# Side-to-Side Magnetic Duodeno-Ileostomy Diversion in Obesity and/or Type 2 Diabetes:
## The Influence of Magnet Length on Feasibility, Weight Loss, and Diabetes

### BACKGROUND / METHODS

To reduce major anastomotic complications in metabolic/bariatric surgery (MBS), intestinal anastomosis can be created with incision- and staple-free *magnetic compression*, after which the fused magnets are expelled naturally, by peristalsis.

An ileal and a duodenal magnet are delivered endoscopically and aligned laparoscopically to gradually, over 3-4 weeks, form a duodenoileostomy diversion (MagDI operation).

The study pooled data from sites in 6 countries using a common MagDI protocol to identify possible differences in feasibility between 3 magnet lengths, 32, 40, and 50 mm. Secondary endpoints were weight loss and type 2 diabetes (T2D) improvement at 1-yr follow-up.

**Total group:** n=142; mean wt. 99.0 kg; those w/T2D n=42
**Magnet cohorts:** 32mm (16.8%), 40mm (62.9%), 50mm (20.3%)

### RESULTS

**Feasibility:** All cohorts surpassed the 80% performance threshold

- Operative time: 63.5 min; LoS: 1.2 days; Expulsion: 35.3 days
- 100% of all 3 magnet lengths were placed and expelled with no reintervention
- 100% of anastomoses patent at 30 days

**Safety:**

- Serosal tears in 9.8% (14/142); managed conservatively
- * MagDI procedure (all magnet lengths) incurred 0.0% anastomotic bleed, leak, infection, obstruction, mortality

**Weight & $HbA1_c$ trends at 30, 90, 180, 360 days:**

- For patients w/T2D w/complete data at 1 yr, excess & total weight loss, respectively: 32mm (16.4%; 5.3%, p<0.03); 40mm (29.4%; 7.3%, p<0.003); 50mm (65.9%; 15.8%, p<0.001)
- In T2D pts (38%) w/complete 1-yr data, mean $HbA1_c$ fell 1.3% (p<0.001)

### CONCLUSIONS

- All 3 MagDI magnet lengths compared were feasibly placed in 100% of pts who underwent *magnetic compression duodenoileostomy* (MagDI)
- 97.2% of all magnet lengths in the total group met the composite feasibility criteria of placement, passage, patency

- Promising preliminary trends in weight loss and T2D improvement at 1-yr follow-up
- No foreign materials (e.g., staples, sutures, stent) were retained permanently in the body
- At 1yr — the MagDI procedure and each magnet length tested demonstrated consistently strong feasibility and safety
- Satisfaction survey: 40–50-mm cohorts reported 83–90% satisfaction w/MagDI treatment; 88–100% would recommend it


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