

Pulses: An Overlooked Food in a Plant-Based Diet for Cancer Prevention

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April 5, 2023 By American Institute for Cancer Research

Surveys suggest there's a food that you're probably overlooking among your choices for a diet that reduces cancer risk: Pulses. You may know them as dry beans, peas, and lentils... or as part of the legume family. But chances are that when you think about foods to include based on the [AICR Cancer Prevention Recommendations](#) your first thought is vegetables, fruits, and whole grains. Yet pulses have lots to offer, too, as part of the recommended plant-focused diet.

The Food with an Identity Crisis

Many people are unfamiliar with, or maybe confused by, what pulses are.

Confusing Terminology: You're more likely to call them "dry beans and peas" or "lentils," for example. Nutrition recommendations often talk about pulses or legumes, which are broader terms.

Legume is the umbrella term and refers to a plant that grows in pods. All the following are types of legumes:

- Pulses are dry edible seeds within the pods. They are high in protein and fiber, and low in fat.

Pulses include:

- Dry Beans, such as kidney beans, black beans, Cannellini beans, navy beans, and pinto beans
- Chickpeas, the pulses used to make hummus dip
- Dry peas, green or yellow, you may find them as the split peas commonly used in soup, or whole dry peas, including black-eyed peas
- Lentils, which you may see most often, are labeled as green, but they often look brown.

Lentils also come in red and black.

- Oilseed legumes include soybeans and peanuts. Although they also grow in pods, they are sources of healthy unsaturated fat as well as protein.
- Fresh legumes (beans and peas) are not dried, and they don't provide as much protein or fiber in the same size serving.
 - Green peas and green lima beans are grouped nutritionally with other starchy vegetables.
 - Green (string) and yellow beans are grouped with other vegetables that are even lower in calories.

And it's not only names that are confusing.

Recommendations in the U.S. and around the world categorize pulses in different food groups, depending on the nutritional concerns of highest priority. For example, the USDA MyPlate website notes that if you get most of your protein from plant sources, you should probably consider pulses as part of the protein foods group. But if you eat poultry, seafood, meat, eggs, and nuts daily in amounts that cover your protein needs, you can consider pulses among the variety of vegetables you eat. Of course, if you have diabetes or pre-diabetes, talk with your registered dietitian or diabetes educator about how to keep track of them as carbohydrate foods (such as whole grains, starchy vegetables, and fruits).

Pulses' Unique Role in Your Diet

Pulses contribute to a diet for lower cancer risk and better overall health in several ways.

Boost fiber: When you look at amounts of fiber per serving, dry beans, dry peas, lentils, and chickpeas are at the head of the class. You can build a high-fiber diet to help reduce risk of colorectal cancer by including vegetables, fruits, whole grains, and nuts throughout the day. And the 6 to 10 grams of dietary fiber in just a half-cup of pulses can leapfrog your fiber consumption closer to the recommended target of 30 grams or more per day. The fiber in pulses helps move waste through the digestive tract more quickly.

Support a healthy gut microbiome: Pulses provide several forms of prebiotic fiber. This fermentable type of fiber supports types of bacteria in the gut associated with good health. More research is needed, but so far, studies in mice and limited human studies suggest that butyrate and other short-chain fatty acids that gut microbes produce from these prebiotic compounds seem to help reduce inflammation, inhibit conversion of bile acids in the gut to forms that can create cell damage that leads to cancer, and influence cell signaling pathways in healthy directions.

Improve diet quality: Besides their protein and fiber, pulses are also good sources of several nutrients that are often below recommended targets in U.S. diets. They're high in magnesium and

potassium, which work together to promote a healthy blood pressure. They're also an excellent source of folate, a B vitamin that research suggests may help lower cancer risk by maintaining healthy DNA and keeping cancer-promoting genes "turned off." And pulses provide polyphenol phytochemicals that support antioxidant defenses. Much of the evidence for how pulses' phytochemicals may help reduce inflammation and inhibit pathways involved in the development of cancer comes from laboratory studies. But limited human intervention trials increasing pulse consumption show reduction in markers of inflammation, as well as the well-documented decreases in LDL cholesterol and blood pressure.

A recent expert panel report on "carbohydrate quality" identified several key metrics – the ratio of fiber to total carbohydrate, the proportion of carbohydrate as sugar, content of sodium and potassium, and whole grain content (where applicable). Together, these highlight foods that contribute to nutrient-rich diets that meet dietary recommendations for health. Pulses are among the top-scoring foods.

Are Beans Misunderstood in the US?

Despite nutrition recommendations sharing research on how pulses contribute to lower cancer risk and better overall health, many adults still eat pulses only occasionally.

Legume consumption is cultural. Different types of legumes are essential elements in many traditional diets around the world. But as diets become more Westernized, people often leave beans behind.

- People in some areas of the U.S., especially the Southeast, eat more legumes than in other areas.
- Consumption is also reportedly higher among people with more education and in Asian or Hispanic ethnic groups.
- Surprisingly, despite legumes' value as a low-cost source of protein, consumption seems higher among people with higher incomes rather than in those with low incomes.

Misinformation and misconceptions abound.

Weight fears: To some people, beans have an image as "fattening." Actually, they are categorized as low in "calorie density", a system that compares calorie content in similar amounts of food. In 11 randomized controlled human intervention trials, one serving of pulses daily led to modest weight loss and reduced body fat, even when diets didn't intentionally reduce calories.

Fears of “anti-nutrients”: People may see worrisome click-bait headlines about compounds called lectins in pulses. These results are often from laboratory studies using raw beans or isolated lectin compounds that claim to link lectins to chronic inflammation and damage to the gut. But these warnings leave out the vital information that lectins are neutralized in cooking. And, since they are water-soluble, they are largely removed by cooking or canning in water. Emerging research even suggests that modest amounts of lectins may play a role in supporting the immune system and is evaluating a potential role in cancer treatment.

Worries about intestinal gas: As gut bacteria convert prebiotic compounds in pulses to protective substances, they do produce gas. However, dietitians often note that when people increase these foods gradually and include them often – rather than just occasionally – tolerance often builds up. It’s interesting that cultural cuisines that have traditionally included an abundance of pulses, often use seasonings like ginger, fennel, and cumin seeds that are reputed to reduce gas production. If you cook pulses at home from their dried form, throw out the soaking water and cook the pulses in a fresh pot of water. If you use canned beans, make sure to drain and rinse them in a sieve or colander to remove the canning liquid. (Side benefit: you’ll reduce sodium content, too.)

Swaps and Companions for Including Pulses in a Cancer Prevention Diet

For the ultimate way to use dry beans, dry peas, chickpeas and lentils to create a healthier diet, here are two key strategies.

Swap pulses to help reduce foods you want to limit.

- Use dry beans and peas, chickpeas, or lentils to replace some or all the meat in chili, stew, and casseroles.
- Cut back on chips and other high-calorie snack foods that are low in nutrients and fiber. Instead, use hummus and other bean-based dips to make eating more vegetables a tasty choice for snacks and meals. For example, try roasted chickpeas as a snack or as part of a vegetable salad.

Amplify the benefits of pulses by their companion foods.

- Although pulses are high in iron, this iron is in a form that is less well-absorbed than the iron from meat. Counteract that by including foods rich in vitamin C – which increases iron absorption – in meals with pulses. Tomatoes, peppers, and leafy green vegetables are just a few examples of vegetables that are natural companions for pulses in many dishes.
- You often see chickpeas or kidney beans on salad bars. Bring the idea home and add them to

make homemade salads filling and tasty.

Check the [AICR Food Facts Library](#) for more on the research about pulses in a diet for lower cancer risk and for [recipes and practical tips](#) for using them.

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