

Weight-Loss Drugs May Prevent 10 Types of Cancer

GLP-1 receptor agonists reduced the risk for multiple malignancies in people with type 2 diabetes.

July 18, 2024 By [Liz Highleyman](#)

People with type 2 diabetes who used glucagon-like peptide analogs—the drug class that includes Ozempic—had a lower risk for multiple types of cancer compared with those who used insulin, according to study results published in [JAMA Network Open](#).

Overweight and obesity have been linked to [at least 13 types of cancer](#), including breast, colon, liver and pancreatic cancers. [Weight loss](#) has been shown to reduce cancer risk, and [a growing body of evidence](#) suggests that obesity medications may play a role in preventing malignancies and improving cancer prognosis. The reasons for the association between excess body fat and cancer are not fully understood, but they may involve inflammation, immune function and hormone levels.

Glucagon-like peptide-1 (GLP-1) receptor agonists, such as semaglutide (marketed as Ozempic for diabetes and Wegovy for obesity), were originally developed to treat type 2 diabetes, but they have since been shown to have other benefits. The drugs stimulate insulin production, regulate appetite and slow the emptying of the stomach, but they also appear to have anti-inflammatory properties and other effects as well. Semaglutide reduces cardiovascular risk and is being studied for other conditions including chronic kidney disease and fatty liver disease. Many related drug candidates are in the pipeline.

Lindsey Wang, of Case Western Reserve University School of Medicine, and colleagues compared the incidence of 13 obesity-associated malignancies among people who used GLP-1 agonists versus other diabetes medications. (Senior study author Nathan Berger, MD, [died on June 15.](#))

This retrospective cohort study, based on the TriNetX database, looked at electronic health records from over 60 health care organizations across 50 states. The analysis included more than 1,650,000 people with type 2 diabetes who had no prior diagnosis of obesity-associated cancers. More than half were women, and the average age was approximately 60 years. About 60% were white, 17% were Black, about 9% were Latino and 4% were Asian.

The participants were prescribed GLP-1 agonists, insulin or metformin between 2005 (the year exenatide, the first GLP-1 drug, was approved) and 2018. The analysis therefore included only one year's use of Ozempic (approved in 2017) and did not include the GLP-1/GIP dual agonist tirzepatide, sold as Mounjaro for diabetes and Zepbound for obesity (first approved in 2022).

Over nearly 15 years of follow-up after starting treatment, people who received GLP-1 agonists had a significantly lower risk for 10 of the 13 malignancies compared with insulin:

- Gallbladder cancer – 65% reduction
- Meningioma – 63% reduction
- Pancreatic cancer – 59% reduction
- Hepatocellular carcinoma (liver cancer) – 53% reduction
- Ovarian cancer – 48% reduction
- Colorectal cancer – 46% reduction
- Multiple myeloma – 41% reduction
- Esophageal cancer – 40% reduction
- Endometrial cancer – 26% reduction
- Kidney cancer – 24% reduction.

The risk for stomach cancer was also lower, but the difference did not reach statistical significance. GLP-1 agonists were not associated with a significant reduction in the risk for

postmenopausal breast cancer or thyroid cancer compared with insulin. Other studies of GLP-1 analogs, and one of bariatric surgery, also saw no effect on breast cancer incidence, the study authors noted. Some research has suggested that these drugs might raise the risk for thyroid cancer—prompting a warning on the semaglutide and tirzepatide labels—but this was [not seen in a recent large study](#).

The magnitude of cancer risk reduction among people using GLP-1 agonists versus insulin was similar to that observed for bariatric surgery and intensive lifestyle interventions involving diet and exercise. [A separate analysis](#) from Case Western researchers, presented last month at the American Society of Clinical Oncology Annual Meeting, showed that GLP-1 agonists and bariatric surgery were associated with comparable reductions in obesity-related cancers among people with severe obesity (BMI 35 or higher).

On the other hand, GLP-1 agonists did not significantly reduce the risk for any type of cancer when compared with metformin. The odds of colorectal cancer, gallbladder cancer and meningioma were somewhat lower, but not significantly so, while the risk of kidney cancer was higher. In contrast, the same researchers [reported earlier this year](#) that GLP-1 agonists were associated with a 80% lower risk of liver cancer compared with insulin as well as a 37% lower risk compared with metformin.

Metformin itself [has anti-inflammatory properties](#) and has been [linked to lower cancer risk](#) in numerous prior studies, so it could be that both GLP-1 agonists and metformin had beneficial effects in this study, making it hard to see differences between them.

“In this study of patients with type 2 diabetes who were cancer-free at baseline, taking GLP-1 receptor agonists compared with insulin was associated with a lower risk of 10 of 13 obesity-associated cancers,” the researchers concluded.

The potential cancer-preventive effects of GLP-1 agonists “warrant further long-term studies,” as well as studies of newer and possibly more effective weight-loss agents, they added. What’s more, given that type 2 diabetes and overweight or obesity have negative effects during cancer treatment, GLP-1 agonists “should be evaluated for control of these comorbid conditions during cancer therapy as well as for secondary prevention to delay cancer recurrence.”

It is not clear from this study whether GLP-1 analogs and related weight-loss drugs might also reduce the risk of cancer among people who do not have type 2 diabetes, and this will no doubt be one of the many questions scientists will aim to answer in the years ahead.

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