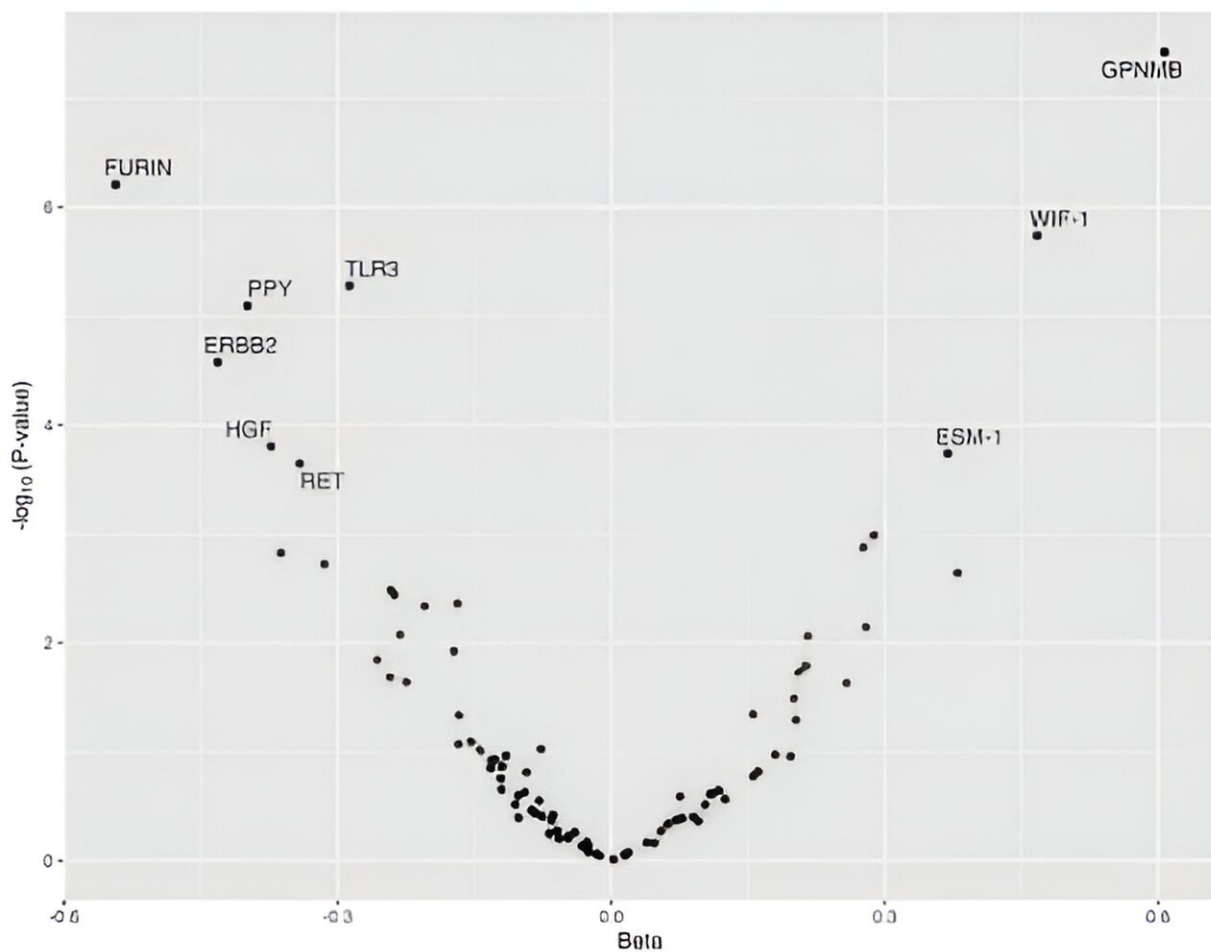


Weight loss intervention in people with type 2 diabetes influences cancer-associated proteins

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Comparison of serum protein levels at 12 months follow-up between intervention groups (n = 260). Betas reflect the mean difference between allocation groups (protein measures were standardized and normalized prior to

analyses using rank-based inverse normal transformation) while adjusting for protein levels at baseline. Labeled proteins are those that pass a Holm corrected $P = 0.05$. Values greater than 0 indicate an increase in serum protein seen in the intervention arm and values less than 0 reflect a decrease in serum protein levels. GPNMB: Glycoprotein Nmb; FURIN: Furin; WIF1: WNT Inhibitory Factor 1; TLR3: Toll-like receptor 3; PPY: Pancreatic prohormone; ERBB2: Receptor tyrosine-protein kinase erbB-2; HGF: Hepatocyte growth factor; ESM-1: Endothelial cell-specific molecule 1; RET: Proto-oncogene tyrosine-protein kinase receptor Ret. Credit: *eBioMedicine* (2024). DOI: 10.1016/j.ebiom.2024.104977

A weight loss intervention in people with type 2 diabetes was found to alter levels of cancer-related proteins, according to the findings of a new University of Bristol-led study. The [study](#), published in *eBioMedicine*, is the first to show that weight loss in people recently diagnosed with diabetes can change the levels of cancer-related chemicals circulating in the blood.

According to Diabetes UK, over five million people in the UK live with [diabetes](#) and over 600 million people could be afflicted worldwide by 2045. Weight loss is now a key intervention, thanks to the Diabetes Remission Clinical Trial (DiRECT), which found that a dietary weight loss program could put type 2 diabetes into remission.

Despite this positive development, individuals with type 2 diabetes face an increased risk of developing several types of cancer. Previous studies have found that having increased body weight alters the levels of circulating proteins with a known link to cancer. Motivated by these findings, researchers from Bristol Medical School collaborated with colleagues from the universities of Glasgow and Newcastle who led the DiRECT trial. They sought to evaluate whether the benefits of weight loss in people with type 2 diabetes also impacts their risk of developing

cancer.

To investigate this, the team used data from 261 patients with type 2 diabetes who were enrolled in the DiRECT trial. The team analyzed their blood samples from before and after weight loss to find out whether proteins known to be related to cancer were altered by the weight loss intervention.

Nine cancer-related proteins in [blood samples](#) were found to be changed by the weight loss [intervention](#) compared with the control group who had received standard care for diabetes treatment.

Emma Hazelwood, one of the study's lead authors from the University of Bristol's MRC Integrative Epidemiology Unit (MRC IEU), said, "Results from this study help us gain insight into potential mechanisms linking type 2 diabetes and body fatness with cancer development. These findings offer encouraging evidence that the increased cancer risk seen in people with diabetes might be reduced with [weight loss](#) interventions. This has important implications for both diabetes treatment and [cancer prevention](#).

"The next step for this research is to find out whether the short-term changes we identified really do result in longer-term reduction in [cancer risk](#) in people with diabetes."

More information: Caroline J. Bull et al, Impact of weight loss on cancer-related proteins in serum: results from a cluster randomised controlled trial of individuals with type 2 diabetes, *eBioMedicine* (2024). [DOI: 10.1016/j.ebiom.2024.104977](https://doi.org/10.1016/j.ebiom.2024.104977)

Provided by University of Bristol

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