Excess and rising weight in adulthood associated with increased risk of gastrointestinal cancer

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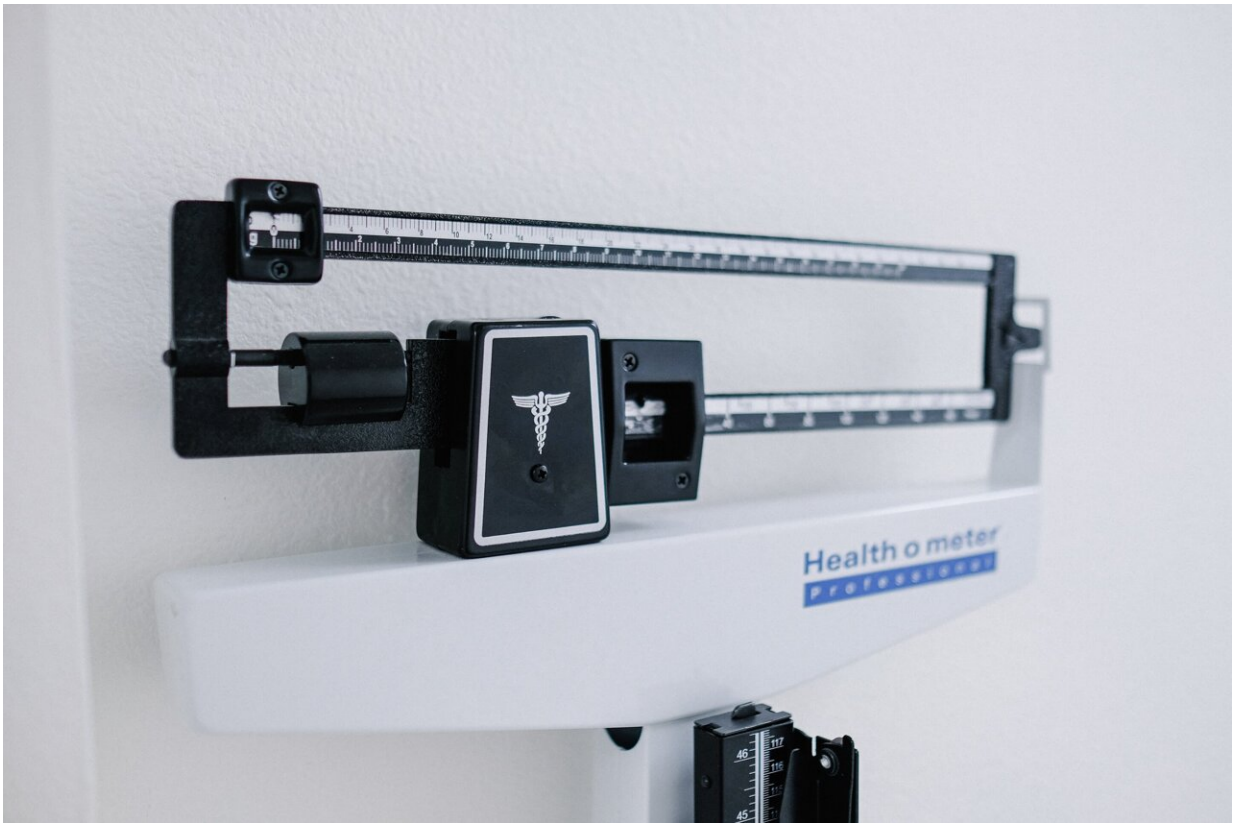

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Doctors have long stressed the importance of maintaining a healthy weight for improving overall health, but a large new study also suggests

it could also reduce future gastrointestinal cancer (GI) risk.

The study, published today in *JAMA Network Open*, found that an overweight or obese body mass index (BMI) in early and middle adulthood is associated with increased risk for gastrointestinal cancer. The study also found that frequent aspirin use did not modify this increased risk in overweight and obese individuals.

Colorectal cancer is the third most common cancer among men and women in the United States. Although improvements in screening have resulted in many cancers being detected at earlier stages, more than 150,000 new cases of colon and rectal cancer are diagnosed annually.

"In a time when obesity rates are rising globally and 70% of the U.S. population alone is considered overweight or obese, understanding the association between obesity and long-term disease risk, such as cancer, is critical for improving public health," said study lead author Holli Loomans-Kropp, Ph.D., a cancer control researcher and epidemiologist with The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute. "Our study suggests that being overweight or obese during several phases of life can increase a person's risk for gastrointestinal cancers in later adulthood."

Study design and methods

For this new study, the researchers wanted to understand how body mass index (BMI) changes that occur during several phases of adulthood can influence GI cancer risk.

The team evaluated previously collected data from 131,161 patients enrolled to the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial, a multicenter randomized clinical trial that looked at the

effectiveness of prostate, lung colorectal and ovarian cancer screening exams for reducing cancer-related deaths. The study was conducted between the years of 1993 and 2001 in participants aged 55 to 74 at the time of enrollment.

Loomans-Kropp notes that obesity results from the buildup and storage of white adipose tissue, or fat. Adipose cells can trigger an inflammatory response and promote immune cell dysfunction that leads to disease development, including cardiovascular diseases like stroke, metabolic conditions like type 2 diabetes, and certain cancers influenced by fat cells.

For this new analysis, age 20 was considered early adulthood, age 50 was considered middle adulthood and age 55 or older was considered later adulthood.

BMI was calculated based on data from self-reported questionnaires completed at the original time of enrollment about weight and height at these age points. Participants were then categorized according to the World Health Organization's standards of underweight (BMI less than 18.5), normal (18.5-24.9), overweight (25 to 29.9) and obese (BMI over 30). Participants were also asked to report how often they took aspirin or aspirin-containing products in this baseline study. All participants were followed for 13 years or until Dec. 31, 2009, whichever came first.

Study results found an increased GI cancer risk among individuals with overweight and obese BMI at early, middle and later adulthood. It also showed that an increasing BMI over time was associated with increased risk for colorectal and non-colorectal GI cancers. This association was not modified by regular aspirin use.

"We believe that the results of this study highlight the need to better understand the underlying mechanisms of cancer prevention agents as

well as who may or may not benefit from their use. The field of precision prevention is still relatively new but is an exciting avenue for cancer prevention research," said Loomans-Kropp.

More information: Holli A. Loomans-Kropp et al, Analysis of Body Mass Index in Early and Middle Adulthood and Estimated Risk of Gastrointestinal Cancer, *JAMA Network Open* (2023). DOI: 10.1001/jamanetworkopen.2023.10002

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