Supplements to help manage total cholesterol, LDL and HDL

Soy

COMMON NAME: Soy

SCIENTIFIC NAME: *Glycine max*

RECOMMENDED WITH CAUTION

LEVELS OF EVIDENCE

1

Recommended:
Several well-designed studies in humans have shown positive benefit. Our team is confident about its therapeutic potential.

2

Recommended with Caution:
Preliminary studies suggest some benefit. Future trials are needed before we can make a stronger recommendation.

3

Not Recommended - Evidence:
Our team does not recommend this product because clinical trials to date suggest little or no benefit.

4

Not Recommended - High Risk:
Our team recommends against using this product because clinical trials to date suggest substantial risk greater than the benefit.

Evaluated Benefits

Lowering of total cholesterol and LDL cholesterol

Cleveland Clinic Wellness

Supported by P&G

Source
The soybean

Indications/Population
Lowering of cholesterol in patients with hyperlipidemia and metabolic syndrome

Mechanism of Action
Soy may have cholesterol-reducing effects due to its ability to stimulate the transcription factor SREBP-2, increasing serum cholesterol clearance. Cholesterol-lowering effects may also be due to the upregulation of cholesterol excretion via the [13C] chenodeoxycholic acid pathway. Soybean globulins have been shown to increase the uptake and degradation of LDL in human hepatoma cell lines.

The plant sterols/stanols present in soy interfere with dietary cholesterol absorption. The net effect is greater than the increased LDL receptor expression level and the de novo synthesis of cholesterol in the liver to counteract the lower absorption from the gut.

Soy proteins are able to reduce plasma LDL levels by stimulating the activity of the LDL receptor apparatus in the liver. Soy protein can be absorbed from the intestinal tract into the bloodstream and subsequently have an upregulation effect on the liver LDL receptor machinery, resulting in lowering of the plasma LDL levels and/or preventing LDL cholesterol from (rapidly) being oxidized.

Side Effects
Various gastrointestinal symptoms, such as bloating, nausea, and constipation

Dosing
25–50 grams daily

Drug Interactions/Cautions
Fermented soy products such as tofu and soy sauce contain tyramine. Tyramine is an amino acid that is involved in blood-pressure regulation. Tyramine is metabolized by monoamine oxidase. MAOIs decrease the breakdown of tyramine. Consuming more than 6 mg of tyramine while taking an MAOI can increase the risk of hypertensive crisis.

Allergy to soy is reportedly one cause of eosinophilic esophagitis (isolated, eosinophilic inflammation of the esophagus).

Raw soybeans, soy flour, or protein powder made from raw, unroasted, or unfermented beans should not be consumed regularly, as these forms may damage the pancreas over time.

Notes
The FDA has approved labeling soy products for cholesterol reduction when used in combination with a diet low in saturated fat and cholesterol. To be eligible for this labeling, soy products must provide at least 6.25 grams of soy protein per serving, which is 25% of the effective amount of 25 grams per day.

References

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