HOW DO PLANT STEROLS AND STANOLS WORK?

Plant sterols and stanols, referred to as phytosterols, are plant-derived compounds that are similar in structure to cholesterol, and competitively help block the absorption of cholesterol in the digestive tract.1 As a result of this activity, sterols and stanols help contribute to lower total cholesterol, LDL cholesterol and non-HDL cholesterol levels in the blood.1 There is a consensus in the scientific literature that plant sterols/stanols (at least 2 grams per day), can help significantly reduce LDL cholesterol concentrations between 8-10%.1 Healthy cholesterol levels are important for heart health.

Phytosterols occur naturally in small amounts in many plant-based foods, such as unrefined vegetable oils, whole grains, nuts and legumes. However, one would need to consume an extraordinary amount of these foods to achieve clinically meaningful levels of plant sterols and stanols in one’s diet. A few commercial foods and beverages, such as margarine and orange juice, are fortified with phytosterols, but the caloric price of these alternative fortified food sources can be high. For those who are interested in other forms, dietary supplements, which comes at little to no calories, provides another option for individuals interested in using phytosterols to help manage their cholesterol levels.

Phytosterols from foods and dietary supplements have been studied in a variety of clinical settings. Well-designed studies have demonstrated the cholesterol-lowering effects of phytosterols in both tablet and softgel dietary supplement forms, as well as from foods enriched with phytosterols.2-5 Products containing at least 400 mg per serving of plant sterols and stanols, eaten twice a day with meals for a daily intake of at least 800 mg as part of a diet low in saturated fat and cholesterol, may help reduce the risk of heart disease.6

HOW MUCH PHYTOSTEROLS ARE NATURALLY PRESENT IN FOODS?7

The average Western Diet only provides ~300 mg/day of phytosterols.

<table>
<thead>
<tr>
<th>NAME OF FOOD ITEM</th>
<th>QUANTITY OF FOOD ITEM</th>
<th>QUANTITY OF PHYTOSTEROLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn oil</td>
<td>Tablespoon</td>
<td>134 mg</td>
</tr>
<tr>
<td>Olive oil</td>
<td>1 Tablespoon</td>
<td>24 mg</td>
</tr>
<tr>
<td>Corn</td>
<td>1 ear</td>
<td>63 mg</td>
</tr>
<tr>
<td>Apple</td>
<td>1 each</td>
<td>22 mg</td>
</tr>
<tr>
<td>Tomato</td>
<td>1 each</td>
<td>9 mg</td>
</tr>
</tbody>
</table>

What Does the Science Say?

There is a large body of supportive research surrounding plant sterols and stanols as an option for lowering cholesterol. Meta-analyses using an average dose of 2.0 grams/day of plant sterols and stanols, derived from either food sources or in tablet or capsule form, demonstrated significant reductions in LDL cholesterol concentrations up to 12%.9-10 Some studies indicated that daily incorporation of four dietary supplement tablets (phytosterols in free form) or softgels (phytosterols in esterified form) containing a total of 1.8 g of plant sterols/stanols into the Therapeutic Lifestyle Changes (TLC) diet (see back page for more details) resulted in favorable changes in concentrations of total, LDL, and non-HDL cholesterol levels in men and women with high cholesterol.2-4

What are the Current Guidelines and Recommendations for Cholesterol Management?

There has been a significant increase in the use of statins (cholesterol-lowering drugs) in the last several years.11 While statins are certainly effective, patients are also encouraged to incorporate a healthful diet and lifestyle modifications as part of their cholesterol management efforts.11-13
To help patients manage their cholesterol levels, the National Cholesterol Education Program (NCEP), an umbrella program under the National Institutes of Health (NIH), issued recommendations, advising a decrease in dietary intake of total saturated fat, cholesterol and trans fat in their diets and an increase in soluble fiber (10-25 g/day), and consumption of plant sterols or stanols (2 g/day).10 While a typical American diet only supplies ~300 mg of plant sterols/stanols per day, adding a plant sterol/stanol supplement can help achieve 2 grams of plant sterols/stanols per day recommendation from the TLC diet.8,13

These recommendations came as an adjunct to the TLC program issued by the NIH for:

- Weight management
- Diet
- Physical Activity

**DISCUSS YOUR CHOLESTEROL MANAGEMENT REGIMEN WITH YOUR HEALTHCARE PROFESSIONAL**

Phytosterols have been studied in conjunction with cholesterol-lowering medications, with positive outcomes on total cholesterol and LDL blood cholesterol concentrations.14 However, it is still important to discuss phytosterol supplementation with a healthcare professional. A Registered Dietitian Nutritionist (RDN) is a good healthcare professional to help decide which food source(s) and/or phytosterol supplement should be integrated into one’s lifestyle.

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REFERENCES


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