Comparing weight-loss drugs Ozempic and Mounjaro

With about half a dozen drugs to choose from now and more in development, many doctors say these medications are revolutionizing treatment of obesity, type 2 diabetes and other metabolic diseases.

But keeping the options straight can be a challenge. Though the new drugs may tout similar end results and side effects, doctors say different ones may be most appropriate for different people.

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The first generation of GLP-1 receptor agonists achieved less than 10 percent weight loss on average. Newer medications can help people lose around 15 percent of their body weight, says endocrinologist and diabetes researcher Dimitris Papamargaritis of the University of Leicester in England.

That step up came with the FDA approval of a new GLP-1 receptor agonist called semaglutide, best known as a weekly injection to treat type 2 diabetes that is sold under the brand name Ozempic. The drug was first approved for that purpose in 2017 and was then approved as a type 2 diabetes pill called Rybelsus and, most recently, as an injection to treat obesity called Wegovy.

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A new player called tirzepatide joined the GLP-1 receptor agonist game in 2022. This drug was first approved for treating type 2 diabetes under the name Mounjaro, and late last year it was approved for weight loss as Zepbound. Tirzepatide is the first agonist to interact with a second receptor, called glucose-dependent insulino tropic polypeptide, or GIP, which affects insulin levels and blood sugar similarly to GLP-1.

This dual action likely allows tirzepatide to control blood sugar better than its predecessors. Clinical trials show the drug can help people lose 20 percent or more of their body mass—more than any previously approved agonists.
Comparing the Drugs: Effectiveness and Side Effects in People with Type 2 Diabetes

In a meta-analysis, researchers reviewed trials of various GLP-1 receptor agonists in people with type 2 diabetes to determine their effectiveness and side effects. The charts show the results for the drugs that are approved and currently available, as well as those for exenatide, including a formulation of the drug that was discontinued in 2021. Values for each drug are based on randomized controlled trials in which the drug was compared with a placebo—not with any other medications. To account for variations in the sizes and methods used in these trials, researchers assigned lower levels of confidence to some results.

### How Effective Were the Drugs?
- **Tirzepatide** (Mounjaro, Zepbound)
- **Semaglutide** (Ozempic, Wegovy, Rybelsus)
- **Liraglutide** (Saxenda, Victoza)
- **Dulaglutide** (Trulicity)
- **Exenatide** (rarely used anymore)

### Fasting Blood Glucose
- **Weight Loss**

- **High confidence in data (solid line)**
- **Moderate confidence in data (dashed line)**
- **Low confidence in data (dotted line)**

**Average Fasting Blood Glucose Compared with Placebo**

- Fasting blood glucose levels in people taking tirzepatide were 3.12 mmol/L lower than those of people taking a placebo.

### How Prevalent Were the Most Common Side Effects?
- **Vomiting**
- **Nausea**
- **Diarrhea**
- **Adverse effects leading to discontinuation**

**People taking tirzepatide were five times more likely to experience vomiting than those taking a placebo.**