

# Dietary fibre intake and risk of cardiovascular disease: systematic review and meta-analysis

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## STUDY QUESTION

Is greater intake of dietary fibre related to lower risk of cardiovascular or coronary heart disease, using a dose-response approach?

## SUMMARY ANSWER

For each increase of 7 g/day intake of fibre, separate risks for cardiovascular disease and coronary heart disease were each 9% lower.

## WHAT IS KNOWN AND WHAT THIS PAPER ADDS

Numerous observational studies have reported greater fibre intake being associated with lower risk of cardiovascular disease, with others reporting no such associations. This work explores potential dose-response associations and attempts to quantify the potential sources of heterogeneity between included studies.

## Selection criteria for studies

We searched the Cochrane Library, Medline, Medline in-process, Embase, CAB Abstracts, ISI Web of Science, and BIOSIS; hand searched appropriate journals; and cross checked bibliographies of relevant review articles to identify studies published between 1 January 1990 and 6 August 2013. Included articles reported on prospective observational studies, with at least three years' follow-up and were reported in English language. Included studies reported intake of total dietary fibre, soluble or insoluble

fibre, or fibre from food sources in relation to risk of coronary heart disease or cardiovascular disease.

## Primary outcome(s)

Fatal, non-fatal, or total primary (first occurrence) event of coronary heart disease or cardiovascular disease.

## Main results and role of chance

Evidence from 19 included studies, which had accounted for influences of appropriate potential confounders, indicated that lower risk of cardiovascular disease and coronary heart disease was associated with greater intake of total fibre, insoluble fibre, and fibre from cereals and vegetables. Greater fruit fibre was also associated with lower risk for cardiovascular disease. With each increase of 7 g/day in intake of total fibre, relative risks were 0.91 (95% confidence interval 0.88 to 0.94) and 0.91 (0.87 to 0.94) for cardiovascular disease and coronary heart disease, respectively.

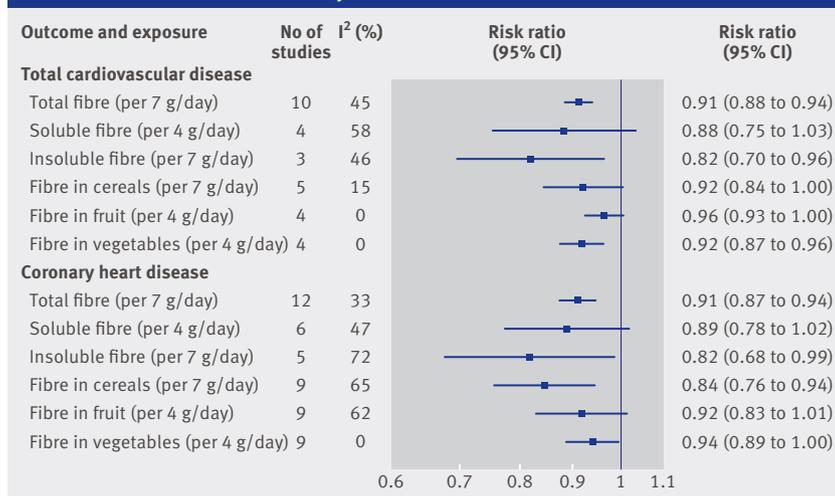
## Bias, confounding, and other reasons for caution

Fibre intake could be a surrogate marker for another healthy lifestyle or dietary behaviour, however there are plausible mechanisms and trial evidence for the action of dietary fibre on key risk factors for the development of cardiovascular disease and coronary heart disease. Adjustments used in the included studies may not have fully accounted for potential confounding influences. Dietary assessment is notoriously challenging, with measurement error being a particular difficulty. The bias can be large and in either direction, and hence we focused on the general direction and relative magnitude of associations. Studies were from a range of countries and reported on participants with wide variations in dietary fibre intakes.

## Study funding/potential competing interests

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## Risk of cardiovascular and coronary heart disease and fibre intake



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