

Green Tea Linked to Lower Risk for Cognitive Decline

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NICE, France — Higher consumption of green tea was associated with a lower risk for dementia or mild cognitive impairment (MCI), even after possible confounding factors were considered, a Japanese study shows. Black tea or coffee did not show the same effect.

Researchers led by Moeko Noguchi-Shinohara, MD, from Kanazawa University Graduate School of Medical Science in Japan, conducted a population-based, prospective study of residents of Nakajima older than age 60 years, starting with participants with normal cognitive function in 2007-2008 as evaluated by using the Mini-Mental State Examination (MMSE) and the Clinical Dementia Rating (CDR) scale.

The investigators reported these results here at AD/PD 2015: International Conference on Alzheimer's and Parkinson's Diseases.

Participants' consumption of green tea, black tea, and coffee was assessed at baseline, at which point various blood tests were also performed, including determination of *ApoE* genotype.

Of the 723 starting participants, 490 completed a follow-up survey in 2011–2013. Participants were excluded from the final analysis if they had moved or died, had not completed the final questionnaire, or were lost to follow-up.

Participants were stratified according to how often they drank green tea: not at all, 1 to 6 days/week, or every day.

The groups did not differ by gender; *ApoE* ϵ 4 status; hypertension, hyperlipidemia, or diabetes at baseline; or smoking status, alcohol use, or coffee consumption.

But there were some significant differences. Notably, non-green tea drinkers had slightly lower MMSE scores (higher is better) although still within the range of normal cognition. They also had fewer years of education and hobbies and less physical activity.

Table 1. Characteristic Differences Among Groups by Green Tea Consumption

Characteristic	No Green Tea Consumption (n = 138)	Green Tea Consumption 1-6 days/wk (n =195)	Green Tea Consumption Every Day (n = 157)	P Value for Trend
Mean age at baseline (y)	73.1 \pm 7.2	70.0 \pm 5.7	71.0 \pm 6.1	<.001
Mean education (y)	9.1 \pm 2.1	9.9 \pm 2.0	10.5 \pm 2.3	<.001
Mean MMSE score	27.0 \pm 0.2	29.0 \pm 0.1	29.0 \pm 0.1	<.001
Current physical activities/ hobbies (%)	67.4	76.9	80.9	.008
Black tea consumption, 1-7 days/wk (%)	8.7	21.5	20.4	.011

Mean values are expressed with standard deviations.

Dr Noguchi-Shinohara reported that at follow-up between 2011 and 2013, green tea consumption 1 to 6 days/wk or every day was associated with a lower risk for MCI or dementia. There was no effect of coffee consumed daily or 1 to 6 days/wk or of black tea consumption. She calculated that the odds ratio of developing dementia or cognitive decline was 0.47 ($P < .05$) for elderly Japanese participants who drank green tea 1 to 6 days/ wk and 0.32 ($P < .01$) for those who drank it every day.

The odds ratios for coffee consumption 1 to 6 days/wk or every day or for black tea consumption were not significantly different from unity (ie, there was no positive or negative effect). (Odds ratios were adjusted for age, sex, history of hypertension, diabetes, hyperlipidemia, education, *ApoE* $\epsilon 4$ status, alcohol consumption, smoking, and physical activities and/or hobbies.)

Table 2. Incidence of Dementia or MCI^a by Green Tea Consumption

Variable	No Green Tea Consumption (n = 138)	Green Tea Consumption 1-6 days/wk (n =195)	Green Tea Consumption Every Day (n = 157)	P Value for Trend
Dementia, n (%)	12 (8.7)	11 (5.6)	3 (1.9)	.009
MCI, n (%)	31 (22.5)	18 (9.2)	15 (9.6)	.001

^aCDR score of 0 = cognitively healthy; score of 0.5 = MCI.

The authors concluded that drinking green tea could be beneficial for reducing the risk for cognitive decline. However, they did not provide any data about how long participants had been consuming the green or black tea or coffee in their lives. They said that many studies have focused on the possible protective effects of polyphenols contained in such beverages.

Major constituents in green tea are epigallo catechin 3-gallate, myricetin, and ascorbic acid, and the authors noted that their findings support previously reported data on the neuroprotective properties of these compounds. Green tea, black tea, and coffee also contain caffeine.

Green tea and black tea come from the same plant. The difference is in the preparation. Green tea leaves are withered and steamed, halting oxidation. Black tea is crushed and fermented, allowing oxidation and darkening of the leaves.

Viewing the poster presentation was Knud Larsen, PhD, from Aarhus University, Denmark, a dementia researcher who in the past had worked on other aspects of plant compounds and maintains an interest in them.

"I'm sure that someday you'll find they're very useful compounds," he commented to *Medscape Medical News*. "They've been used for many years without knowing the exact structure, just knowing the plant's species [people] knew what it's good for."

Although this investigation showed that only green tea affected cognitive decline, Dr Larsen said he would not dismiss black tea or coffee completely. On the basis of papers he has read, he said coffee may have some protective effects on Parkinson's disease and dementia through epigenetic mechanisms.