Chow Line

News from the College of Food, Agricultural, and Environmental Sciences

Cruciferous vegetables packed with nutrients

What are cruciferous vegetables, and what kind of health benefits do they provide?

More than two dozen types of vegetables are cruciferous, so named because most have flowers with four petals, resembling a cross. They are generally cool-weather vegetables, so you likely will see good prices on them in the produce section of the grocery store at this time of year.

Cruciferous vegetables include broccoli, cauliflower, cabbage, Brussels sprouts, radishes, horseradish, wasabi, turnips, rutabaga, arugula, bok choi, collard greens, kale, kohlrabi and watercress.

Horticulturally, they belong to the same family (Cruciferae, or Brassicaceae), and all have sulfur-containing compounds called glucosinolates. Glucosinolates benefit the plants by naturally protecting them from some pests. They are also believed to benefit human health.

When we cook, chew and digest cruciferous vegetables, glucosinolates break down and form different phytochemicals, including indoles and isothiocyanates, that are biologically active. According to the American Institute for Cancer Research, studies in the laboratory indicate that these compounds seem to:

- Decrease inflammation, which is associated with a large number of chronic illnesses, including cancer and cardiovascular disease.
- Suppress enzymes that are known to activate carcinogens.
- Stimulate enzymes that deactivate carcinogens and decrease the ability of cancer cells to spread.

Despite these promising results in the lab, the AICR says results from studies in humans are

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inconsistent. It could be that the compounds are affected by differences in how people cook and prepare the food. Or it could be that genetic differences affect how each person's body reacts to the compounds.

Although the research on precise health benefits of glucosinolates from cruciferous vegetables is far from settled, these vegetables still have several other nutrients that benefit health. Most are very high in vitamin C. Broccoli, for example, is also high in folate, manganese, potassium and fiber, and provides other vitamins and minerals. Dark green members of the cruciferous vegetable family, including broccoli, are a substantial source of vitamin K.

Because so many types of cruciferous vegetables are high in vitamin K, it's important to note that anyone taking the blood thinner warfarin (Coumadin) needs to monitor their intake. Sudden increases or decreases of vitamin K can cause serious changes in the effectiveness of this prescription medicine. It's extremely important for anyone taking warfarin to keep their vitamin K intake consistent from day to day.

For others, though, it's probably a good idea to increase consumption of cruciferous vegetables. For more information, including research, tips for preparing them and recipes, see the AICR's website at aicr.org/foods-that-fight-cancer/broccoli-cruciferous.html.

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