

The association between nut consumption and risk of gastrointestinal cancers: A meta-analysis

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Objectives:

GI cancers including esophageal, gastric (stomach), colorectal, and pancreatic cancers represent over 26% of global cancer occurrences as well as over one-third of cancer-related deaths. Therefore, prevention is important and a healthy diet may play a role. This systematic review and meta-analysis of literature aimed to study the association between nut consumption and gastrointestinal cancers.

Methods:

We sought out studies that examined the link between nut consumption and gastrointestinal cancers in the general population through databases PubMed, Embase, and Cochrane up until 01/20/2022. Studies that were included in the systematic review if they were 1) cohort, case-control studies, or clinical trials, 2) studies that were published in the English language, and 3) evaluated the association of total nut consumption including tree nuts (almonds, brazil nuts, cashews, hazelnuts, pecans, pistachios, and walnuts), and peanuts with risk of gastrointestinal cancers. The prospective systematic review was designed, conducted, and reviewed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

Required data was extracted from included studies by students operating as independent investigators, and inconsistencies were discussed with the professor overseeing the systematic review. Any reported odds ratios, risk ratios, or hazard ratios were reported in a spreadsheet. The author's names, year of publication, place of study, method of diagnosis, number of cases/ participants, population number, source of the cases/ participants, controls, and study design, and the results were extracted from each study. Two students evaluated the quality of the studies. Stata version 17 was used for the meta-analysis.



Results:

Participants with high nut consumption vs no consumption had a lower risk of developing esophageal squamous cell carcinoma, but not adenocarcinoma, and a lower risk of developing gastric non-cardia cancer, but not gastric cardia cancer (Fig 1). Previous studies showed a lower risk of colorectal cancer in nut consumers vs non-consumers (Fig 1) but not for peanut consumption (Fig 2). The results showed no association between total nut consumption and the risk of pancreatic adenocarcinoma or hepatocellular carcinoma (liver cancer).

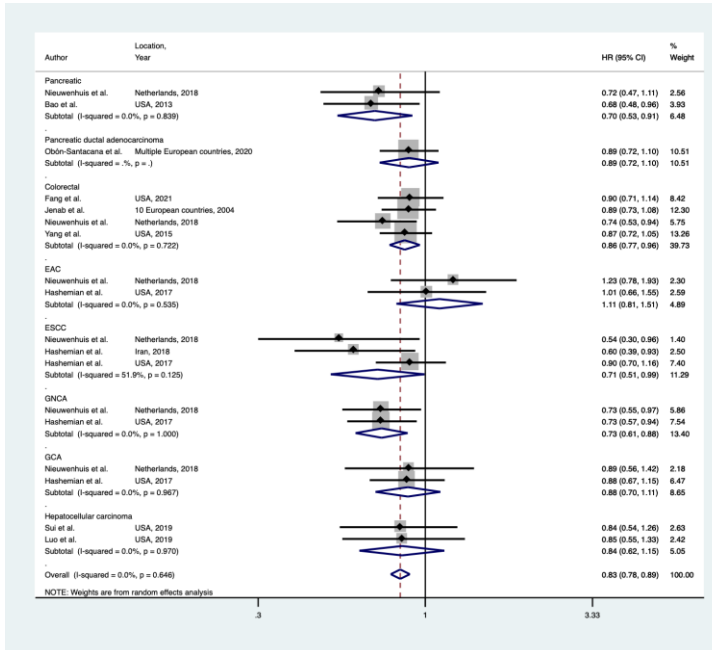


Figure1: Forest plots of cancer incidence (and 95% confidence interval) comparing highest vs lowest consumption of total nut consumption.

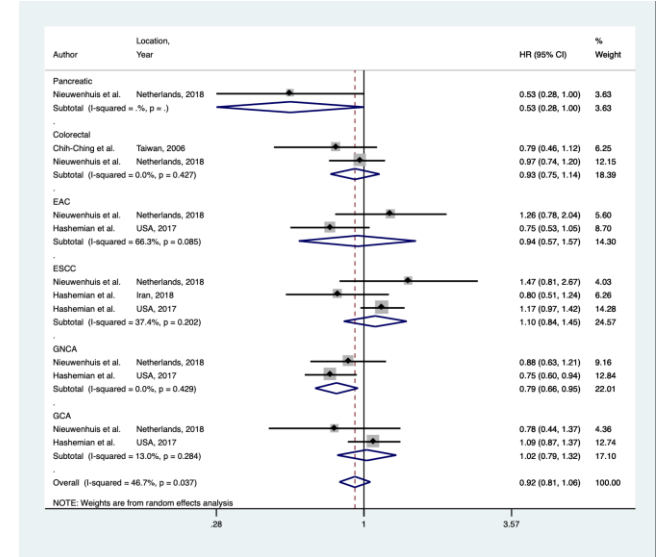


Figure2: Forest plots of cancer incidence (and 95% confidence interval) comparing highest vs lowest consumption of peanut consumption

Abbreviations: ESCC: esophageal squamous cell carcinoma, EAC: esophageal adenocarcinoma, GNCA: gastric non-cardia adenocarcinoma, GCA: gastric cardia adenocarcinoma

Conclusions:

Nut consumption is associated with decreased risk of some subtypes of esophageal and gastric cancer and colorectal cancer. Nut consumption gives a good source of polyunsaturated fat, phytoosterols, fiber, vitamins, and minerals, all of which are essential in the prevention and treatment of nutrition-related diseases. Feeding studies and clinical trials are recommended to prove any positive effect on cancer prevention.

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With Questions:

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