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# Clinical evidence on dietary supplementation with chia seed (*Salvia hispanica* L.): a systematic review and meta-analysis

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## Abstract

**Context:** Chia seed is a popular dietary supplement, taken mainly for its high content of alpha-linolenic acid, vegetable protein, and dietary fiber, yet information about its clinical effects is lacking.

**Objective:** This review aims to summarize the clinical evidence regarding the use of chia seed for a wide variety of health conditions.

**Data sources:** A number of databases, including PubMed and Embase, were searched systematically.

**Study selection:** Randomized controlled trials that assessed the clinical effects of chia seed consumption in human participants were included. The quality of trials was assessed using the Cochrane Risk of Bias Tool.

**Data extraction:** Data on study design, blinding status, characteristics of participants, chia seed intervention, comparator, clinical assessment, duration of intake, interval of assessment, and study funding status were extracted. Meta-analysis was performed.

**Results:** Twelve trials were included. Participants included healthy persons, athletes, diabetic patients, and individuals with metabolic syndrome. Pooling of results showed no significant differences except for the following findings of subgroup analysis at higher doses of chia seed: (1) lower postprandial blood glucose level (mean difference [MD] of -33.95 incremental area under the curve [iAUC] [mmol/L × 2 h] [95%CI, -61.85, -6.05] and -51.60 iAUC [mmol/L × 2 h] [95%CI, -79.64, -23.56] at medium doses and high doses, respectively); (2) lower high-density lipoprotein in serum (MD of -0.10 mmol/L [95%CI, -0.20, -0.01]); and (3) lower diastolic blood pressure (MD of -7.14 mmHg [95%CI, -11.08, -3.19]). The quality of all evidence assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach was low or very low. All trials employed only surrogate markers as outcomes.

**Conclusions:** Future trials with improved methodological quality, well-described clinical events, and validated surrogate markers as outcomes are needed to support the potential health benefits of chia seed consumption.

**Systematic review registration:** PROSPERO registration no. CRD42015029990.

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