Nutritional differences between canned, frozen, and fresh veggies? [1]

Dear Alice,

Is there a difference between canned / frozen / fresh vegetables in terms of nutrition?

Answer

Dear Reader,

Fresh, frozen, and canned vegetables all have their own unique set of benefits and drawbacks, but all contain vital nutrients, such as carbohydrates, protein, vitamins, minerals, and fiber, which are maintained through the respective processes. Canned and frozen versions are the most common processed vegetables. While processed vegetables can be more convenient, have a longer shelf-life, and are free from microorganisms that may cause disease, there’s the potential that the nutritional quality of these foods is diminished. Combining a busy lifestyle with a strict budget may limit one’s ability to keep fresh vegetables on hand, so read on for other fresh vegetable alternatives to consider incorporating into a balanced diet.

While many people feel that fresh veggies are optimal, they may lose nutrients before consumption. Because it could take up to two weeks from the time they’ve been picked until they’re eaten, it’s possible that 10 to 50 percent of the less stable nutrients have disappeared. Still, raw, lightly prepared, or minimally processed veggies (and fruits) often have a higher nutrient value than well-cooked ones. To help preserve the nutrient content of veggies (and fruits) during cooking or other preparation:

- Stick with shorter cooking times and lower temperatures (e.g., avoid deep frying).
- Cook with little or no water to help retain water-soluble vitamins, such as vitamin C and the B vitamins. You might try steaming or microwaving rather than boiling. To limit exposure to heat when cooking this way, wait until the water is boiling before adding veggies.

In terms of frozen and canned vegetables, they’re often processed shortly after they’re picked in order to minimize nutrient loss during shipping, on the grocer’s shelf, or at home. In fact, frozen vegetables actually retain a high proportion of their original nutrients. In order to avoid extra calories, salt, or fat, frozen vegetables without added sauces or cheese are a healthier choice.
Like frozen vegetables, canned ones are also processed right after being harvested. However, sodium\(^2\) is often added to canned products as a preservative. Some of this may be rinsed off with water, and in many cases, low sodium or no sodium options are available (check the label\(^3\)!). Most of the change in nutrition that occurs in frozen and canned vegetables is due to blanching. This process involves heating the veggies quickly with water or steam. The water-soluble vitamins, including vitamins B and C can be destroyed during this process. Sometimes, instead of high heat, food processing uses high pressures to kill microorganisms that may cause illness, which may preserve the nutrient quality, color, and taste of veggies better than other methods.

Another form of veggie processing is dehydration. On one hand, this process can make fiber more concentrated, leading to better digestive regulation. On the other hand, dehydrated veggies may not retain the same amounts of vitamin C, and they’re more energy dense than fresh foods (more calories in less food), which may lead to weight gain if not eaten in moderation. For example, sun-dried tomatoes are more calorie dense than raw tomatoes.

Ultimately, how the vegetable is processed is less relevant than them being incorporated into a balanced diet and eaten regularly. The number of servings recommended in a day varies depending on each person’s age and other factors, however, it's suggested that adults generally eat about 2.5 to 3 cups of vegetables and 1.5 to 2 cups of fruit each day. If you’re looking to incorporate more vegetables into your diet, you could meet with a registered dietitian and check out Optimal Nutrition\(^4\) category in the Go Ask Alice! Nutrition and Physical Activity\(^5\) archives.

Happy eating!

Alice!
Category:
Nutrition & Physical Activity\(^5\)
Optimal Nutrition\(^4\)
Healthy Eating\(^6\)
Nutrients\(^7\)

Related questions
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Ooh, baby, I like it raw (or, is a raw diet healthy?)\(^9\)
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Resources
Columbia Health Nutrition Services (Morningside)\(^11\)
Student Health Service Nutrition Services (CUIMC)\(^12\)
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