Supplements to help manage Blood Sugar Health

Ginseng

COMMON NAME: Ginseng

SCIENTIFIC NAME: The *Panax* family consists of at least nine species, including *Panax quinquefolium* (xi yang shen, American ginseng), *Panax notoginseng* (sanqi, Chinese ginseng), *Panax ginseng* (Korean red ginseng), and *Panax japonicus* (Japanese ginseng).

NOT RECOMMENDED - EVIDENCE

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
No evidence of efficacy or not indicated

Cleveland Clinic
Wellness

Supported by P&G

Source
The herb is harvested when the ginseng is six years old; it is steamed or heated and subsequently dried, resulting in an increase in saponin content.

Indications/Population
Patients with diabetes or metabolic syndrome

Mechanism of Action
Panax notoginseng saponins (PNS), of which there are 30 different types, have shown the potential to regulate both leptin level and leptin sensitivity. Some types of saponins have been reported to promote glucose-stimulated insulin secretion and reduce triglyceride accumulation. Ginsenosides Rg1 and Re have been shown to activate the AMPK (AMP-activated protein kinase) signaling pathway, increasing insulin sensitivity. Ginsenosides Re and Rg1 were reported to suppress the hepatic gluconeogenesis. The different *Panax* species and brands seem to have very different effects on blood sugar levels.

In summary, some ginseng species, especially American ginseng, enhance glucose uptake, decrease lipogenesis, and decrease insulin resistance.

Side Effects
Insomnia, diarrhea, vaginal bleeding, mastalgia, severe headache, schizophrenia, and Stevens-Johnson syndrome

Dosing
1–9 grams per day of American ginseng have been used in randomized clinical trials.

Drug Interactions/Cautions
Ginseng interacts with many prescription drugs, including anticoagulants and those metabolized through the cytochrome P450 systems.

Notes
Most species of ginseng are not recommended, although some specific species of ginseng may provide some benefit, but more studies are needed before we can make a stronger recommendation.

Ginseng metabolites may remain in the body for up to 10 weeks after treatment.

Ginseng only stimulates insulin release in response to a meal (i.e., a glucose-stimulated insulin secretion). The advantage of taking American ginseng is thus a reduced risk of hypoglycemic episodes when meals are postponed or missed.

References

Bang H, Kwak J, Ahn H, Shin D, Lee J. Korean red ginseng improves glucose control in subjects with impaired fasting glucose, impaired glucose tolerance, or newly diagnosed type 2 diabetes mellitus. *Journal of Medicinal Food*. 2014; 17(1): 128–134. doi: 10.1089/jmf.2013.2889

Cho YH, Ahn SC, Lee SY, Jeong DW, Choi EJ, Kim YJ, et al. Effect of Korean red ginseng on insulin sensitivity in non-diabetic healthy overweight and obese adults. *Asia Pacific Journal of Clinical Nutrition*. 2013; 22(3): 365–371. doi: 10.6133/apjcn.2013.22.3.04

De Souza LR, Jenkins AL, Jovanovski E, Rahelić D, Vuksan V. Ethanol extraction preparation of American ginseng (Panax quinquefolius L) and Korean red ginseng (Panax ginseng C.A. Meyer): differential effects on postprandial insulinemia in healthy individuals. *Journal of Ethnopharmacology*. 2015; 159: 55–61. **doi: 10.1016/j.jep.2014.10.057**

Gui Q, Xu Z, Xu K, Yang Y. The efficacy of ginseng-related therapies in type 2 diabetes mellitus: an updated systematic review and meta-analysis. *Medicine* (Baltimore). 2016; 95(6). **doi: 10.1097/MD.0000000000002584**

Mucalo I, Rahelic D, Jovanovski E, Bozikov V, Romic Z, Vuksan V. Effect of American ginseng (Panax quinquefolius L.) on glycemic control in type 2 diabetes. *Collegium Antropologicum*. 2012; 36(4): 1435–1440.

Quan, H, Yuan H, Mi Jung M, Ko S, Park Y, Chung S. Ginsenoside Re lowers blood glucose and lipid levels via activation of AMP-activated protein kinase in HepG2 cells and high-fat diet fed mice. *International Journal of Molecular Medicine*. 2011; 29(1): 73–80. **doi: 10.3892/ijmm.2011.805**

Shishtar E, Sievenpiper JL, Djedovic V, Cozma AI, Ha V, Jayalath VH, et al. The effect of ginseng (the genus panax) on glycemic control: a systematic review and meta-analysis of randomized controlled clinical trials. *PLoS One*. 2012; 9(9): e107391. **doi: 10.1371/journal.pone.0107391**

Uzayisenga R, Ayeka PA, Wang Y. Anti-diabetic potential of Panax notoginseng saponins (PNS): a review. *Phytotherapy Research*. 2014; 28(4): 510–516. **doi: 10.1002/ptr.5026**

Vuksan V, Sung M, Sievenpiper J, Stavro PM, Jenkins A, Di Buono M, et al. Korean red ginseng (Panax ginseng) improves glucose and insulin regulation in well controlled, type 2 diabetes: Results of a randomized, double-blind, placebo controlled study of efficacy and safety. *Nutrition, Metabolism & Cardiovascular Diseases*. 2008; 18: 46–56.