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The Effect of Chia Seed on Blood Pressure, Body Composition, and Glycemic Control: A GRADE-Assessed Systematic Review and Dose-Response Meta-Analysis of Randomized Controlled Trials

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Abstract

Context: Numerous studies have demonstrated the positive effects on metabolic factors of consuming chia seeds. However, the results of clinical trials have been inconsistent.

Objective: The aim of this study was to conduct a systematic review and meta-analysis of available randomized controlled trials to explore the effects of chia seed consumption on body weight (BW), body composition, blood pressure, and glycemic control.

Data sources: A comprehensive search was conducted on the Scopus, PubMed, Medline via Ovid, ISI Web of Science, and Scholar Google databases up to August 2023.

Data extraction: The outcomes of interest included systolic blood pressure (SBP), diastolic blood pressure (DBP), BW, body mass index (BMI), body fat percentage, waist circumference (WC), fasting blood glucose (FBG), and hemoglobin A1c (HbA1c).

Data analysis: Weighted mean difference (WMD) and 95% CIs were used to determine the effect size.

Results: A total of 8 eligible studies were included in the analysis. The findings revealed a significant reduction in SBP (WMD: -7.19 mmHg; 95% CI, -10.63 to -3.73; $P < .001$) and DBP (WMD: -6.04 mmHg, 95% CI, -9.58 to -2.49; $P = .001$). However, no significant effects were observed on BW, body fat percentage, WC, BMI, FBG, and HbA1c. Subgroup analysis indicated that the effect of chia seed on SBP was significant in participants with a baseline SBP of less than 140 mmHg, but the effect was not dependent on the administered dose.

Conclusion: Chia seed consumption has positive effects on SBP and DBP but does not significantly impact BW, body composition, or glycemic parameters. However, the limited amount of data from included studies should be considered as a limitation while interpreting these findings.

Systematic review registration: PROSPERO registration no. CRD42023462575.

Keywords: blood glucose; body weight; chia seed; diastolic blood pressure; systolic blood pressure.

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