

# Dietary acrylamide not associated with increased lung cancer risk in men

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Dietary acrylamide was not associated with an increased risk of lung cancer, according to data from a large prospective case-cohort study in the April 28 online issue of the *Journal of the National Cancer Institute*.

Acrylamide is formed in some starchy foods, such as potato chips and [French fries](#), during high-temperature cooking. Epidemiological studies have found a positive association between dietary acrylamide intake and the risk of endometrial, ovarian, renal cell, and estrogen-receptor positive breast cancers.

To investigate whether dietary acrylamide intake is associated with lung cancer risk, Janneke G. F. Hogervorst, M.Sc., of Maastricht University in the Netherlands, and colleagues conducted a case-cohort study among 58,279 men and 62,573 women in the Netherlands Cohort Study on Diet and Cancer. Intake of acrylamide was estimated based on food-frequency questionnaires completed upon enrollment in the study.

After a follow-up of 13 years, 1,600 men and 295 women were diagnosed with lung cancer. When the investigators divided participants into five groups based on dietary acrylamide intake, they found no statistically significant difference in lung cancer incidence in men who consumed the highest and lowest amounts of acrylamide-containing foods. By contrast, the researchers found that women who ate the most acrylamide-containing foods had a statistically significant lower incidence of lung cancer compared with those in the group who consumed the least acrylamide-containing foods. All analyses were

adjusted for smoking.

"Acrylamide intake was not associated with lung cancer risk in men but was inversely associated in women... This finding suggests that acrylamide is involved in human carcinogenesis through pathways other than genotoxicity," the authors write. They hypothesize that acrylamide may affect hormonal balances, which might explain how it could be associated with a reduction in lung cancer risk but an increase in risk of endometrial and ovarian malignancies.

In an accompanying editorial, Lorelei A. Mucci, ScD. and Hans-Olov Adami, M.D., Ph.D., of the Harvard School of Public Health in Boston, review past studies of dietary acrylamide and cancer, as well as the initial discovery of acrylamide in foods. They note that several studies have found a positive association between dietary acrylamide and some types of cancer. The editorialists also express caution about concluding that dietary acrylamide may have a protective effect in women with respect to lung cancer risk, pointing out the potential for false-positive associations.

"In our view, speculation about the potential mechanisms of the protective effect of acrylamide on lung cancer among women should await confirmation of the association in additional studies," the editorialists conclude. "Perhaps the safer conclusion we can make from the Netherlands study is that the findings do not support a positive association between acrylamide intake from diet and risk of [lung cancer](#)."

More information: Hogervorst et al. Lung [Cancer Risk](#) in Relation to Dietary Acrylamide Intake, *J Natl Cancer Inst* 2009, 101: 651-662  
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