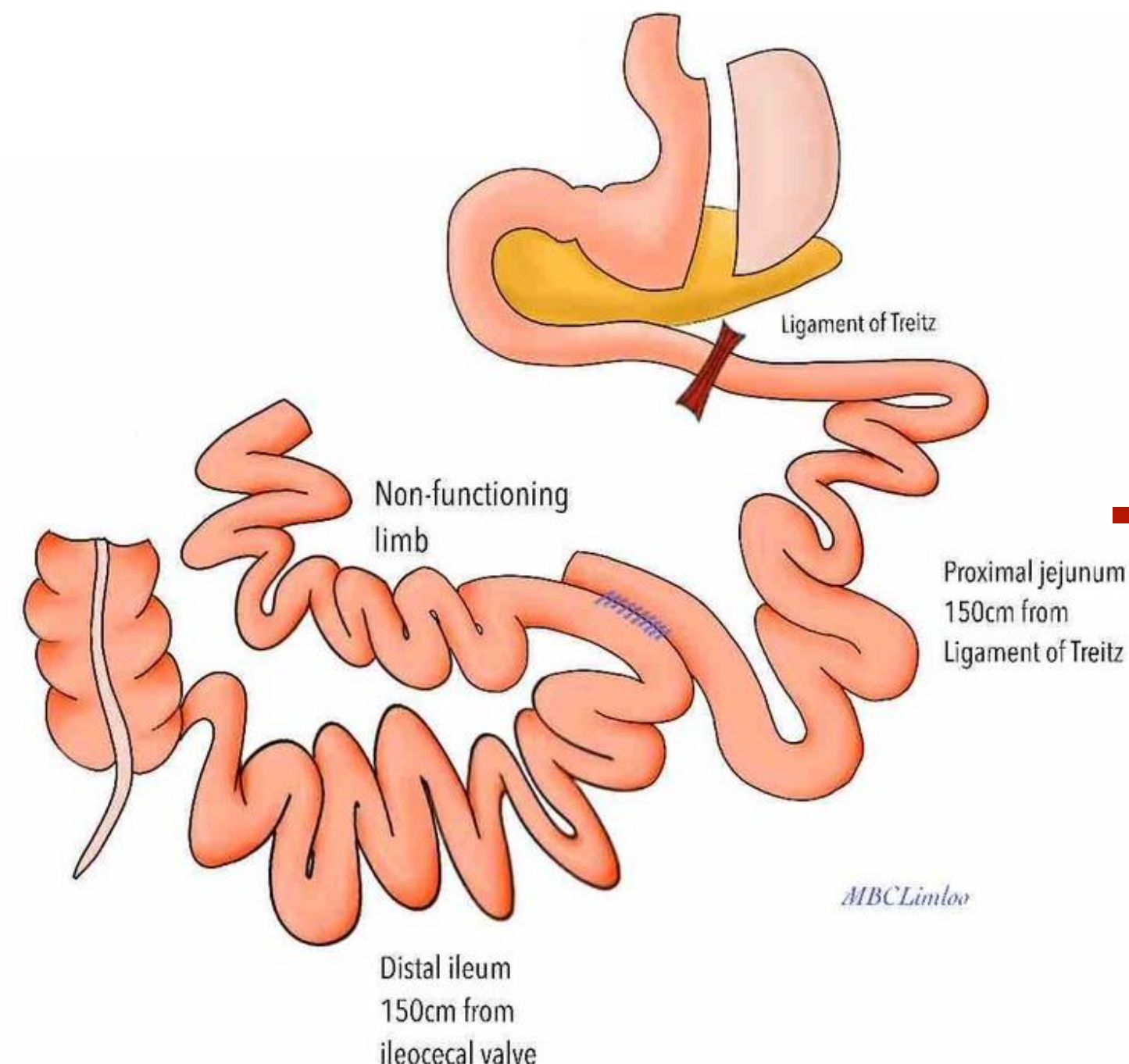


—Sleeve Plus Procedures—

Risk, Nutrition, Outcome

The Best Balance for APC Patients



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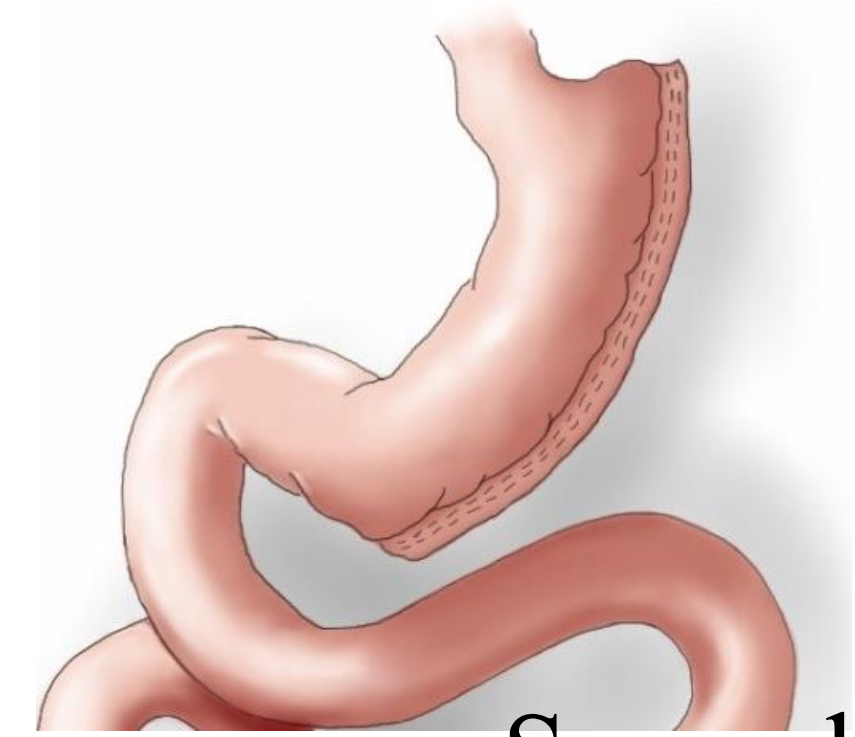


Robotic Proctors for Hugo & daVinci and

I am not Fan of any procedures
Only focus on Result



Problems With Sleeve Gastrectomy



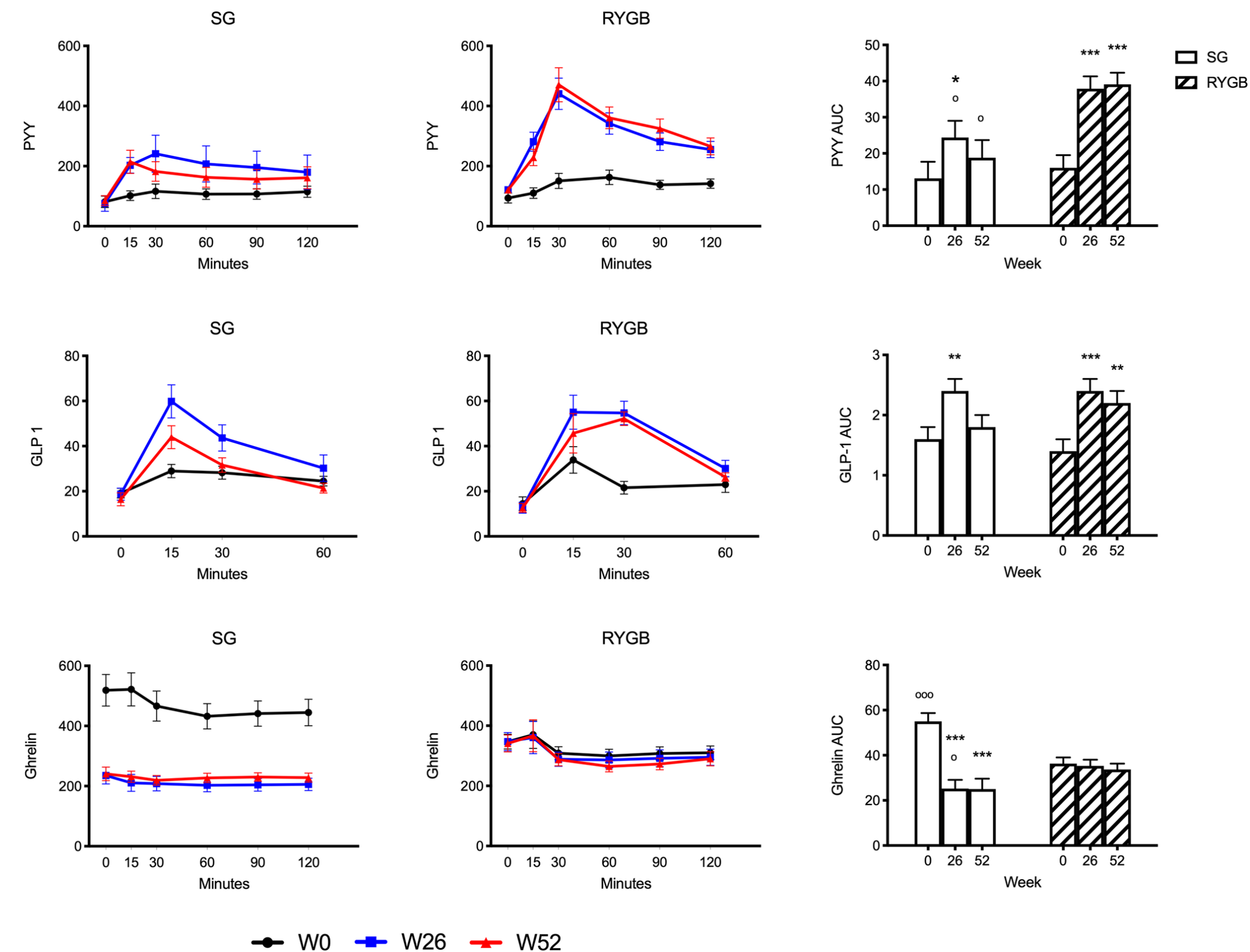
High rates of weight loss failure and Diabetic recurrence compared to bypass surgery: Several studies have investigated long-term weight loss results after a sleeve gastrectomy. Many of them have shown a significant linear decrease in BMI declines over the follow-up period, and some studies favor the results of the bypass operation.

Clapp B, Wynn M, Martyn C, Foster C, O'Dell M, Tyroch A. Long term (7 or more years) outcomes of the sleeve gastrectomy: a meta-analysis. *Surg Obes Relat Dis* 2018;14:741-7.
Shoar S, Saber AA. Long-term and midterm outcomes of laparoscopic sleeve gastrectomy versus Roux-en-Y gastric bypass: a systematic review and meta-analysis of comparative studies. *Surg Obes Relat Dis* 2017;13:170-80.
Salminen P, Helmiö M, Ovaska J, et al. Effect of laparoscopic sleeve gastrectomy vs laparoscopic Roux-en-Y gastric bypass on weight loss at 5 years among patients with morbid obesity: the SLEEVEPASS randomized clinical trial. *JAMA* 2018;319: 241-54.
Gu L, Huang X, Li S, et al. A meta-analysis of the medium- and long-term effects of laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass. *BMC Surg* 2020;20:30.

GERD: 20-40% need longterm PPI after Sleeve gastrectomy

Jérémie Thereaux et al. Do sleeve gastrectomy and gastric bypass influence treatment with proton pump inhibitors 4 years after surgery? A nationwide cohort
Surg Obes Relat Dis 2017 Jun;13(6):951-959. doi: 10.1016/j.soard.2016.12.013. Epub 2016 Dec 23.

Why Sleeve Alone do not work longterm?



Increases in postprandial PYY and GLP-1 levels in the blood were observed primarily after RYGB and **transiently after SG**.

When we bypass proximal Gut

Intestinal Shunting & Bypassing

By connecting the stomach or upper intestine directly to the distal ileum, a portion of food bypasses the primary segments of the small bowel (duodenum and jejunum) where most nutrients are naturally absorbed.

Iron, Calcium, Fat-Soluble Vitamins (A, D, E, K)

Shortened Common Channel Length

Digested food and digestive enzymes (bile and pancreatic juices) only mix together in the final segment of the bowel (the "common channel"). If this channel is constructed too short, food moves through too fast for adequate enzymatic breakdown and absorption.

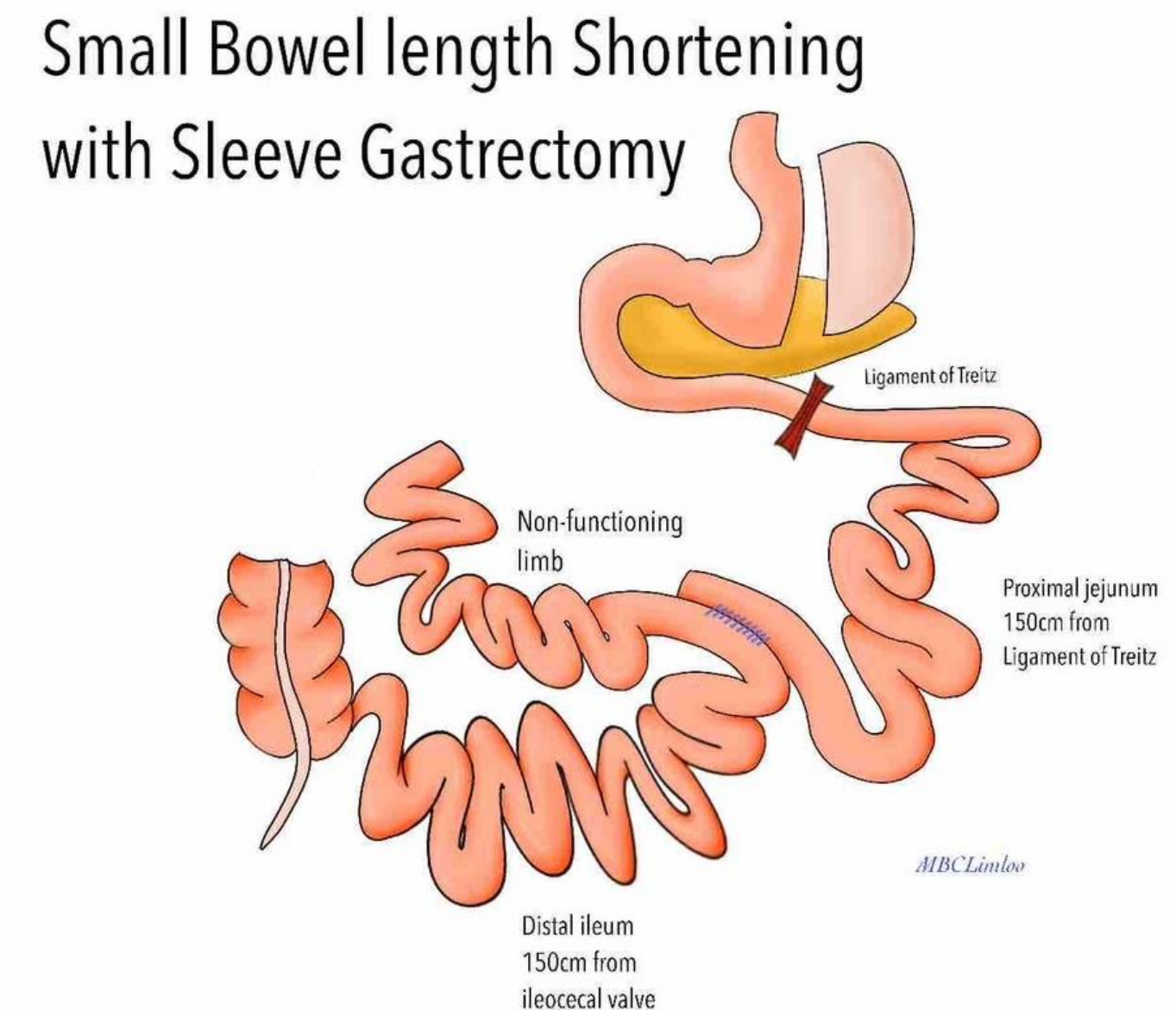
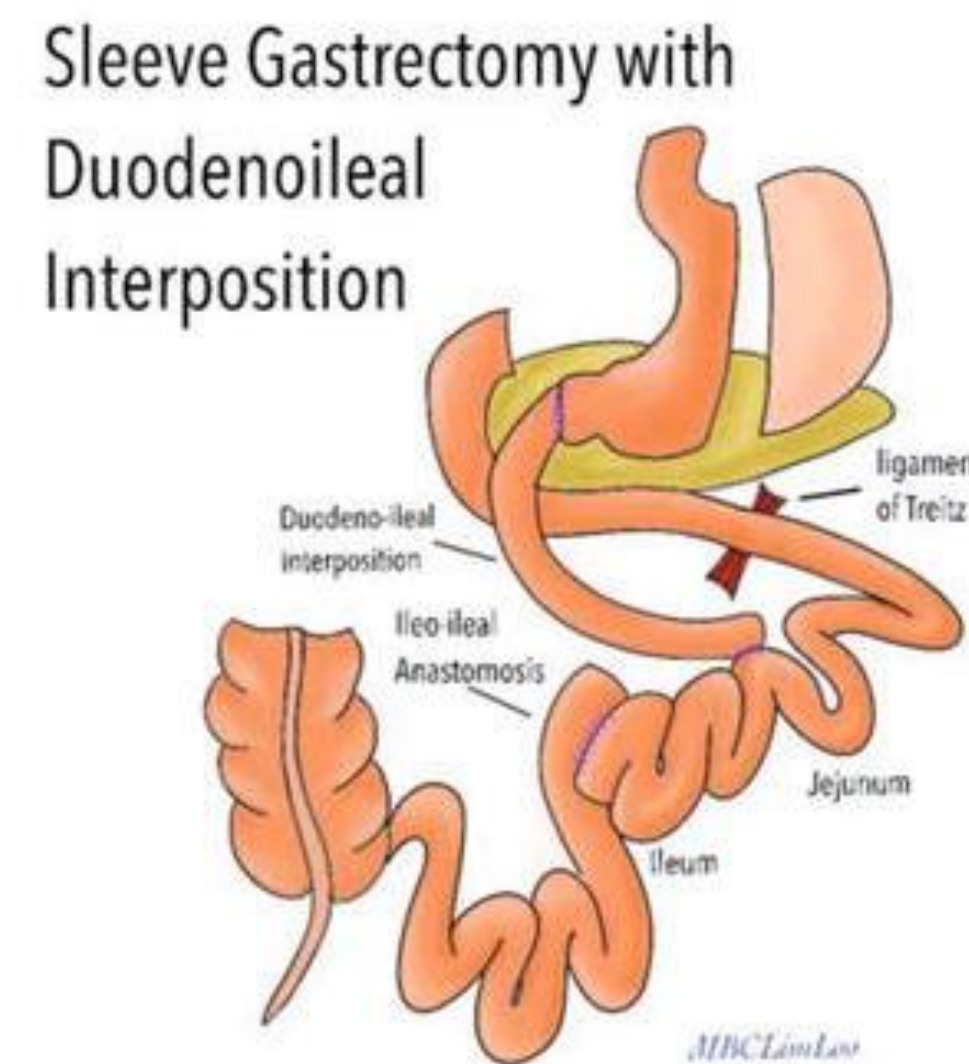
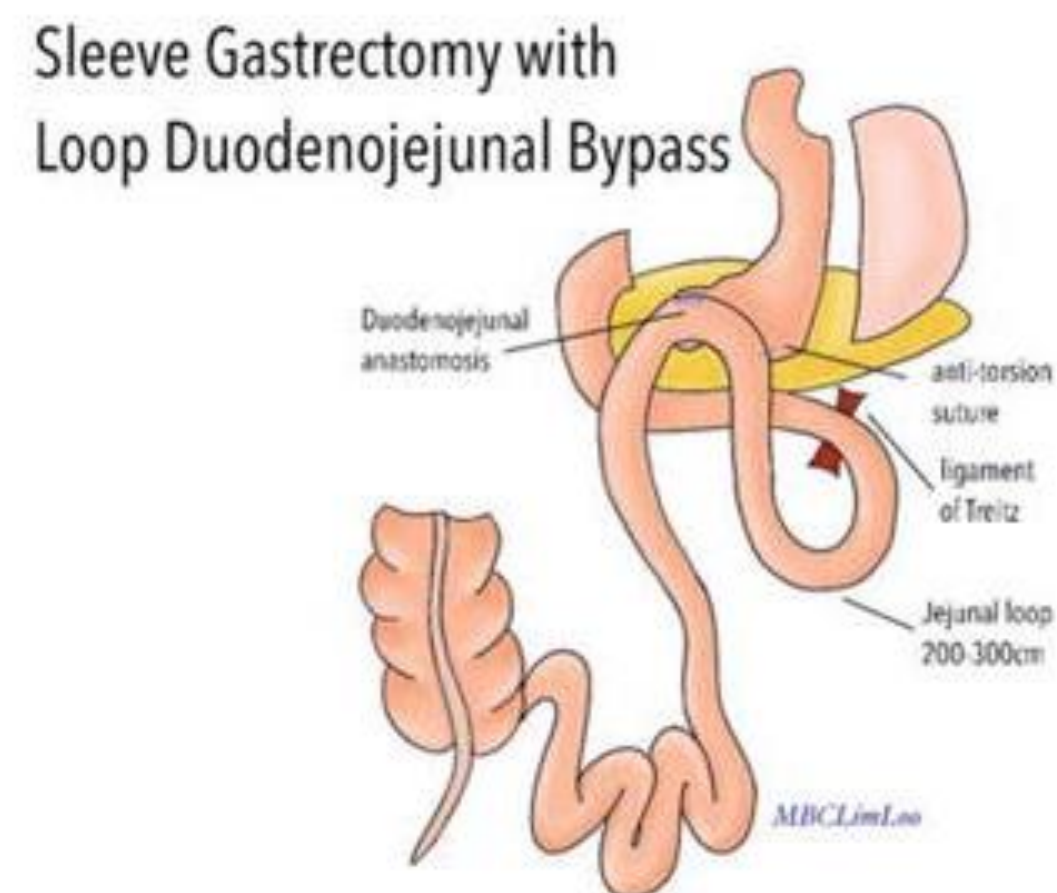
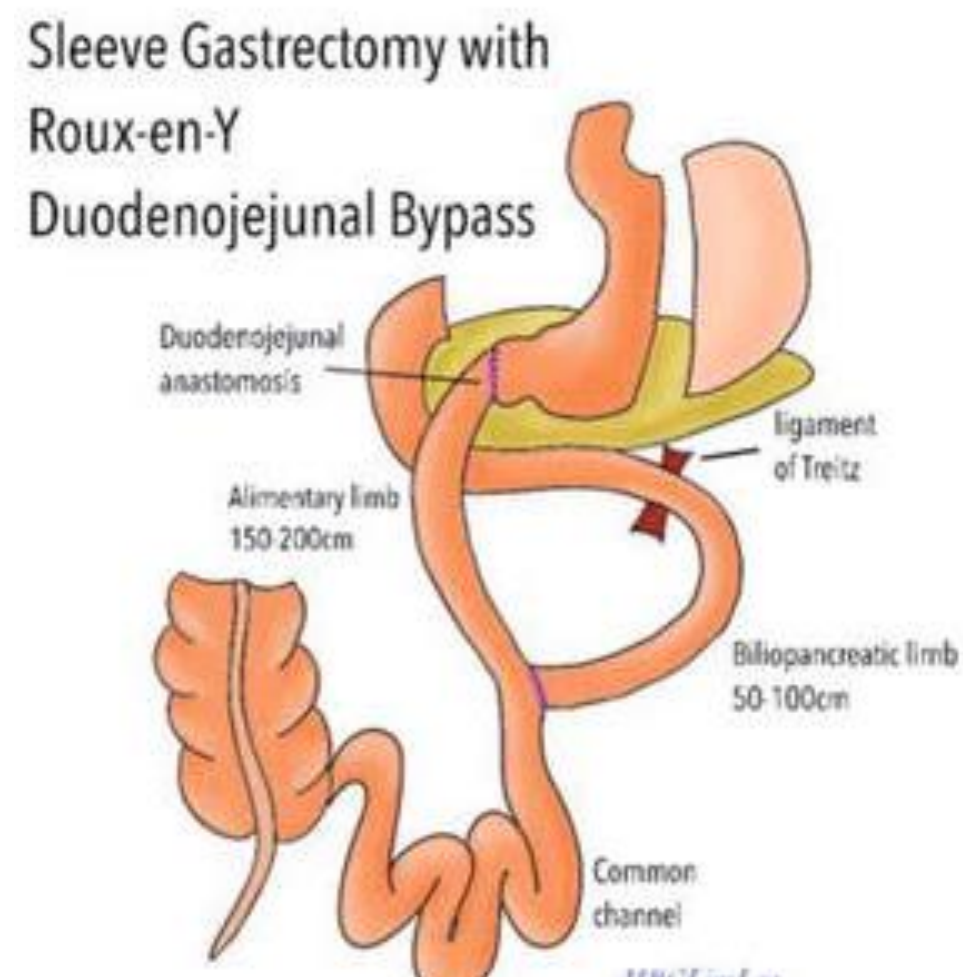
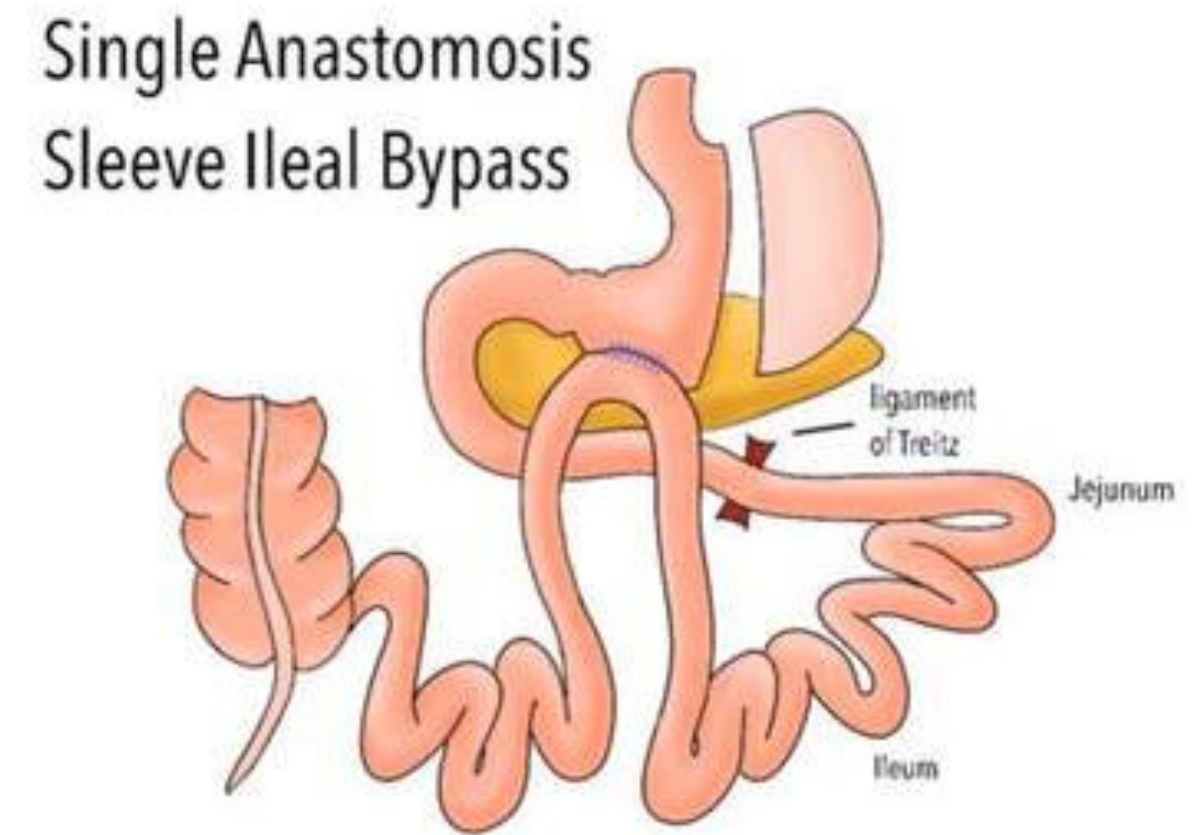
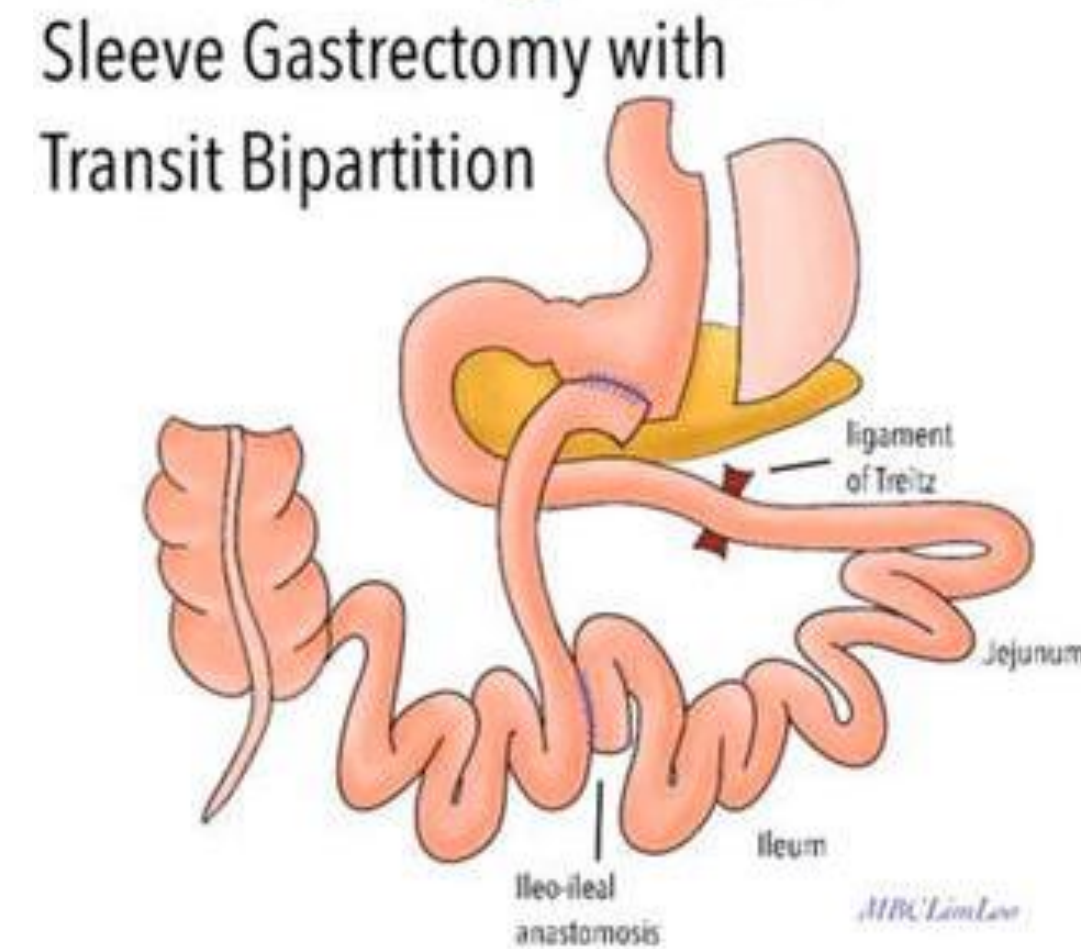
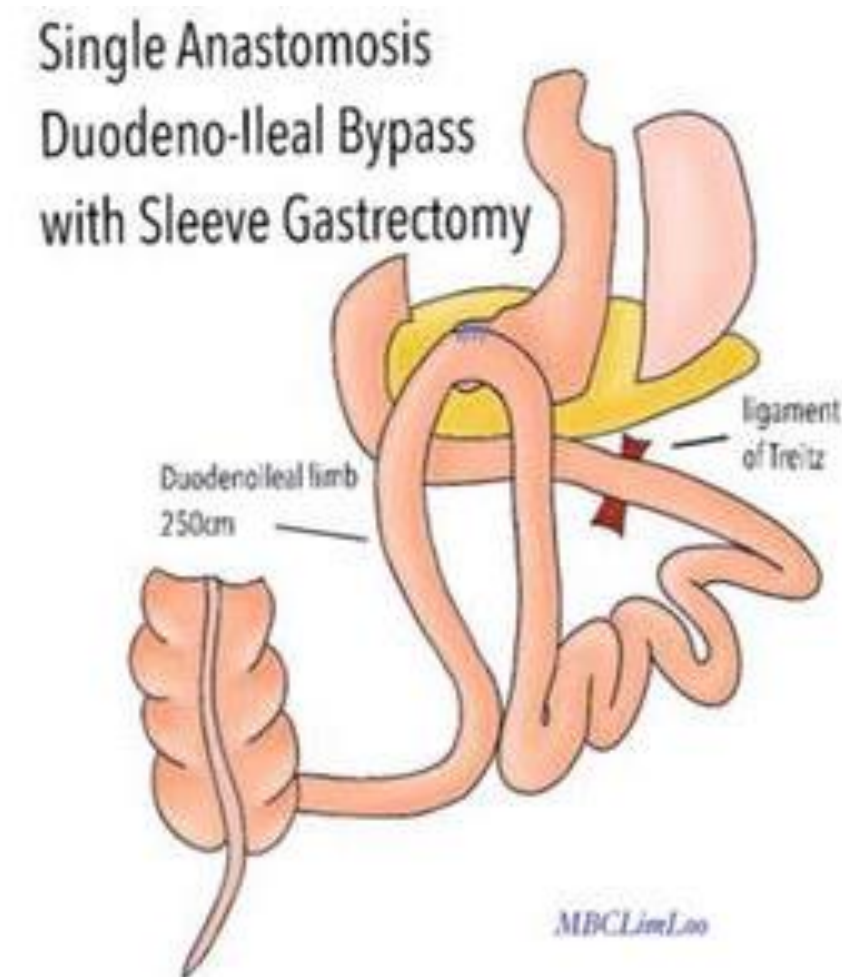
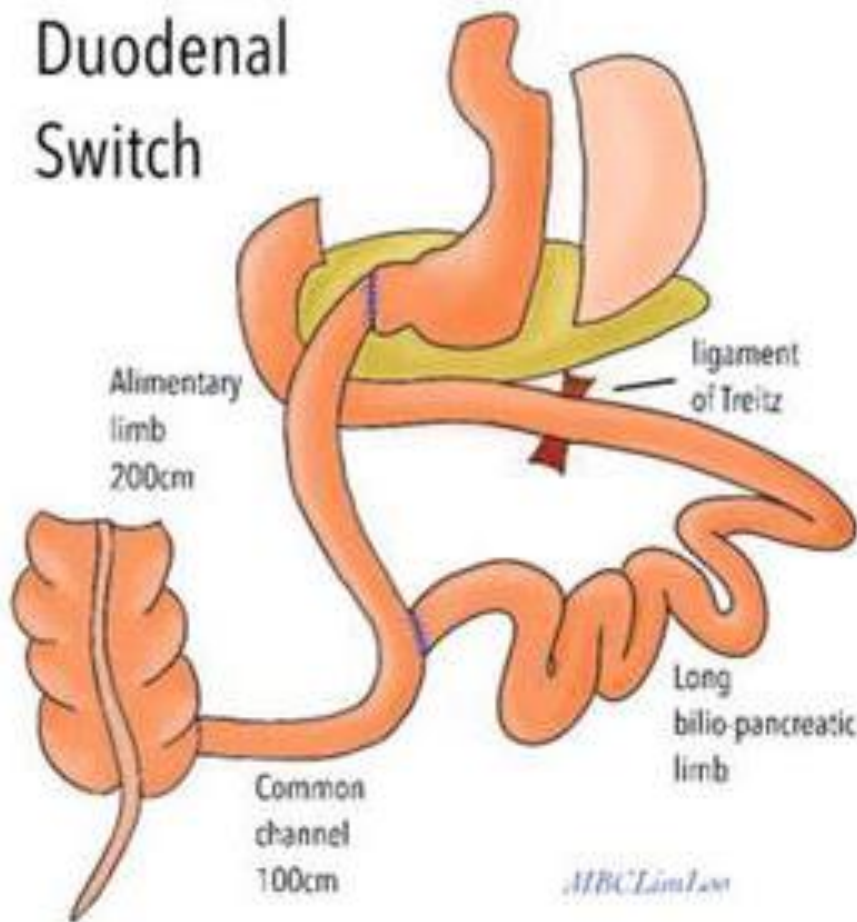
Protein-Energy Malnutrition (Hypoalbuminemia)

Rapid Transit Time & Diarrhea

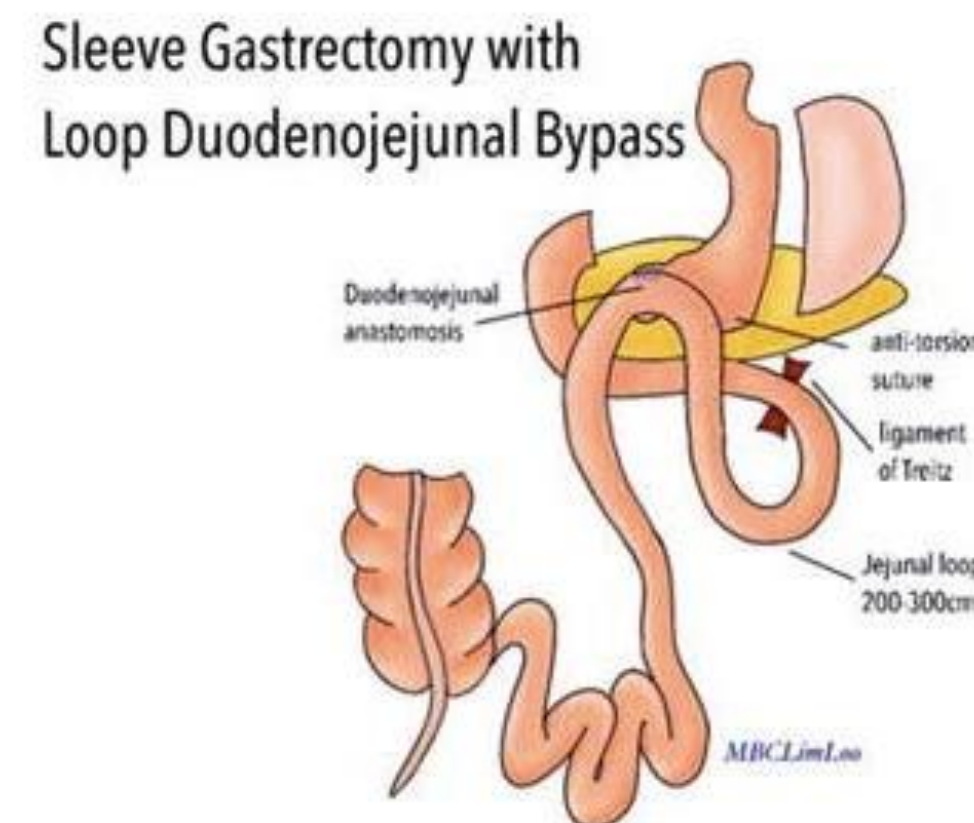
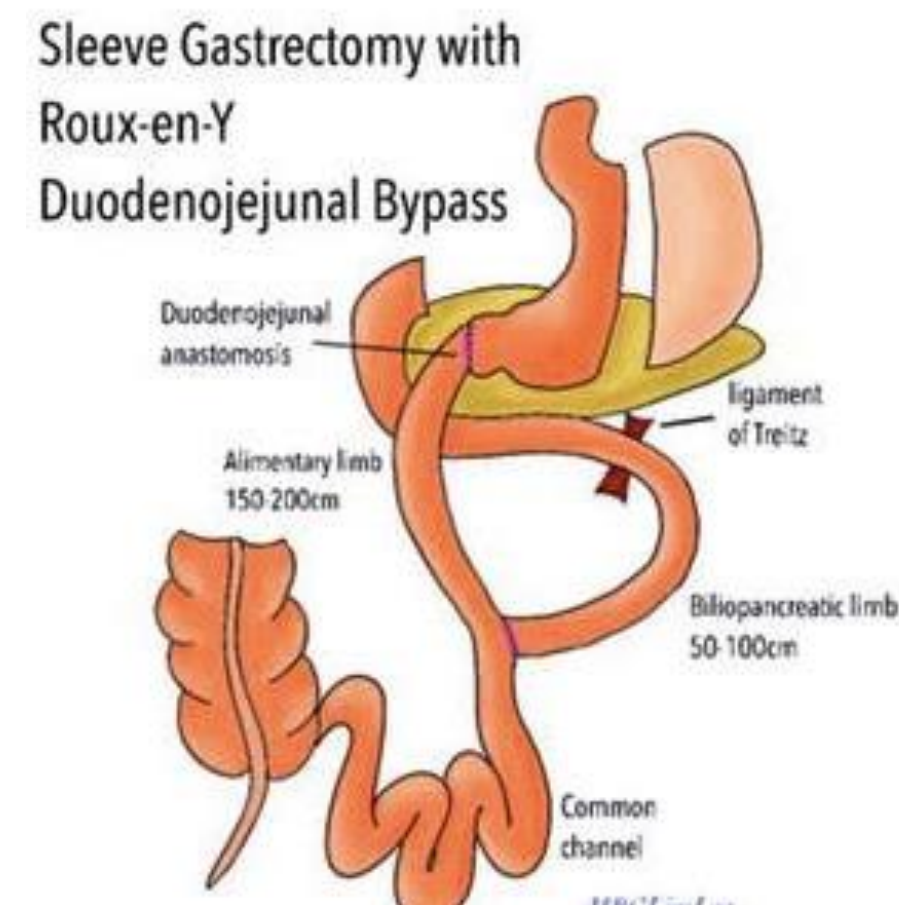
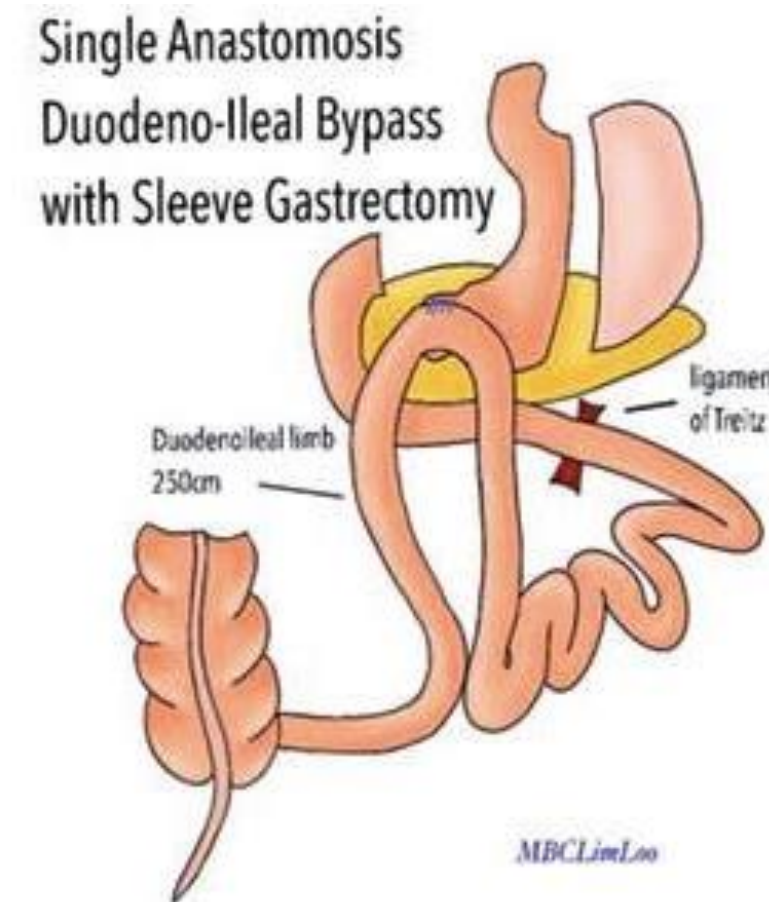
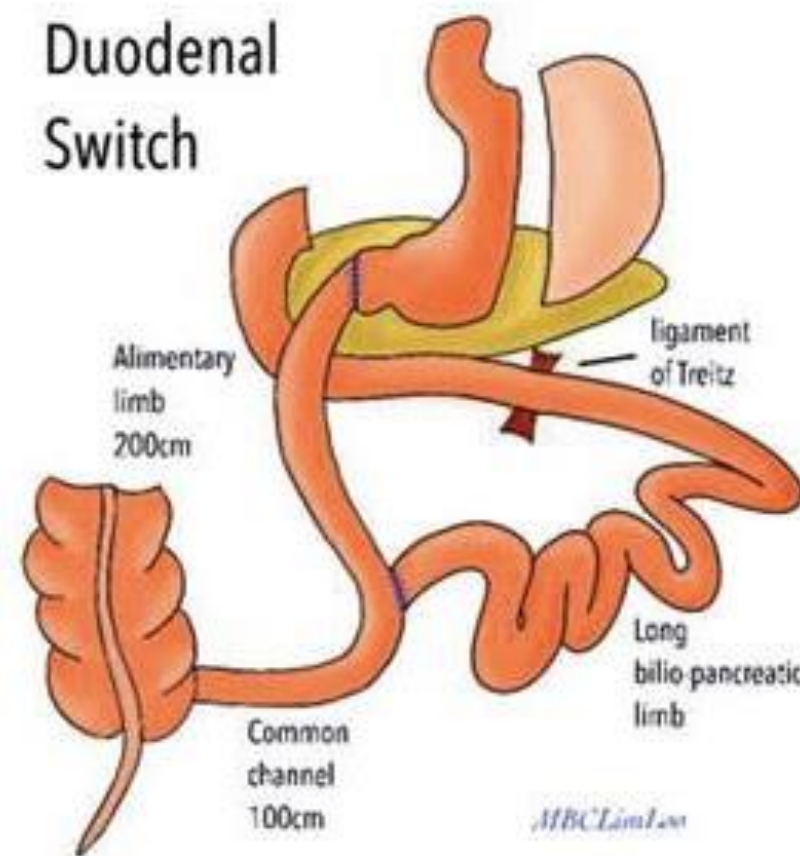
Bypassing the upper gut can accelerate bowel transit, triggering dumping-like symptoms or chronic diarrhea. Nutrients are flushed out of the digestive tract before the body can extract them.

Electrolytes, Zinc, Water-Soluble Vitamins, Trace Minerals

Sleeve Plus Procedures

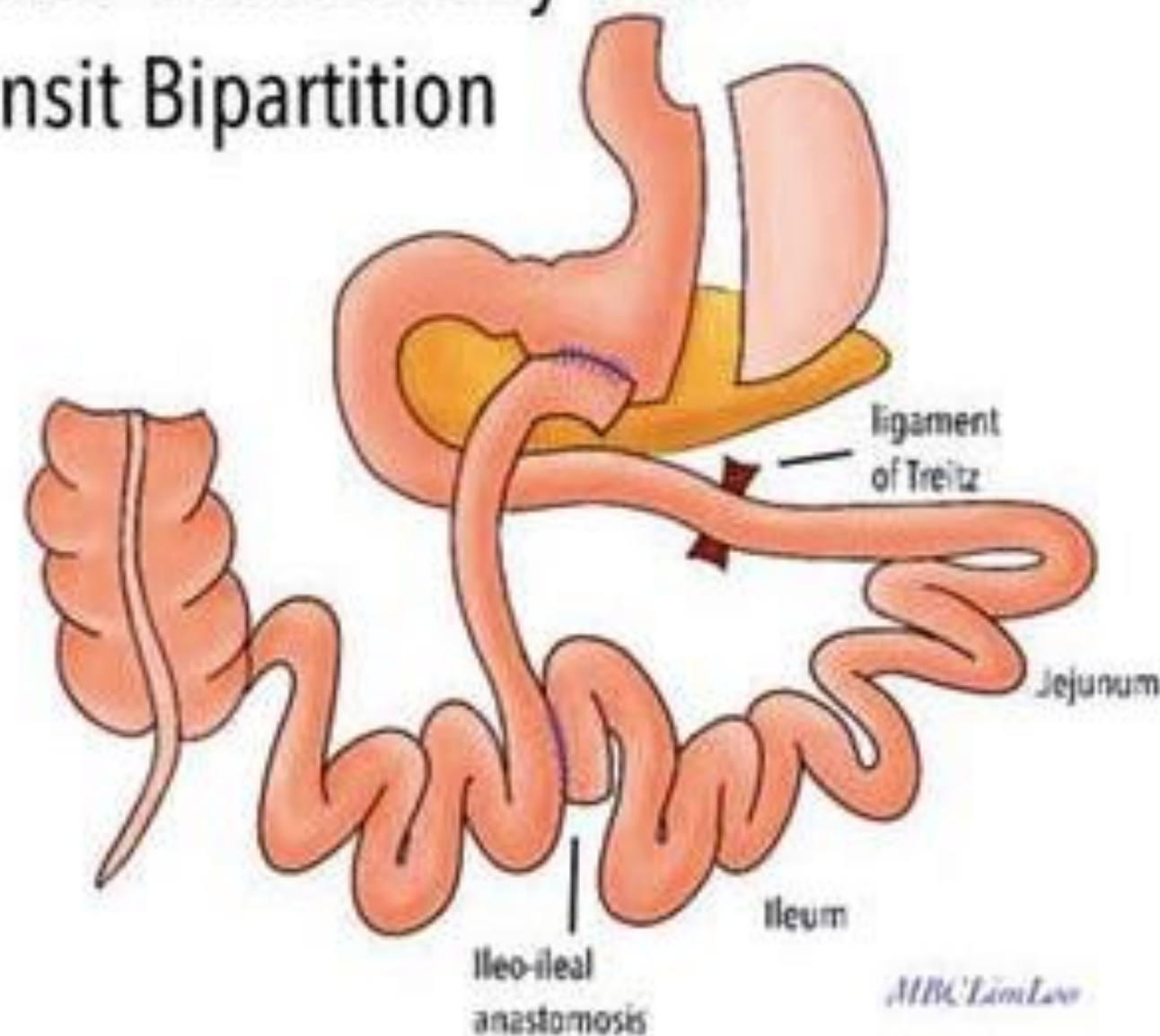


Surgical Complexity and Nutritional deficiency from Bypassing duodenum and jejunum

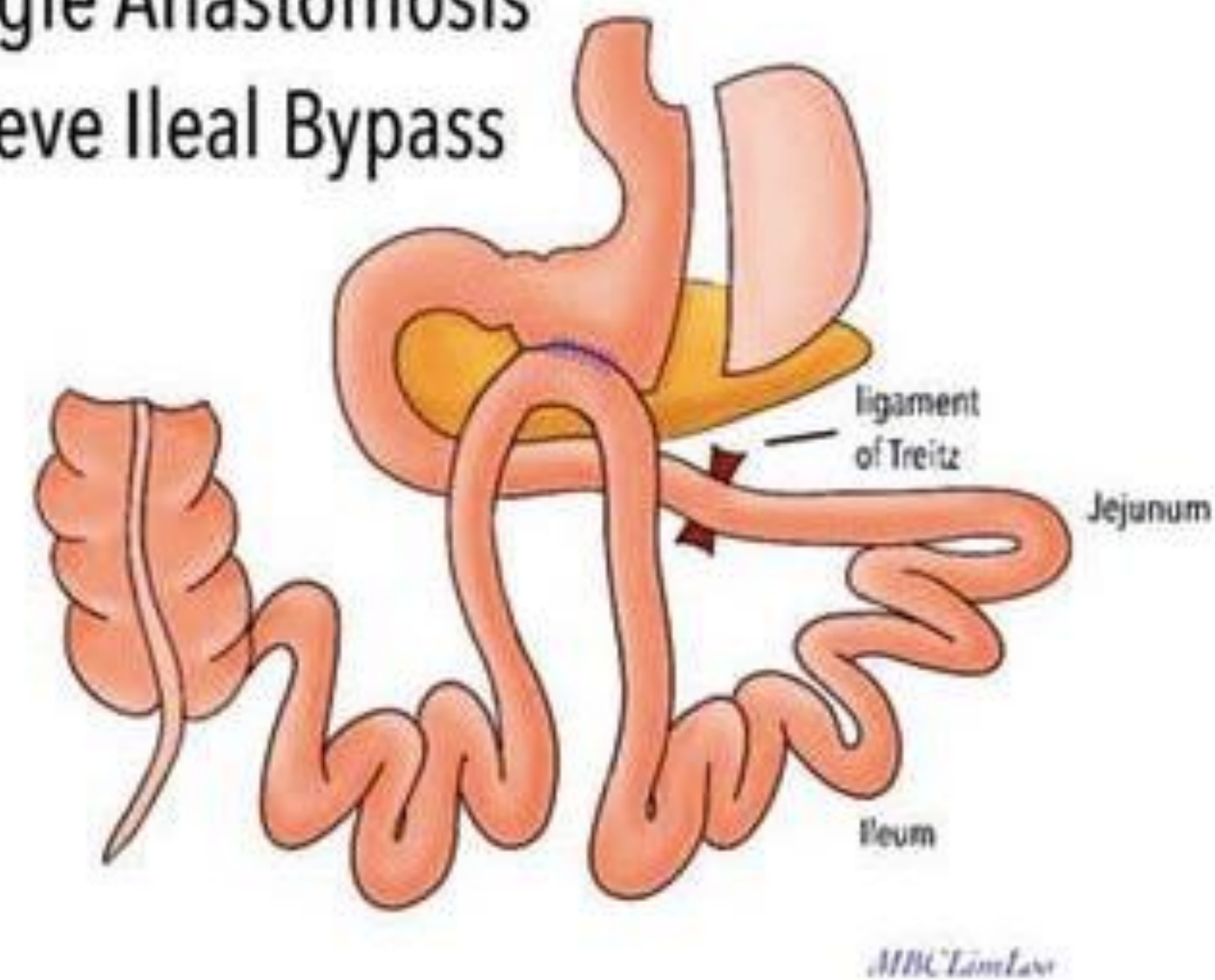


Dumping , Nutrition,Marginal ulcer,Bile reflux

Sleeve Gastrectomy with
Transit Bipartition



Single Anastomosis
Sleeve Ileal Bypass



2022 Muzaffer AL:Marginal ulcer after mini gastric by-pass and sleeve gastrectomy with transit bipartition

2024 Ala Wafa et al : The Alarming Rate of Malnutrition after Single Anastomosis Sleeve Ileal Bypass. A single Centre Experience

Patients do not need Bypassing GI to cause malabsorption

- GLP1 Agonist do not make malabsorption, it achieves up to 30 % weight loss
- Sleeve gastrectomy do not bypass bowel, it achieves 25% weight loss in two years
- When bypassing pylorus and gastrointestinal anastomosis—> Dumping and Ulcer (gastric bypass & Bipartition or SASI)
- Future Bariatric surgery should work on Hormone modulation but avoid intestinal malabsorption

Optimal Sleeve Plus Procedure?

GI Hormone modulation

Do not bypass duodenum or jejunum

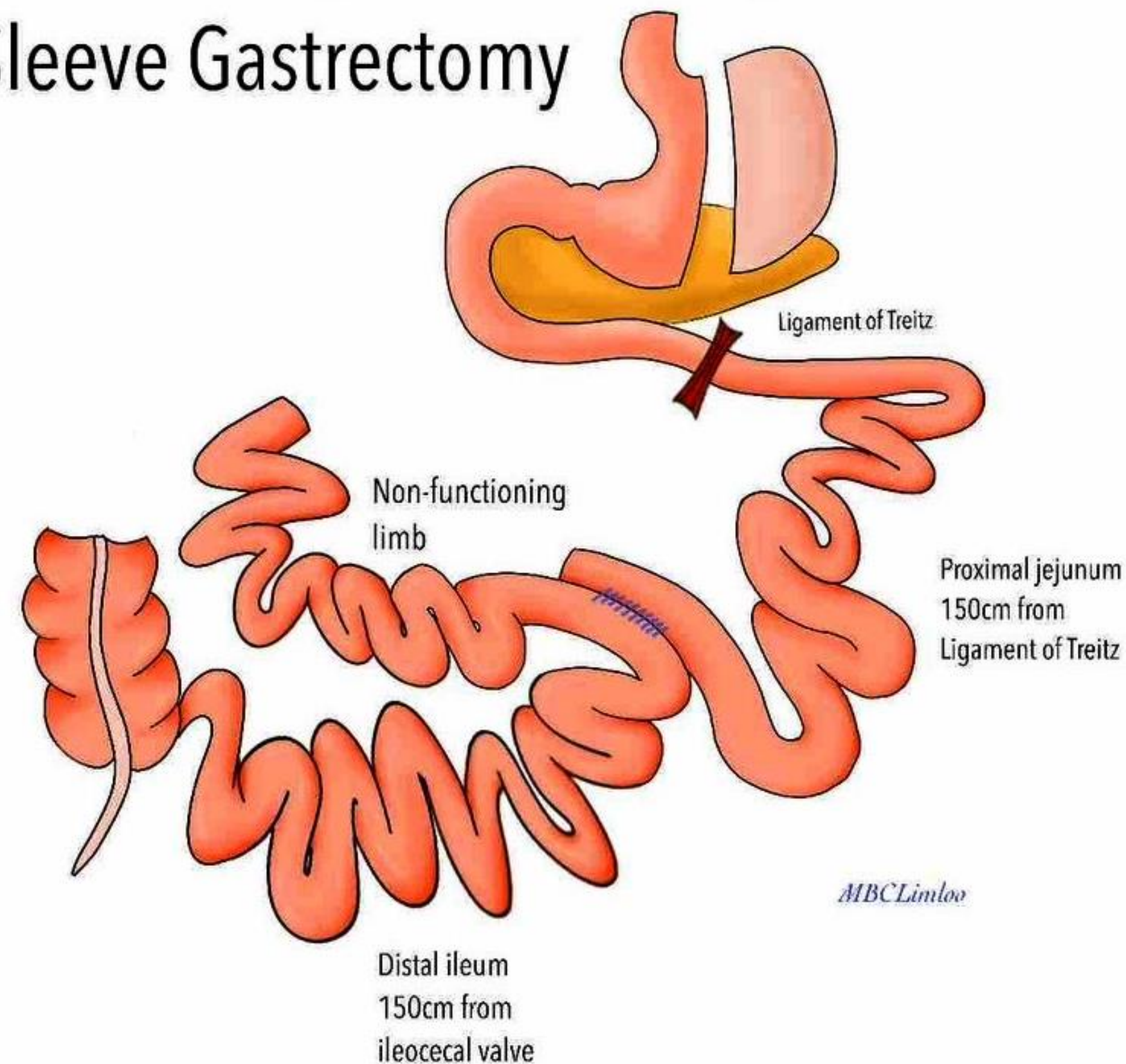
Appropriate length of bowel for absorption

Less Technical difficulties

Simpler technique

**No Dumping ,Marginal ulcer,Bile reflux and even
Nutrition concern**

Small Bowel length Shortening
with Sleeve Gastrectomy



Results(2-3) – Nutritional Anemia Related Indicators

	Pre-op Hb (g/dL)	Post-op Hb (g/dL)
Mean (*n=86)	14.4 ± 1.3	13.3 ± 1.8

✓ Mild iron deficiency anemia in 8.1%

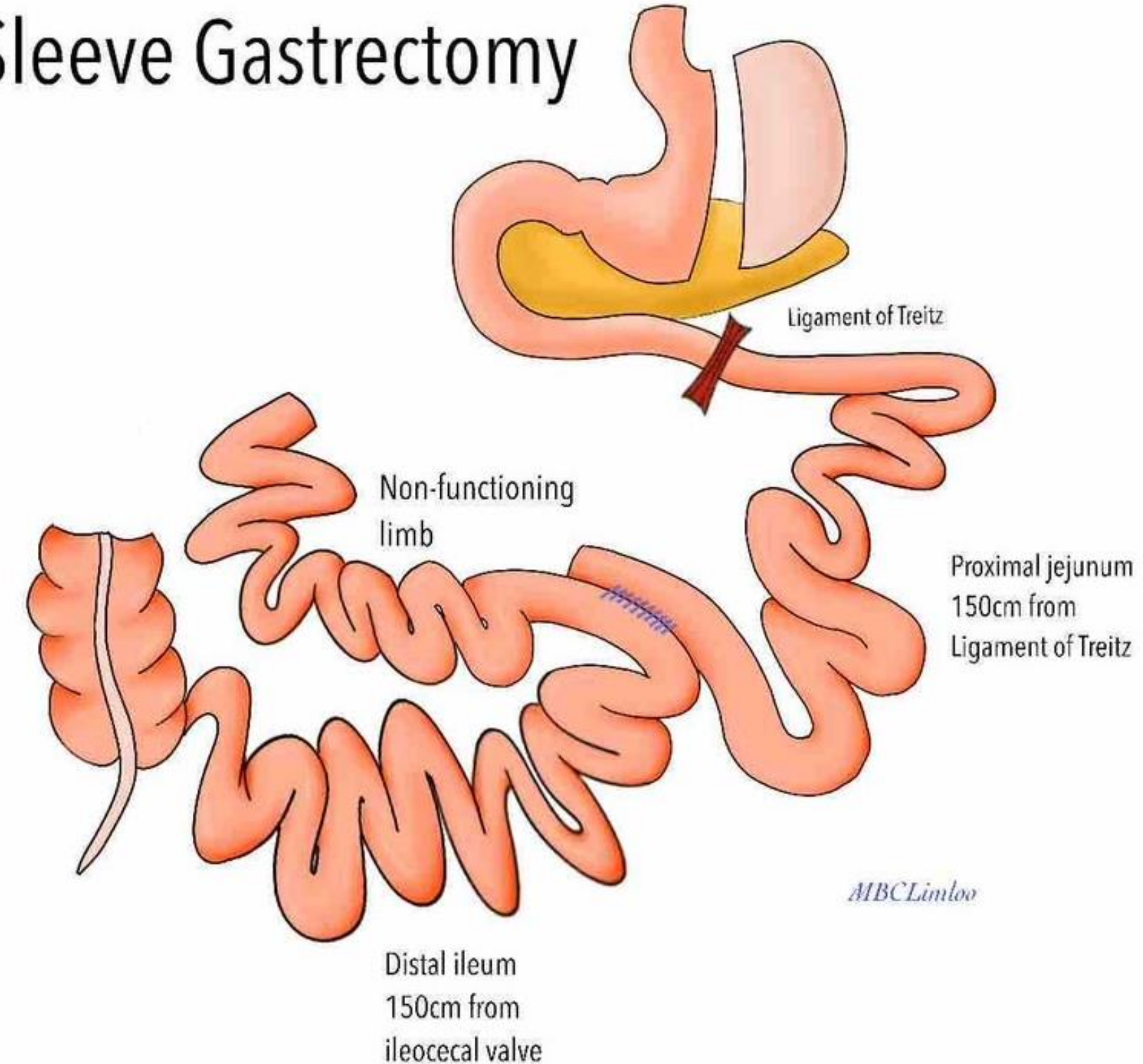
✓ Vitamin B12 deficiency in 3.4%

✓ No folic acid deficiency

✓ No severe malnutrition that requiring hospitalization or re-operation.

	Mild iron deficiency anemia	B12	Folic acid
Deficiency Rate	8.1% (*n=86)	3.4% (n=89)	0.0% (n=89)

Small Bowel length Shortening with Sleeve Gastrectomy



From 03/02/ 2023 to 04/03/2026
Total number n= 41 patients
27.5<BMI< 32.5
Male: 11 (26.8%)
Female: 30 (73.2%)

Small Bowel Length Shortening with Sleeve Gastrectomy (BOS-SG) for T2DM patients with BMI < 32.5

Weight Loss (TWL)

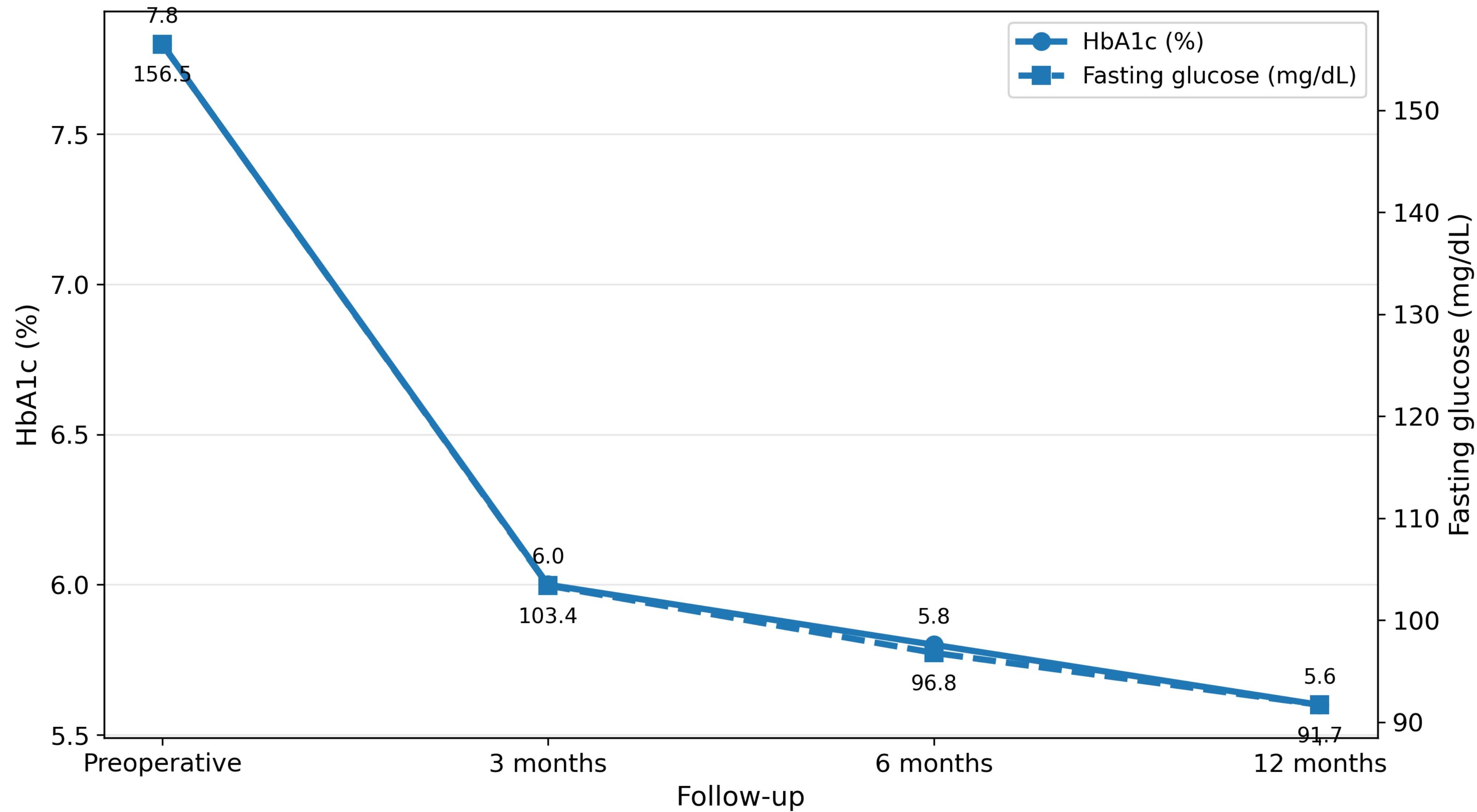
Diabetes Remission

Safety

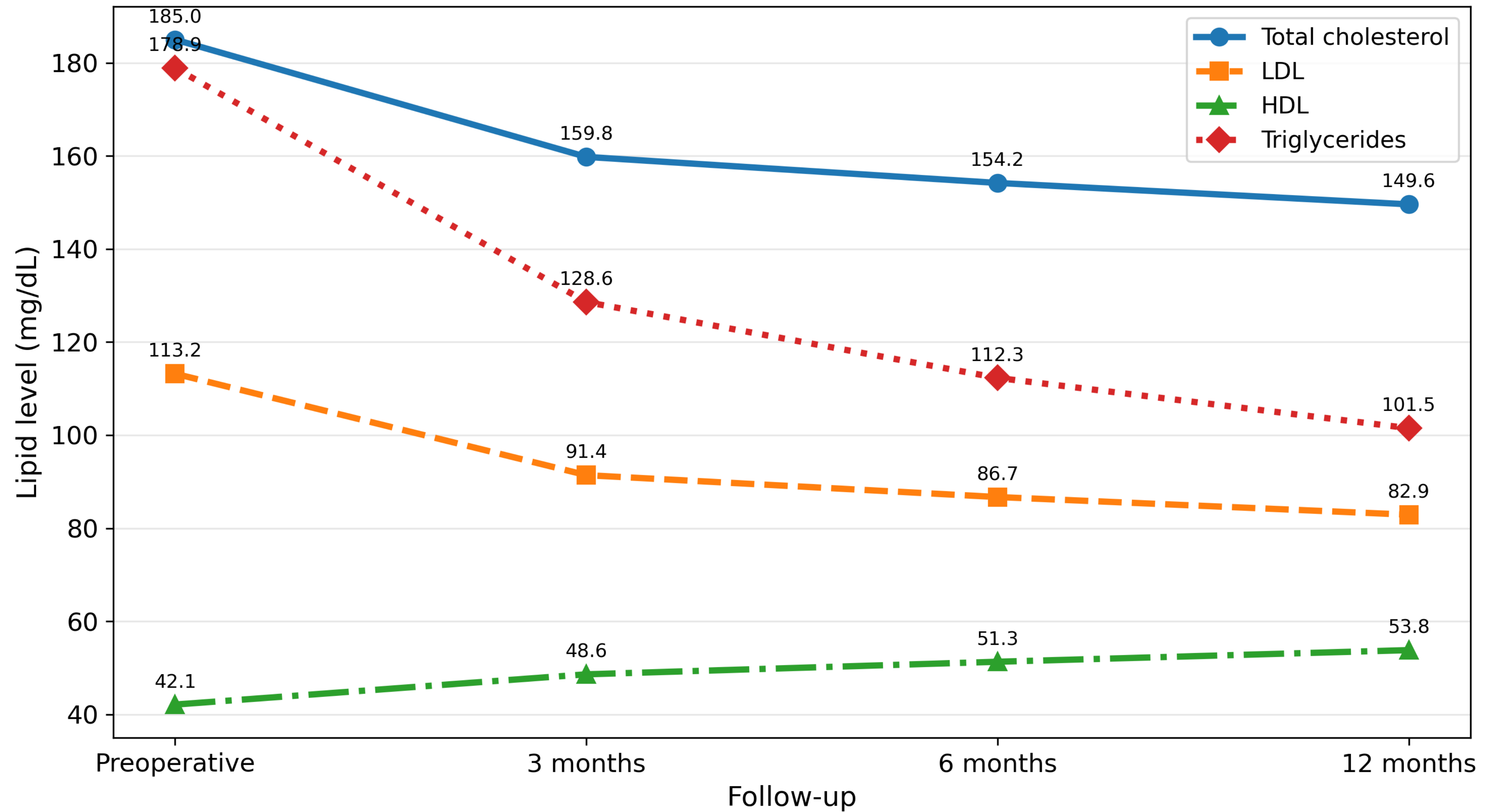
Nutritional
Deficiencies

	Pre-Operatively	3 months (n=37)	p	6 months (n=30)	p	12 months (n=24)	p
Weight (kg)	80.5 ± 10.1 (62.1–104.3)	67.5 ± 8.5	<0.001	63.2 ± 8.0	<0.001	60.4 ± 7.7	<0.001
BMI (kg/m ²)	29.8 ± 2.0 (25.2-32.5)	25.0 ± 1.9	<0.001	23.4 ± 1.9	<0.001	22.4 ± 1.9	<0.001

Glycaemic Improvement After Sleeve Gastrectomy with Small Bowel Shortening



Lipid Profile Trends After Sleeve Gastrectomy with Small Bowel Shortening



Follow-up of Nutrition: Excellent

Parameter	Mean value at 12 months	Reference range
Albumin	4.2	3.8-5.3 g/dL
Total Protein	7.2	6.0-8.0 g/dL
Iron	112.1	50-212 ug/dL
Folic Acid	18.3	> 4 ng/ml
Calcium	9.4	8.6-10.3 mg/dl
Vitamin B12	455.2	180-914 (pg/ml)

Superobesity?

Study design

- Retrospective single-centre cohort
- 2022–2025
- n = 82
- Mean outcome analysis total 2 years

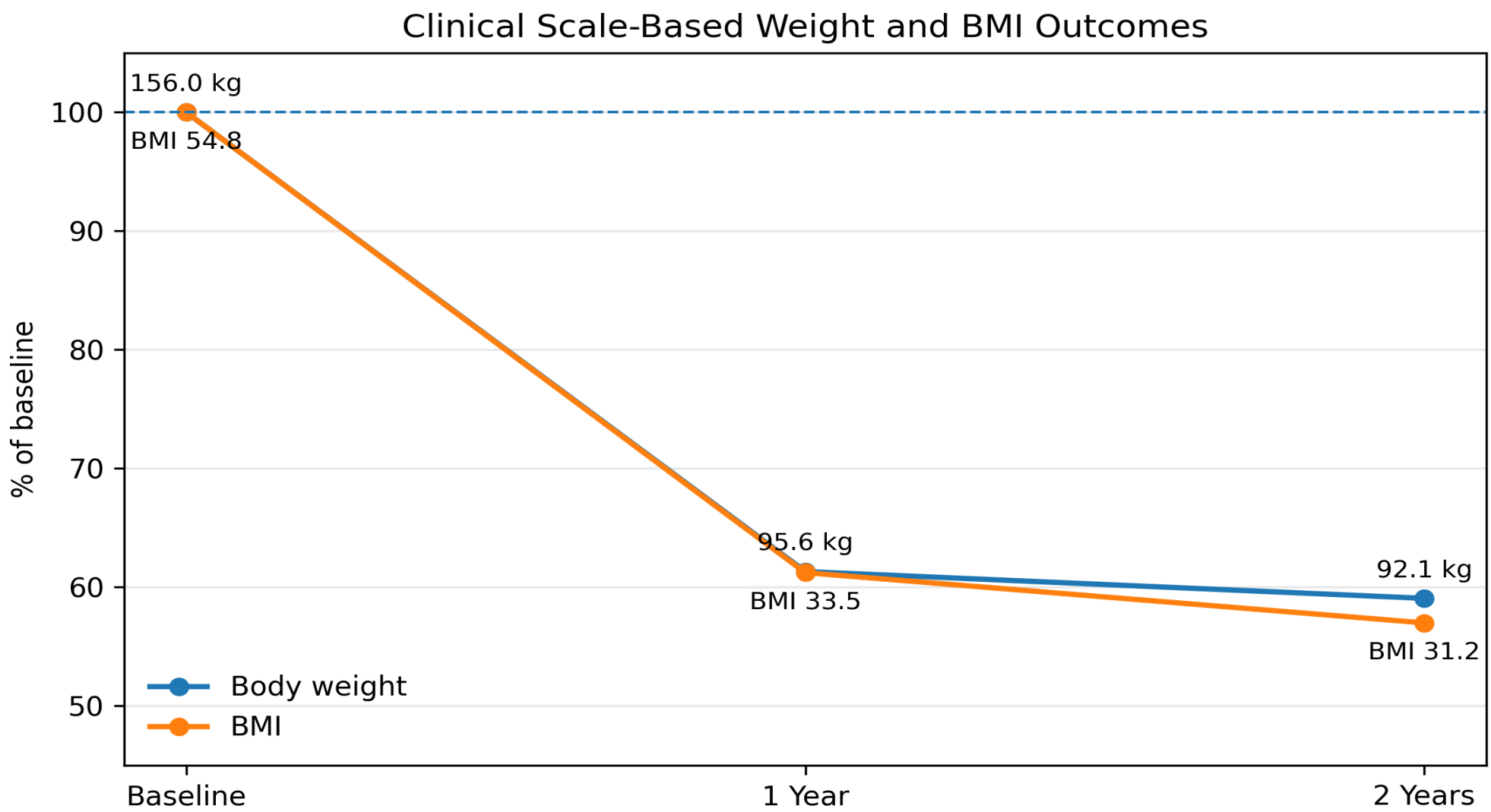
Variable	Value
Age, years	33.78 ± 7.78
Female	23, 28.0%
Male	59, 72.0%
Baseline body weight, kg	155.98 ± 17.23
Baseline BMI, kg/m ²	54.78 ± 4.49
Total bowel length, cm	728.41 ± 96.85

Operative Details

Variable	Value
Mean operative time	113.35 ± 84.3 min
Robotic-assisted BOS-SG	20, 24.4%
Standard laparoscopic BOS-SG	62, 75.6%
Hiatal hernia repair / cruroplasty	All cases 100%

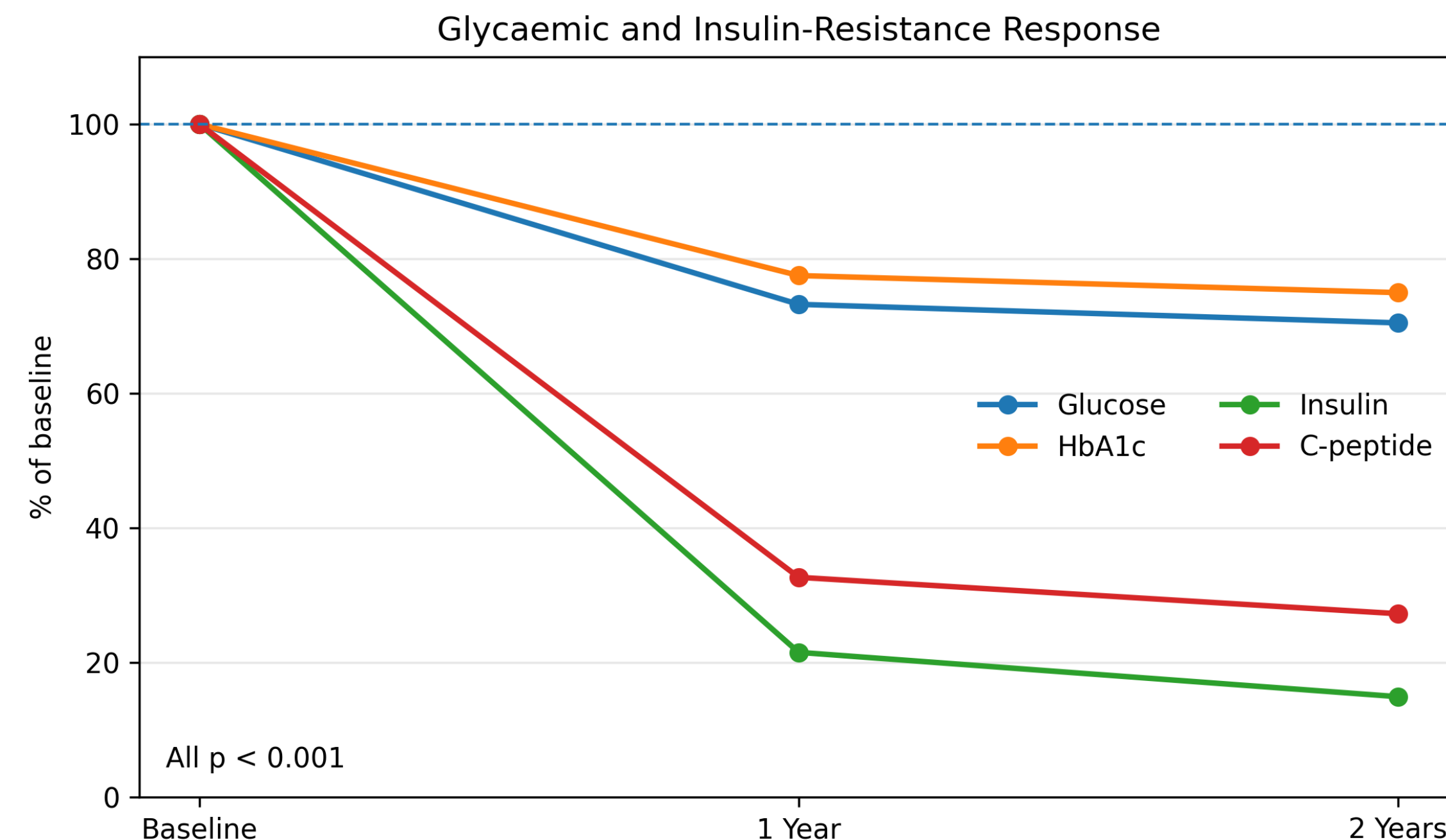
Clinical weight loss outcomes

Variable	Baseline	1 Year	2 Years
Body weight, kg	155.98 ± 17.23	95.64 ± 13.52	92.12 ± 10.50
BMI, kg/m ²	54.78 ± 4.49	33.54 ± 4.44	31.22 ± 3.04
%TWL	—	38.7%	40.9%
%EWL, BMI 24	—	68.8%	72.8%



Glycaemic and Insulin-Resistance Response

Marker	Baseline	1 Year	2 Years	p value
Fasting Glucose, mg/dL	114.34	83.72	80.57	<0.001
HbA1c, %	6.71	5.20	5.03	<0.001
Insulin	32.33	6.95	4.82	<0.001
C-peptide	5.36	1.75	1.46	<0.001

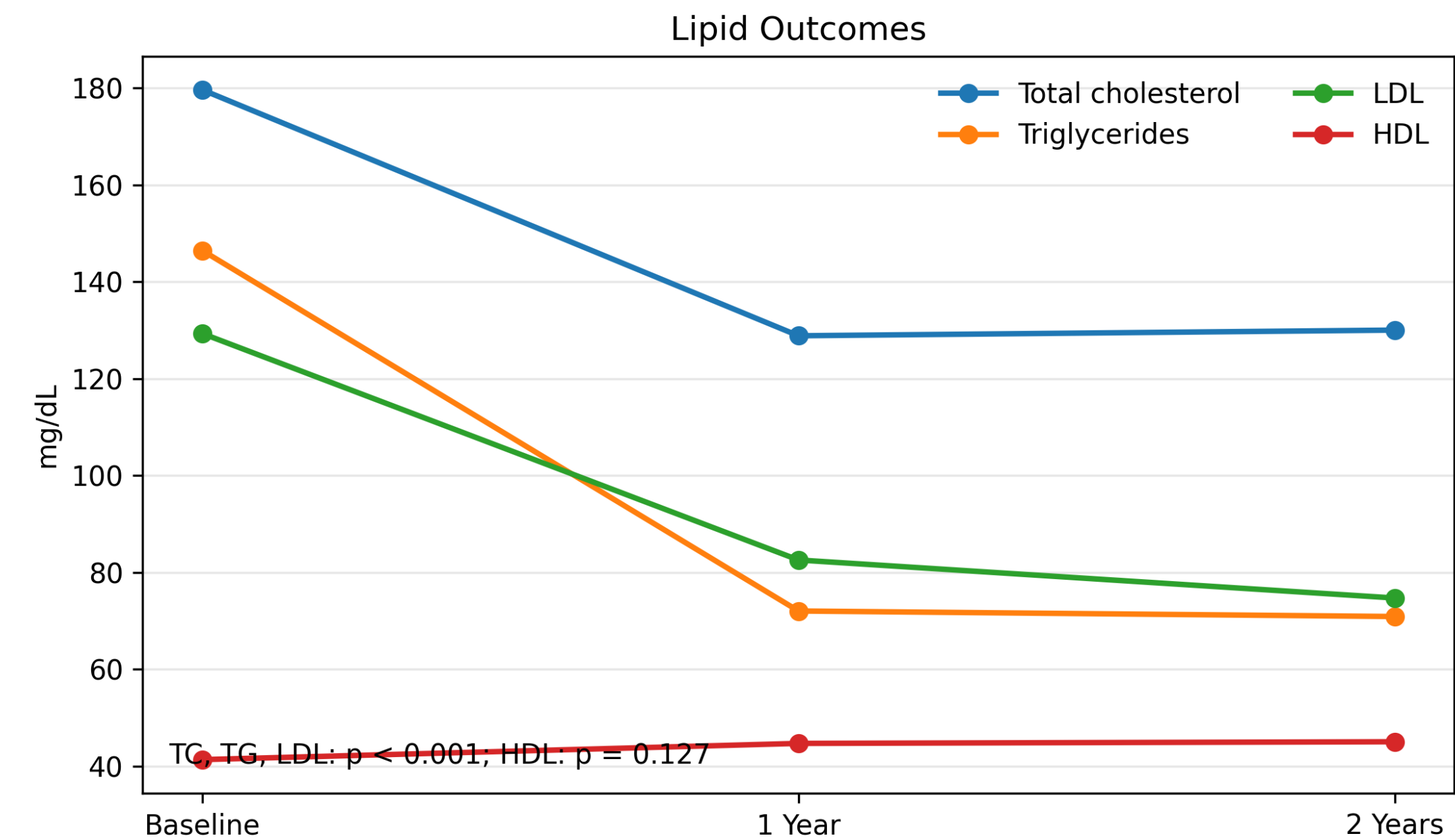


Marked reduction in glycaemic burden and insulin demand.

“UNPUBLISHED DATA – DO NOT COPY OR DISTRIBUTE”.

Lipid Outcomes

Marker	Baseline	1 Year	2 Years	p value
Total cholesterol	179.61	128.83	130.00	<0.001
Triglycerides	146.43	72.00	70.86	<0.001
LDL-cholesterol	129.29	82.53	74.68	<0.001
HDL - cholesterol	41.31	44.66	45.00	0.127



Strong reduction in total cholesterol, triglycerides, and LDL
HDL showed a non-significant upward trend.

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Micronutrient Follow-up

Markers	Follow-up mean $\pm$ SD	Reference range
Fe	103.82 $\pm$ 34.93	50–212
TIBC	326.74 $\pm$ 52.69	205–567
Iron saturation, %	32.61 $\pm$ 11.71	20–50%
B12	343.47 $\pm$ 237.43	180–914
Folate	11.51 $\pm$ 5.94	>4

Micronutrient values were generally preserved within reference range at cohort level.

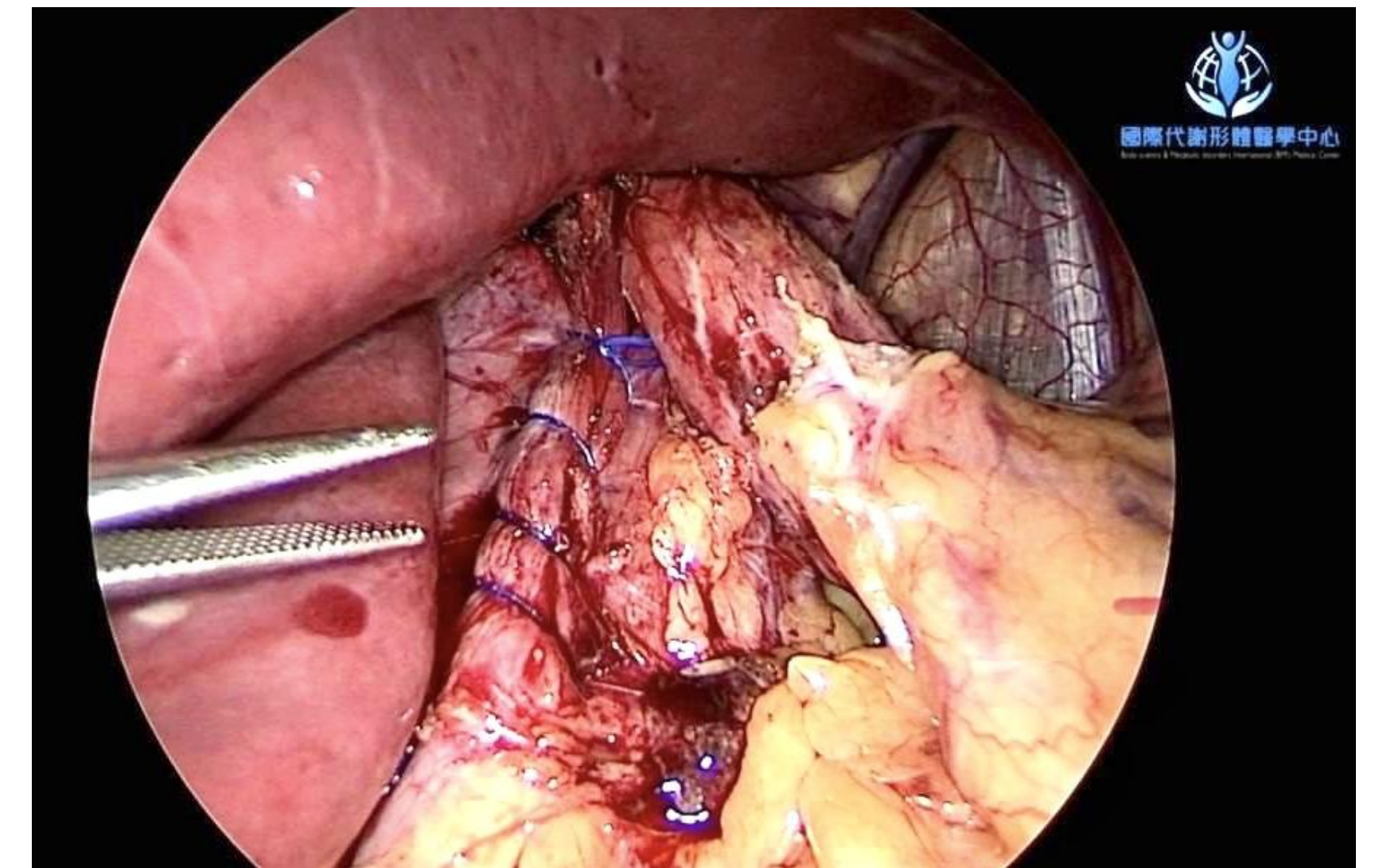
Routine cruroplasty for BOS-SG > 1 year

Endoscopic GERD Outcome

- 89 patients completed PES exam(9% smoker)
- Improved 10.1%
- Unchanged 69.7%
- Worsened 20.2%

—>79.8% Stable or Improved

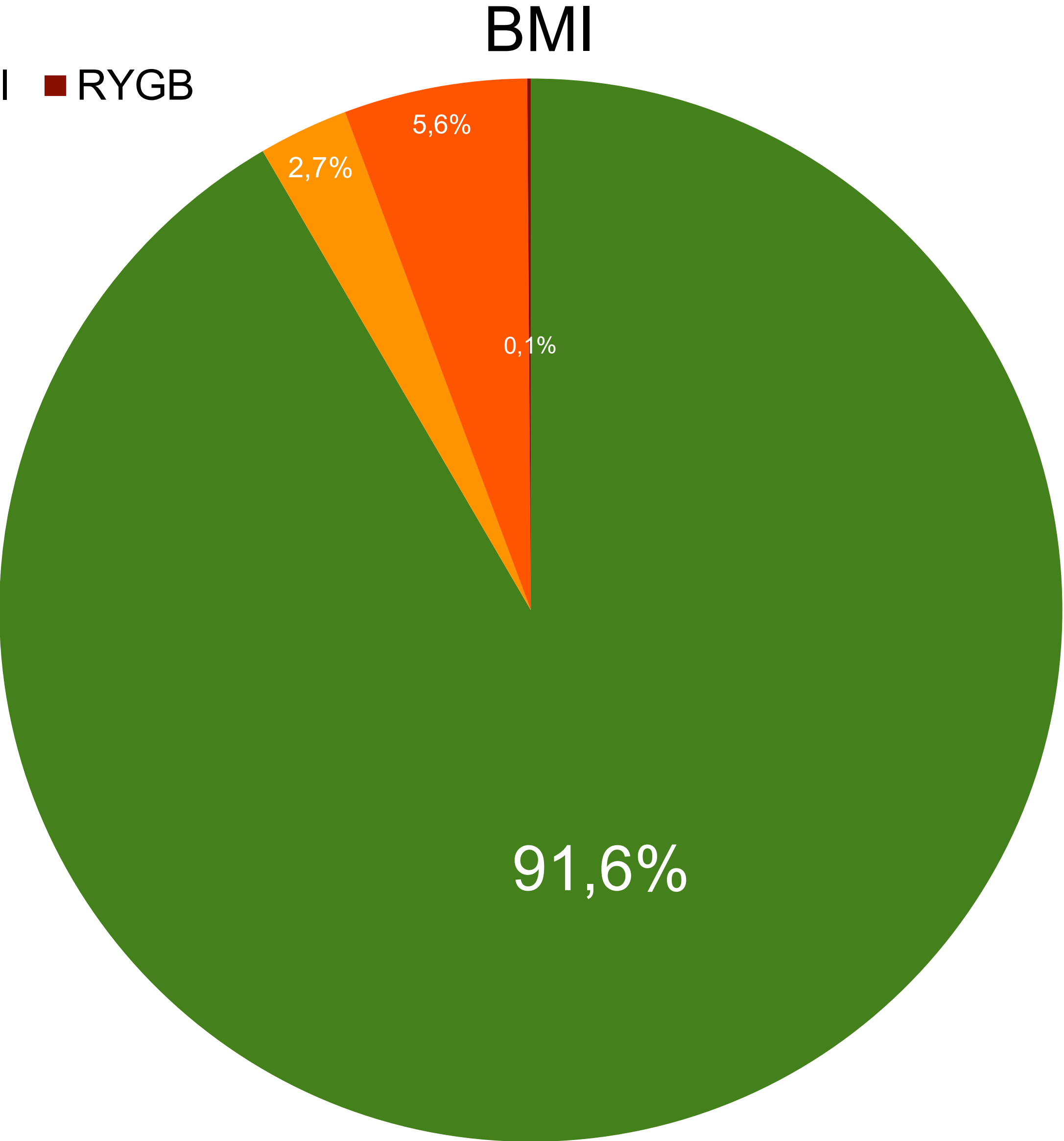
- Severe esophagitis (LA C/D): 3.4% preoperatively → 4.5% at 1 year
- Regular PPI Use 6.7% beyond the first postoperative year.



2014 Total numbers of surgery:1016
2025 Total numbers of surgery: 915

Robotic approach :
274/915=30%

■ BOS-SG ■ Sleeve DJB ■ Revision, including referral ■ RYGB



Conclusion

★In Asia, BOS-SG should be the most balanced Sleeve plus procedure

1. Simple bowel bypass technique
2. No Remnant stomach
3. Excellent weight loss and commorbidites resolution
4. 0% dumping syndrome
5. 0% marginal uler
6. 0% hypoproteinemia
7. Minimal nutrition deficiency (8% mild iron def anemia, all female)
8. 0% reversal of bowel shortening or bowel lengthening
9. suggest routine cruroplasty
10. Revision option for gastric bypass complications

