Green tea drinkers have fewer brain lesions linked to dementia

Green tea could help preserve brain health as we age, a new study shows. Image credit: Chalit Saphaphak/Stocksy.

- **For centuries, people have claimed that green tea has many health benefits.**
- **These may include reducing the risk of cardiovascular disease, maintaining skin health, promoting weight loss, and even reducing the risk of dementia.**
- **A new study, from Japan, provides further evidence that green tea may help fight cognitive decline and therefore reduce dementia risk.**

- **In this study, older people who regularly drank green tea had fewer of the brain lesions that are characteristic of dementia than those who did not drink it.**

People have long claimed that drinking green tea has many health benefits, and studies have backed up many of these claims.

Now, research from Japan has provided further evidence that green tea may be good for your brain as well as your body.

The study, which is published in *npj Science of Food* Trusted Source, found that regular consumption of green tea by older people was linked to having fewer cerebral white matter lesions, suggesting that green tea may help prevent dementia Trusted Source.

Steven Allder, MD, a consultant neurologist at Re:Cognition Health, who was not involved in this study, commented to *Medical News Today* that

> "The observed link between green tea and fewer cerebral lesions highlights its potential as a preventive strategy against age-related cognitive decline. However, the results should be interpreted cautiously, as confounding variables like lifestyle and dietary habits may contribute to these outcomes."

Green tea's health benefits

Green tea has one of the highest levels of antioxidants of any tea, as well as polyphenols, which could bring various health benefits, including:

- helping combat some cancers, including those of the breast, gastrointestinal tract, lung, prostate and liver
- encouraging weight loss in people with obesity
- anti-inflammatory effects on the skin and cardiovascular system.
- cognitive benefits.

This study investigated almost 9,000 community-dwelling adults recruited from the Japan Prospective Studies Collaboration for Aging and Dementia between 2016 and 2018, to determine whether green tea or coffee had any effect on brain health.

All participants filled in a Food Frequency Questionnaire to record their consumption of green tea and coffee. Their daily intake of green tea and coffee was classified into four groups: 0–200, 201–400, 401–600, and at least 601 milliliters (ml).

One cup of tea was equivalent to approximately 200 ml.

They also underwent magnetic resonance imaging (MRI) scans to assess cerebral white matter lesions, hippocampal volume, and total brain volume.

The researchers controlled for sociodemographic factors, such as age, sex, and education level. In a second analysis, they also adjusted for medical factors, including hypertension, diabetes mellitus, *APOE e4* allele Trusted Source (which increases dementia risk), body mass index (BMI), cholesterol levels, smoking and drinking habits, electrocardiogram abnormalities, history of stroke, depressive symptoms, cognitive function, and regular exercise.

They excluded 1,519 participants who had mild cognitive impairment at baseline. In further analysis, the researchers investigated whether depression or having the *APOE e4* allele had any effect on their results.

Fewer brain lesions in green tea drinkers

After adjusting for confounding factors, the researchers found a significant association between higher green tea consumption and fewer cerebral white matter lesions.

They did not see any association with coffee consumption. They also found no association with hippocampal or total brain volume.

Allder explained why they might have seen these effects:

> "This could be due to the neuroprotective properties of catechins like EGCG in green tea, which combat oxidative stress, reduce inflammation and inhibit beta-amyloid aggregation."

"Unlike green tea," he added, "coffee did not show similar benefits, possibly because green tea's unique composition, such as catechins, might be more effective against white matter lesions than coffee's compounds, which are mainly chlorogenic acid and caffeine."

The effects of green tea did not, however, extend to participants with the *APOE e4* allele, or those with depression.

In these people, the researchers found no association between green tea and fewer brain lesions. They suggest that, as both are strong risk factors for dementia, green tea may not be effective in reducing white matter lesions in these individuals.

Allder agreed, noting that "the absence of benefits in individuals with depression might be due to the interaction between chronic inflammation and oxidative stress associated with depression, which could counteract the neuroprotective effects of green tea."

"Similarly, the lack of effect in *APOE e4* carriers suggests a genetic predisposition that could diminish green tea's impact, potentially due to *APOE e4*'s strong association with amyloid pathology and vascular contributions to cognitive impairment," he explained.

Does drinking green tea have any side effects?

Unlike black tea, green tea is not fermented, so retains polyphenols, such as flavanols, of which catechins are particularly important. Catechins are antioxidants that neutralize free nitrogen and oxygen radicals.

Studies have shown that they reduce the inflammation that may lead to many chronic and age-associated conditions, such as some cancers, cardiovascular diseases and neurodegenerative diseases.

The researchers warn that there were limitations to the study. It was a cross-sectional study, so they cannot determine a causal relationship between green tea consumption and reduced white matter lesions.

Also, they could not account for how the tea was brewed, or whether participants were also consuming it in snacks. And, because their were few black tea drinkers in their Japanese cohort, they could not compare the effects of green and black teas.

Allder called for further studies on diverse populations, different ethnic groups and in different regions, to determine whether genetic and lifestyle factors influence the benefits of green tea, adding that "research should also focus on targeted subgroups, such as individuals with depression or the *APOE e4* allele, to explore the mechanisms that might limit green tea's effectiveness in these populations."

"Long-term investigations are necessary to evaluate the impact of green tea consumption on the progression of dementia and cognitive decline. Additionally, comparative analyses should be carried out to assess how green tea compares with other beverages or dietary interventions in preventing white matter lesions," he told *MNT*.

He also cautioned that people should be careful not to drink too much green tea.

"While green tea is generally safe, excessive consumption (over 3-4 cups per day) may cause side effects like insomnia, gastrointestinal distress, or liver damage due to high caffeine or catechin levels," Allder advised.

But, as the researchers conclude, their findings could point to another way to help reduce dementia risk.

"Given that cerebral white matter lesions are closely related to vascular dementia and [Alzheimer's disease], our findings indicate that drinking green tea, especially three or more glasses per day, may help prevent dementia," they write.