

Sprouts? Supplements? Team them up to boost broccoli's cancer-fighting power

January 27 2011

A new University of Illinois study provides convincing evidence that the way you prepare and consume your broccoli matters, and also suggests that teaming broccoli with broccoli sprouts may make the vegetable's anti-cancer effect almost twice as powerful.

"Broccoli, prepared correctly, is an extremely potent cancer-fighting agent—three to five servings a week are enough to have an effect. To get broccoli's benefits, though, the enzyme myrosinase has to be present; if it's not there, sulforaphane, broccoli's cancer-preventive and anti-inflammatory component, doesn't form," said Elizabeth Jeffery, a U of I professor of nutrition.

According to Jeffery, many people destroy myrosinase by overcooking their broccoli. And health-conscious consumers who use broccoli powder supplements in recipes to boost their nutrition are also missing out. These supplements often do not contain this necessary enzyme, she said.

"There is a way to boost that powder's effectiveness, though. [Broccoli sprouts](#) contain myrosinase in abundance. And broccoli powder often contains the precursor to sulforaphane without the enzyme that would boost its healthful benefits," said Jenna Cramer, co-author of the study.

The scientists hypothesized that myrosinase from the sprouts would enhance sulforaphane formation and absorption from the broccoli powder if the two were eaten together.

In a small pilot study, they recruited four healthy men who ate meals that contained broccoli sprouts alone, broccoli powder alone, or a combination of the two. The researchers then measured levels of sulforaphane metabolites in the men's blood and urine after feeding.

"We were looking at biomarkers—plasma and urine levels—that are associated with [cancer](#) prevention," Cramer said.

Three hours after feeding, a definite synergistic effect was noted between the powder and the sprouts.

"There was almost a twofold increase in sulforaphane absorption when sprouts and powder were eaten together. It changed the way the subjects metabolized the powder. We saw plasma and urine metabolites much earlier and at much higher levels than when either was eaten alone," Jeffery said.

This indicates that myrosinase from the broccoli sprouts produced sulforaphane not only from the sprouts but also from the precursor present in the broccoli powder, she said.

Other foods that contain sulforaphane and can be teamed with broccoli to boost its benefits are mustard, radishes, arugula, and wasabi, Jeffery said.

"To increase the vegetable's benefits, you could sprinkle broccoli sprouts on your broccoli or make a mustard sauce to serve with broccoli," she added.

People who prefer to eat broccoli without sauce or sprouts should know that overcooking is the kiss of death for the important enzyme myrosinase, she said.

"Steaming [broccoli](#) for two to four minutes is the perfect way to protect both the [enzyme](#) and the vegetable's nutrients," she said.

More information: The study was published in the January 2011 issue of *Nutrition and Cancer*.

Provided by University of Illinois at Urbana-Champaign

Citation: Sprouts? Supplements? Team them up to boost broccoli's cancer-fighting power (2011, January 27) retrieved 1 May 2024 from <https://medicalxpress.com/news/2011-01-supplements-team-boost-broccoli-cancer-fighting.html>

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