Whole grain intake and cancer: a review of the literature

Jacobs D R, Slavin J, Marquart L

Authors' objectives
To test the hypothesis that higher whole grain intake would be associated with decreased cancer and risk of coronary heart disease (CHD).

Searching
MEDLINE was searched and the references of retrieved papers were reviewed.

Study selection
Study designs of evaluations included in the review
Case-control studies (n=14), prospective cohort study (n=1) and ecological studies (n=1) were included.

Specific interventions included in the review
Whole grain consumption (wholegrain bread or pasta, wholemeal bread, non-white bread, brown bread, crisp bread).

Participants included in the review
People with colorectal, gastric and endometrial cancer and CHD were included, plus their respective controls.

Outcomes assessed in the review
The outcomes assessed were colorectal, gastric and endometrial cancer and CHD.

How were decisions on the relevance of primary studies made?
Not stated, but the articles were selected based on the occurrence of phrases ‘wholegrain’ or ‘wholemeal’ and ‘cancer’ or ‘coronary heart disease’.

Assessment of study quality
[A: All articles located were included and classified according to study design.] The authors do not state how the papers were assessed for validity, or how many of the authors performed the validity assessment.

Data extraction
The authors do not state how the data were extracted, or how many of the reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
A narrative review was undertaken with study characteristics presented in tables. Studies were grouped according to cancer site or disease and by study design.

How were differences between studies investigated?
The authors do not state how differences between the studies were investigated. [A: not done.]

Results of the review
Sixteen studies in total investigating colorectal cancer (n=6; 6,504 patients plus 5,760 households), gastric cancer (n=7; 7,500 patients), endometrial cancer (n=2; 1,258 patients) and CHD (n=1; 31,208 patients).

The intake of whole grain was associated with reduced risk for colorectal and gastric cancers (odds ratios, ORs, <1).
The two studies of endometrial cancer reported ORs of 0.4 and 0.7, associated with wholegrain bread or pasta intake. The single study of whole grain intake for CHD death reported a relative risk of 0.5 for nonfatal myocardial infarction and 0.8 for fatal CHD. The studies differed in terms of dietary methods, foods and quantities eaten.

Authors' conclusions
There is striking consistency in studies of whole grain intake and four disease outcomes. Given the many questions about these studies we are far from drawing any conclusions concerning whole grain intake and cancer or heart disease. Nevertheless, we note the possibility that whole grains are protective against these diseases.

CRD commentary
Since the exact number of databases and years searched is not given it is unclear how many relevant studies were missed. As the studies are mainly case control, the authors note that the finding that whole grain intake acts as a protective factor may have been confounded, e.g. by fruit and vegetable intake.

Implications of the review for practice and research
There is a need for further research to establish whether whole grain is protective against chronic disease.

Bibliographic details

PubMedID
8610041

DOI
10.1080/01635589509514411

Indexing Status
Subject indexing assigned by NLM

MeSH
Colorectal Neoplasms /prevention & control; Diet; Edible Grain; Humans; Middle Aged; Neoplasms /prevention & control; Odds Ratio; Stomach Neoplasms /prevention & control

AccessionNumber
11996000053

Date bibliographic record published
30/11/1996

Date abstract record published
30/11/1996

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.