

# Beta-Glucan

COMMON NAME: beta-glucan

SCIENTIFIC NAME: 1-3, 1-6-beta-glucan; beta-1,3-D-glucan; beta-1-6,1,3-beta-glucan

## RECOMMENDED

### LEVELS OF EVIDENCE



#### Recommended:

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



#### Recommended with Caution:

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



#### Not Recommended - Evidence:

Our team does not recommend this product because clinical trials to date suggest little or no benefit.



#### 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 LDL and total cholesterol

Reduces risk of CVD in patients with abnormal lipid profiles.

## Source

Beta-glucan is a soluble fiber derived from the cell walls of certain algae, bacteria, fungi, yeast, and plants. Yeast derived beta-glucan is more palatable and easier to incorporate into food products. Oat beta-glucan, which is soluble in water and becomes more viscous, may have a higher therapeutic benefit.

## Indications/Population

Lowering of LDL and total cholesterol  
Patients with hyperlipidemia

## Mechanism of Action

Beta-glucan binds bile acids in the intestine. This increases net excretion of bile acid in the feces. The reduced levels of reabsorbed bile acid stimulate bile acid synthesis in the liver. Uptake of LDL from the circulation is required to provide the cholesterol precursor for bile acid synthesis and thereby reduces total circulating cholesterol.

## Side Effects

- Minimal adverse events have been reported
- In mice, severe intestinal damage resulting in bacterial peritonitis has been reported with use of beta-glucan and most NSAIDs, including aspirin.
- Gastrointestinal side effects, such as bloating, flatulence, and abdominal cramping, have been reported.
- Studies show tolerance of beta-glucan in doses up to 10 grams.

## Dosing

- Hyperlipidemia: 3–16 grams of beta-glucan has been studied. A dose response relationship exists between intake and level of reduction of lipids. A dose of 3 grams of beta-glucan will lower the LDL-c level by 4%.
- Most studies of beta-glucan used oat cereal as the base food for a dose of 3 grams daily. Beta-glucan can also be obtained as an isolated supplement.
- Dosing at the start of each meal is reported to reduce the discomfort that may sometimes occur with initiation of beta-glucan therapy. Taking one-third of the prescribed daily dose at the start of each of three main meals a day is recommended.

## Drug Interactions/Cautions

- Oat beta-glucan appears to have better efficacy in liquid form than solid..
- Wheat contains the enzyme beta-gluconase, which may inactivate beta-glucan and reduce its reliability as an effective source.
- Processing may affect the molecular weight and viscosity of beta-glucan, impacting its efficacy to lower LDL-c. For example, highly processed oat products are less effective at lowering cholesterol.
- It is recommended to take fiber supplements at least 2 hours before or 2 hours after oral prescription medications.

## Notes

- Low molecular weight beta-glucan is not effective in lowering cholesterol.
- Beta-glucan does not affect the HDL-c.
- Beta-glucan is recognized by the U.S. Food and Drug Administration (FDA) to have cholesterol lowering and cardiovascular health benefits.
- Beta-glucan has “Generally Recognized as Safe” (GRAS) status in the United States.

## References

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