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ENDOSCOPIC SLEEVE GASTROPLASTY VERSUS SEMAGLUTIDE FOR OBESITY MANAGEMENT: WEIGHT LOSS OUTCOMES, SAFETY, AND COST-EFFECTIVENESS COMPARISON

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Background

Obesity is a global epidemic affecting >650 million adults. GLP-1 agonists and ESG have emerged as less invasive alternatives to bariatric surgery.

Objective

Compare efficacy, safety, and cost-effectiveness over a 5-year horizon.



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Methods

Systematic comparative review of published RCTs, observational studies, and cost-effectiveness models.

Databases: PubMed, Embase, Lilacs/SciELO, Cochrane (until Dec 2024).

Nine main studies included: STEP1, STEP5 (Semaglutide), MERIT (ESG), meta-analyses, economic model.



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Inclusion:

- Adults ≥ 18 years, BMI ≥ 30
- Semaglutide 2.4 mg/week or ESG sleeve technique

Exclusion:

- Case series < 10 pts
- Other GLP-1 drugs or bariatric endoscopic procedures
- Poor methodological quality or duplicates



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Results

Mean Total Weight Loss at 1 Year:

- Semaglutide $\approx 14.9\%$
- ESG $\approx 13.6\%$

Long-term maintenance:

- ESG $\approx 18\%$ at 4–5 yrs
- Semaglutide $\approx 15\%$ only with continuous use



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Safety Profiles:

- Semaglutide: Mainly mild-to-moderate GI events (~20–40%), rare discontinuation (4–5%), no related deaths.
- ESG: Mild nausea and abdominal pain, low morbidity, no procedure-related deaths in RCTs.

Metabolic outcomes:

- $\geq 80\%$ ESG pts improved ≥ 1 comorbidity
- Semaglutide: HbA1c $\downarrow \approx 1.0$ in diabetics





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5-Year Economic Model:

- ESG is dominant: greater weight loss and lower overall cost.
- Semaglutide would need $\approx 3\times$ price reduction to match ESG cost-effectiveness.
- ESG saved \approx US\$33,500 per patient vs semaglutide over 5 years.



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Conclusions:

- Both ESG and semaglutide achieve ~15% weightloss and major metabolic improvements.
- ESG shows superior medium- and long-term durability and cost-effectiveness.
- GLP-1 medications must cost ~3× less to be competitive at 5 years.
- ESG should be considered a first-line endoscopic option for moderate obesity.



Thank you!



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