

Comments on the Importance of Diet and Nutrition in Cancer Prevention and the Role of the 2nd International Science Symposium on Tea and Human Health (44363A)

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The American Cancer Society was honored to serve with the American Heart Association and the American Health Foundation, as a cosponsor of The 2nd International Scientific Symposium on Tea and Human Health held September 14–15, 1998, at the United States Department of Agriculture, Washington, DC. The American Cancer Society hopes that symposia such as this will identify progress in research that contributes to an understanding of the benefits diet and nutrition can provide in cancer control and prevention. The 2nd International Tea Symposium provided both a timely and informative assessment of current research concerning the beneficial impact of tea consumption on human health. As the articles presented here demonstrate, significant advances have been made in our knowledge of tea. Chief among these advances are studies providing fundamental biochemical information about tea, which supports a further expansion of research into its health benefits. Examples include: 1) the identification of new cell functions affected by tea components; 2) information about a variety of variables affecting the final concentration of important components of tea in tea preparations; 3) new information about the antioxidant activity of tea and its ability to reduce oxidative stress; and 4) the identification of a variety of animal models suitable for a more careful and detailed examination of the multiple biological effects of tea. In addition, the symposium identified needed areas of research that would aid a more rapid assessment of the health benefits of tea to humans, such as the contribution of tea consumption to overall intake of dietary antioxidants and the identification of cancer-related biomarkers that respond to tea and its components. Epidemiological studies were presented at this meeting that suggested a beneficial

effect of tea consumption on cancer risk in people. However, a historic review of the epidemiological data for a beneficial effect of tea on cancer risk showed mixed results and thus remain inconclusive. Epidemiological research with better design to control for the standard confounding factors of human diet and behavior is needed to permit access to the effects of tea on human health without distortion from such factors.

The importance of diet and nutrition as an environmental factor associated with the risk of cancer has long been recognized by the American Cancer Society. Indeed, Frederick Hoffman, a medical statistician and epidemiologist, and a founder of the American Cancer Society, reported in a 1937 review of the literature on diet and cancer that excessive amounts of certain foods in our diets (i.e., fatty foods, sugary foods, and meat) were contributory if not chief factors in the risk of cancer (1). These conclusions correlated well with other early observations by Hoffman and others (2, 3) that risks for cancer also varied as a function of the migration of individuals from one geographic region to another. Subsequent development of reliable data for cancer incidence in the 1960s by cancer registries showed that the incidence of most cancers varied significantly among different countries in the world (4), and further supported the position that a majority of cancers were due to environmental factors and thus were preventable.

Beginning in the 1970s, biological scientists and epidemiological researchers examined a wide range of specific hypotheses about the harmful and beneficial roles that diet and nutrition can play in the risk for cancer. In 1971, the National Cancer Act mandated the National Cancer Institute to investigate the relationship between diet and nutrition and cancer. In 1975 the National Cancer Institute and American Cancer Society conducted a symposium on "Nutrition and the Causation of Cancer," which concluded that for a diet to lower risk for cancer, it should have less meat and fat and more fruits, vegetables, and cereals (5). In 1981, Doll and Peto published a review commissioned by the United States Congress in which they examined the extent to which all cancer as well as specific cancers could be avoided by

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changes in diet (6). This report indicated that environmental carcinogens, other than those in tobacco and diet, are comparatively unimportant causes of cancer, and predicted that United States cancer mortality rates could be reduced 35% by practical dietary changes. A report in 1982 by a multidisciplinary expert panel of the United States National Academy of Science on *Diet, Nutrition, and Cancer*, produced a set of dietary guidelines that combined good nutritional practice and measures likely to reduce the risk of cancer (7). These studies served as a basis for the initial American Cancer Society dietary guidelines (8) and the subsequent updates (9, 10) used in community cancer control efforts. During 1997–1998, the American Cancer Society placed additional emphasis on the importance of prevention in setting its new cancer control goals for the year 2015. Chief among these goals is a 50% overall reduction in the annual United States cancer mortality rate and a 25% overall reduction in cancer incidence. To achieve these goals, greater focus is being placed on providing the American public with evidenced-based and consensus-derived knowledge of optimal dietary practices to lower risk of cancer. In conjunction with this effort, the American Cancer Society will publish an updated 1999 *Guidelines for Nutrition and Cancer Prevention* (11). Furthermore, the American Cancer Society will continue to emphasize, through its programs of extramural grant funding and investigator education (12), strong basic and clinical research in the areas of diet and nutrition. [Additional information regarding the American Cancer Society program can be accessed by internet at www.cancer.org, E-mail: at grants@cancer.org, or contacting the Extramural Grants Department, American Cancer Society, 1599 Clifton Rd, NE, Atlanta, GA, 30329–4251].

In closing, special acknowledgment is owed to Dr. John Weisburger, both for his untiring efforts to create a forum for the balanced presentation of science at this symposium, and for his own numerous research contributions to the investigation of tea and human health. In addition, special recognition is owed to the Tea Council of the United States for creating an opportunity for scientists from around the world to gather and examine recent research advances in

this area. As we prepare to enter a new millennium in cancer research, advances in molecular medicine are now beginning to make exciting progress in new treatment and early diagnosis available to the public. Yet we still need new knowledge in these two areas as well as in cancer prevention if the battle against cancer is to be won. Cancer prevention through better diet and nutrition also promises to be a particularly important issue in the new millennium, for it has become increasingly apparent that we have entered an era where we will have the option of adopting a diet that may allow a reduction in cancer incidence both in the United States and worldwide by one third (13). Achieving such a goal will be greatly aided by the successful communication of research advances such as those that have been reported at The 2nd International Scientific Symposium on Tea and Human Health.

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12. American Cancer Society Workshop on Cancer and Nutrition. *Cancer Res* **53**:2429s–2456s, 1993.
13. *Food Nutrition and Prevention of Cancer: A Global Perspective*. Washington, DC: American Institute for Cancer Research, 1997.