

Green tea ingredient may ameliorate memory impairment, brain insulin resistance, and obesity

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Green tea. Credit: Wikimedia Commons

A study published online in *The FASEB Journal*, involving mice, suggests that EGCG (epigallocatechin-3-gallate), the most abundant catechin and biologically active component in green tea, could alleviate high-fat and high-fructose (HFFD)-induced insulin resistance and cognitive impairment. Previous research pointed to the potential of EGCG to treat a variety of human diseases, yet until now, EGCG's impact on insulin resistance and cognitive deficits triggered in the brain by a Western diet remained unclear.

"Green tea is the second most consumed beverage in the world after

water, and is grown in at least 30 countries," said Xuebo Liu, Ph.D., a researcher at the College of Food Science and Engineering, Northwest A&F University, in Yangling, China. "The ancient habit of drinking [green tea](#) may be a more acceptable alternative to medicine when it comes to combatting obesity, [insulin resistance](#), and memory impairment."

Liu and colleagues divided 3-month-old male C57BL/6J mice into three groups based on diet: 1) a control group fed with a standard diet, 2) a group fed with an HFFD diet, and 3) a group fed with an HFFD diet and 2 grams of EGCG per liter of drinking water. For 16 weeks, researchers monitored the mice and found that those fed with HFFD had a higher final body weight than the control mice, and a significantly higher final body weight than the HFFD+EGCG mice. In performing a Morris water maze test, researchers found that mice in the HFFD group took longer to find the platform compared to mice in the control group. The HFFD+EGCG group had a significantly lower escape latency and escape distance than the HFFD group on each test day. When the hidden platform was removed to perform a probe trial, HFFD-treated [mice](#) spent less time in the target quadrant when compared with [control mice](#), with fewer platform crossings. The HFFD+EGCG group exhibited a significant increase in the average time spent in the target quadrant and had greater numbers of platform crossings, showing that EGCG could improve HFFD-induced [memory impairment](#).

"Many reports, anecdotal and to some extent research-based, are now greatly strengthened by this more penetrating study," said Thoru Pederson, Ph.D., Editor-in-Chief of *The FASEB Journal*.

More information: Yashi Mi et al, EGCG ameliorates high-fat– and high-fructose–induced cognitive defects by regulating the IRS/AKT and ERK/CREB/BDNF, *The FASEB Journal* (2017). [DOI: 10.1096/fj.201700400RR](#)

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