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New research shows tea may help promote weight loss, improve heart health and slow progression of prostate cancer

American Journal of Clinical Nutrition releases new proceedings from International Tea and Human Health Symposium

New York, NY—November 6, 2013: Decades worth of research shows that tea—the second most consumed beverage in the world—may help prevent chronic illnesses, including heart disease, certain types of cancer and type 2 diabetes. New research shows tea has been found to help promote weight loss and maintain a healthy weight, improve bone health and activate areas of the brain that bolster attention, problem solving and mood.

The December 2013 issue of the *American Journal of Clinical Nutrition* features 12 new articles about the relationship between tea and human health. Each paper is based on presentations from world-renowned scientists who participated in the Fifth International Scientific Symposium on Tea and Human Health, held at USDA in September 2012. Highlights of some of the compelling reports published through the AJCN include the following five papers:

Tea Leaf Polyphenols May Promote Weight Loss

Tea polyphenols and the caffeine content in tea increase energy expenditure and fat oxidation, providing benefits for achieving and maintaining an ideal body weight. The results of one meta-analysis suggests the increase in caloric expenditure is equal to about 100 calories over a 24-hour period, or 0.13 calories per mg catechins. In a related review, researchers concluded that subjects consuming green tea and caffeine lost an average of 2.9 pounds within 12 weeks while adhering to their regular diet. Population-based studies also show that habitual tea drinkers have lower Body Mass Indexes (BMIs) and waist-to-hip ratios and less body fat than non-tea drinkers. In addition, green tea and caffeine also appear to boost fat oxidation over 24 hours by an average of 16% or 0.02 grams per mg catechins.

Tea May Reduce Risk for Some Cancers

Green tea polyphenols may play a role in arresting the progression of certain cancers. For example, in a double-blind, placebo-controlled study, supplementation with 600 mg/d green tea catechins reduced the progression of prostate cancer. The researchers reported that after a year, 9% of men in the green tea supplemented group had progressed to prostate cancer whereas 30% of men in the placebo group had progressed.

Hundreds—if not thousands—of laboratory, epidemiological and human intervention studies have found anti-cancer properties in compounds present in tea. The types of cancer that have shown benefits of tea include cancers of the gastrointestinal tract, lung, prostate, breast, and skin. The proposed mechanisms of action for providing protection against cancer include antioxidant effects, inhibition of growth factor signaling, as well as improving the efficacy of chemotherapy agents.

Tea Catechins are Cardioprotective

Numerous studies suggest tea supports heart health and healthy blood pressure, and appears to be associated with a reduced risk of cardiovascular disease, including stroke and heart attack. New research, published in the AJCN provides further support. Study results published by Claudio Ferri, MD, University L'Aquila, Italy, found that black tea reduced blood pressure,

and among hypertensive subjects, it helped counteract the negative effects of a high-fat meal on blood pressure and arterial blood flow. Hypertensive subjects were instructed to drink a cup of tea after a meal that contained 0.45 grams fat/lb. body weight. The results suggest that tea prevented the reduction in flow-mediated dilation (FMD), the ability to increase arterial blood flow that occurs after a high-fat meal. In a previous study conducted by Ferri, tea improved FMD from 7.8 to 10.3%, and reduced both systolic and diastolic blood pressure by -2.6 and -2.2 mmHg, respectively, in study participants.

"Our studies build on previous work to clearly show that drinking as little as one cup of tea per day supports healthy arterial function and blood pressure. These results suggest that on a population scale, drinking tea could help reduce significantly the incidence of stroke, heart attack and other cardiovascular diseases," concluded Dr. Ferri.

Tea Flavonoids Improve Bone Strength and Quality

Osteoporosis is a major public health concern but new research suggests that polyphenols in green tea may help improve bone quality and strength through many proposed mechanisms. In fact, one study found that tea drinking was associated with a 30% reduced risk in hip fractures among men and women over 50 years old. In a study of 150 postmenopausal women, researchers reported that 500 mg green tea extract (equivalent to 4-6 cups of green tea daily), alone or in combination with Tai Chi, improved markers for bone formation, reduced markers of inflammation and increased muscle strength in study participants. Numerous other studies have found that green tea flavanols provide a restorative effect to bone remodeling to help maintain bone density and slow bone loss.

Tea Improves Mood, Alertness and Problem Solving

Results from new research published in the *American Journal of Clinical Nutrition* found that drinking tea improved attention and allowed individuals to be more focused on the task at hand. In this placebo-controlled study, subjects who drank tea produced more accurate results during an attention task and also felt more alert than subjects drinking a placebo. These effects were found for 2-3 cups of tea consumed within a time period of up to 90 minutes. Several studies have evaluated the role of tea in strengthening attention, mood and performance, and the results have been promising. It is thought that the amino acid theanine and caffeine, both present in tea, contribute to many of tea's psychological benefits.

Twelve internationally renowned researchers contributed to the AJCN supplement, including experts from USDA, National Institutes of Health, UCLA, University of Glasgow and University of L'Aquila, among others. "The scientists who contributed their original research and insights are among the best in the world, and together, this body of research has significantly advanced the science of tea and human health," said compendium editor Jeffrey Blumberg, PhD, Professor, Friedman School of Nutrition Science and Policy and Director, Antioxidants Research Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University, Boston.

"These new peer-reviewed papers add to the previously-published body of evidence that shows that tea can improve human health—both physically and psychologically," added Blumberg. "Humans have been drinking tea for some 5,000 years, dating back to the Paleolithic period. Modern research is providing the proof that there are real health benefits to gain from enjoying this ancient beverage."

AJCN published 12 new articles on the relationship between tea and human health including:

- Tea consumption and cardiovascular disease risk
- Human studies on the absorption, distribution, metabolism, and excretion of tea polyphenols
- Tea, flavonoids, and cardiovascular health: endothelial protection
- Acute effects of tea consumption on attention and mood
- Cancer prevention by green tea: evidence from epidemiologic studies
- Catechin- and caffeine-rich teas for control of body weight in humans
- Tea and flavonoids: where we are, where to go next
- Cellular targets for the beneficial actions of tea polyphenols
- Does tea prevent cancer? Evidence from laboratory and human intervention studies
- Tea and bone health: steps forward in translational nutrition

- Interactions of black tea polyphenols with human gut microbiota: implications for gut and cardiovascular health

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ABOUT THE TEA COUNCIL OF THE USA:

The Tea Council of the USA is a non-profit association that was formed in 1950 as a joint partnership between tea packers, importers and allied industries within the United States, and the major tea producing countries. It functions as the educational arm of the tea industry with a primary goal of increasing overall awareness of tea by providing information about its many positive attributes. One of the Council's primary objectives is the dissemination of key scientific findings about tea to the public. The Tea Council does this in several ways including: funding scientific meetings to bring tea researchers from around the world together to share key information and identify next steps for future research projects; and working with health organizations and international scientists to disseminate information about potential positive health effects of tea consumption on a public level.

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