

Foresterol™

A Natural Cholesterol-Lowering Alternative from Designs for Health

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According to de Graaf et al: “There is an urgent clinical need for a low-cost, low-risk intervention that can treat those individuals that have not responded well to dietary modification, and where pharmaceutical intervention is not desirable. Consumption of foods containing phyto- (i.e. plant) sterols has the necessary characteristics to meet that need.”⁷

Foresterol™ by Designs for Health contains Reducol®, a phytosterol mixture that has significant LDL cholesterol lowering properties as evidenced by research and years of clinical use.

HOW DOES FORESTEROL™ LOWER CHOLESTEROL?

When ingested, phytosterols inhibit absorption of cholesterol, thereby lowering plasma total and low-density lipoprotein (LDL) cholesterol levels. Foresterol™ consists mainly of the 4 major phytosterols: beta-sitosterol, campesterol (in the free sterol form, not as sterol esters) and campestanol, sitostanol. **It has been shown to inhibit absorption of both dietary and biliary cholesterol from the small intestine, therefore even vegetarians with no dietary cholesterol benefit from Foresterol™.**

It is important to know that much of the cholesterol found in serum is derived from intestinal reuptake of cholesterol that has been deposited into the intestine from the liver and gall bladder.

WHAT IS THE SOURCE OF FORESTEROL™?

The phytosterol mixture Foresterol™ is sourced from coniferous trees which are non-genetically modified unlike alternative phytosterol products that are obtained from potentially GMO soybean and/or rapeseed oil seed.

PROVEN EFFICACY

Reducol®, the active ingredient in Foresterol™, is so effective at lowering cholesterol that the FDA authorized cholesterol lowering claims with the assertion that it may reduce the risk of coronary heart disease. Reducol® has also been granted GRAS (generally recognized as safe) status by the FDA.

According to research by de Graaf et al, ingestion of 1.8 g of Reducol® per day (*3 Caps of Foresterol*) for four weeks in patients with baseline elevations of plasma cholesterol, total cholesterol was reduced by 6.4% and LDL cholesterol was reduced by 10.3%. Levels of plasma HDL cholesterol and triglycerides were not affected.⁷ Researchers also note although reduction in cholesterol absorption is partially re-compensated by an increase of cholesterol synthesis, this increase is not large enough and consequently, plasma circulation of total and low-density lipoprotein cholesterol (bad cholesterol) is reduced.⁶ In another study, Jones of McGill University notes that sterol supplementation significantly decreased the estimated cholesterol concentrations within small, medium, and large LDL particles by 13.4, 13.5, and 14.4% respectively.⁴ He quotes, “Plant sterols and exercise favourably alter lipid profiles in a way that protect against future coronary heart disease (CHD).”¹

SAFETY DATA

The available studies on Reducol® and other tall oil phytosterols indicate that phytosterols are poorly absorbed from the gastrointestinal tract and are excreted via the feces. They are not genotoxic and demonstrate no reproductive or developmental toxicity. No evidence of adverse effects was noted following administration of Reducol up to 5% in the diet for 13 weeks in a rat study. Many countries have performed longterm studies in humans and animals with no negative effects from prolonged phytosterol consumption.

STATIN DRUGS USED IN CONJUNCTION WITH PHYTOSTEROLS HAS AN ADDITIVE EFFECT

Furthermore, there are no reported drug interactions with Foresterol™. Therapeutically, Foresterol™ can be used in conjunction with other cholesterol lowering agents for enhanced activity. **Research has demonstrated that when patients on statin drugs ingest phytosterols, an additional 10% LDL reduction was achieved; adding sterols or stanols to statin medication is more effective than doubling the statin doses.** Effects are additive with diet or drug interventions: eating foods low in saturated fat and cholesterol and high in stanols or sterols can reduce LDL by 20%.³ When ingested with drugs such as neomycin that inhibit cholesterol absorption, phytosterols have demonstrated an additional 11% reduction in LDL cholesterol.

WILL FORESTEROL™ ADVERSELY AFFECT THE ABSORPTION OF FAT-SOLUBLE VITAMINS?

Clinical trials conducted with sterol and stanol ester margarine spread have shown that alpha and beta-carotene levels were reduced by 10-25% but there appeared to be no effect on serum retinol levels, vitamin D and vitamin K. Since it is known that dietary intake of carotenoids will greatly influence plasma carotenoid content, the decrease in carotenoid levels associated with the intake of sterols can be counter-balanced by a modest consumption of fruits and vegetables.

A meta-analysis of 10-15 trials per vitamin showed that plasma levels of vitamin A and D are not affected by stanols or sterols. Alpha carotene, lycopene, and vitamin E levels remained stable *relative to their carrier molecule, LDL*. Beta carotene levels declined, but adverse outcomes were not expected.³ **What is helpful to know, however, is that the reduction in beta-carotene bioavailability was significantly less with plant free sterols than with plant sterol esters. The reduction in alpha-tocopherol vitamin E bioavailability was also less with plant free sterols than with plant sterol esters.**⁸ Foresterol™ contains *free sterols*, not sterol esters.

WILL THE EFFECT OF FORESTEROL™ BE REDUCED DUE TO GASTRIC ACIDITY OR THE EFFECT OF GASTRIC AND PANCREATIC ENZYMES?

The manufacturer notes that Reducol® is stable in acid and alkaline conditions and is resistant to enzymatic and thermal degradation.

HOW TO TAKE FORESTEROL™

Take 3 capsules daily (yielding 1800 mg plant sterols), one with each meal or 3 altogether with the largest meal. Studies show that doses higher than 2 g had little added effect. Foresterol may ideally be combined with **Annato Tocotrienols** or **UltraTrienols Plus** by Designs for Health as these work via different mechanisms. The latter products reduce cholesterol synthesis in the liver. This would attack the problem from two different angles simultaneously which would be ideal.

Foresterol™ should also be recommended along with exercise with medical permission. These are the conclusions of a study by Jones et al "In comparison with plant sterols or exercise alone, the combination of plant sterols and exercise yields the most beneficial alterations in lipid profiles. Implementation of such a combination therapy could improve lipid profiles in those at risk of coronary artery disease."⁴

WHO SHOULD NOT TAKE FORESTEROL™?

Anyone with a pine allergy should avoid Foresterol™. Pregnant women should not take Foresterol™. Lactating women should consult with their physician prior to taking Foresterol™.

References

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6. Zawistowski J. Reducol™ - Cholesterol lowering functional food phytosterols, *Innovations in Food Technology*, pp. 38-41, May 2003.
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