Cardiorespiratory fitness and site-specific risk of cancer in men: A systematic review and meta-analysis

Pozuelo-Carrascosa D.P.

Alvarez-Bueno C.

Cavero-Redondo I.

Morais S.

Lee I.M.

Martínez-Vizcaíno V.

Background: Cardiorespiratory fitness is a strong predictor of all-cause morbidity and mortality; nevertheless, the association between cardiorespiratory fitness and the risk of cancer remains unclear. Thus, the aim of this study was to synthetize the evidence on the relationship between cardiorespiratory fitness and the risk of several sites of cancer in men. Methods: A computerised search in MEDLINE, EMBASE and Web of Science databases from their inception to 13th February 2019 was performed. Both fixed and random-effects models were used to calculate the pooled hazard ratio (HR) estimates and their 95% confidence intervals (CIs) to examine the effect of high and moderate versus low cardiorespiratory fitness on site-specific cancer (lung, colon/rectum, prostate) and all-sites cancer. Results: Ten studies were included in the qualitative review, and seven of them were included in the meta-analysis. Using low cardiorespiratory fitness as the reference group, moderate and high levels of cardiorespiratory fitness were associated with a lower risk (HRs) of lung cancer, 0.53 (95% confidence interval [CI], 0.39 to 0.68) and 0.52 (95% CI, 0.42 to 0.61); colorectal cancer, 0.74 (95% CI, 0.55 to 0.93) and 0.77 (95% CI, 0.62 to 0.92) and all cancer sites, 0.86 (95% CI, 0.79 to 0.93) and 0.81 (95% CI, 0.75 to 0.87), respectively. Conclusions: Among men, cardiorespiratory fitness plays an important role in protecting against the risk of lung and colorectal cancer. Additionally, this protective effect was observed for all-sites cancer risk. These results show the importance of good cardiorespiratory fitness as a potential factor in cancer prevention.

Cardiorespiratory fitness

Meta-analysis

Risk of cancer

Site-specific cancer

aerobic capacity

cancer localization

cancer risk

cancer staging

cardiorespiratory fitness

colorectal cancer

Embase

exercise

human

lung cancer

male

malignant neoplasm

Medline

meta analysis

priority journal

prostate cancer

publication bias

Review

sensitivity analysis

systematic review

Web of Science

colorectal tumor

lung tumor

neoplasm

proportional hazards model

prostate tumor

Cardiorespiratory Fitness

Colorectal Neoplasms

Humans

Lung Neoplasms

Male

Neoplasms

Proportional Hazards Models

Prostatic Neoplasms