Cinnamon: Postprandial Hyperglycemia Suppression

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To examine a single dose of cinnamon powder dissolved in water versus cinnamon in gelatin capsules. Tests were made on postprandial hyperglycemia in patients with type II diabetes.

Randomized, cross-over, single-blinded

Nineteen patients were randomized into five groups, all receiving a standardized meal on the day they visited the lab. These were meal alone (control), or ingestion prior to meal of 3 g cinnamon in capsules, 6 g cinnamon in capsules, 3 g cinnamon dissolved in water or 6 g cinnamon dissolved in water. There was a washout of 3–10 days between lab visits. The meals and cinnamon were all consumed within 15 minutes. Patients were not blinded but researchers involved were.

Blood glucose responses were measured using a finger-prick blood sample and a glucometer.

Raw cinnamon powder was made into gelatin capsules or mixed with 150 ml of water (temperature of water not stated).

Sample size

Nineteen patients were randomized into the five groups in a cross-over

design. Patients were all male with an average age of 56 years.

Ingestion of cinnamon capsules at 3 g did not alter postprandial glucose peaks, but 3 g of cinnamon in water led to a significant reduction ($p=0.003$). Both 6 g in capsules and water significantly reduced postprandial glucose levels.

Change in one-hour blood glucose

The change in blood glucose (from fasting levels) over one hour showed a similar pattern of results.

In the results, they also looked at absolute values and plotted these against accepted renal thresholds that are used to diagnose type II diabetes and administer insulin.

The mean highest blood glucose level

In this plot, a similar pattern of results was seen with 3 g cinnamon in water significantly reducing the highest blood glucose level, but 3 g in gelatin capsules being ineffective. The 3 g and 6 g cinnamon in water, and 6 g gelatin capsule reduced the glucose response to below the value of 200 mg/dL, which is a one-hour threshold used to diagnose diabetic disease.

In another variation of the results, the (absolute) one-hour post-meal mean blood glucose level showed a similar pattern.

The time to reach peak glucose is also a marker of insulin resistance, and is usually longer in diabetic patients. There was no difference between any of the groups.

In terms of palatability and sensory experience, raw cinnamon powder in capsules or water did not differ in terms of visual appeal, smell and taste.

It has been shown that cinnamon oil can improve glucose, lipid and insulin biomarkers, and also modulate gene expression to favor antidiabetic outcomes, although this research is mainly in animals

References

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