Reverse cholesterol transport

Reverse cholesterol transport is a multi-step process resulting in the net movement of cholesterol from peripheral tissues back to the liver via the plasma compartment. Cellular cholesterol efflux is mediated by HDL, acting in conjunction with the cholesterol esterifying enzyme, lecithin: cholesterol acyltransferase.

Hunjadi et al. investigated whether Matcha Green Tea Powder modulates the HDL function and thereby influences the atherogenic process in an animal model with a strong influence on humans situation.

After a pretreatment phase based on a standard diet, ten female New Zealand rabbits were fed a high-fat diet for 20 weeks. The treatment group was additionally administered 1% matcha during the whole experiment. Long-term matcha treatment led to lowered HDL cholesterol, impaired cholesterol transport manifested by reduced in vitro cholesterol efflux capacity, reduced CETP-mediated cholesterol ester (CE) transfer between HDL and triglyceride-rich particles, and reduced macrophage-specific in vivo transfer, where we observed increased absorption of cholesterol in the liver but a decreased secretion into bile. Pulse wave velocity, assessed by nuclear magnetic resonance, was increased in matcha-treated animals, and a similar trend was observed for atherosclerotic lesion formation.

Long-term matcha green tea treatment of hypercholesterolemic rabbits caused impaired reverse cholesterol transport and increased vascular stiffness, and susceptibility for atherosclerotic lesion development. [1)].

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[1)]

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