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FILE: ▪ Tea (*Camellia sinensis*)
▪Parkinson's Disease

HC 040581-352

Date: May 15, 2008

RE: Study Examines Effects of Tea Intake on Parkinson's Disease Development

Tan LC, Koh W-P, Yuan J-M, et al. Differential effects of black versus green tea on risk of Parkinson's disease in the Singapore Chinese Health Study. *Am J Epidemiol*. March 1, 2008;167(5):553-560.

Studies have shown that caffeine in coffee may improve motor deficits in patients with Parkinson's disease by blocking adenosine A2 receptors. Small case-studies have shown that tea may reduce the risk of late-onset Parkinson's disease. It is not known what ingredient in tea mediates this effect. The high prevalence of black and green tea consumption among the Chinese population makes this population ideal for evaluating the effect of tea on Parkinson's disease.

This report is based on data from the Singapore Chinese Health Study, which is a population based cohort established between April 1993 and December 1998. The cohort includes 63,257 ethnic Chinese aged 45-75 years who reside in government-built housing estates. The participants completed a food frequency questionnaire that listed 165 food items or groups of commonly consumed Chinese foods. The authors developed a food-nutrient database that provided the nutrient levels of 96 components per 100 grams of cooked food and beverages. The mean daily intake of caffeine and other nutrients for each subject was computed. Cigarette smoking was also assessed. Subjects reported new cases of Parkinson's disease.

Cigarette smoking was strongly associated with a reduced risk of developing Parkinson's disease. Never smokers had a higher risk, former smokers had an intermediate risk, and current smokers had a low risk. Among ever smokers, beginning smoking at an earlier age and smoking a higher number of cigarettes per day were associated with a lower risk.

Approximately 50% of the subjects drank tea at least once a week, with approximately one-third drinking only green tea, one-third drinking only black tea, and one-third drinking both types of tea. However, in this cohort coffee was the main source of caffeine exposure, with 70% of the population drinking coffee on a daily basis. Total caffeine intake exhibited a

significant (P = 0.002), dose-dependent inverse association with Parkinson's disease risk—the greater the caffeine intake, the lower the risk of Parkinson's disease. The caffeine content in coffee was responsible for its effect. In contrast, black tea consumption was associated with a reduced risk, irrespective of the total caffeine intake or cigarette smoking. There was no association between green tea consumption and Parkinson's disease risk. Subjects with high intake of both caffeine and black tea had the lowest risk of developing Parkinson's disease. None of the other macro- and micronutrients in any of the consumed foods or beverages had a strong dietary influence on development of Parkinson's disease.

The authors conclude that ingredients in black tea, other than caffeine, reduce the risk of Parkinson's disease. The authors speculate that the protective effect of black tea may be mediated by an estrogen-related pathway. Parkinson's disease rates are lower among women (women have higher levels of circulating estrogens then men) and in the cohort circulating estrogens were highest among regular black tea drinkers and lowest in regular green tea drinkers. A limitation of the study was that it did not have any data on duration of coffee or tea intake. These results are consistent with findings in Western populations.

—Heather S. Oliff, PhD

The American Botanical Council has chosen not to reprint the original article.