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Effect of selenium supplementation on glycemic indices: A meta-analysis of randomized controlled trials

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Purpose: The association of selenium supplementation with glycemic indices is controversial. In this systematic review and meta-analysis, we evaluated the effect of selenium supplementation on glycemic indices.

Methods: We systematically searched PubMed/MEDLINE, ISI/WOS, and Scopus (from their commencements up to January 2016) for articles that examined the association between intake of selenium and glycemic indices, the data were extracted from relevant qualified studies and estimated using random-effects model and pooled standardized mean difference (95% CI).

Results: Twelve articles published between 2004 and 2016 were included. All the studies randomly assigned a total of 757 participants as the intervention group and 684 participants as the control group, all the trials were placebo-controlled and double-blinded. Selenium supplementation significantly reduced HOMA-B (SMD: -0.63; 95% CI: -0.89 to -0.38) and increased QUIKI (SMD: by 0.74; 95% CI: 0.49 to 0.1) compared with the control groups. No significant improvements of glycemic indices including fasting plasma glucose (FPG), insulin, HOMA-IR, HBA1C, and adiponectin were observed.

Conclusion: This meta-analysis detected a significant improvement in HOMA-B and QUIKI indices, although there was not a significant improvement in FPG, insulin, HOMA-IR, HBA1C, and adiponectin indices.

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