

Both metabolically healthy and unhealthy forms of obesity found to increase risk of obesity-related cancers

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New research to be presented at this coming week's European Congress on Obesity in Dublin, Ireland (May 17–20) and [published](#) in the *Journal*

of the National Cancer Institute shows that both the metabolically healthy and unhealthy 'forms' of obesity are associated with an increased risk of various obesity-related cancers, with the relationship stronger in metabolically unhealthy obesity. The study is by Dr. Ming Sun, Lund University, Malmö, Sweden and colleagues.

Studies of how [cancer](#) is related to [obesity](#) with [metabolic complications](#) (commonly termed metabolically unhealthy obesity) or without such complications (healthy obesity) are scarce. In this new research, the authors investigated [body mass index](#) (BMI, normal weight/overweight/obesity) jointly and in interaction with metabolic health status in relation to obesity-related cancer risk (n=23,630) among 797,193 European individuals.

A metabolic score comprising [blood pressure](#), plasma glucose and triglycerides (blood fats) was used to define metabolically healthy and unhealthy status, and statistical modeling was used to estimate any relationship.

The participants thus were put into six different categories—metabolically unhealthy obesity (6.8% of participants); metabolically [healthy obesity](#) (3.4%), metabolically unhealthy overweight (15.4%), metabolically health overweight (19.8%), metabolically unhealthy normal weight (12.5%), metabolically healthy normal weight (42.0%).

Metabolically unhealthy obesity, was, compared to metabolically healthy normal weight, associated with an increased relative risk of any obesity-related cancer and colon, rectal, pancreas, endometrial, liver, gallbladder, and renal cell cancer, with the highest risk estimates for endometrial, liver, and renal cell cancer (2.5 to 3.0 times increased risk).

In women, compared to metabolically healthy women of normal weight,

metabolically unhealthy women with obesity had a 21% increased risk of colon cancer, a 3-times increased risk of endometrial cancer, and a 2.5 times increased risk of kidney cancer. Metabolically healthy women with obesity had a 2.4 times increased risk of endometrial cancer and an 80% increased risk of kidney cancer—but the relationship with colon cancer was no longer statistically significant.

In men, compared to metabolically healthy men of [normal weight](#), metabolically unhealthy men with obesity had a 2.6 times increased risk of kidney cancer, an 85% increased risk of colon cancer, and a 32% increased risk of both pancreatic and rectal cancer. Metabolically healthy men with obesity had a 67% increased risk of kidney cancer, and a 42% increased risk of [colon cancer](#), but the relationship with both [pancreatic cancer](#) and rectal cancer was no longer statistically significant. In an unusual finding, both metabolically healthy and unhealthy men with overweight (not obesity) had around a 50% increased risk of the blood cancer multiple myeloma—yet neither metabolically healthy or unhealthy men with obesity had an increased risk of this cancer.

The authors say that, among men only, the data suggest that obesity jointly with metabolic complications increases the risk of these obesity-related cancers more than expected from the sum of either risk factor individually. They say, "This has important public health implications, suggesting that a significant number of cancer cases could potentially be prevented by targeting the co-existence of metabolic problems and obesity, in particular for obesity-related cancers among men."

The authors conclude, "This study highlights that the type of metabolic obesity phenotype is important when assessing obesity-related cancer risk. In general, being metabolically unhealthy further increased the obesity-related cancer risk, suggesting that both obesity and metabolic conditions are useful targets for prevention for obesity-related cancers."

The material has been peer reviewed by the congress selection committee, and recently published in the *Journal of the National Cancer Institute*.

More information: The poster abstract P2.027 will be presented at the [European Congress of Obesity](#) (ECO 2023).

Ming Sun et al, Metabolically (un)healthy obesity and risk of obesity-related cancers: a pooled study, *JNCI: Journal of the National Cancer Institute* (2023). [DOI: 10.1093/jnci/djad008](https://doi.org/10.1093/jnci/djad008)

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