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Health

Veggies Lose Antioxidants in the Microwave

By [Amanda Gardner](#)*HealthDay Reporter*

THURSDAY, Oct. 16 (HealthDayNews) -- Getting the necessary nutrients from vegetables may be even harder than you thought.

New research shows that different ways of preparing, storing and processing vegetables can affect how good they are for you.

Broccoli, for instance, can lose as much as 97 percent of some antioxidants, or cancer-fighting compounds, when it is zapped in the microwave.

Vegetables that are blanched before freezing (a common processing technique) can lose up to one third of their antioxidants. Frozen storage can also cause losses, albeit much smaller ones.

Two studies detailing these findings appear in the November issue of the *Journal of the Science of Food and Agriculture*.

Antioxidants are plentiful in vegetables and work to eliminate free radicals, which can damage cell DNA and contribute to various diseases. That's why eating fiber, fruits, and vegetables, all of which contain antioxidants, can help prevent cancer and cardiovascular disease.

As it turns out, though, that protective effect is most pronounced when the vegetable is in its natural state.

The first study found that the simplest cooking method was also the worst when it came to preserving nutrients. Broccoli lost 97 percent of flavonoids, 74 percent of sinapics and 87 percent of caffeoyl-quinic derivatives (three different types of antioxidants) when it was microwaved.

When boiled the conventional way (i.e., not in a pressure-cooker), this green lost 66 percent of its flavonoids; when tossed in a pressure cooker, broccoli lost 47 percent of its caffeoyl-quinic acid derivatives.

Steamed broccoli, on the other hand, lost only 11 percent, 0 percent and 8 percent, respectively, of flavonoids, sinapics, and caffeoyl-quinic derivatives.

The advantage of steaming vs. conventional boiling is that you're "not

using water directly in contact with the vegetable. The nutritional compounds don't go into the water," says Cristina Garcia-Viguera, lead author of this paper. "Once the compounds are in the water, the temperature destroys them much easier."

A microwave wreaks havoc because it heats the inside of the vegetable. That, combined with the fact that you normally use water when microwaving, causes the destruction of valuable nutrients.

Even reheating steamed broccoli in a microwave would probably have the same effect, Garcia-Viguera says, although she did not specifically examine this in her research.

The findings can probably be extrapolated to many other vegetables but, again, the researchers did not specifically address this.

The second study looked at the effects of blanching and freezing and of long-term freezer storage on more than 20 common vegetables. As it turned out, different species showed different effects from these processing techniques.

In general, dietary fiber components were not affected or even went up slightly. Mineral content, also, tended to remain stable.

On the other hand, antioxidant activity went down 20 percent to 30 percent during blanching.

Carrots, peas, and broccoli lost 30 percent of their vitamin C during blanching/freezing, while green beans lost 10 percent and spinach lost 40 percent (with an additional 30 percent lost during deep frozen storage).

Spinach also lost almost 40 percent of its potassium and 70 percent of its folic acid during blanching.

Don't despair just yet, says Samantha Heller, a senior clinical nutritionist at New York University Medical Center in New York City.

The use of these vegetables in the studies meant they were nutritious in the first place, she says. "Then I'm still reaping the benefits even if they're losing some of their qualitative values," she says.

Moreover, Heller points out, not all of the healthy properties of vegetables are being eliminated. "You're still getting plenty of healthy compounds as well as fiber, so there's absolutely no reason not to eat vegetables -- although, of course, the fresher the better," she says.

"If people are willing to have vegetables anyway, shape or form, even if they are going to nuke them, I'd rather have them do that," she adds.

More information

For more on eating enough fruits and vegetables, visit the [Centers for Disease Control and Prevention](#). The [American Dietetic Association](#) has a series of nutrition fact sheets.

What goes on when you microwave food? Read about it at [HowStuffWorks](#).
