

Green Tea on the Brain

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If you haven't traded in your morning latte for a grande green tea, you're missing the boat to good health. It's no secret that green tea bolsters the body in many ways. But did you also know that the same components of green tea also boost the brain?

Take polyphenols, for instance. These phytochemicals, which give green tea its bitter taste, are powerful antioxidants that have been associated with preventing cancer and heart attacks. Recent research has also shown they may help maintain positive mood states and protect against Parkinson's disease and other brain disorders.

A study from the University of San Francisco found that the polyphenols in green tea can boost availability of the important brain substance dopamine in the areas where it is needed. Dopamine is a signaling substance in the brain circuits that are crucial to creating positive mood states.

It is involved in transmitting signals of reward and motivation and in helping muscles move smoothly. Dopamine production goes awry in the brains of Parkinson's patients, leading to the muscle rigidity and tremors associated with the disorder.

Researchers in the study measured levels of dopamine in mice before treating some of them with polyphenols. They then injured the specific neurons linked to Parkinson's disease in all of the mice and measured dopamine levels again. The mice treated with polyphenols appeared to have been protected against toxic elements that may be linked to this disease.

Other studies in animals show that the polyphenols in green tea also help the brain and body maintain a steady supply of their chief fuel, glucose. Polyphenols influence glucose metabolism in part by helping the body regulate sensitivity to the hormone insulin. Compounds in green tea enhance insulin sensitivity, keeping the brain running smoothly on steady levels of glucose.

Tannins are another important set of compounds found in green tea. They too have also been shown to have brain boosting benefits: they may prevent the brain damage that occurs after strokes and other brain injuries.

Tannins, like many other beneficial substances in plants, are natural compounds produced by tea leaves in the wild to keep animals from devouring the growing plants. It now turns out that one of the tannins found in tea leaves, gallotannin, helps the body's own DNA repair system and keeps it working in the brain despite damage that occurs during stroke.

Under normal conditions, the DNA repair system in the brain goes into overdrive in the aftermath of stroke, and instead of helping to repair brain cells it causes them to die. But researchers at the University of California at San Francisco found that if they surround injured neurons with gallotannin found in green tea, it is highly effective in preventing neuron death.

This doesn't necessarily mean that consuming large amounts of green tea would be sufficient to repair brain damage in stroke victims. The amount of gallotannins found in green tea is negligible compared to the large amount used in the study.

But researchers hope to harness and synthesize the substance found in green tea and use it to help stroke victims. In the meantime, consuming green tea can help keep your body and brain working at a steady best.

Reference: "Chemicals in a Japanese flower and green tea leaves prevent brain cell death"
-- Dr. Raymond Swanson, UCSF