

ADDITIVE OR SYNERGISTIC ROLE OF PHYTOCHEMICALS IN FRUITS AND VEGETABLES: IMPLICATIONS FOR CHRONIC DISEASE PREVENTION

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Epidemiological studies have shown that regular consumption of fruits and vegetables has been correlated with a reduced risk of developing chronic diseases, such as cancer and cardiovascular disease. It is thought that the phytochemicals found in fruits and vegetables may be responsible in part for these health benefits. However, the actions of the antioxidant nutrients alone do not explain the observed health benefits of diets rich in fruits and vegetables for chronic diseases because taken alone, the individual antioxidants studied in clinical trials do not appear to have consistent preventive effects. Work performed by our group and others have shown that fruit and vegetable phytochemicals exhibit strong antioxidant and antiproliferative activities. We proposed that the additive and synergistic effects of phytochemicals in fruits and vegetables are responsible for these potent antioxidant and anticancer activities, and that the benefit of a diet rich in fruits and vegetables is attributed to the complex mixture of phytochemicals present in whole foods. This presentation will discuss our current research on the health benefits of phytochemicals from fruits, vegetables and whole grains in the prevention of cancer, and focus on the mechanisms of action and the additive or synergistic role of phytochemicals.