

Pregnant? Eating broccoli sprouts may reduce child's chances of breast cancer later in life

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Researchers at the University of Alabama at Birmingham have found that a plant-based diet is more effective in preventing breast cancer later in life for the child if the mother consumed broccoli while pregnant. The 2018 study out of the UAB College of Arts and Sciences and Comprehensive Cancer Center used epigenetics — the study of biological mechanisms that will switch genes on and off—as a mechanism to identify ways we can change human gene expressions in fatal diseases, including breast cancer.

"An important risk factor for [breast cancer](#) is individual genetic background, which is initially generated early in human life—for example, during the processes of embryogenesis and as a baby develops in a mother's womb," said Yuanyuan Li, corresponding author and assistant professor in the School of Medicine's Department of Pharmacology and Toxicology at UAB. "Bioactive [dietary components](#) that are found in [cruciferous vegetables](#) like broccoli sprouts, cabbage and kale have been shown to reduce the risk of developing many common cancers through regulation of epigenetic mechanisms."

The study, conducted in mice and recently featured in the National Cancer Institute's *Nutrition Frontiers*, suggests that women who eat [broccoli sprouts](#) while pregnant could more effectively prevent their child from breast [cancer](#) development later in life as compared with consumption of early-life and adult broccoli sprout diets. Postnatal early-life broccoli sprout diets starting prior to puberty showed protective effects in prevention of breast cancer but were not as effective as the prenatal/maternal treatment. However, an adulthood-administered broccoli sprout diet did not reduce breast cancer.

"Our results suggest that the prenatal/maternal broccoli sprout diet may impact early embryonic development by regulating global gene expression through affecting epigenetic profiles resulting in differential susceptibility to breast cancer later in life," said Trygve Tollefsbol, Ph.D., professor in the UAB Department of Biology and senior author on the study. "These results suggest that a temporary exposure to epigenetic-regulating dietary components such as cruciferous vegetables could be a key factor in reducing the risk of breast cancer."

This study may lead to translational breast cancer chemopreventive potential by appropriate administration of key dietary components, leading to early breast cancer prevention in humans.

Provided by University of Alabama at Birmingham

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