

## Phytosterols: Sterols & Stanols

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### Boost Your Cholesterol-Lowering Potential with Phytosterols

The first strategy for lowering cholesterol is to modify your eating patterns. Replace unhealthy fats (trans and saturated) with healthy ones (monounsaturated and polyunsaturated), and increase dietary fiber by emphasizing whole grains, fruits, vegetables and legumes. If these strategies haven't worked to their fullest potential, or if you want to work to lower your bad cholesterol even further, you can try adding phytosterols to your diet.

#### What are Phytosterols?

Phytosterols (referred to as plant sterol and stanol esters) are a group of naturally occurring compounds found in plant cell membranes. Because phytosterols are structurally similar to the body's cholesterol, when they are consumed they compete with cholesterol for absorption in the digestive system. As a result, cholesterol absorption is blocked, and blood cholesterol levels reduced.

As part of a heart-healthy eating plan, consuming phytosterols in recommended quantities has been shown to **lower total cholesterol up to 10 percent and LDL or "bad" cholesterol up to 14 percent**. This reduction is in addition to other cholesterol-lowering strategies you may have initiated, such as eating more heart healthfully or taking a cholesterol-lowering statin. **The effectiveness of phytosterols is so strong that The National Cholesterol Education Program recommends people with high cholesterol consume 2 grams of phytosterols each day.**

The Food and Drug Administration (FDA) has even approved a health claim on phytosterols, which states: *"Foods containing at least 0.65 gram per serving of vegetable oil plant sterol esters, eaten twice a day with meals for a daily total intake of at least 1.3 grams, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease."*

#### How can I include Phytosterols in my diet?

Phytosterols are naturally present in small quantities in vegetable oil, nuts, legumes, whole grains, fruits and vegetables. However, the average intake of these substances is less than 500 milligrams (mg) a day, which falls short of the amount needed to lower cholesterol. That's why many manufacturers fortify foods with phytosterols.

The chart below lists common foods or dietary supplements fortified with sterols or stanol esters. The far right column lists the amount contained in a single serving. To optimize their effectiveness, the following must be consumed two to three times daily *before* or *with* meals or snacks (please carefully read the instructions on the package).

<b>Product Name</b>	<b>Serving Size</b>	<b>Calories Per Serving</b>	<b>Grams of Total Fat Per Serving</b>	<b>Grams of Saturated Fat Per Serving</b>	<b>Grams of Plant Sterol or Stanol Per Serving</b>
Benecol® spread	1 Tbsp	70	8	1	0.5
Benecol® Light spread	1 Tbsp	50	5	0.5	0.5
Benecol® Smart Chews	2 chews	35	1	N/A	0.8
Cardio Juice	6 oz	60	0	0	0.5
Centrum Specialist Heart dietary supplement	2 Tablets	N/A	N/A	N/A	0.8
Corazonas Chips	1 oz	140	7	0.5	0.4
Corazonas Oatmeal Squares	1 square	180-200	4.5-9	0.5-2	0.5
Bluebonnet:Plant Sterols	1 pill	0	0	0	0.5
Giant Eagle Fat Free milk	1 cup(8 oz)	80	0	0	0.4
Heart Goodness® Egg Product	1/4 cup	30	0	0	0.5
Lifetime® Low Fat Block Cheese	1 oz	47	1.68	0.5	0.65
Minute Maid® Heart Wise Orange Juice	1 cup(8 oz)	110	0	0	1.0
Nature Made CholestOff®(Original, Complete & Cholestoff Plus)	2 tablets	N/A	N/A	N/A	0.6
Natrol Cholesterol Balance® Beta-Sitosterol dietary supplement	2 tablets	N/A	N/A	N/A	0.6
Promise Activ™ spread	1 Tbsp	70	8	1	1.0
Promise Activ™ Light spread	1 Tbsp	45	5	1	1.0

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Smart Balance®Heart Right Fat Free Milk	1 cup(8 oz)	90	0	0	0.4
Smart Balance®Heart Right Buttery Spread	1 Tbsp	80	8	2.5	1.7
Smart Balance®Heart Right Light Buttery Spread	1 Tbsp	50	5	1.0	1.7
VitaMuffin VitaTops™ Dark Chocolate Pomegranate	1, 2-ounce muffin top	100	1.5	0.5	0.4
VitaBrownie™ Dark Chocolate Pomegranate	1, 2-ounce brownie	100	1.5	0.5	0.4
Vitafusion Platinum 50+ Multivitamins	2 gummies	15	0	0	0.4

NOTE: Product information came from manufacturers' published data, as well as the website [corowise.com](http://corowise.com). Cleveland Clinic does not endorse any of the products listed above. This educational material does not provide a complete listing of all available products containing recommended levels of nutrients/supplements discussed on this page. The products mentioned on this page were available at the time of the publication.

### **Phytosterol Dietary Supplements**

We have provided only a sampling of the over-the-counter phytosterol nutritional supplements available. You can find more information about the quality of the supplements available by going online to [www.consumerlab.com](http://www.consumerlab.com) or talking with your local pharmacist, your physician or a registered dietitian.

### **Which is better, taking a Sterol or Stanol?**

Head-to-head trials comparing the LDL-lowering effect of sterols versus stanol esters have shown no significant difference between the two when consumed as part of a low-fat diet. Neither have an effect on blood levels of triglycerides or HDL "good" cholesterol.

**Are Phytosterols safe to consume on a regular basis?**

No known negative health effects have been shown in research. The body's tissues do not retain phytosterols, and they do not affect the absorption of fat-soluble vitamins A, D, E and K. Talk to your doctor and/or registered dietitian if you have any questions about including phytosterols in your diet. In addition, do not use these products as a substitute for any prescription medications you are currently taking.

**Are Phytosterols safe for children to consume?**

There has not been adequate testing to determine the safety of phytosterols in children. Intermittent use is considered GRAS (Generally Recognized as Safe) by the FDA (Food & Drug Administration). The ADI (acceptable daily intake) is 130 mg per kilogram (kg) of body weight. Therefore, a child that weighs 50 kilograms (110 lbs) can have up to 6.5 grams.