Lower Cholesterol Safely
Nutritional Interventions for Healthy Lipids

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**BETA-SITOSTEROL: AN ANTI-INFLAMMATORY AND ANTI-CHOLESTEROL PLANT EXTRACT**

Beta-sitosterol is a primary plant sterol. This class of compounds is molecularly similar to cholesterol and may inhibit cholesterol’s absorption in the lower intestine and reduce levels of cholesterol in the blood. Phytosterols have also been shown to act in synergy with red yeast rice by achieving a therapeutic effect at a lower dose.

In effect, beta-sitosterol acts as a potent dietary cholesterol blocker. A significant body of clinical evidence has demonstrated its cholesterol-lowering effects. In a 2005 study, researchers gave 29 individuals with high cholesterol (40-80 years old, average age = 55; 14 with type 2 diabetes) an edible beta-sitosterol spread. Both diabetic and non-diabetic patients experienced a greater reduction in LDL—27% and 15% respectively—than controls.

A meta-analysis of 14 randomized controlled trials investigated the effects of plant sterols added to margarine on cholesterol levels. The sterol-fortified margarine caused a reduction in the mean concentration of LDL, an effect that tended to increase with age.

The results of two older beta-sitosterol studies further indicate it can decrease systemic inflammation. In one meta-analysis, the lead investigator noted that beta-sitosterol appears to support proliferation of peripheral blood lymphocytes and enhance the cytotoxic effect of natural killer cells. Another study that measured inflammation and immune suppression in marathon runners found that beta-sitosterol could help prevent immune system suppression and could reduce bodily inflammation. Together, these anti-inflammatory properties led researchers to suggest that beta-sitosterol might be of clinical use in treating a number of chronic inflammatory conditions that could lead to cancers of the breast and colon.

**POLICOSANOL**

Policosanol is a naturally occurring component of beeswax and whole sugar cane. More than 80 studies performed mostly by a single research institute suggest that policosanol obtained from Cuban sugar cane at doses of 5-40 mg/dL exerts cholesterol-lowering effects equivalent to that of statin drugs. (It should be noted that other research groups using policosanol from alternative sources have failed to reproduce the efficacy of these alcohols observed in earlier studies.)

Numerous animal models studies have been conducted using policosanol. One study found that pretreatment with policosanol and omega-3 fatty acids prevented arterial wall thickening and endothelial damage in animals whose arteries had been damaged artificially.

Some research suggests that policosanol is effective in lowering cholesterol in patients with progressive atherosclerosis and diabetes. One study tested policosanol in patients suffering ischemic stroke who were also treated with aspirin and vitamins. They achieved substantially positive results, with improvements in neurological outcomes and recurrent events.

**NIACIN**

Niacin’s ability to lower LDL, raise HDL, and lower triglyceride levels has been conclusively established by a wealth of clinical research. It is one of the best-known and most widely used vitamins for lowering blood cholesterol levels. It has also been shown in multiple studies to provide better heart health protection than some statins. A widely publicized study appearing last November in the New England Journal of Medicine found that niacin was more effective at shrinking artery plaque than a billion-dollar blockbuster called ezetimibe, the active ingredient in the cholesterol drugs Zetia® and Vytorin®.
Recent studies further indicate that niacin reduces oxidative stress and inhibits vascular inflammatory genes, including key cytokines involved in atherosclerosis. Until recently, niacin’s general use and widespread patient tolerability have been impeded by the need to take it 4 times a day and by the high incidence of skin flushing, gastric problems, and other adverse events. 

A form of “no-flush” niacin has emerged, called inositol hexaniacinate (IHN). It consists of six molecules of nicotinic acid (niacin) and one molecule of inositol. It is metabolized in the body into its component parts, niacin and inositol, and does not reach maximum blood levels for approximately 10 hours after ingestion. This form of the vitamin has not been linked with the skin “flushing” or other typical niacin reactions, even when ingested in amounts typically associated with skin flushing, nausea, vomiting, and agitation. Regrettably, it also does not work as well as niacin in reducing LDL and triglycerides and boosting HDL.

**SUMMARY**

Statin drugs are heavily used and over-prescribed, owing to industry influence and misinformation. High-dose statins are often unnecessary, and may not be the right choice for millions of people, given their side effect profile. Studies indicate that any reduced cardiovascular risk from taking statins may be offset by other serious side effects, from sexual, visual, hepatic, renal, and cognitive dysfunction to disability and death. Aging individuals who want to lower their blood lipid levels and C-reactive protein (CRP) number may be able to achieve similar benefits with standardized red yeast rice extract, beta-sitosterol, pantethine, policosanol, and niacin. These synergistic ingredients have been shown to reduce blood lipid levels while promoting healthy endothelial function and reducing CRP and systemic inflammation. They offer a safer alternative to taking synthetic prescription statins.

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**COQ10 MAY BOOST HEART HEALTH OF DIABETICS ON STATINS**

Coenzyme Q10 supplements may increase the vascular health of diabetics receiving statins, according to a new study from Australia.

Following 12 weeks of supplementation with CoQ10 (200 mg per day), an improvement in the blood flow was observed, according to findings published in the journal Diabetes Care.

It is well known that statins deplete the body’s natural stores of CoQ10, and this has boosted use of CoQ10, particularly in the US, where the popularity of statins has increased.

The new findings indicate that, in addition to redressing the balance of CoQ10, supplementation may also improve endothelial dysfunction in statin-treated type 2 diabetic patients.

“The patients in our study had endothelial dysfunction despite satisfactory control of blood pressure, glycaemia and lipids, which may represent the proportion of statin-treated patients at increased residual risk of cardiovascular disease,” wrote the researchers, led by Professor Gerald Watts from the University of Western Australia.
“Our absolute improvement in [blood flow in the arm] of 1% with CoQ10 supplementation may potentially translate to a 10-25% reduction in residual cardiovascular risk in these patients.”

According to the International Diabetes Federation, there are over 245 million people with diabetes worldwide. If current trends continue, this number will rise to a staggering 380 million by 2030. Current costs of diabetic complications are estimated to account for 5 to 10% of total global healthcare spending.

**STUDY DETAILS**

In order to test their hypothesis that oral CoQ10 supplementation would improve the vascular health in statin-treated diabetics, Professor Watts and his co-workers recruited 23 statin-treated type 2 diabetic patients with endothelial dysfunction (and LDL-cholesterol levels less than 97.5 mg/dL). The volunteers were randomly assigned to receive either CoQ10 or placebo for 12 weeks.

The randomised, double-blind, crossover study analysed by brachial artery flow-mediated dilatation (FMD), a measure of endothelial dysfunction since a low value is indicative of a blood vessel’s inability to relax, and nitrate-mediated dilation (NMD), which relates to nitric oxide, a potent endothelium-derived relaxing factor.

The researchers report a 2.7-fold increase in blood levels of CoQ10 following supplementation, and an increase in FMD of 1%. However, no changes in NMD were recorded, nor were any changes in levels of oxidative stress observed, assessed by measuring levels of compounds called F2-isoprostanes in the blood and urine.

“Impaired FMD is a consistent predictor of adverse cardiovascular events,” wrote the researchers. “Several interventions that improve FMD also improve cardiovascular outcomes.”

“The significance of the findings in our report, however, require further investigation in a clinical endpoint trial,” they added.

The CoQ10 used in this study was provided by Blackmores (Balgowlah, Australia), and the study was funded by a CardioVascular Lipid Research grant from Pfizer.

**References**


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