher than recommended levels of nutrients—this may do more harm than good.

Can nutritional supplements lower cancer risk or the risk of cancer coming back?

There is no evidence at this time that dietary supplements can lower the chance of cancer coming back or improve survival.

There is strong evidence that a diet rich in vegetables, fruits, and other plant-based foods may reduce the risk of some types of cancer. And some recent studies suggest there may be a helpful effect on recurrence or survival for breast, prostate, and ovarian cancers. But there is no evidence at this time that supplements can provide these benefits. Many healthful compounds are found in vegetables and fruits, and it's likely that these compounds work together to create these helpful effects. Food is the best source of vitamins and minerals.

Vegetables and fruits

Will eating vegetables and fruits lower the risk of cancer coming back?

In most studies, eating more vegetables and fruits has been linked with a lower risk of

lung, oral (mouth), esophagus (tube connecting the mouth to the stomach), stomach, and colon cancer. But few studies have been done on whether a diet that includes many vegetables and fruits can reduce the risk of cancer coming back (recurrence) or improve survival. Some recent studies suggest that a higher intake of vegetables may have a helpful effect on recurrence or survival for breast, prostate, and ovarian cancers, but this is not definite.

Still, cancer survivors should consume a variety of colorful vegetables and fruits each day because of their other health benefits. It's not known which of the compounds in vegetables and fruits are most protective, so it's best to eat different kinds of colorful vegetables and fruits each day.

Is there a difference in the nutritional value of fresh, frozen, and canned vegetables and fruits?

Yes, but they can all be good choices. Fresh foods are usually thought to have the most nutritional value. But some frozen foods can have more nutrients than fresh foods. This is because they are often picked ripe and quickly frozen, and nutrients can be lost in the time between harvesting and eating fresh foods.

Canning is more likely to reduce the heat-sensitive and water-soluble nutrients because of the high temperatures used in the canning process. Also, be aware that some fruits are packed in heavy syrup, and some canned vegetables are high in sodium.

Choose different forms of vegetables and fruits.

Does cooking affect the nutritional value of vegetables?

Cooking vegetables and fruits can help you better absorb certain nutrients, like carotenoids (compounds that give vegetables and fruits their colors). Microwaving and steaming are the best ways to preserve the nutrients, while boiling, especially for a long time, can leach out the water-soluble vitamins.

Should I juice my vegetables and fruits?

Juicing can add variety to your diet and can be a good way to get vegetables and fruits, especially if you have trouble chewing or swallowing. Juicing also helps the body absorb some of the nutrients in vegetables and fruits. But juices may be less filling than whole vegetables and fruits, and they contain less fiber. Drinking a lot of fruit juice can add extra calories to a person's diet, too.

Buy juice products that are 100% vegetable or fruit juices and pasteurized to remove harmful germs. These are better for everyone, but are especially important for people who may have weak immune systems, such as those getting chemotherapy.

Vegetarian diets

Do vegetarian diets reduce the risk of cancer coming back?

No direct evidence has shown that vegetarian diets help reduce the risk of cancer coming back when compared to a diet that is high in vegetables, fruits, and whole grains and contains small amounts of meat. But vegetarian diets can be good for you because they tend to be low in saturated fat and high in fiber, vitamins, and phytochemicals.

Vegetarian diets are in line with the [American Cancer Society Guideline for Diet and Physical Activity for Cancer Prevention](#)⁵.

Water and other fluids

How much water and other fluids should I drink?

Symptoms like fatigue (extreme tiredness), light-headedness, dry mouth, a bad taste in the mouth, and nausea can be caused by dehydration (loss of fluid from the body). To help prevent these problems, survivors should try to take in enough fluids. This is especially important if you are losing fluid, such as through vomiting or diarrhea.

Healthy adult men need about 3.7 liters of water a day, while women need about 2.7 liters, but most of this fluid comes from foods. (Note: A liter is a little over a quart.)

If you are having trouble eating or drinking or are losing fluid (because of problems with vomiting or diarrhea, for instance), you may not be able to take in enough fluid. You should talk with your health care team because you might need to be treated with intravenous (IV) fluids.

Hyperlinks

1. <http://onlinelibrary.wiley.com/doi/10.3322/caac.21142/abstract>
2. <acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21591>
3. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/low-blood-counts/infections.html

4. </content/cancer/en/treatment/survivorship-during-and-after-treatment/staying-active/nutrition/nutrition-during-treatment.html>
5. www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention.html
6. <http://www.nal.usda.gov/fnic>
7. <http://choosemyplate.gov>
8. <http://www.cancer.gov>
9. <http://www.nal.usda.gov/fnic>
10. <http://choosemyplate.gov>
11. <http://www.cancer.gov>

Additional resources

Along with the American Cancer Society, other sources of information include:

Food and Nutrition Information Center, US Department of Agriculture (USDA)

Phone number: 301-504-5414 (8 a.m. to 3 p.m. Eastern Time, Monday-Friday) TTY: 301-504-6856 Website: www.nal.usda.gov/fnic (<http://www.nal.usda.gov/fnic>)⁶

Offers current information on dietary guidelines, food facts, and more. For information on safe food preparation, go to ChooseMyPlate.gov (<http://choosemyplate.gov>)⁷ and select the “Healthy Eating Tips” tab, then “Food Safety Advice”

National Cancer Institute Toll-free number: 1-800-4-CANCER (1-800-422-6237) TTY: 1-800-332-8615 Website: www.cancer.gov (<http://www.cancer.gov>)⁸

Has up-to-date information about cancer and cancer-related topics for patients, their families, and the general public

**Inclusion on this list does not imply endorsement by the American Cancer Society.*

References

Rock CL, Doyle C, Demark-Wahnefried W, et al. Nutrition and physical activity guidelines for cancer survivors. *CA Cancer J Clin.* 2012;62(4):243-274.

Rock CL, Thomson C, Gansler T, et al. American Cancer Society guideline for diet and physical activity for cancer prevention. *CA Cancer J Clin.* 2020;70(4).

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