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Comparison of weight loss and improvement in metabolic syndrome outcomes between endoscopic gastroplasty and lifestyle modifications: a meta-analysis

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Overview and Aim

- Obesity epidemic is a growing global concern
- Management of obesity is multi-pronged: includes lifestyle modifications (LM), bariatric surgery in selected candidates
- Technological advancements have led to development of endoscopic techniques such as endoscopic gastroplasty (EG) – a term encompassing endoscopic restrictive procedures which use suture and/or stapling techniques to reduce gastric volume
- Previous meta-analysis comparing EG to LM published back in 2019 by Madrugo-Neto et al only included 2 studies and did not include endoscopic sleeve gastroplasty (ESG) – *newer and more widely used technique currently*

Aim: updated meta-analysis to evaluate weight loss (TBWL and EWL) between EG and LM

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Methodology

- Performed in accordance with PRISMA guidelines
- Systematic search done on three databases (Pubmed, Embase and Cochrane Library)
- Following search terms were used:
  ("endoscopic sleeve gastroplasty" OR "ESG" OR "endoscopic gastric reduction" OR "Apollo" OR "Overstitch" OR "endoluminal vertical gastroplasty" OR "endoscopic bariatric therapy" OR "bariatric endoscopy" OR "obesity surgery endoluminal" OR "POSE" OR "endoscopic suturing" OR "transoral gastroplasty") AND ("obese" OR "obesity" OR "bariatric" OR "overweight" OR "weight loss")
- Inclusion criteria:
  - Studies comparing EG to LM
- Exclusion criteria:
  - Short follow-up period < 1 month
  - Evaluating revisional endoscopic or other endobariatric procedures
  - Included patients on weight loss medications

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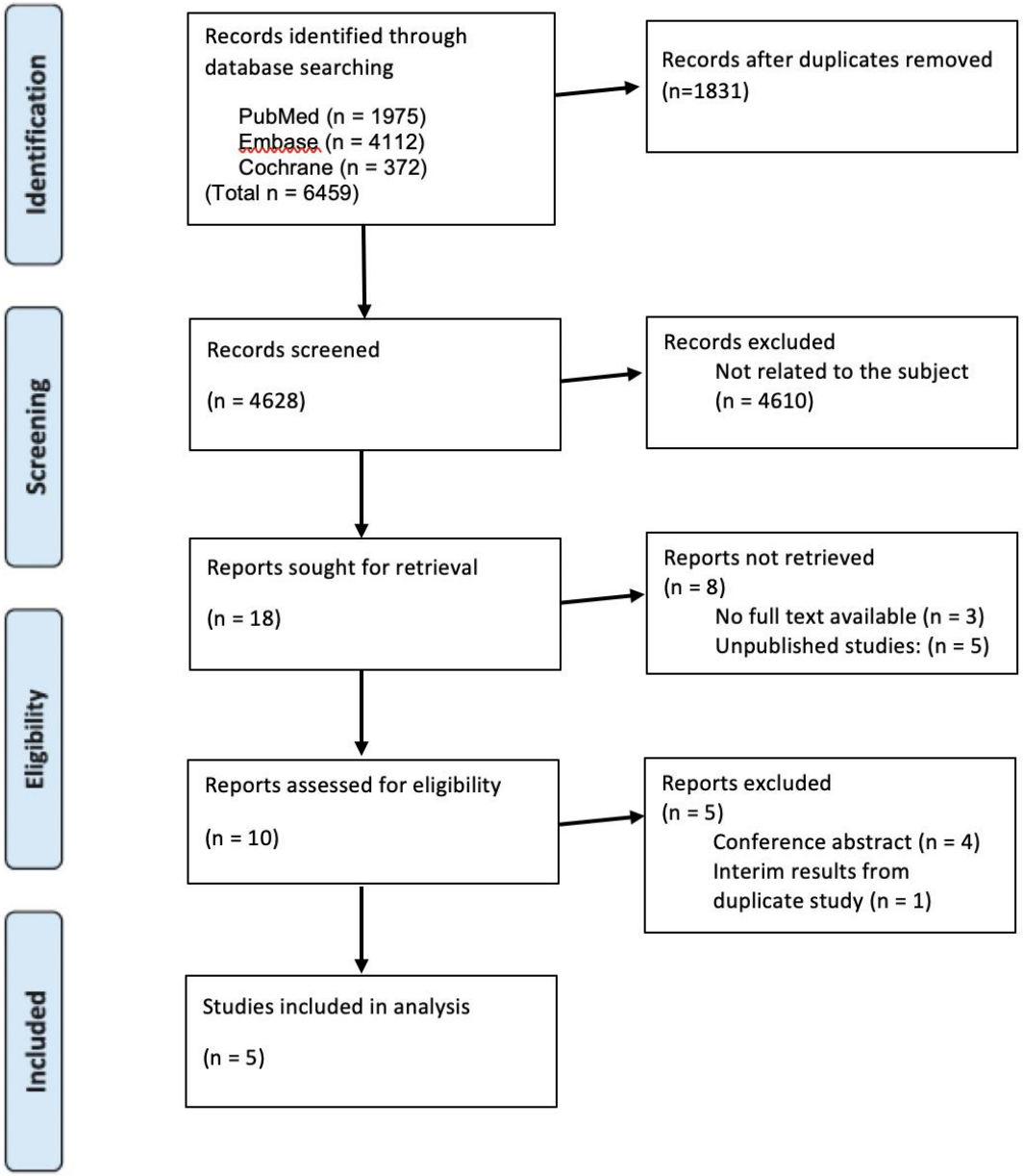
PRISMA diagram



- Total 5 studies with 1007 patients
- 4 RCTs and 1 case-matched study
- 199 males (19.8%)
- Mean BMI 34.2-40.5
- Types of EG done:
  2 POSE (13 sutures),
  3 ESG (6-9 sutures)
- LM included both dietary modification and exercise prescriptions

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Results

Figure 1: Percentage of total body weight (TBW) loss at 6 months (A), and 12 months (B)

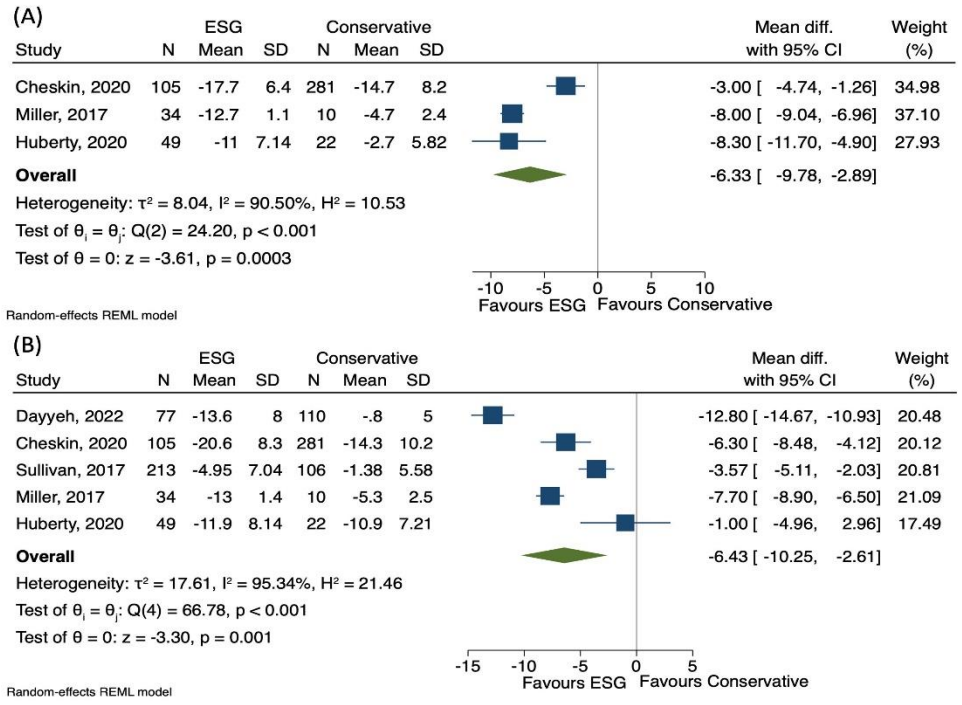
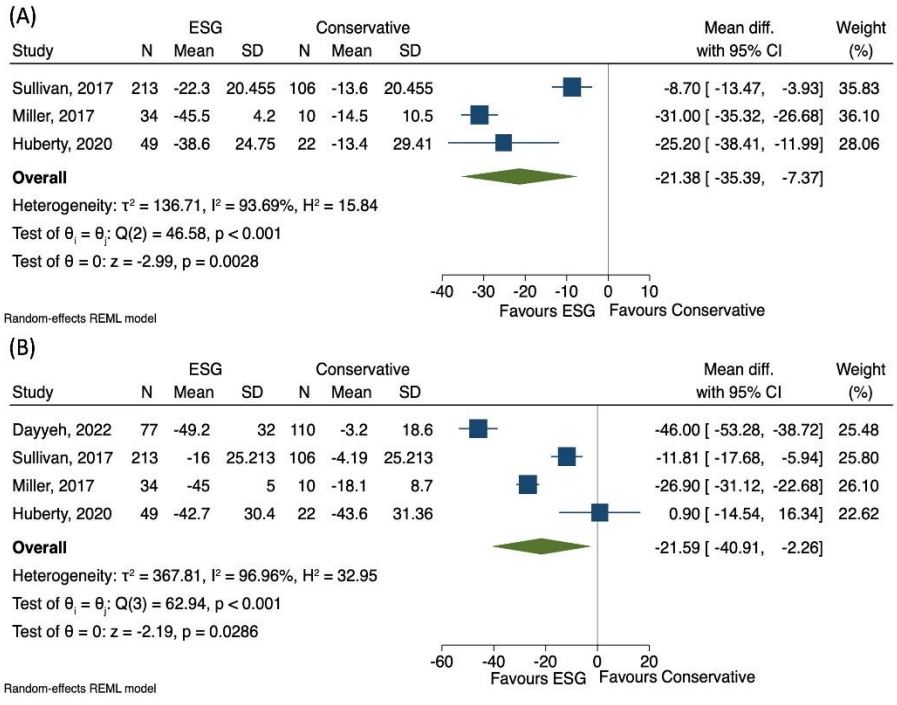


Figure 2: Percentage of excess body weight (EWL) loss at 6 months (A), and 12 months (B)



6-month and 12-month TBWL/EWL significantly higher in EG compared to LM

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Results and Conclusion

- Significant improvement in DM ($p<0.001$) and HTN ($p=0.016$) control in EG group, but not in HLD
  - Improvement in DM, HLD and HTN were defined as decrease in medications (either number or dose), or decrease in HbA1c by ≥0.5%, decrease in LDL≥10% and decrease in systolic blood pressure ≥10mmHg respectively
- Low incidence of serious adverse events in EG group (2-5%)

In conclusion,

- EG is safe and effective for weight loss in obese patients.
- Improvements in other metabolic syndrome co-morbidities may also be observed, compared to LM alone.
- Further prospective studies should be conducted, and considerations should also be made to include pharmacotherapy as combination therapy may be more effective in attaining weight loss.

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