Green Tea may Alleviate Diabetes in Rodents

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Reference: "Epigallocatechin Gallate Supplementation Alleviates Diabetes in Rodents," Wolfram S, Raederstorff, et al, The Journal of Nutrition, 2006; 136(10): 2512-2518. (Address: DSM Nutritional Products Ltd, Department of Human Nutrition and Health, CH-4002 Basel, Switzerland. E-mail: Swen Wolfram, swen.wolfram@dsm.com).

Summary: In a study involving rodent models of type 2 diabetes mellitus and H4IIE rat hepatoma cells, ingestion of EGCG (epigallocatechin gallate) - the most abundant green tea catechin - was found to significantly enhance glucose tolerance in the rodents, and beneficially modify glucose and lipid metabolism in the cells. Mice were divided into four groups and given either a placebo or one of three doses of EGCG (2.5, 5.0, or 10.0 g/kg of diet). After 5 weeks, EGCG was found to improve oral glucose tolerance and blood glucose most significantly among food-deprived mice in a dose-dependent manner. Plasma levels of triglycerides and the stimulation of insulin secretion by glucose were enhanced as well. In ZDF rats, supplementation with EGCG for a period of 10 weeks was found to improve oral glucose tolerance, lower levels of free fatty acids, and increase concentrations of insulin in plasma. In the livers of mice given EGCG, mRNA expression of glucokinase increased in a dose-depend ent manner. In the cells, EGCG supplementation led to a downregulation of genes involved in gluconeogenesis and the synthesis of fatty acids, triglyceride, and cholesterol. The authors conclude, "Our data suggest that supplementation with EGCG could potentially improve glucose tolerance in humans with T2DM. This hypothesis should now be investigated in randomized placebo-controlled trials."