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Green tea may help prevent autoimmune diseases

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Dr. Stephen Hsu, a researcher in the School of Dentistry, studied an animal model for type I diabetes and primary Sjogren's Syndrome, which damages the glands that produce tears and saliva and found significantly less salivary gland damage in a group treated with green tea extract, suggesting a reduction of the Sjogren's symptom commonly referred to as dry mouth. Credit: Medical College of Georgia

Green tea may help protect against autoimmune disease, Medical College of Georgia researchers say.

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Sjogren's Syndrome, which damages the glands that produce tears and saliva.

They found significantly less salivary gland damage in a group treated with green tea extract, suggesting a reduction of the Sjogren's symptom commonly referred to as dry mouth. Dry mouth can also be caused by certain drugs, radiation and other diseases.

Approximately 30 percent of elderly Americans suffer from degrees of dry mouth, says Dr. Stephen Hsu, a researcher in the MCG School of Dentistry and lead investigator on the study. Only 5 percent of the elderly in China, where green tea is widely consumed, suffer from the problem.

"Since it is an autoimmune disease, Sjogren's Syndrome causes the body to attack itself and produce extra antibodies that mistakenly target the salivary and lacrimal glands," he says.

There is no cure or prevention for Sjogren's Syndrome.

Researchers studied the salivary glands of the water-consuming group and a green tea extract-consuming group to look for inflammation and the number of lymphocytes, a type of white blood cells that gather at sites of inflammation to fend off foreign cells.

The group treated with green tea had significantly fewer lymphocytes, Dr. Hsu says. Their blood also showed lower levels of autoantibodies, protein weapons produced when the immune system attacks itself, he says.

Researchers already know that one component of green tea – EGCG – helps suppress inflammation, according to Dr. Hsu.

"So, we suspected that green tea would suppress the inflammatory response of this disease. Those treated with the green tea extract beginning at three weeks, showed significantly less damage to those glands over time."

These results, published in a recent issue of Autoimmunity, reinforced findings of a 2005 study showing a similar phenomenon in a Petrie dish, Dr. Hsu says.

Researchers also suspect that the EGCG in green tea can turn on the body's defense system against TNF-alpha – a group of proteins and molecules involved in systemic inflammation.

TNF-alpha, which is produced by white blood cells, can reach out to target and kill cells.
"The salivary gland cells treated with EGCG had much fewer signs of cell death caused by TNF-alpha," Dr. Hsu says. "We don't yet know exactly how EGCG makes that happen. That will require further study. In some ways, this study gives us more questions than answers."

Further study could help determine green tea's protective role in other autoimmune diseases, including lupus, psoriasis, scleroderma and rheumatoid arthritis, he says.

Source: Medical College of Georgia

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