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. As a result of this activity, sterols and stanols help contribute to lower total, LDL and non-HDL cholesterol levels in the blood.

Phytosterols occur naturally in small amounts in many plant-based foods. A few 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 come at little to no calories may provide another option for individuals interested in using phytosterols to 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 tablet and softgel dietary supplement forms. Phytosterols have demonstrated efficacy in clinical studies in food forms such as margarine, yogurt, salad dressing, mayonnaise, and chocolate. 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 reduce the risk of heart disease.

How Much Phytosterols are Naturally Present in Foods?

<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>1 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>

How Can I Get Plant Sterols and Stanols in My Diet?
Plant sterols and stanols occur naturally in small amounts in plant-based foods such as unrefined vegetable oils, whole grains, nuts and legumes. However, in order to meet the recommended guidelines for cholesterol reduction through un-fortified food alone, one would need to consume an extraordinary amount to obtain the recommended 2 grams of sterols and stanols. Another option for consuming phytosterols in the diet is to use fortified foods, such as spreads. These fortified foods provide a food-based option for phytosterols. This food-based option comes with a caloric cost so another option may be the use of phytosterol dietary supplements. When consuming a fortified food or dietary supplement, be sure to check the directions of use on the nutrition or supplement facts panel and aim towards 2 g (2,000 mg) phytosterols daily.

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 suggest LDL-C reductions of approximately three to four percent per gram of plant sterols/stanols. Although most of these studies have administered plant sterols/stanols in food forms, studies that tested...
dietary supplement forms found LDL-C reduction rates similar to those for food forms. The results from these studies indicated that daily incorporation of four dietary supplement tablets or softgels containing a total of 1.8 g of plant sterols/stanols into the Therapeutic Lifestyle Changes (TLC) diet (outlined below) resulted in favorable changes in concentrations of LDL-C and non-HDL-C levels in men and women with high cholesterol.

What are the Current Guidelines and Recommendations for Cholesterol Management?
Recent studies have shown that there has been a significant increase in the use of statins (cholesterol-reducing drugs) in the last several years. While statins are certainly effective, patients are also encouraged to incorporate a healthful diet and lifestyle modifications as part of their cholesterol management efforts.

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).

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 however it is still important to discuss their use with a healthcare professional. A registered dietitian may be a good person to help decide on which food source(s) and/or supplement of phytosterols can be worked into your particular lifestyle.

ABOUT PHARMAVITE LLC
For more than 40 years, Pharmavite has been a trusted leader in the wellness industry, recognized for providing high-quality vitamin, mineral and herbal supplements and all-natural foods under its Nature Made® and SOYJOY® brand names. Nature Made is the number one selling national vitamin and supplement brand in traditional retail scanning outlets*. SOYJOY is an all-natural, delicious baked bar made with real fruit and ground whole soybeans.

The dietary supplement industry is regulated by the U.S. Food and Drug Administration and the Federal Trade Commission, as well as by government agencies in each of the 50 states.

*Pharmavite calculation based in part on data reported by Nielsen through its ScanTrack® service for the Dietary Supplements category in dollar and unit sales for the 52-week period ending 03/16/2013 in US SAOC channels. ©2013 The Nielsen Company

FOR MORE INFORMATION
Douglas Jones
Corporate Communications Manager
PHARMAVITE LLC
DJones@pharmavite.net
Direct: 818-221-6249
www.pharmavite.com

REFERENCES