

Abstract

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Magnesium intake and risk of type 2 diabetes: a meta-analysis.

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OBJECTIVE: To assess the association between magnesium intake and risk of type 2 diabetes.

DESIGN: Meta-analysis of prospective cohort studies.

DATA SOURCES: We retrieved studies published in any language by systematically searching MEDLINE from 1966 to February 2007 and by manually examining the references of the original articles.

STUDY SELECTION: We included prospective cohort studies reporting relative risks with 95% confidence intervals for the association between magnesium intake and incidence of type 2 diabetes.

RESULTS: The seven identified cohort studies of magnesium intake [from foods only ($n = 4$) or from foods and supplements combined ($n = 3$)] and incidence of type 2 diabetes included 286,668 participants and 10,912 cases. All but one study found an inverse relation between magnesium intake and risk of type 2 diabetes, and in four studies the association was statistically significant. The overall relative risk for a 100 mg day⁻¹ increase in magnesium intake was 0.85 (95% CI, 0.79-0.92). Results were similar for intake of dietary magnesium (RR, 0.86; 95% CI, 0.77-0.95) and total magnesium (RR, 0.83; 95% CI, 0.77-0.89). There was no evidence of publication bias ($P = 0.99$).

CONCLUSIONS: Magnesium intake was inversely associated with incidence of type 2 diabetes. This finding suggests that increased consumption of magnesium-rich foods such as whole grains, beans, nuts, and green leafy vegetables may reduce the risk of type 2 diabetes.

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