Tirzepatide

Dual GLP-1/GIP Receptor Agonist

What It Is & What It Does

Tirzepatide does what semaglutide does, plus it hits a second hormone pathway (GIP) at the same time. Hitting both switches at once produces a stronger appetite-suppressing and blood-sugar-lowering effect than either one alone, which is why it's outperformed semaglutide head-to-head in trials.

What The Research Shows

- Head-to-head trials show tirzepatide produces more weight loss and better blood sugar control than semaglutide at comparable doses.
- Only about 10-11% of the weight lost in its major trial (SURMOUNT-1) was lean mass, versus roughly 40% for semaglutide — it appears to spare muscle somewhat better.
- In a meta-analysis specifically in women with PCOS, tirzepatide produced the largest mean weight reduction of any GLP-1-class drug studied (about 17.6kg), ahead of semaglutide.

Men's & Women's Health Research

Men / General	Women
• SURMOUNT-1, tirzepatide's major trial, enrolled about 32.5% men — a more balanced trial population than semaglutide's STEP 1 trial (25.9% men), which affects how confidently results generalize to men. • The broader class-wide pattern (women losing more weight than men on the same GLP-1-class drug) is documented across the drug family; tirzepatide's own head-to-head sex-specific efficacy data is less publicly broken out than semaglutide's or retatrutide's.	• Included in the same real-world data showing 7-fold growth in off-label PCOS-related prescribing between 2021-2025 alongside semaglutide. • In a meta-analysis of GLP-1 drugs in women with PCOS specifically, tirzepatide showed the greatest mean weight reduction of any agent studied.

Reported Side Effects

- Nausea, vomiting, diarrhea, decreased appetite — most common, tends to ease over time
- Injection site reactions in 1.9-4.5% of people
- Hypersensitivity reactions in 1.7-2.8% of people
- Pancreatitis and gallbladder disease in a small percentage of cases

Regulatory Status

FDA-approved in specific prescription forms (Mounjaro, Zepbound) under physician supervision. Not approved specifically for PCOS.

Tumor Growth Research Note — Tirzepatide

Category: GLP-1 — FDA Boxed Warning (Rodent Data)

This compound carries an FDA boxed warning for thyroid C-cell tumor risk, based on findings in rodent studies. This has not been confirmed in humans, but it was serious enough to require a mandatory label warning on the approved pharmaceutical version, and is a different mechanism from the angiogenesis/IGF-1 pathways covered elsewhere in the full research review — specific to how GLP-1 receptor activation affects thyroid C-cells in rodents.
