

Coffee consumption and reduced risk of developing type 2 diabetes: a systematic review with meta-analysis.

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Abstract

CONTEXT:

Type 2 diabetes (T2D) is a major health problem worldwide that is associated with increased morbidity and mortality. There is increased interest in the value of different nutrition-based strategies for preventing the development of T2D.

OBJECTIVE:

This review aims to cover current knowledge regarding the effects of coffee consumption on development of T2D or modulation of adverse complications. A meta-analysis on coffee consumption and the risk of T2D was conducted. Moreover, bioactive components in coffee, polymorphisms, and potential underlying mechanism(s) in relation to T2D and adverse complications are discussed.

DATA SOURCES:

PubMed was searched up to December 1, 2017, and prospective cohort and nested case-control studies of the association between coffee consumption and T2D risk were selected.

DATA EXTRACTION:

Two investigators independently extracted data from included studies.

RESULTS:

A total of 30 prospective studies with 1 185 210 participants and 53 018 incident T2D cases were included in the meta-analysis. The pooled relative risk (RR) was 0.71 (95% confidence interval [CI], 0.67-0.76) for the highest category of coffee consumption (median consumption, 5 cups/d) vs the lowest category (median consumption, 0 cups/d). The risk of T2D decreased by 6% (RR = 0.94; 95%CI, 0.93-0.95) for each cup-per-day increase in coffee consumption. Results were similar for caffeinated coffee consumption (per additional cup of coffee per day: RR = 0.93; 95%CI, 0.90-0.96) and decaffeinated coffee consumption (corresponding RR = 0.94; 95%CI, 0.90-0.98).

CONCLUSIONS:

Available evidence indicates that coffee consumption is inversely associated with risk of T2D. Possible mechanisms behind this association include thermogenic, antioxidative, and anti-inflammatory effects; modulation of adenosine receptor signaling; and microbiome content and diversity.