

JOINT EVENT

Advances in Neonatal and Pediatric Nutrition

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***Elizabeth Jeffery****University of Illinois, USA***Today's rising health care issue, non-alcoholic fatty liver disease, may be prevented by dietary broccoli or a number of broccoli replacements that trigger the same pathway**

The high-fat, high-sugar 'Westernized' diet that is popular worldwide is associated with increased body fat accumulation, which is related to development of Non Alcoholic Fatty Liver disease (NAFLD). Without treatment, NAFLD supports chronic inflammation and may progress to Hepatocellular Carcinoma (HCC), a cancer with a high mortality rate. Diabetes and metabolic syndrome are also supported by increased NAFLD. Epidemiologic studies show that incorporating brassica vegetables into the daily diet lowers the risk of several cancers, although this is the first study to evaluate HCC prevention through dietary broccoli. We evaluated the impact of dietary broccoli on hepatic lipid metabolism and progression of NAFLD to HCC. Adult 5-wk-old male B6C3F1 mice received a control diet (AIN-93M) or a Western diet (high in lard and sucrose, 19% and 31%, wt:wt, respectively), with or without freeze-dried broccoli (10%, wt:wt). All mice received the hepatocarcinogen diethylnitrosamine (DEN) for 6 weekly doses. Hepatic gene expression, lipidosis and tumor outcomes were analyzed 6 months later. Mice receiving broccoli exhibited lower hepatic NAFLD scores ($P < 0.0001$), suppressed activation of hepatic macrophages ($P < 0.0001$) and slowed HCC development. Our recent work reflects the impact of obesity in humans on some of these same parameters, providing strong rational for a broccoli diet to prevent the adverse physiological outcomes of obesity. In discussing mechanism, alternative dietary bioactive compounds that are expected to act similarly will be considered.

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 and an active laboratory.

ejeffery@illinois.edu