

JOINT EVENT

Advances in Neonatal and Pediatric Nutrition

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Health benefits of dietary broccoli extend to the inhibitory impact of cooked broccoli on chronic inflammation of colitis at the gut wall

Broccoli is known to contain the health promoting compound Sulforaphane (SF). Most consumers prefer the flavor of cooked, rather than raw broccoli. However, cooked broccoli has been suggested to provide essentially no health benefits compared to raw broccoli. This is because the plant enzyme myrosinase, that releases SF from its inactive precursor glucoraphanin when broccoli is chewed, is in large part destroyed by cooking. SF is known to activate nuclear factor erythroid 2-related factor 2 (Nrf2), the critical trigger to increasing antioxidant defense and detoxification pathways. Here we report that the microbiome has the ability to release SF from its inactive precursor, particularly because frequent cooked broccoli ingestion alters the microbiome in a positive manner in mice and human subjects. We find that following broccoli ingestion, sufficient SF is released into the colon by the microbiome, whether the broccoli is cooked or raw to act locally to activate Nrf2 and prevent colitis. The health impact of acute and chronic inflammation and the effect of the broccoli component SF on inflammation will be discussed.

Biography

Dr. Jeffery completed her PhD in biochemistry at the Royal Free Hospital School of Medicine, University of London, UK in 1972. She joined the University of Illinois as faculty in 1983 and became a full professor of Nutritional Pharmacology in both the Department of Food Science and Human Nutrition and in the Medical School (Pharmacology faculty) in 2000. She has over 150 publications, many in the area of broccoli and health. She received the American Society for Horticultural Science's paper of the year in 2002 and the American Society of Nutrition's Dannon Institute award for mentorship in 2016. As Professor Emerita, she continues to have students, an active laboratory and reviews manuscripts for many journals.

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