

The Weight Loss Medication Revolution: Uncovering Answers about GLP-1s and Cancer

Dr. Kristin Altwegg explores connections between weight loss drugs and cancer.

March 31, 2026 By American Institute for Cancer Research

Key Takeaways

- Dr. Kristin Altwegg, recipient of the AICR/WCRF Marilyn Gentry Fellowship, is researching whether GLP-1 weight loss drugs influence obesity-related cancer risk. The research will examine if GLP-1s can influence early cancer pathways linked to obesity, particularly in breast, endometrial and colorectal cancers.
- Evidence is still emerging. It's unclear whether these drugs may help reduce cancer risk directly or indirectly through weight loss and improved metabolism.
- Altwegg's research will also examine whether strength training alongside GLP-1 drugs can preserve muscle and improve overall health outcomes.

The AICR/WCRF Marilyn Gentry Fellow at the University of North Carolina at Chapel Hill, Dr. Kristin Altwegg, will be exploring connections between weight loss drugs and cancer.

Dr. Kristin Altwegg grew up where “farm to fork” wasn’t a slogan but a daily reality, watching tomorrow’s dinner roam the pasture. Her family’s 150-year farming history in the fertile plains of Kansas instilled a practical understanding of food systems, a respect for seasonal eating and a deep belief that what you eat is intimately linked to your health.

It is this early exposure that cultivated a respect for nutrition long before she entered the scientific field.

Today, Dr. Altwegg is the recipient of the three-year AICR/WCRF Marilyn Gentry Fellowship at the University of North Carolina (UNC) at Chapel Hill, funded by the American Institute of Cancer Research. Here, her interest and curiosity in the links between diet, nutrition, metabolism and cancer will aim to answer some of the unknowns surrounding GLP-1 weight loss drugs and cancer.

Dr. Altwegg will be conducting her research in Dr. Steve Hursting's lab, giving her the opportunity to benefit from decades of expertise in the obesity and cancer field.

This fellowship, and the pace at which researchers can generate trustworthy answers, has been catalyzed by our donor support.

"As an early-career investigator, I recognize how rare yet essential the Marilyn Gentry Fellowship is for providing a mentored funded three-year transition from postdoctoral researcher into a junior faculty role and ultimately achieving research independence," says Dr. Altwegg. "I will leverage this Fellowship, the AICR Recommendations for Cancer Prevention, and Dr. Hursting's invaluable expertise to establish myself as a dedicated, highly collaborative, innovative investigator at the cutting edge of nutrition, metabolism, cancer research and cancer prevention."

What are Weight Loss Drugs and How Do They Work?

First designed to treat type 2 diabetes, a condition that results in too much sugar in the blood, Ozempic is now a household name, known around the world as a 'blockbuster' weight loss drug.

Ozempic falls into a group of drugs known as GLP-1s (Glucagon-Like Peptide-1). GLP-1 is a hormone naturally produced in the gut, which helps control blood sugar and reduce appetite.

Weight loss injections are known as GLP-1 agonists because they mimic GLP-1 by stimulating insulin release. They act on the brain to reduce hunger and food cravings and make you feel full faster and for longer.

Today, the most popular and effective weight loss drugs in the U.S. are GLP-1 receptor agonists, specifically Wegovy (semaglutide) and Zepbound (tirzepatide), which are administered through weekly injections.

Determining whether someone is a candidate for weight loss medications typically begins with

BMI. In the U.S., most medications are prescribed for someone with a BMI of 30 or more, or a BMI of 27 or more if the person has weight-related health conditions.

Although these medications are designed for those who are clinically eligible, in reality, access to GLP-1s is far less regulated.

[Last year, it was reported that nearly 18 percent of Americans have used GLP-1 drugs for weight loss.](#)

Can Weight Loss Medication Reduce Cancer Incidence?

From our own work for the last three decades, we know that being overweight or obese increases the risk of at least 13 types of cancer. To date, clinical trials have demonstrated that GLP-1 medicines can help people lose between 15 and 20 percent of their body weight, when paired with lifestyle changes.

Naturally, this raises the question of whether these medications could also lower the risk of cancers linked to obesity.

Since GLP-1s burst onto the scene, there simply hasn't been enough time for researchers to fully assess their impact on cancer risk, particularly in the long term. However, there is an emerging body of data to suggest that individuals living with overweight, obesity and/or type 2 diabetes may experience reduced cancer incidence while using GLP-1 medications.

Importantly, the mechanisms by which GLP-1s affect tumor cell biology, tumor development and cancer risk are not understood.

"We have seen in early research that treatment with GLP-1 could possibly prevent cancer from developing, but this is still experimental," says Dr. Altwegg. "Now how it works, we don't know yet. One of the key questions is whether these drugs act directly on the cancer cells or indirectly through their ability to improve overall metabolic health via weight loss."

From Food Science to Cancer Prevention

Dr. Altwegg has a longstanding interest in nutrition and diet, and a critical academic turning point

occurred during a university food science course on mycotoxins (also known as fungal carcinogens), where she became fascinated by carcinogenic compounds in the food supply.

This experience ‘sparked an obsession’ with the relationship between nutrition and cancer, redirecting her career trajectory from general food science toward cancer prevention research.

Her decision to join the UNC Chapel Hill as an AICR/WCRF Marilyn Gentry Fellow was a natural extension of this growing interest in nutrition-related cancer pathways. She was particularly drawn to Dr. Hursting’s lab, known for its work on the intersection of diet, obesity, metabolism and cancer risk, which are areas that perfectly aligned with her evolving passion.

“My primary goal is to reduce cancer incidence by promoting healthy lifestyle cornerstones: diet and exercise,” says Dr. Altwegg.

Dr. Altwegg’s Research Focus

Dr. Altwegg’s fellowship will examine whether GLP-1 medications, specifically semaglutide (sold as Wegovy, Ozempic and Rybelsus) and tirzepatide (sold as Mounjaro and Zepbound), can modulate early obesity-linked cancer pathways in breast, endometrial and colorectal cancers.

To do this, she’ll run a dual program that couples laboratory models with studies in people undergoing medically supervised weight loss, monitoring immune surveillance, hormonal and metabolic signalling and biomarkers tied to carcinogenesis.

In the laboratory, she will use animal models and multi-omics approaches to uncover mechanisms and biomarkers (such as the hormone leptin), which may explain any observed benefits of GLP-1s. Leptin, often known as the satiety hormone, is produced by fat cells, and tells the brain to reduce food intake when fat stores are high. It is important in long-term appetite and body weight.

“Yes, GLP-1s are used for weight loss and treating type 2 diabetes,” says Dr. Altwegg. “But the question is whether reducing fat mass can decrease some of the signals that cancers cells use that result in rapid growth and a ‘deranged metabolism’.”

Boosting Benefits and Reducing Side Effects

A second strand of Dr. Altwegg's research explores whether it's possible to increase any possible anti-cancer effects of GLP-1s while reducing their side effects, particularly the loss of lean muscle.

In Dr. Hursting's lab, Dr. Altwegg will test whether progressive strength training alongside tirzepatide preserves lean muscle, improves metabolic health and potentially amplifies anti-cancer effects when compared with tirzepatide use alone or exercise alone.

"We know the drug affects different people in different ways. We want to know whether adding exercise can enhance the drug's benefits and prevent, or at least slow, the loss of lean muscle mass," says Dr. Altwegg.

Key Questions that Still Need Answering

Given the rapid adoption of GLP-1s, there is still so much we don't know about their long-term impact. "We don't have 10-year data, let alone 20-year data on these compounds," says Dr. Altwegg. "We don't know what a lifetime of taking this drug might look like."

At this stage, many questions remain unanswered. Can weight loss be maintained when people stop taking GLP-1s? What is the optimal duration of use and which behavioral, nutritional or pharmacological strategies are necessary to support maintenance?

There is also the risk of misuse by people without a medical need, and the policies required to ensure appropriate prescribing, equitable access and clear, evidence-based guidance for the public are currently not in place.

"Not everybody is able go to the gym and lose weight. There are many metabolic conditions that might make that difficult," says Dr. Altwegg. "GLP-1 is an excellent tool, but it is a tool. And I'm really interested to see what the long-term effects are and how to best prevent weight regain when the drug is discontinued."

The development of oral semaglutide (Wegovy), taken in pill form, is expected to catapult GLP-1s into their next phase of use this year. An oral option may provide a more convenient and affordable alternative to injectables, expanding access and uptake even further.

A particular priority for Dr. Altwegg is tackling misinformation and communicating clearly with the public. "I aim to provide evidence-based information to counter misinformation and empower

people to make informed health decisions,” she says.

With the help of our AICR donors, Dr. Altwegg and the multidisciplinary team at UNC at Chapel Hill are generating long-term evidence needed to uncover answers in the fast-moving world of weight loss drugs, which ultimately has the potential to benefit many Americans.

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