

People at high genetic risk for colorectal cancer benefit more from lifestyle changes

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People with a high polygenic risk score for colorectal cancer could benefit more at preventing the disease by leading healthy lifestyles than those at lower genetic risk, according to a study by Vanderbilt researchers published in the April issue of the *American Journal of Clinical Nutrition*.

Analyzing data from participants in the UK Biobank, the researchers estimated that maintaining a [healthy lifestyle](#) was associated with a nearly 40% reduction in [colorectal cancer](#) risk among those with a high genetic risk of developing the disease. The percentage dropped to only about 25% among people at a low genetic risk for this cancer. People with a high genetic risk and an unhealthy lifestyle were more than three times as likely to be diagnosed with colorectal cancer than those with a low genetic risk and a healthy lifestyle.

"Results from this study could be useful to design personalized prevention strategies for colorectal cancer prevention," said Wei Zheng, MD, Ph.D., MPH, Anne Potter Wilson Professor of Medicine and associate director for Population Sciences Research at Vanderbilt-Ingram Cancer Center

(VICC).

In the analysis, lifestyle scores of unhealthy, intermediate and healthy were determined according to waist-to-hip ratio, [physical activity](#), sedentary time, processed and red meat intake, vegetable and fruit intake, alcohol consumption and tobacco use. Polygenic risk scores are used to measure genetic susceptibility to colorectal cancer. Vanderbilt researchers constructed polygenic risk scores using genetic variants associated with [colorectal cancer risk](#) identified in recent large genetic studies including more than 120,000 study participants. They also constructed polygenic risk scores for several other common cancers in research that was published last year in *JNCI Cancer Spectrum*.

The recently published study in *The American Journal of Clinical Nutrition* is one of the few that quantifies potential interactions of overall lifestyle with genetic susceptibility to colorectal cancer.

More information: Jungyoon Choi et al. Healthy lifestyles, genetic modifiers, and colorectal cancer risk: a prospective cohort study in the UK Biobank, *The American Journal of Clinical Nutrition* (2020). [DOI: 10.1093/ajcn/nqaa404](https://doi.org/10.1093/ajcn/nqaa404)

Guochong Jia et al. Evaluating the Utility of Polygenic Risk Scores in Identifying High-Risk Individuals for Eight Common Cancers, *JNCI Cancer Spectrum* (2020). [DOI: 10.1093/jncics/pkaa021](https://doi.org/10.1093/jncics/pkaa021)

Provided by Vanderbilt University

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