



GLP-1 Agonists

Mechanism, Clinical Impact, and Future Developments

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Overview

Incretin-based therapies (GLP-1 receptor agonists) have revolutionised obesity treatment

Growing demand → Drug shortages

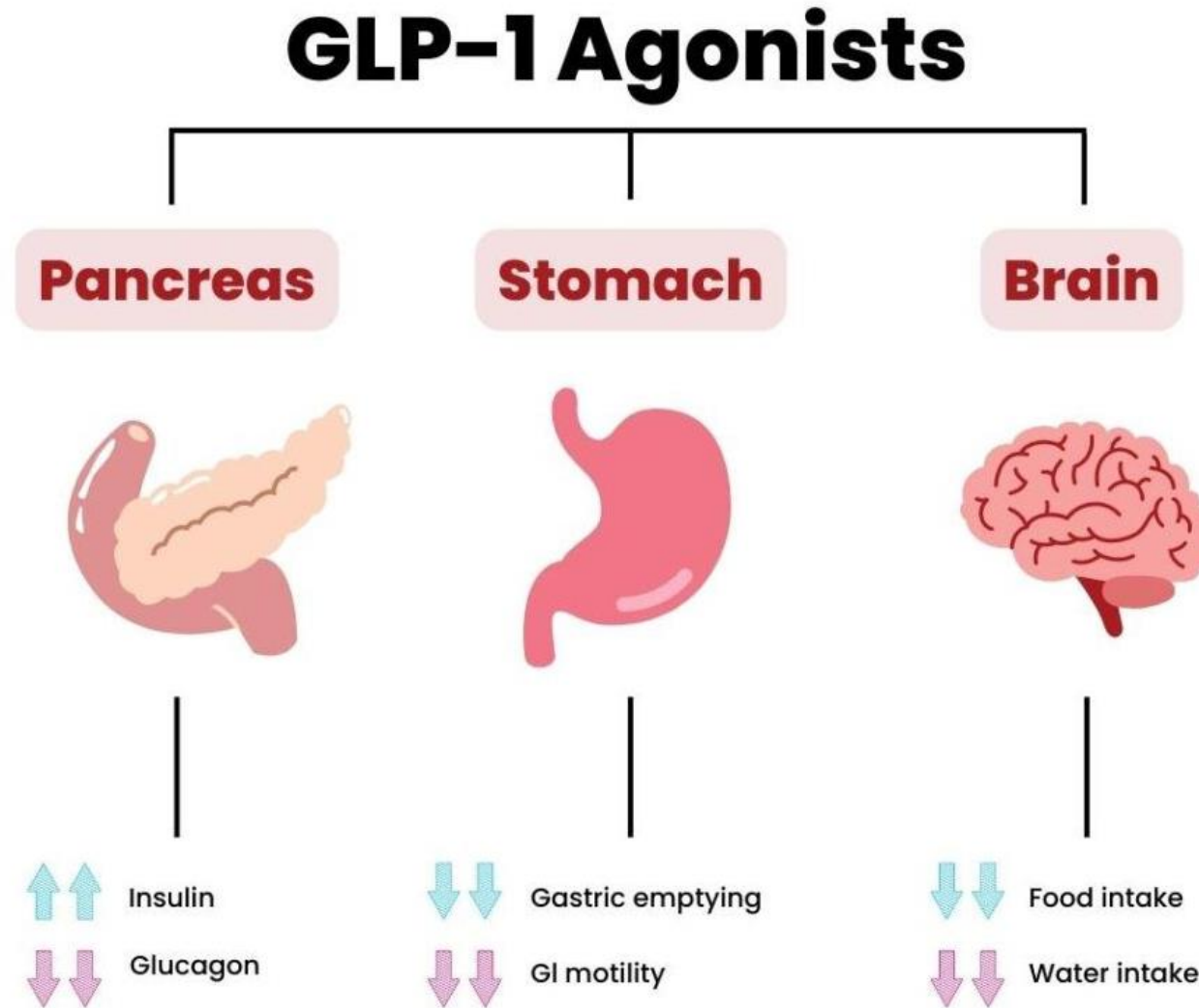
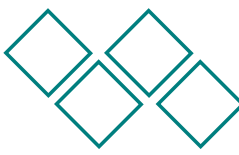
Projected market size: \$50 billion by 2030

Insurance & public health impact: Reshaping treatment approaches

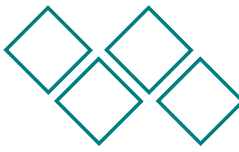
Clinical trials show 15–20% weight loss, comparable to bariatric surgery

Potential beyond weight loss

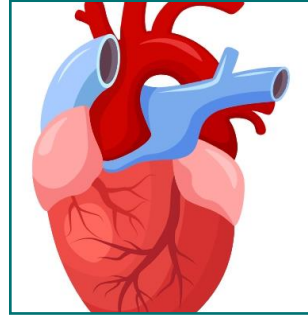
How do they work?



Why Are They Important?



Beyond
weight loss



Cardiovascular

- Cardiovascular benefits
- Possible cardioprotective effects

Renal

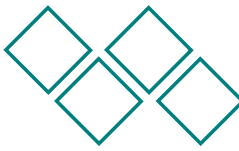
- Reduced risk of kidney injury & disease



Neurological

- Possible neuroprotective effect

Approved GLP-1 Agonists



Liraglutide (Victoza, Saxenda)

Daily injection

CV benefits



Semaglutide (Ozempic, Wegovy)

Weekly injection or oral, most effective single GLP-1 agonist

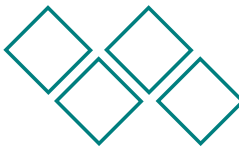


Tirzepatide (Mounjaro, Zepbound)

Dual GLP-1/GIP agonist, superior weight loss



What do we know so far?

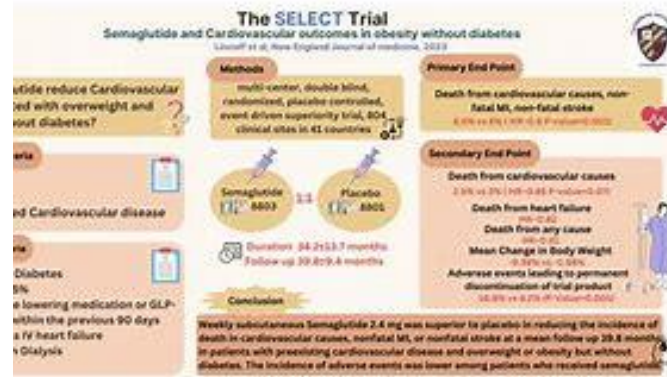


Medicare

Medicare data (2020-2022)

5,926 AOM users vs.
79,118 non-users

8% reduction in overall
cardiovascular disease risk



The SELECT Trial

17,604 participants (obesity +
CVD, no diabetes)

Weekly semaglutide injections (2.4
mg) vs. placebo

20% lower risk of major
cardiovascular events
9.4% weight loss (vs. 0.88% in
placebo)
Reduced inflammation and
improved metabolic markers



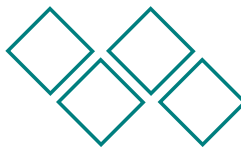
Tirzepatide

Dose-dependent weight loss:

- 5 mg: 8.07% (~7.5 kg)
- 10 mg: 10.79% (~11.0 kg)
- 15 mg: 11.83% (~11.5 kg)

- Broader benefits:
 - Lower blood pressure
 - Improved lipid profiles
 - Better blood sugar control

Effectiveness and risks of GLP-1 receptor agonists



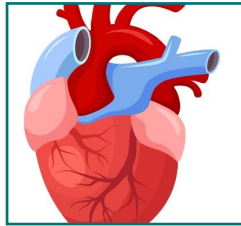
nature medicine

Article

<https://doi.org/10.1038/s41591-024-03412-w>

Mapping the effectiveness and risks of GLP-1 receptor agonists

Xie, Y., Choi, T. & Al-Aly, Z. Mapping the effectiveness and risks of GLP-1 receptor agonists. Nat Med (2025). <https://doi.org/10.1038/s41591-024-03412-w>



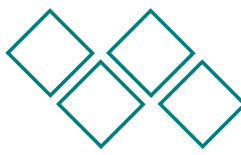
Cardiovascular Protection:

- ✓ 11% lower risk of heart failure
- ✓ 9% lower risk of heart attack
- ✓ 7% lower risk of stroke



Kidney Protection:

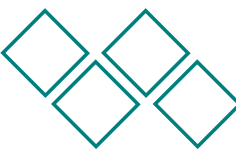
- ✓ 12% lower risk of acute kidney injury
- ✓ 3% lower incidence of chronic kidney disease



Risks & Considerations

- ⚠️ Potential Risks:
 - - Gastrointestinal side effects (nausea, vomiting)
 - - Increased risk of pancreatitis
 - - Risk of blood pressure drops
- ⚠️ Who Needs Caution:
 - - Patients prone to kidney stones
 - - Those with severe GI issues or joint pain
- 💡 Key Takeaway:
 - GLP-1RAs offer powerful health benefits but require monitoring for adverse effects

Summary



GLP-1 receptor agonists redefine obesity & chronic disease management

Strong cardiovascular, metabolic, renal and neuroprotective benefits

Cost and access remain major barriers





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