



Q/ Is cinnamon safe and effective for treating lipid disorders?

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EVIDENCE-BASED ANSWER

A | IT'S PROBABLY SAFE, BUT ITS EFFECTIVENESS IS UNCERTAIN. Insufficient evidence exists to determine whether cinnamon improves outcomes in patients with lipid disorders. In healthy patients without hyperlipidemia, cinnamon doesn't change lipid levels but does cause mild gastrointestinal symptoms.

In patients with diabetes, the bulk of the available evidence suggests cinnamon supplementation neither improves serum lipid levels nor causes significant harm (strength of recommendation [SOR]: **B**, extrapolated from small randomized controlled trials [RCTs] with heterogeneous results).

Evidence summary

No large trials with patient-oriented outcomes have evaluated cinnamon as a treatment for hyperlipidemia. One small RCT compared cinnamon with turmeric in 11 healthy individuals, ages 21 to 38 years, without diabetes or hyperlipidemia.

Investigators administered 3 g cinnamon or 2.8 g turmeric daily for 4 weeks; they found no significant change in fasting lipid values. Baseline lipid levels were 155 mg/dL for total cholesterol and 139 mg/dL for triglycerides. Clinical side effects of cinnamon included transient eructation (burping or reflux), headache, and a "burning stomach" sensation.¹

RCT with diabetes patients shows some positive results

Four small RCTs whose primary purpose was to investigate the effects of cinnamon supplements on blood glucose control in patients with diabetes also assessed blood lipid levels.

The first RCT studied 30 men and 30 women with type 2 diabetes, mean age 52 years. Patients had had diabetes (controlled with a sulfonylurea) for a mean of 7 years, but had no other medical conditions. Investigators randomized them into 6 groups of 10 subjects, each taking 1, 3, or 6 g of cinnamon or an equal number of placebo capsules

daily for 40 days, followed by a 20-day washout period.

At 40 days, cinnamon at 3- and 6-g doses significantly reduced total cholesterol (12%-26% reduction; $P<.05$), low-density lipoprotein (LDL) (7%-27% reduction; $P<.05$), and triglycerides (23%-30% reduction; $P<.05$), but did not change high-density lipoprotein (HDL) levels. Cinnamon at the 1-g dose also reduced triglycerides and total cholesterol.² Investigators didn't mention adverse effects.

Other studies find no change in lipids, but no harm either

However, 3 subsequent RCTs with a total of 181 patients found that cinnamon didn't improve fasting lipid profiles in patients with type 2 diabetes.

■ **In the first study**, investigators randomized 25 postmenopausal women (mean age 63 years) with type 2 diabetes (controlled on any of 3 classes of oral medication) to receive either 1.5 g cinnamon or placebo daily for 6 weeks. Mean baseline lipid levels (total cholesterol=190 mg/dL; HDL=50 mg/dL; LDL=116 mg/dL; and triglycerides=113 mg/dL) did not change significantly. Investigators didn't mention adverse effects.³

■ **The second RCT**, involving 79 patients (mean age 63 years) with type 2 diabetes on



There's not enough evidence to determine whether cinnamon improves outcomes in patients with lipid disorders.

CLINICAL INQUIRIES

oral therapy, also found that 3 g cinnamon daily didn't change lipid profiles over 4 months. Baseline lipid levels were: total cholesterol=209 mg/dL; HDL=56 mg/dL; LDL=135 mg/dL; and triglycerides=170 mg/dL. Investigators reported no adverse effects.⁴

■ **The third RCT** evaluated the effects of cinnamon supplementation compared with placebo on lipid levels and glycosylated hemoglobin (HbA1c) for 77 individuals with type 2 diabetes. Investigators recruited subjects of any age with diabetes controlled on a stable dose of oral agents and randomized them to receive either 500 mg cinnamon or placebo twice daily.

Subjects' mean baseline cholesterol levels were: total cholesterol=170 mg/dL; HDL=

44 mg/dL; LDL=102 mg/dL; and triglycerides=132 mg/dL. There was no difference from baseline in fasting glucose, cholesterol levels (total, HDL, or LDL), or triglycerides at monthly intervals over 3 months, nor was there any change in HbA1c from baseline to 3 months.⁵

Recommendations

The American Diabetes Association states that cinnamon produces no benefit for people with diabetes.⁶ The Mayo Clinic states that there is little evidence that cinnamon reduces cholesterol levels, and does not recommend cinnamon as a treatment for high cholesterol.⁷ **JFP**

References

1. Tang M, Larson-Meyer DE, Liebman M. Effect of cinnamon and turmeric on urinary oxalate excretion, plasma lipids, and plasma glucose in healthy subjects. *Am J Clin Nutr.* 2008;87:1262-1267.
2. Khan A, Safdar M, Ali Khan MM, et al. Cinnamon improves glucose and lipids of people with type 2 diabetes. *Diabetes Care.* 2003;26:3215-3218.
3. Vanschoonbeek K, Thomassen BJ, Senden JM, et al. Cinnamon supplementation does not improve glycemic control in postmenopausal type 2 diabetes patients. *J Nutr.* 2006;136:977-980.
4. Mang B, Wolters M, Schmitt B, et al. Effects of a cinnamon extract on plasma glucose, HbA, and serum lipid in diabetes mellitus type 2. *Eur J Clin Invest.* 2006;36:340-344.
5. Blevins SM, Leyva MJ, Brown J, et al. Effect of cinnamon on glucose and lipid levels in non-insulin dependent type 2 diabetes. *Diabetes Care.* 2007;30:2236-2237.
6. American Diabetic Association. Cinnamon has no benefit for people with diabetes. Available at: <http://www.diabetes.org/news-research/research/access-diabetes-research/baker-cinnamon-has-no-benefit-for-people-with-diabetes.html>. Accessed November 19, 2010.
7. Collazo-Clavell M. Diabetes treatment: can cinnamon lower blood sugar? *MayoClinic.com.* September 10, 2010. Available at: <http://www.mayoclinic.com/health/diabetes/AN00939>. Accessed October 13, 2010.



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