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**File: ■ Cinnamon (*Cinnamomum verum* syn. *C. zeylanicum*)
■ Type 2 Diabetes**

HC 111236-470

Date: April 15, 2013

RE: Cinnamon Intake May Improve Glycemic Status Indicators in People with Diabetes

Vafa M, Mohammadi F, Shidfar F, et al. Effects of cinnamon consumption on glycemic status, lipid profile and body composition in type 2 diabetic patients. *Int J Prev Med.* 2012;3(8):531-536.

The incidence of type 2 diabetes mellitus is increasing worldwide. Controlling the disease involves lifestyle changes, weight management, physical activity, and healthy nutrition. The use of medicinal herbs with antihyperglycemic activities is increasing among patients with diabetes. Cinnamon (*Cinnamomum verum* syn. *C. zeylanicum*) has been shown to be an insulin sensitizer in both in vitro and in vivo studies; however, in clinical trials on the effect of cinnamon on glucose and plasma lipid concentrations in patients with diabetes, the results have been mixed. These authors conducted a randomized, double-blinded, placebo-controlled trial to investigate the benefit of cinnamon use in patients with type 2 diabetes.

Forty-four patients were selected among patients at the Endocrinology and Metabolism Center at Tehran University of Medical Sciences in Iran. The patients had to have non-insulin-dependent type 2 diabetes, with hemoglobin A_{1c} (HbA_{1c}) levels between 6% and 8% and fasting blood glucose (FBG) levels of 126-160 mg/dL.

The patients were randomly assigned to either the cinnamon (n=22) or placebo (n=22) group. Baseline characteristics did not differ among the patients. The mean age of those in the cinnamon group was 54.11 ± 10.37 years; in the placebo group, 55.67 ± 7.98 years. Cinnamon and wheat flour (placebo) were ground finely and put into capsules (500 mg each) that looked, smelled, and tasted the same. No further information on the cinnamon capsules is provided. Patients ingested 2 capsules at each meal for 8 weeks. The patients continued their medications, maintained their normal diet, and continued their usual physical activity throughout the study. They completed 3-day food records at baseline and at the study's end. Compliance was assessed by monitoring the return on capsule bottles and counting remaining capsules.

Of the 44 patients who began the study, 7 were excluded during the study. The remaining 37 patients completed the study: 19 in the cinnamon group and 18 in the placebo group.

At baseline and at the end of the trial, each participant's weight, height, body composition, and blood pressure were measured. Fasting blood samples were collected also at those times to measure HbA_{1c} and FBG and to perform a lipid profile and insulin analysis.

Baseline characteristics did not differ between the 2 groups; neither did energy intake, macronutrient and micronutrient composition of the diet, or physical activity during the study. The authors report significant reductions in FBG (9.2%; P=0.005), HbA_{1c} (6.12%; P=0.008), and triglyceride (15.38%; P=0.038) levels in the cinnamon group at the end of the study compared with baseline values. No such effect was seen in the placebo group. The reductions seen in the cinnamon group were not significant when compared with the placebo group.

No significant differences were noted within the groups in the insulin analysis or lipid profile (total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and apolipoproteins A-I and B) at the end of the study compared with baseline values.

In both groups, the patients had significant reductions in body weight (1.19%; P=0.017) and body mass index (1.54%; P=0.010) at the end of the study compared with baseline. Fat body mass, however, was reduced significantly only in the cinnamon group (1.36%; P=0.047). No adverse effects were reported.

Among the study's limitations were its short duration and the 3 g daily dose of cinnamon. The authors explain that financial factors prevented them from including another group using a higher dose of cinnamon to compare the effects of the different doses.

The authors compare their results with those of earlier studies using cinnamon in patients with type 2 diabetes. They note that a positive correlation between baseline plasma glucose and a decrease in plasma glucose in 1 study¹ and a strong decrease of serum glucose in patients with poorly controlled diabetes² suggest that patients with poor glycemic control may benefit more from cinnamon intake.

They conclude that in patients with type 2 diabetes, the intake of 3 g of cinnamon daily may have a moderate effect on glycemic status indicators.

—Shari Henson

References

¹Mang B, Wolters M, Schmitt B, et al. Effects of a cinnamon extract on plasma glucose, HbA_{1c}, and serum lipids in diabetes mellitus type 2. *Eur J Clin Invest*. 2006;36(5):340-344.

²Khan A, Safdar M, Ali Khan MM, Khattak KN, Anderson RA. Cinnamon improves glucose and lipids of people with type 2 diabetes. *Diabetes Care*. 2003;26(12):3215-3218.

Referenced article can be found at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3429799>.

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