

# Men at heightened risk of prostate cancer may benefit from healthy lifestyle changes

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A new study confirms that for men who are at heightened genetic risk of developing prostate cancer, genes are not destiny. Investigators from Brigham and Women's Hospital looked at outcomes for men with nearly

30 years of follow-up for prostate cancer risk and prostate cancer mortality who were enrolled in two cohort studies—the Health Professionals Follow-up Study and the Physicians' Health Study. The team found that while men who followed a healthy or unhealthy lifestyle were equally likely to be diagnosed with prostate cancer, adherence to a healthy lifestyle was associated with close to a 50 percent reduced risk of developing lethal prostate cancer. Results are published in *European Urology*.

"Having a high genetic risk is often viewed as something very deterministic, but our findings suggest it may not be," said corresponding author Anna Plym, Ph.D., of the Brigham's Division of Urology.

"Through lifestyle modifications, early screening and early treatment, we may be able to deal with high genetic risks, and this is an important message for men to have. We expect that many more men will know about their genetic risk as such tools become more widely used than they are today."

Plym and colleagues leveraged data from 12,000 participants who provided blood samples in the 1980s and 1990s, as well as detailed information on lifestyle factors throughout follow-up. Based on a genome-wide association study published in 2021, they calculated genetic risk scores for these men, retrospectively.

The authors defined a healthy lifestyle based on a previously published healthy lifestyle score for [prostate cancer](#). This score includes a healthy weight (body mass index less than 30), vigorous physical activity, absence of smoking, and presence of a healthy diet (rich in [tomatoes](#) and [fish](#), and low intake of processed meat). The team assessed both overall prostate cancer risk (all stages) and risk of lethal disease, which includes metastatic disease or prostate cancer death.

Overall, the researchers found that among men at a high genetic risk,

those who adhered to a healthy lifestyle had a 45 percent reduction in the risk of lethal prostate cancer compared with those not adhering to a healthy lifestyle. Men with a high genetic risk score and an unhealthy lifestyle had the largest lifetime risk of lethal disease (5 percent), whereas men with a high genetic risk score adhering to a [healthy diet](#) had a lifetime risk of around 2 percent. According to the authors, this latter figure is comparable to or somewhat lower than the average risk in the population.

The study is limited by its observation design—the authors cannot determine if healthy lifestyle is causally related to a lower risk of lethal disease among men at high genetic risk, or if this finding can be explained by other factors that are related to a healthy lifestyle such as better screening or treatment. The investigators have partially been able to account for these factors in their analysis but cannot completely rule out their influence. Another limitation is that the analysis was limited to white men and needs to be assessed in other racial and ethnic groups.

"All men should be encouraged to engage in maintaining a healthy lifestyle, given the benefits that produces. For men at increased genetic risk of prostate cancer, having a [healthy lifestyle](#) may be particularly important," said Plym. "Of the factors we studied, maintaining a healthy weight and doing regular physical exercise, as well as not smoking, appeared to be the most important factors. Although we do not currently understand potential underlying biological mechanisms for our findings, these recommendations can be put forward for men at high [genetic risk](#) for prostate cancer."

**More information:** Anna Plym et al, A Healthy Lifestyle in Men at Increased Genetic Risk for Prostate Cancer, *European Urology* (2022). [DOI: 10.1016/j.eururo.2022.05.008](https://doi.org/10.1016/j.eururo.2022.05.008)

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