

Cardiorespiratory fitness levels associated with lower cancer death in men

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Research led by The Swedish School of Sport and Health Sciences, Sweden, has compared cardiorespiratory fitness levels and the risk of three of the most common cancers in men.

In a paper titled "Association Between Cardiorespiratory Fitness and Cancer Incidence and Cancer-Specific Mortality of Colon, Lung, and Prostate Cancer Among Swedish Men," published in *JAMA Network Open*, the researchers detail the methods and result of a large cohort study that finds higher [cardiorespiratory fitness](#) is associated with a lower risk of colon and [lung cancer](#), yet higher prostate cancer incidence.

The study analyzed 17,709 men across a wide 18-75 year age range with a mean age of 42 and a mean body mass index of 26 over a mean follow-up time of 9.6 years. Cardiorespiratory fitness (CRF) was assessed as maximal oxygen consumption, estimated using a submaximal cycle ergometer test, an exercise that stays below 85% predicted max heart rate and estimates $VO_2\text{max}$, the maximum rate (V) of oxygen (O_2) they would have reached at their maximum heart rate.

Over the course of the study, there were a total of 499 incident cases of colon cancer, 283 cases of lung cancer, and 1,918 cases of prostate cancer. Totals of 152 deaths due to colon cancer, 207 deaths due to lung cancer, and 141 deaths due to prostate cancer were recorded.

Higher levels of CRF were associated with a lower risk of colon and lung cancer (2%) incidence and a higher risk of prostate cancer incidence (1%). Higher CRF was also associated with a lower risk of death due to colon (2%) and lung (3%) cancer. Despite having a higher prevalence rate, those with high CRF showed a 5% lower death rate from prostate cancer.

The cancer hazard risk was much lower than the above percentages when looking at younger non-smoking individuals with healthy BMI and the highest CRF. The main finding was that regardless of age, higher CRF is associated with a lower risk for colon cancer incidence and lung [cancer incidence](#), and reduced colon, lung and prostate cancer death.

In a [theoretical calculation](#) of prevented cases, the authors state that avoiding having very low CRF levels could prevent 4% to 8% of all [colon cancer](#) cases, 4% of all deaths from lung cancer, and 4% to 19% of deaths from [prostate cancer](#).

The authors point out the distinction between the behavior of physical activity, which is often self-reported and subjective, and an objective measurement of the physiologic body response called cardiorespiratory fitness. Higher-intensity [physical activity](#) can have even greater effects on CRF and is likely more protective against the risk of developing and dying from certain cancers.

More information: Elin Ekblom-Bak et al, Association Between Cardiorespiratory Fitness and Cancer Incidence and Cancer-Specific Mortality of Colon, Lung, and Prostate Cancer Among Swedish Men, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2023.21102](#)

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