

Beth Careyva, MD;
Grant Greenberg, MD,
MA, MHSA; Katarzyna
Jabbour, PharmD, BCPS;
Nicole Defenbaugh, PhD
Lehigh Valley Health
Network, Allentown, PA
Joan Nashelsky, MLS
Family Practice Inquiries
Network, Iowa City

DEPUTY EDITOR

Rick Guthmann, MD,
MPH

Advocate Illinois Masonic
Family Medicine Residency,
Chicago

Q/ Do cinnamon supplements improve glycemic control in adults with T2DM?

EVIDENCE-BASED ANSWER

A/ THE ANSWER ISN'T CLEAR. Cinnamon supplements for adults with type 2 diabetes haven't been shown to decrease hemoglobin A1C (strength of recommendation [SOR]: **C**, multiple systematic reviews of disease-oriented outcomes).

Cinnamon supplements have shown

inconsistent effects on fasting glucose levels (SOR: **C**, multiple systematic reviews and a single meta-analysis of disease-oriented outcomes). Supplements decreased fasting glucose levels in some studies, but the evidence isn't consistent and hasn't been correlated with clinically significant improvements in glycemic control.

Evidence summary

A 2013 systematic review of 10 randomized controlled trials (RCTs) with a total of 543 patients with type 2 diabetes evaluated the effect of cinnamon (120 mg/d to 6 g/d) on measures of glycemic control.¹ Study duration ranged from 4 to 18 weeks. Fasting glucose levels demonstrated small but statistically significant reductions (−24.6 mg/dL; 95% confidence interval [CI], −40.5 to −8.7 mg/dL), whereas hemoglobin A1C levels didn't differ between treatment and control groups (−0.16%; 95% CI, −0.39% to 0.02%). Study limitations included heterogeneity of cinnamon dosing and formulation and concurrent use of oral hypoglycemic agents.

Studies of glycemic control produce mixed results

A 2012 systematic review of 10 RCTs comprising 577 patients with type 1 (72 patients) or type 2 (505 patients) diabetes evaluated the effects of cinnamon supplements (mean dose, 1.9 g/d) on glycemic control compared with placebo, active control, or no treatment.² Study duration ranged from 4.3 to 16 weeks (mean, 10.8 weeks). Studies evaluating hemoglobin A1C lasted at least 12 weeks.

Fasting glucose as measured in 8 studies (338 patients) and hemoglobin A1C as measured in 6 studies (405 patients) didn't differ between treatment groups (mean fasting glucose difference = −0.91 mmol/L; 95% CI, −1.93 to 0.11; mean hemoglobin A1C difference = −0.06; 95% CI, −0.29 to 0.18). The risk for bias was assessed as high or unclear in 8 studies and moderate in 2 studies.

A 2012 systematic review and meta-analysis of 6 RCTs including 435 patients with type 2 diabetes evaluated the impact of cinnamon supplements (1 to 6 g/d) on glycemic control.³ Participants consumed cinnamon for 40 to 160 days. Hemoglobin A1C decreased by 0.09% (95% CI, 0.04% to 0.14%) in 5 trials (375 patients), and fasting glucose decreased by 0.84 mmol/L (CI, 0.66 to 1.02) in 5 trials (326 patients). Study limitations included heterogeneity of cinnamon dosing and study population.

Recommendations

The American Diabetes Association finds insufficient evidence to support the use of herbs or spices, including cinnamon, in treating diabetes.⁴

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Diagnosis:
Cherry hemangioma

A benign hemangioma was suspected; however, given its unusually large size and uncharacteristic location, other entities such as amelanotic melanoma and lobular capillary hemangioma (pyogenic granuloma) needed to be ruled out. Pathology following a shave excision (with electrocautery) confirmed that this was a cherry hemangioma.

Cherry hemangiomas, also known as senile hemangiomas or Campbell de Morgan spots, are a nearly ubiquitous benign vascular proliferation that increase in frequency and number with age.^{1,2} They also have been associated with pregnancy and some chemical exposures.^{3,4} In general, they are of no clinical consequence. Typically, they are 1- to 5-mm bright pink or bright to dark red papules located on the arms and trunk, a description that has persisted since at least 1947.¹ Scalp involvement is considered rare.⁵

Differential includes malignant entities

The large size of the lesion in addition to its unusual location on the scalp prompted consideration of a malignant entity despite many features of a benign process.

■ **Amelanotic melanomas** classically are described as flesh-colored, but up to 70% of amelanotic melanomas may actually be red. Red amelanotic melanomas may account for nearly 4% of all melanomas and frequently are underrecognized.⁶ Pathology ruled out melanoma for this patient.

■ **Lobular capillary hemangiomas** (also known as pyogenic granulomas) typically manifest as rapidly growing, painless, friable

papules or nodules in young adults and adolescents. Cutaneous lobular capillary hemangiomas are most often located on the head and neck, nose, face, extremities, and upper trunk. These benign lesions may grow to several centimeters in diameter and are prone to bleeding and ulceration, which this patient notably did not have.⁷

Treatment often isn't required

Most cherry hemangiomas are asymptomatic and small enough that they don't catch on clothing or jewelry. For larger lesions, shave excision with or without electrocautery of the base may be performed. Curettage and laser therapy also have been used with success.⁵

■ **The patient** in this case had no recurrence or development of new cherry hemangiomas 2 years after her scalp lesion was removed.

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CORRESPONDENCE

J. Lane Wilson, MD, East Carolina University Family Medicine, 101 Heart Drive, Greenville, NC 27834; wilsonjo@ecu.edu

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➤ **Consider biopsy to rule out malignancies in large scalp lesions.**

CLINICAL INQUIRIES

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Editor's Takeaway

Meta-analyses of multiple small, lower-quality studies yield uncertain conclusions.

If cinnamon does improve glycemic control, the benefit is minimal—but so is the risk.

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References

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