

Distribution of Fat Could Influence Cancer Risk

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How fat is distributed in people's bodies could make a difference to their risk of certain cancers, according to new research led by the University of Bristol. The international study is published in the [Journal of the National Cancer Institute](#) (JNCI) today [September 24].

Scientists have already shown that having obesity increases a person's risk of developing certain cancers. Obesity is usually measured using body mass index (BMI), but growing evidence – particularly from heart health research – suggests that BMI alone doesn't capture the full picture when it comes to obesity-related health risks. However, the role of fat distribution in cancer risk has been relatively unexplored.

Researchers in Bristol's [Integrative Cancer Epidemiology Programme](#) (ICEP) investigated whether body fat at different locations across the body influences the risks of 12 obesity-related cancers - endometrial, ovarian, breast, colorectal, pancreas, multiple myeloma, liver, kidney (renal cell), thyroid, gallbladder, esophageal adenocarcinoma, and meningioma.

They used a technique known as Mendelian randomization, which uses statistics, computing and the natural variations in people's genetics to identify patterns in large health data sets.

The team found that fat distribution appears to influence cancer risk – but the relationship varies by cancer type. For some cancers, where fat is stored in the body seems more important than how much is stored; for others, the reverse is true; and, for some, both matter. In cancers where distribution is important, the specific locations of body fat driving this seem to differ by cancer, meaning the overall picture is quite complex.

Lead author, Dr Emma Hazelwood, who recently completed her PhD at the University of Bristol, explained: "These findings support the growing consensus that BMI, while useful for population-level trends, may be too simplistic for assessing individual health risks.

"Our results tell us that there is no 'one-size-fits-all' when it comes to cancer, meaning a more tailored approach to cancer prevention in people with obesity could be most effective."

The paper's findings fit with recent calls for change, including the [2024 European Association for the Study of Obesity framework](#) and the [Lancet Commission on the future of obesity](#), which have emphasised that BMI is a flawed diagnostic tool and that fat distribution matters.

In the future, a better understanding of how fat distribution across the body affects cancer risk could help identify those most at risk and guide more personalised approaches to obesity treatment and cancer prevention.

The research team recommend further work is needed, using different approaches and studying non-European populations.

Dr Hazelwood added: "It is vital to understand the biological mechanisms that underpin these associations – particularly how and why different fat depots affect cancer development. In the longer term, we need to explore how obesity treatments – whether lifestyle or drug-based – influence these risk pathways."

Dr Julia Panina, Head of Research Funding at [World Cancer Research Fund](#), added: "Our evidence-based [Cancer Prevention Recommendations](#) highlight the role of maintaining a healthy weight to reduce cancer risk. While this remains essential, growing scientific evidence shows that body composition – particularly how fat is distributed throughout the body – is also a crucial factor.

"With support from our fantastic donors, we were able to co-fund the University of Bristol's excellent team whose findings will help direct this exciting area towards possible new cancer prevention and treatments."

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