

New study finds diabetes drug may reduce risk for colorectal cancer

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A study by researchers at Case Western Reserve University suggests a class of medications used to treat type 2 diabetes may also reduce the risk of colorectal cancer (CRC).

The findings, published in the journal *JAMA Oncology*, support the need

for [clinical trials](#) to determine whether these medications could prevent one of the deadliest types of cancers. Eventually, the medications may also show promise in warding off other types of cancer associated with obesity and diabetes.

"Our results clearly demonstrate that GLP-1 RAs are significantly more effective than popular anti-diabetic drugs, such as Metformin or insulin, at preventing the development of CRC," said Nathan Berger, the Hanna-Payne Professor of Experimental Medicine at the Case Western Reserve School of Medicine and the study's co-lead researcher.

[Glucagon-like peptide-1 receptor agonists](#), or GLP-1 RAs, are medications to treat type 2 diabetes. Usually given by injection, they can lower blood-sugar levels, improve insulin sensitivity and help manage weight. They've also been shown to reduce the rates of major cardiovascular ailments.

Importantly the protective effect of GLP-1 RAs are noted in patients with or without overweight/obesity.

"To our knowledge," said co-lead researcher Rong Xu, a professor at the School of Medicine, "this is the first indication this popular weight-loss and anti-diabetic class of drugs reduces incidence of CRC, relative to other anti-diabetic agents."

Berger and Xu are members of the Case Comprehensive Cancer Center.

National health problem

Being overweight or obese or having diabetes are risk factors for increasing incidence of CRC and for making its prognosis worse.

The National Institutes of Health (NIH) defines being overweight and

obese as an increase in size and amount of fat cells in the body above certain levels. These conditions are common nationally and are caused by several factors—among them diet, lack of sleep or physical activity, genetics and family history.

Health care providers use [body mass index](#) to measure body fat based on height and weight. Nearly 75% of adults ages 20 or older in the United States are either overweight or obese, and nearly 20% of children and teens ages two to 19 have obesity, according to the NIH.

Obesity is a [chronic health condition](#) that raises the risk for [heart disease](#)—the leading cause of death in the United States—and is linked to many other [health problems](#), including type 2 diabetes and cancer.

The American Cancer Society estimates CRC is the third-leading type of cancer in both sexes, with 153,000 new cases per year. It is also the second-leading cause of [cancer](#) mortality with 52,550 deaths per year.

The study

Since GLP-1 RAs have been shown to be effective anti-diabetic and weight-loss agents, the researchers hypothesized they might reduce incidence of CRC.

Using a [national database](#) of more than 100 million [electronic health records](#), the researchers conducted a population-based study of more than 1.2 million patients. These individuals had been treated with anti-diabetic agents from 2005-19; the CWRU team examined the effects of GLP-1 RAs on their incidence of CRC, as compared to those prescribed other anti-diabetic drugs.

Population-based research means matching as many people as possible with the same characteristics—sex, race, age, socio-economic

determinants of health and other [medical conditions](#)—to accurately compare the drug's effects.

Among 22,572 patients with diabetes treated with insulin, there were 167 cases of CRC. Another 22,572 matched patients treated with GLP-1 RAs saw 94 cases of CRC. Those treated with GLP-1 RAs had a 44% reduction in incidence of CRC.

In a similar comparison of 18,518 patients with diabetes treated with Metformin, compared to 18,518 patients with diabetes treated with GLP-1 RAs, had a 25% reduction in CRC.

"The research is critically important for reducing incidence of CRC in patients with [diabetes](#), with or without overweight and obesity," Berger said.

More information: GLP-1 Receptor Agonists and Colorectal Cancer Risk in Drug-Naïve Patients With Type 2 Diabetes, With and Without Overweight/Obesity, *JAMA Oncology* (2023).

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