

Nutrients from food, not supplements, linked to lower risks of death, cancer

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Researchers from the Friedman School of Nutrition Science and Policy at Tufts have found that adequate intake of certain nutrients from foods -- but not supplements -- is linked to a reduction in all-cause mortality. Credit: Pixabay

Adequate intake of certain nutrients is associated with a reduction in all-cause mortality when the nutrient source is foods, but not supplements, according to a new study. There was no association between dietary supplement use and a lower risk of death.

In addition, excess calcium intake was linked to an increased risk of cancer death, which the researchers found was associated with supplemental doses of calcium exceeding 1,000 mg/day. The study was published on April 9 in *Annals of Internal Medicine*.

"As potential benefits and harms of supplement use continue to be studied, some studies have found associations between excess nutrient intake and [adverse outcomes](#), including increased risk of certain cancers," said Fang Fang Zhang, M.D., Ph.D., associate professor at the [Friedman School of Nutrition Science and Policy at Tufts University](#) and senior and corresponding author on the study. "It is important to understand the role that the nutrient and its source might play in [health outcomes](#), particularly if the effect might not be beneficial."

The study used a nationally representative sample comprised of data from more than 27,000 U.S. adults ages 20 and older to evaluate the association between dietary supplement use and death from all causes, cardiovascular disease (CVD), and cancer. The researchers assessed whether adequate or excess nutrient intake was associated with death and whether intake from [food](#) versus supplement sources had any effect on the associations.

For the association between nutrient intake and the risk of death, the researchers found:

- Adequate intakes of [vitamin](#) K and magnesium were associated with a lower risk of death;
- Adequate intakes of vitamin A, vitamin K, and zinc were

associated with a lower risk of death from CVD; and

- Excess intake of calcium was associated with higher risk of death from cancer.

When sources of nutrient intake (food vs. supplement) were evaluated, the researchers found:

- The lower risk of death associated with adequate nutrient intakes of vitamin K and magnesium was limited to nutrients from foods, not from supplements;
- The lower risk of death from CVD associated with adequate intakes of vitamin A, vitamin K, and zinc was limited to nutrients from foods, not from supplements; and
- Calcium intake from supplement totals of at least 1,000 mg/day was associated with increased risk of death from cancer but there was no association for calcium intake from foods.

In addition, the researchers found that dietary supplements had no effect on the risk of death in individuals with low nutrient intake. Instead, the team found indications that use of vitamin D supplements by individuals with no sign of vitamin D deficiency may be associated with an increased risk of [death](#) from all causes including cancer. Further research on this potential connection is needed.

"Our results support the idea that, while supplement use contributes to an increased level of total [nutrient intake](#), there are beneficial associations with nutrients from foods that aren't seen with supplements," said Zhang. "This study also confirms the importance of identifying the [nutrient source](#) when evaluating mortality outcomes."

The study used 24-hour diet recall data from six two-year cycles of the National Health and Nutrition Examination Survey, through 2010. For each nutrient, the daily supplement dose was calculated by combining

the frequency with the product information for ingredient, amount of ingredient per serving, and ingredient unit. Dietary intake of nutrients from foods was assessed using 24-hour dietary recalls. Mortality outcomes were obtained for each participant through linkage to the National Death Index through December 31, 2011, using a probabilistic match.

The authors note some limitations, including the duration of dietary supplement use studied. In addition, prevalence and dosage of dietary [supplement](#) use was self-reported and so is subject to recall bias. Residual confounding may play a role in the observed associations.

More information: Chen, F. et al. (2019). Association between dietary supplement use, nutrient intake, and mortality among US adults: a cohort study. *Annals of Internal Medicine*. [DOI: 10.7326/M18-2478](https://doi.org/10.7326/M18-2478)

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