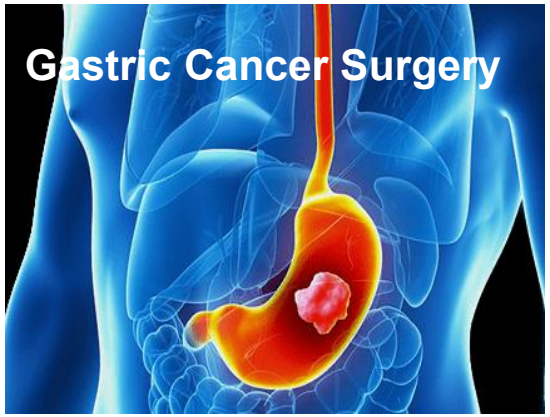

XXVIII IFSO World Congress
9-12 September 2025 | Santiago, Chile
COMBINED THERAPIES, THE DAWN OF A NEW ERA
IFSO
SANTIAGO 2025
Sleeve with Proximal Jejunal Bypass (SLEEVE PJB)
Seung-Wan Ryu
President of KSMBS
IFSO 2025 Santiago
Combined Therapies, The Dawn of a New Era
Keimyung University Dong-San Hospital, Surgery, KOREA

Disclosure Slide

I have no conflict of interest regarding this presentation

I am a UGI surgeon



20th Anniversary of KLASS (2024/06/15, Seoul)

I am a Bariatric Baby surgeon

2013.10.14 – First Bariatric Surgery

[2] 2013년 11월 1일 KEIMYUNG UNIVERSITY DONGSAN MEDICAL CENTER NEWS 제331호

"Successful Sleeve Surgery in Foreign Morbid Obese Patients"

"Improved Treatment Efficacy and Patient Satisfaction with Customized Bariatric and Metabolic Surgery"

▲ 비만대사협진팀과 위 소매 절제술을 받은 외국인 모세씨(가운데)

수술 후 숙면을 취할 수 있으며, 회복도 2~3일이면 가능해 주변 지인들에게도 추천해주고 싶을만큼 만족스런 수술이었다. 특히 동산병원은 의료진도 매우 친절하고, 국제적인 팀워크로 환자에게 제공하는 의료서비스가 훌륭하다"며 감사함을 전했다.

하는 위밴드잡입술에 비해 체중감소도 크고 지속적이며, 당뇨나 고혈압과 같은 합병증을 치료하는 데도 효과적이다"고 밝혔다.

우리 병원은 지난해 가을부터 비만대사센터의 설립을 목표로 위장관외과(류승완), 가정의학과(서영성), 내분비내과(김혜순, 조호찬, 김미경), 정신건강의학과(김양태) 교수들이 모여 협진시스템을 이루고 정기학술 집담회와 세미나를 개최하는 등 고도비만 환자들을 위한 치료법 연구를 활발히 하고 있다.

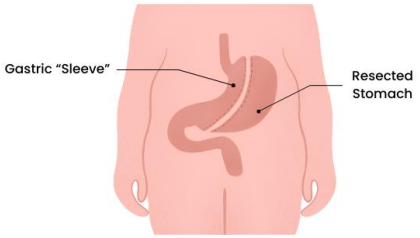
외국인 초고도 비만환자가 우리 병원에 ... 류승완 교수는 "이번 수술은 위의 오른쪽 ... 비만대사센터장인 서영성 교수는 "고도비

5 month later came back to the USA

2013.10 99kg, BMI 38.2 → 2014.3 72kg, BMI 27.7

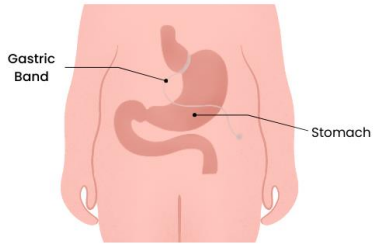
Types of Bariatric Surgery

1. Gastric Sleeve



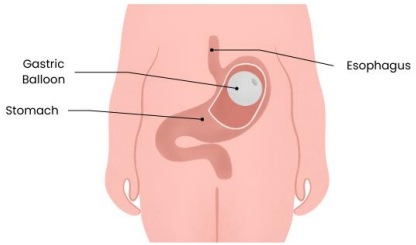
Performed Type	Can it Be Reversed?
Laparoscopic	No

2. Gastric Band



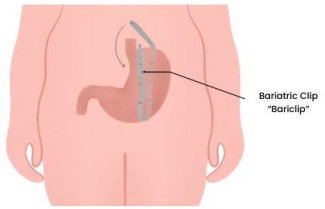
Performed Type	Can it Be Reversed?
Laparoscopic	Yes

3. Gastric Balloon



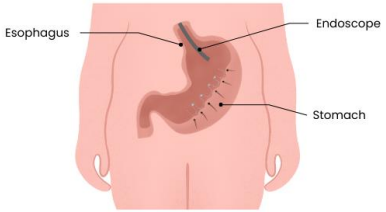
Performed Type	Can it Be Reversed?
Endoscopic	Yes

4. Bariclip



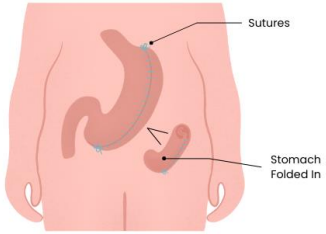
Performed Type	Can it Be Reversed?
Laparoscopic	Yes

5. Endoscopic Sleeve Gastroplasty



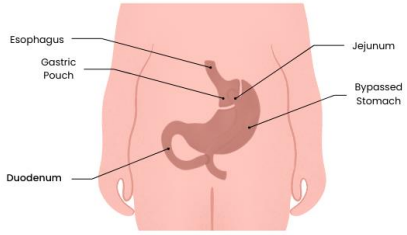
Performed Type	Can it Be Reversed?
Endoscopic	Yes

6. Gastric Sleeve Plication



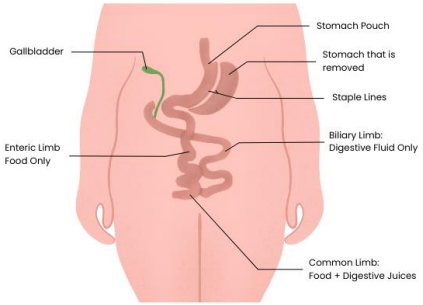
Performed Type	Can it Be Reversed?
Laparoscopic	Yes

7. RNY Gastric Bypass

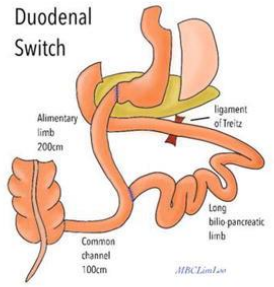


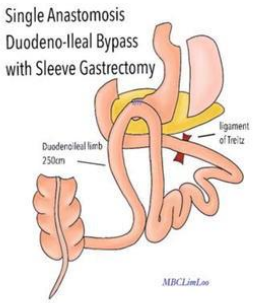
Performed Type	Can it Be Reversed?
Laparoscopic	Yes*

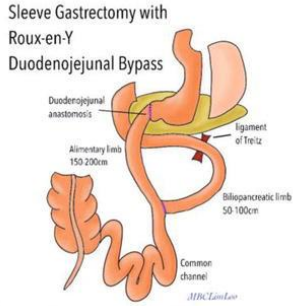
8. Duodenal Swithc (BDP/DS $ SADi-S)

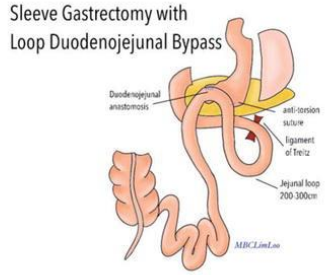


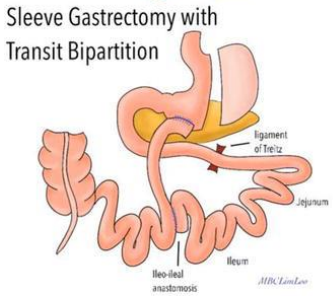
Performed Type	Can it Be Reversed?
Laparoscopic	Yes*

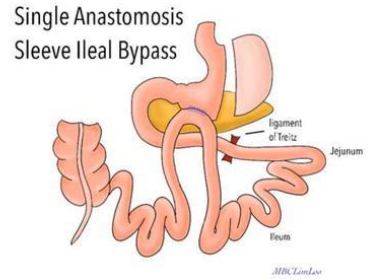


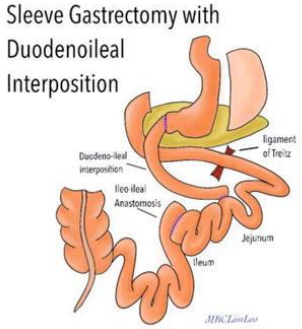


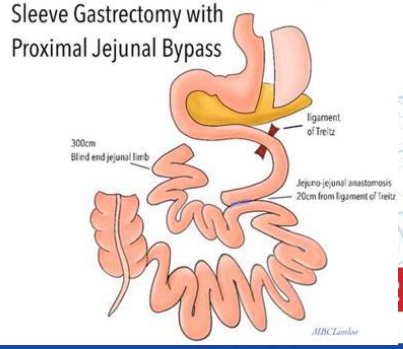












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Gastric Cancer Surgical Treatment

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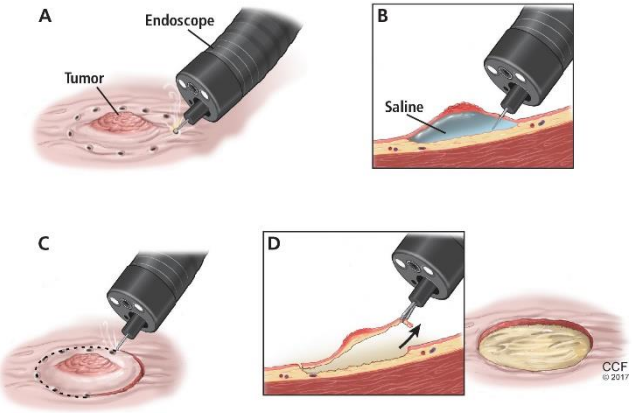
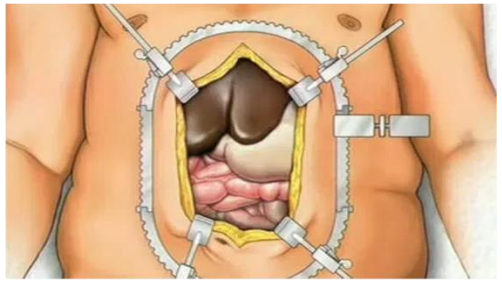
Endoscopic Resection

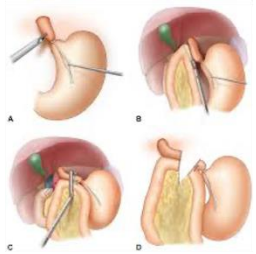


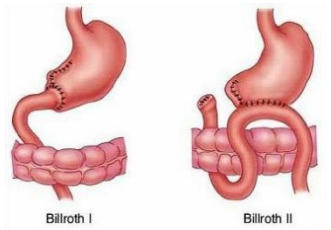


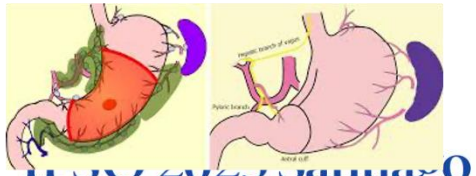
Open gastrectomy

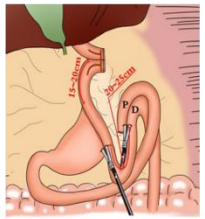
Laparoscopic gastrectomy

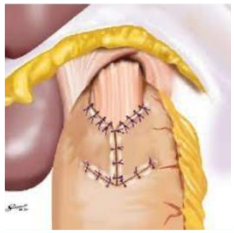
Gastric Resection & anastomosis



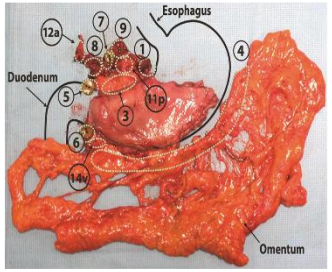


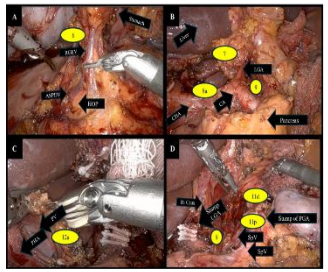






Radical LN dissection



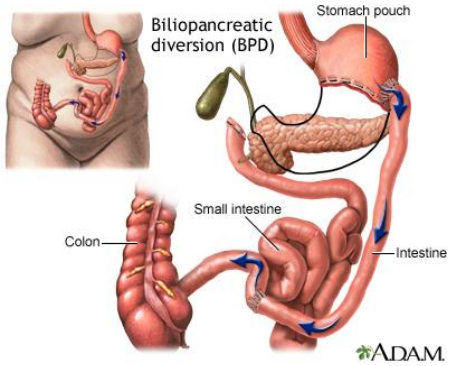


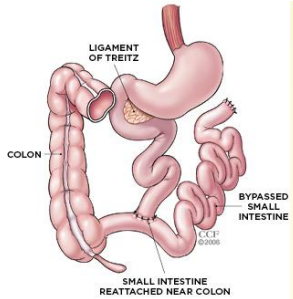
Robot gastrectomy

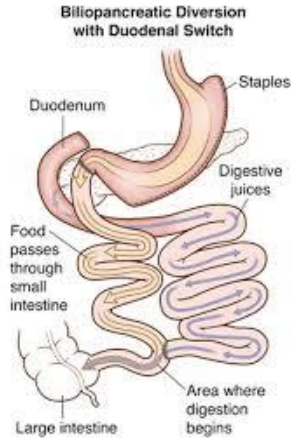
KLASS trials : Korea multicenter study

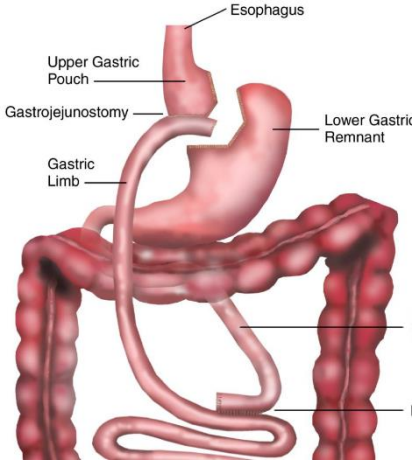
	PI	Subject	Design	Case No.	Endpoints	Status	No of Publications
KLASS-01	Kim HH	LDG vs ODG for cstage I GC	RCT	1,400	Radicality, Safety	FU finished	**14** (JCO, JAMA Oncol, Ann Surg…)
KLASS-02	Han SU	LDG vs ODG for cstage II/III GC	RCT	1,050	Radicality, Safety	FU finished	**9** (JCO, JAMA Surg, Ann Surg…)
KLASS-03	Cho GS	LTG for cstage I GC	Prospective single arm	170	Safety	Completed	**2** (Gastric Cancer, ASO)
KLASS-04	Lee HJ	LPPG vs LDG for cstage I GC	RCT	256	QOL	FU finished	**2** (Br J Surg, Ann Surg)
KLASS-05	Park DJ	LPG-DT vs. LTG for cstage I GC	RCT	138	QOL	FU finished	**2** (JAMA Netw Open, JGC)
KLASS-06	Hyung WJ	LTG vs OTG for cstage II/III GC	RCT	772	Radicality, Safety	Active enrollment	-
KLASS-07	Park SS	LADG vs TLDG for EGC	RCT	442	Safety, QOL	FU finished	**6** (Int J Surg, Front Oncol…)
KLASS-08	Park YK	LDG vs ODG after neoadjuvant chemo	RCT	238	Radicality, Safety	Active enrollment	-
KLASS-09	Kim JH	Long limb RY vs conventional LDG for EGC with type II DM	RCT	94	DM control	FU finished	-
KLASS-10	Kwon IK	Total vs. partial omentectomy in AGC	RCT	440	Radicality, Safety	Active enrollment	-
KLASS-11	Kim JJ	GEJ cancer ; multicenter data collection	Retrospective cohort	-	Nationwide survey	In preparation	-
KLASS-12	Lee HH	Reduced port vs conventional LDG for EGC	RCT	348	Radicality, Safety	FU finished	-
KLASS-13	Kim HI	Reduced port robot	Retrospective cohort	-	Safety, Efficacy	In preparation	-
KLASS-14	Kim TH	Cost-effectiveness of MIS	Retrospective cohort	-	Cost	In preparation	-

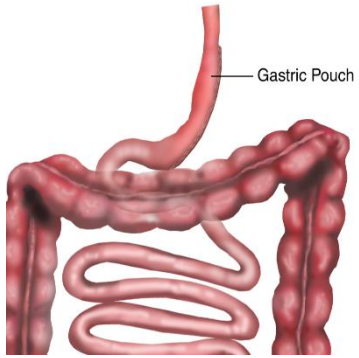
History of Bariatric Surgery











1950 Intestinal Bypass

1966 Open Gastric Bypass

1970 Open Gastroplasty

1978 Gastric Band

1980 Vertical Banded Gastroplasty

1986 Duodenal Switch

1994 Laparoscopic Gastric Bypass

1997 Open Sleeve Gastrectomy

2000 Laparoscopic Gastric Sleeve

2001 Lap-Band System Approved By FDA

2013 Endoscopy Sleeve Gastroplasty (ESG)

2015 Gastric Ballons Aproved By FDA

2017 Gastroplastia Endoscópica (ESG) Brasil

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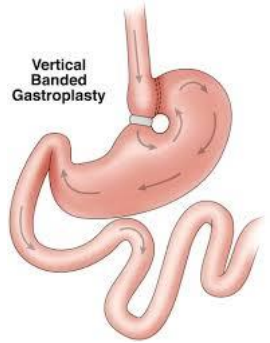
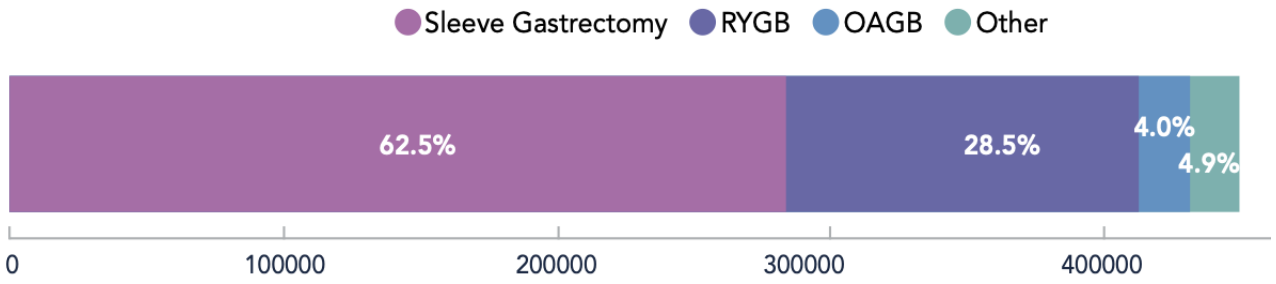
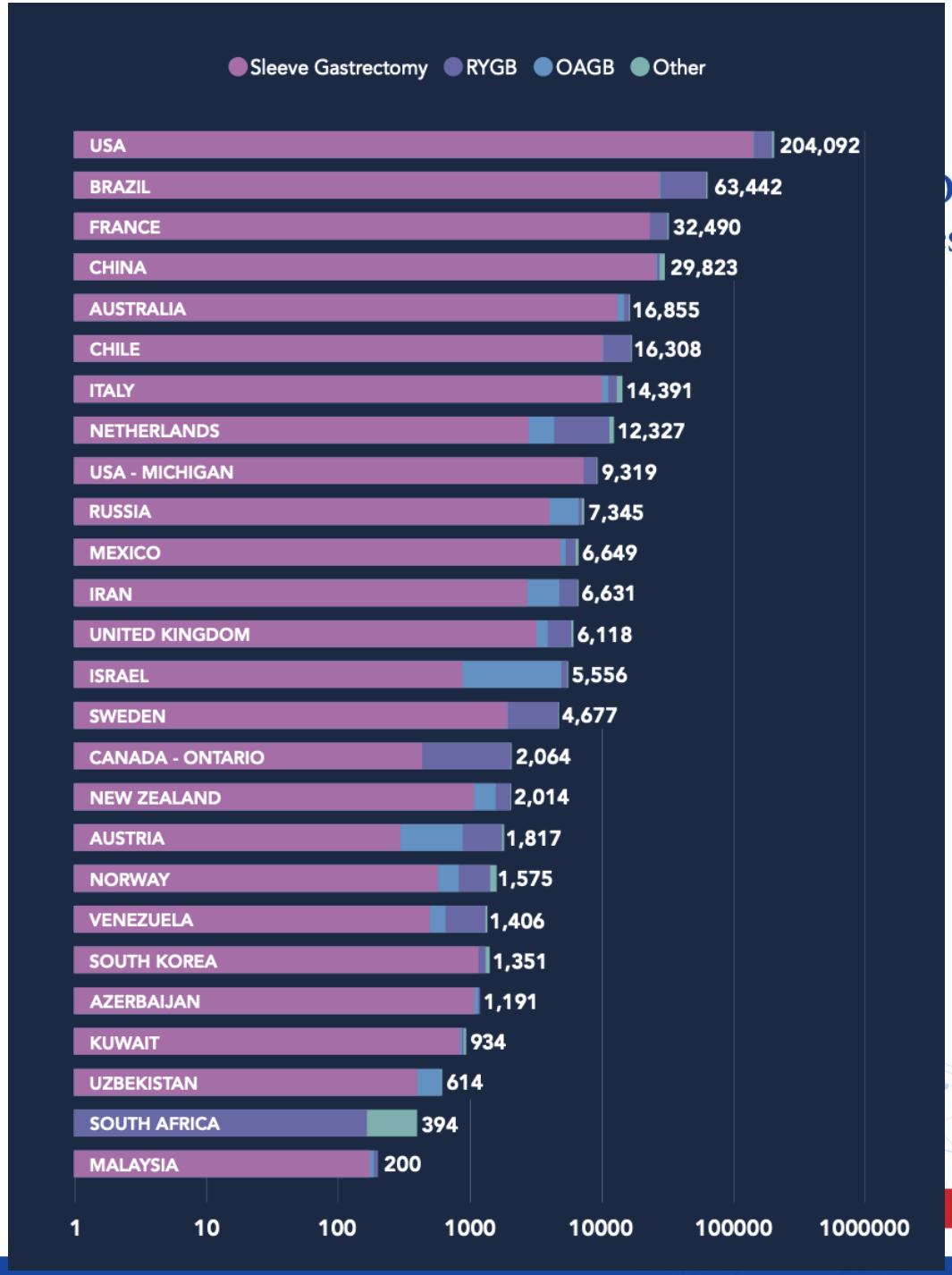


IFSO

8TH GLOBAL REGISTRY REPORT

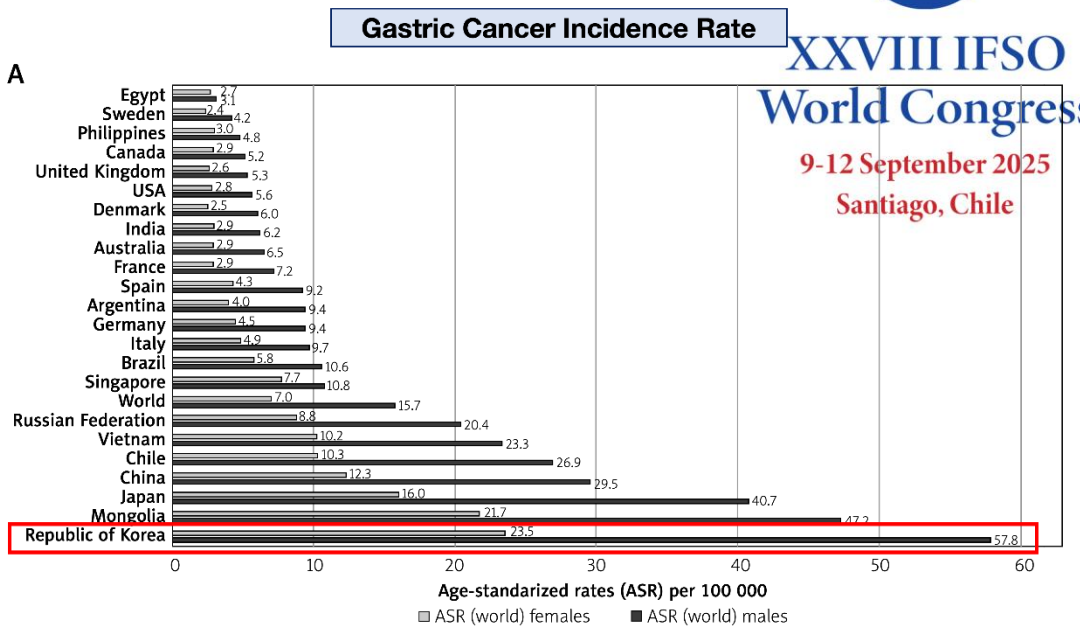
Primary procedures





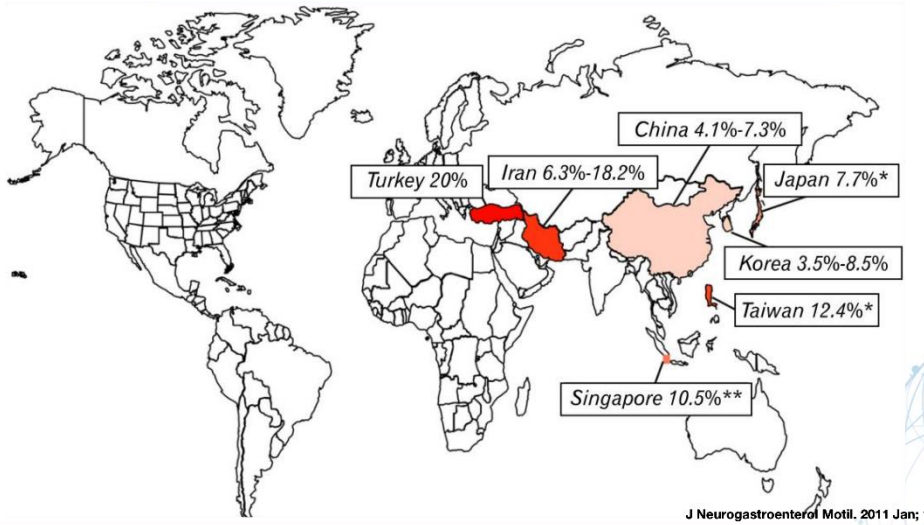
Pronounced trend towards LSG in Asia

- Relatively **low BMI** values
- High incidence of **gastric cancer**
- Low incidence of **GERD**



Gastroenterology Review 2019; 1

Prevalence of gastroesophageal reflux disease in Asia



J Neurogastroenterol Motil. 2011 Jan; 17(1): 14–27

From: **Effect of Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass on Weight Loss, Comorbidities, and Reflux at 10 Years in Adult Patients With Obesity: The SLEEVEPASS Randomized Clinical Trial**

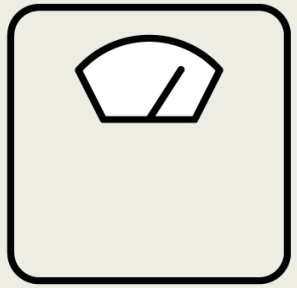
JAMA Surgery

JAMA Surg. 2022;157(8):656-666.

RCT: Effect of Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass on Weight Loss, Comorbidities, and Reflux at 10 Years in Adult Patients With Obesity

POPULATION

73 Men, 167 Women



Adults aged 18-60 y with body mass index (BMI) ≥40 (or ≥35 with obesity-related comorbidity) and prior nonsurgical treatment

Mean age, 48.4 y; mean BMI, 44.6

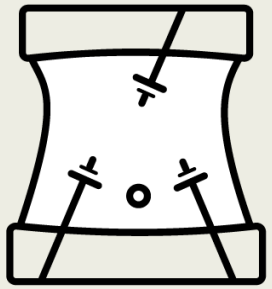
SETTINGS / LOCATIONS

3 Hospitals in Finland

INTERVENTION

240 Patients randomized

193 Analyzed for 10-y weight loss outcome



98 LSG
Laparoscopic sleeve gastrectomy

95 LRYGB
Laparoscopic Roux-en-Y gastric bypass

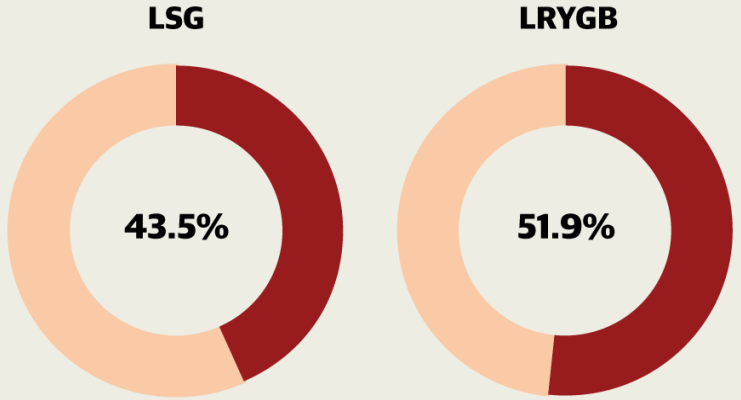
PRIMARY OUTCOME

10-y Percentage excess weight loss (%EWL), defined as the difference between initial weight and follow-up weight divided by the difference between initial weight and ideal weight for BMI of 25, multiplied by 100

FINDINGS

Both LSG and LRYGB resulted in sustainable weight loss, but 10-y %EWL was not equivalent between the 2 groups

10-y %EWL

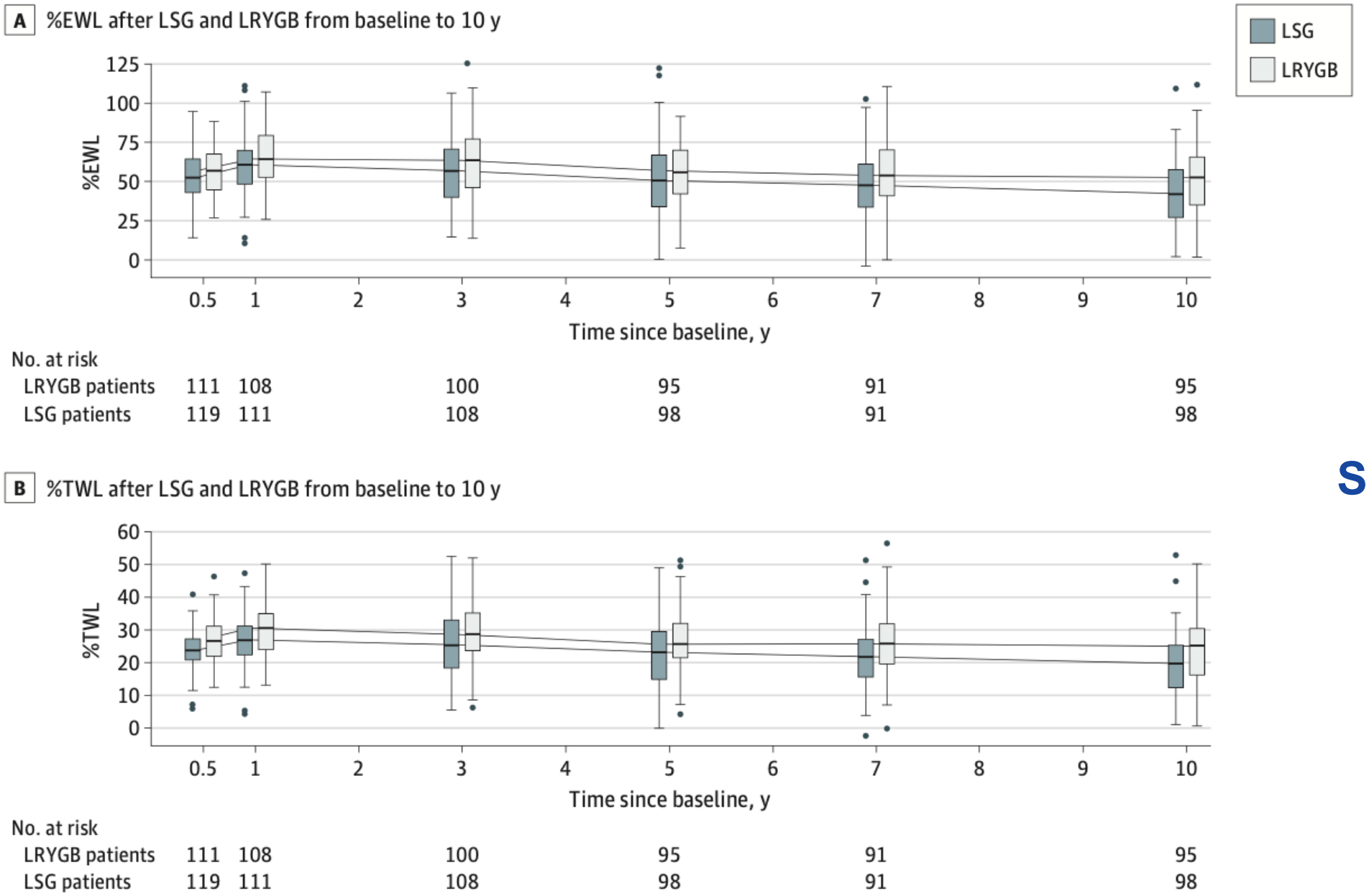


95% CI, 39.8-47.2

95% CI, 48.1-55.6

Between-group difference in mean 10-y %EWL:
8.4 Percentage points (95% CI, 3.1-13.6)

Figure 2. Percentage Excess Weight Loss (%EWL) and Percentage Total Weight Loss (%TWL) for All Patients and Individual Patients After Laparoscopic Sleeve Gastrectomy (LSG) and Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) From Baseline to 10 years



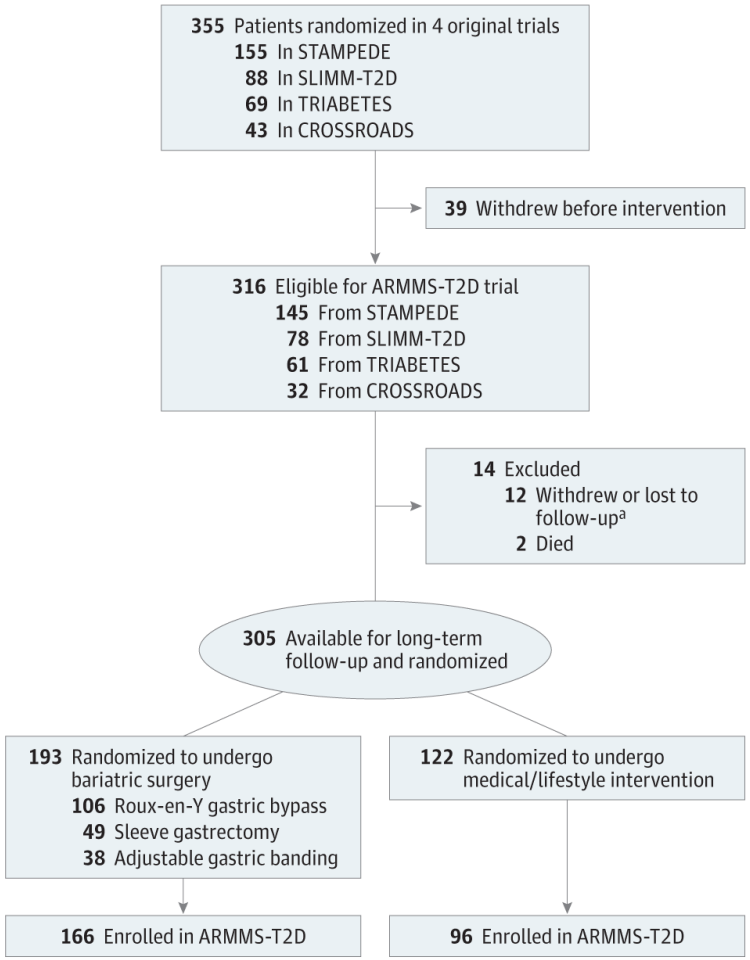
NS

Between

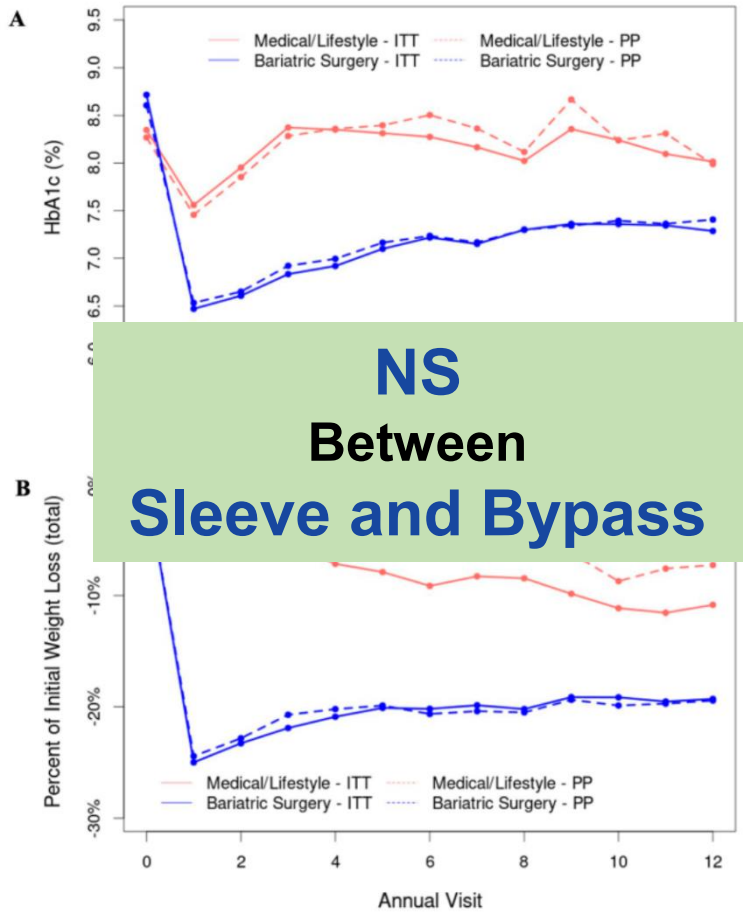
Sleeve and Bypass

Long-Term Outcomes of Medical Management vs Bariatric Surgery in Type 2 Diabetes

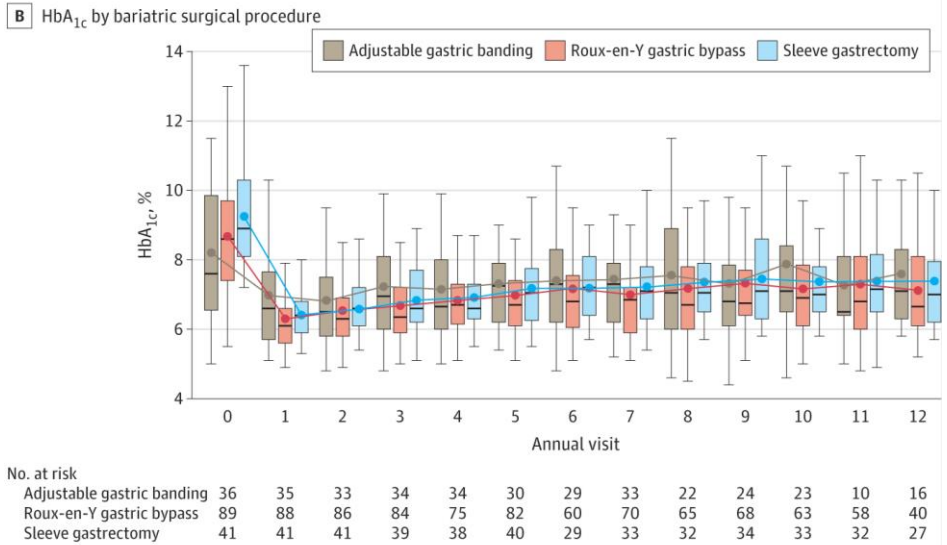
JAMA. 2024;331(8):654-664. doi:10.1001/jama.2024.0318

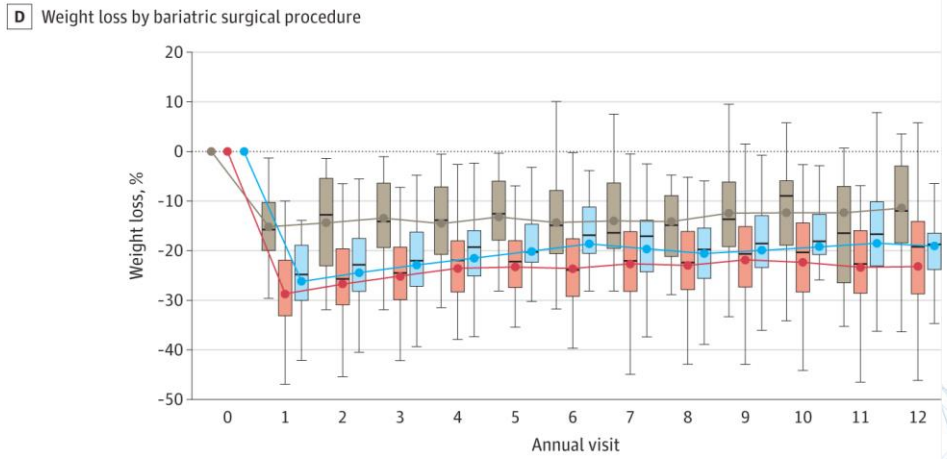


eFigure 2. Comparison of per-protocol analysis and intention-to-treat analysis of HbA_{1c} and weight change. A. HbA_{1c} over time. B. Weight loss over time. The solid lines show the results of intention-to-treat (ITT) analysis, and the dashed lines show the results of the per-protocol (PP) analysis. The per-protocol analysis accounted for the crossovers from medical/lifestyle group to surgery using the inverse probability weighting approach. Least-squared means are plotted over time.



NS
Between
Sleeve and Bypass





In the ITT analysis, weight loss at year 7 was 8.3% for the medical group and 19.9% for the surgical group, respectively. Using the PP analysis, weight loss at year 7 was 5.6% and 20.4% for the medical and surgical groups, respectively.

JAMA Network™

From: **Comparative Safety of Sleeve Gastrectomy and Gastric Bypass Up to 5 Years After Surgery in Patients With Severe Obesity**

JAMA Surg. 2021;156(12):1160-1169. doi:10.1001/jamasurg.2021.4981

Figure 1. Cumulative Incidence of Mortality, Complication, All-Cause Hospitalization, and All-Cause Emergency Department Use Comparing Sleeve Gastrectomy and Gastric Bypass

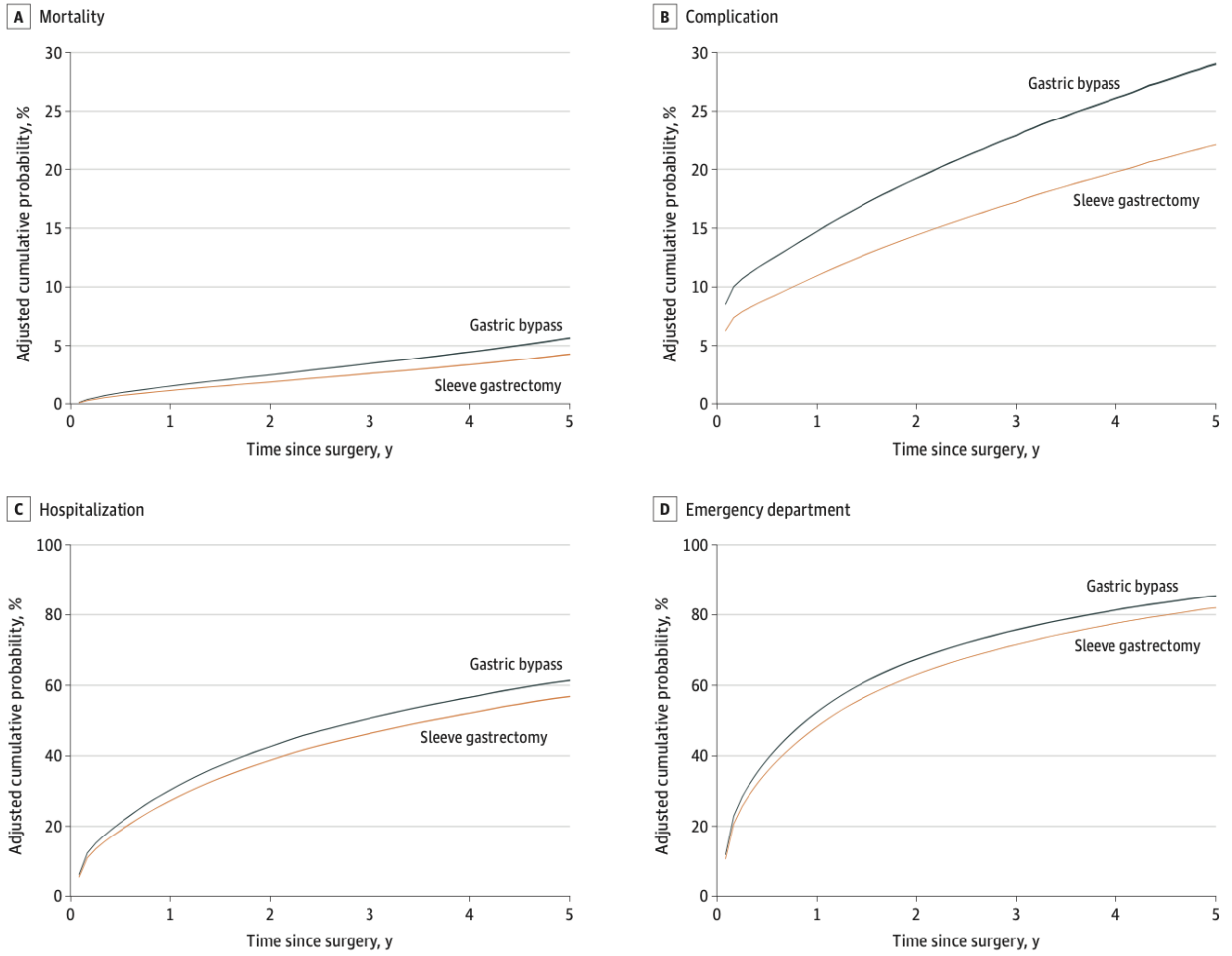
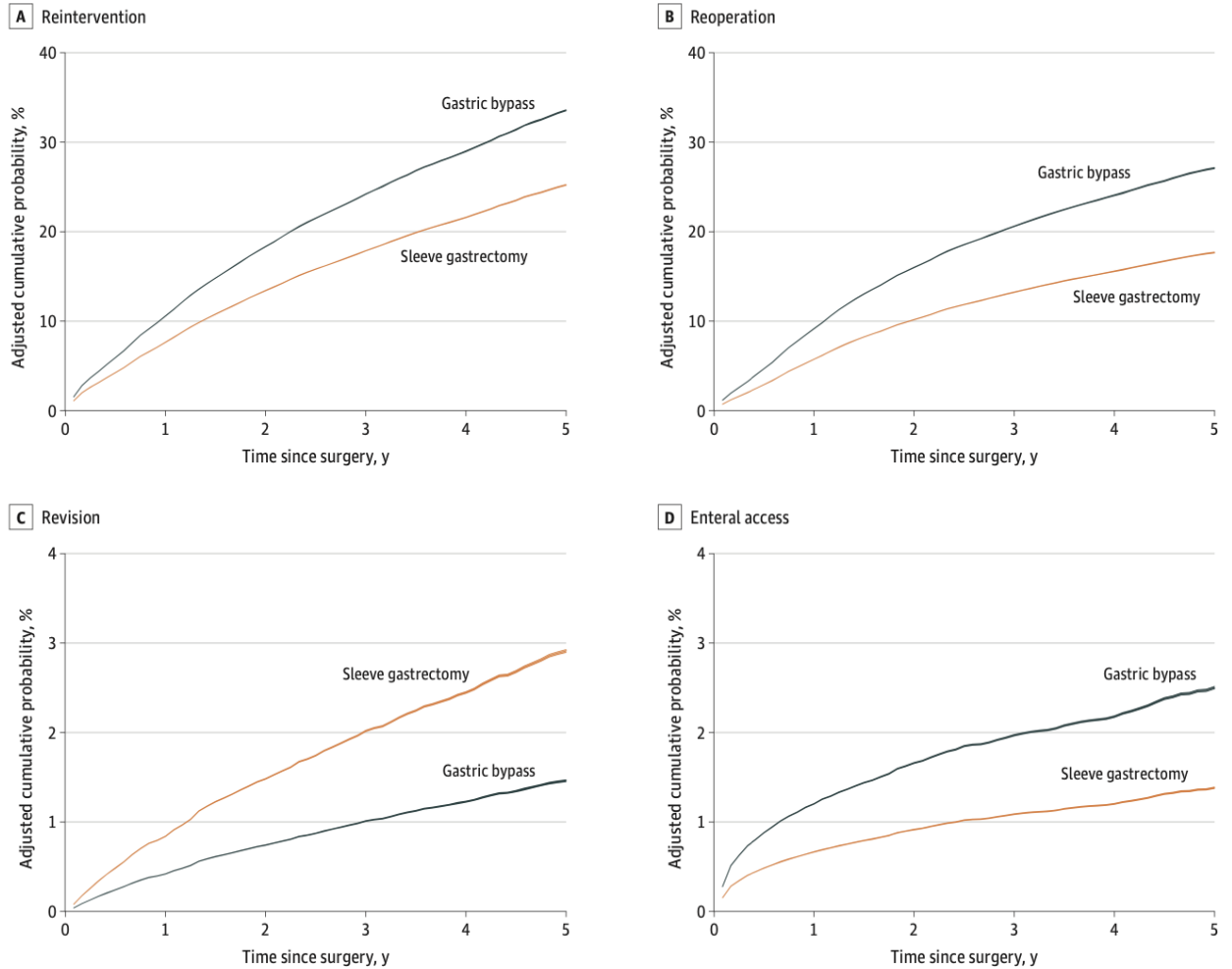


Figure 2. Cumulative Incidence of Reintervention, Reoperation, Revision, and Enteral Access Comparing Sleeve Gastrectomy and Gastric Bypass



Annals of Surgery Volume 277, Number 6, June 2023

ORIGINAL ARTICLE

Comparative Safety of Sleeve Gastrectomy and Gastric Bypass up to 5 Years After Surgery in Patients With Medicaid

Ryan Howard, MD, MS,†✉ Jie Yang, PhD,† Jyothi Thumma, MPH,†*
Anne Ehlers, MD, MPH,† Sean O'Neill, MD, PhD,*† David Arterburn, MD, MPH,‡*
Andrew Ryan, PhD,†§‖ Dana Telem, MD, MPH,†¶*
and Justin B. Dimick, MD, MPH†¶*

- 132,788 patient Medicaid
- 84,717 Sleeve Gastrectomy (64%)
- 48,071 Gastric bypass

- After 5 years. MORTALITY

- 1.29% Sleeve
- 2.15% Gastric bypass

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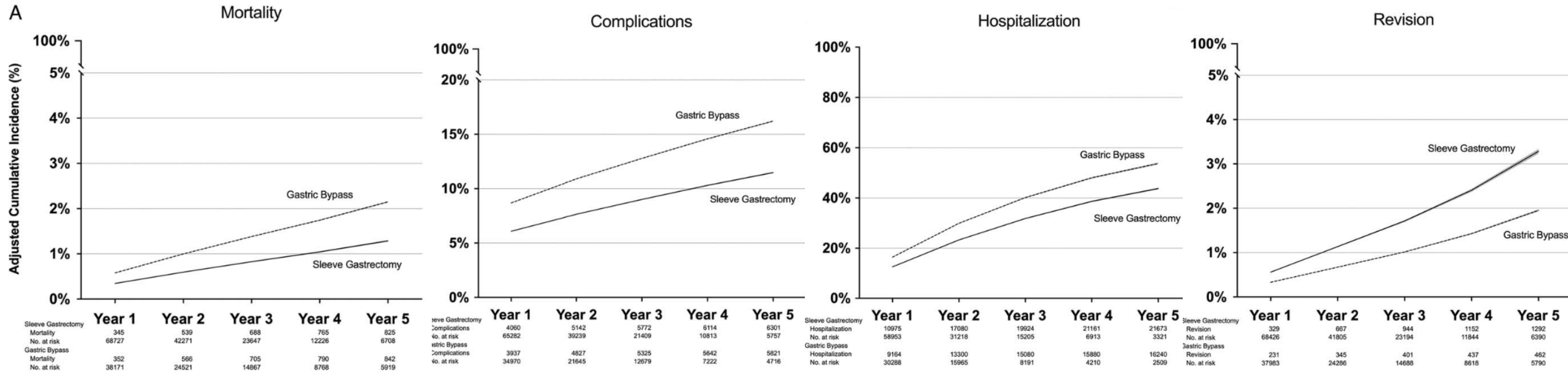

Less complications, rehospitalizations, reoperation, but more revision

Obesity Surgery (2023) 33:2356–2360
https://doi.org/10.1007/s11695-023-06709-w

ORIGINAL CONTRIBUTIONS

Long-Term Outcomes 10 Years after Laparoscopic Sleeve Gastrectomy: a Single Center Retrospective Analysis

Roxane Vital[1] · Julie Navez[1] · Seda Gunes[1] · Camille Tonneau[1] · Abdelilah Mehdi[1] · Imad El Moussaoui[1] · Jean Closset[1]

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METHODS

A retrospective study:

149 obese patients

Sleeve Gastrectomy (SG)

Between 2005 to 2010

Follow-up mainly assessed on %EWL

Inadequate weight loss (WL) = %EWL < 50% or Need of revisional surgery for inadequate WL

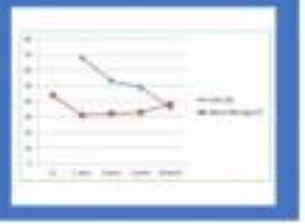
RESULTS

149 patients with SG
BMI 42,0 + 6,5kg/m²

Follow-up :
6 P died
25 P Lost of F-up
35 P needed revisonal surgey
83 P evaluated > 10 years afetr SG

Results :
23/83-28% : %EWL > 50
32/83-39% : 50<%EWL<20
27/83-33% : %EWL< 20

Only %EWL after 1 year was predictive of Inadequate WL



CONCLUSIONS

Inadequate WL reached 80% of patients more than 10 years after SG

30 % of patients need revisional surgery

New studies must try to:
- Identify good candidates for SG
- Develop strategies to improve long-term outcomes

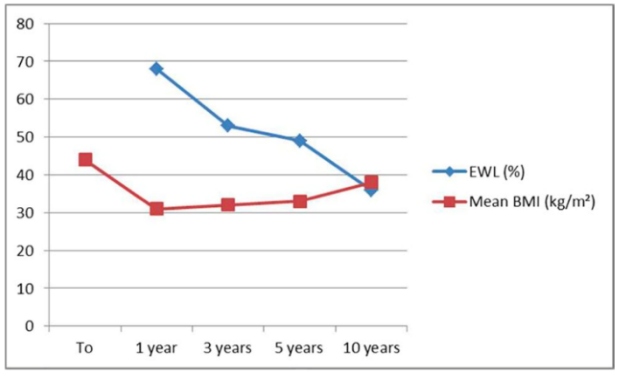


Fig. 1 Mean BMI and percentage of EWL in a cohort of 149 obese patients who underwent LSG. *BMI* body mass index; *EWL* excess weight loss; *LSG* laparoscopic sleeve gastrectomy

Roxane Vital Julie Navez, Seda Gunes, Camille Tonneau, Abdelilah Mehdi, Imad El Moussaoui, Jean Closset
Hôpital Universitaire de Bruxelles (HUB) –Erasmus Hospital, Route de Lennik 808, 1070 Brussels, Belgium

OBESITY SURGERY
The Journal of Metabolic Surgery and Allied Care

Obesity Surgery (2023) 33:3147–3154
https://doi.org/10.1007/s11695-023-06781-2

ORIGINAL CONTRIBUTIONS

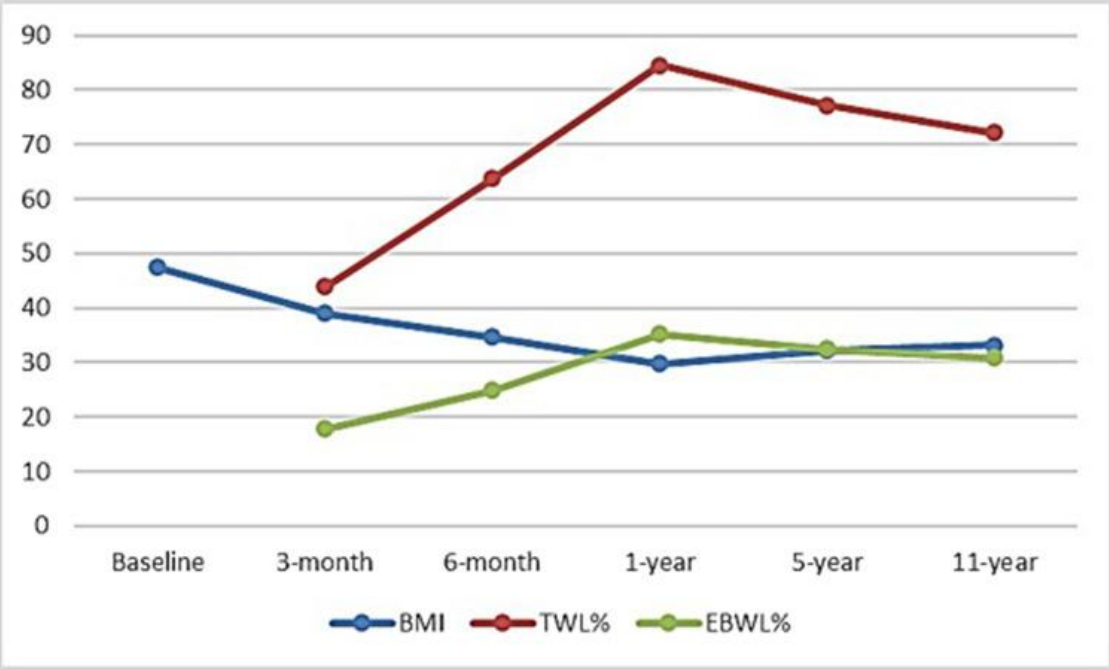
Long-Term Outcome of Laparoscopic Sleeve Gastrectomy (LSG) on Weight Loss in Patients with Obesity: a 5-Year and 11-Year Follow-Up Study

Mohamed Abdul Moneim El Masry[1] · Mostafa Abdel Megeed El Fiky[2]

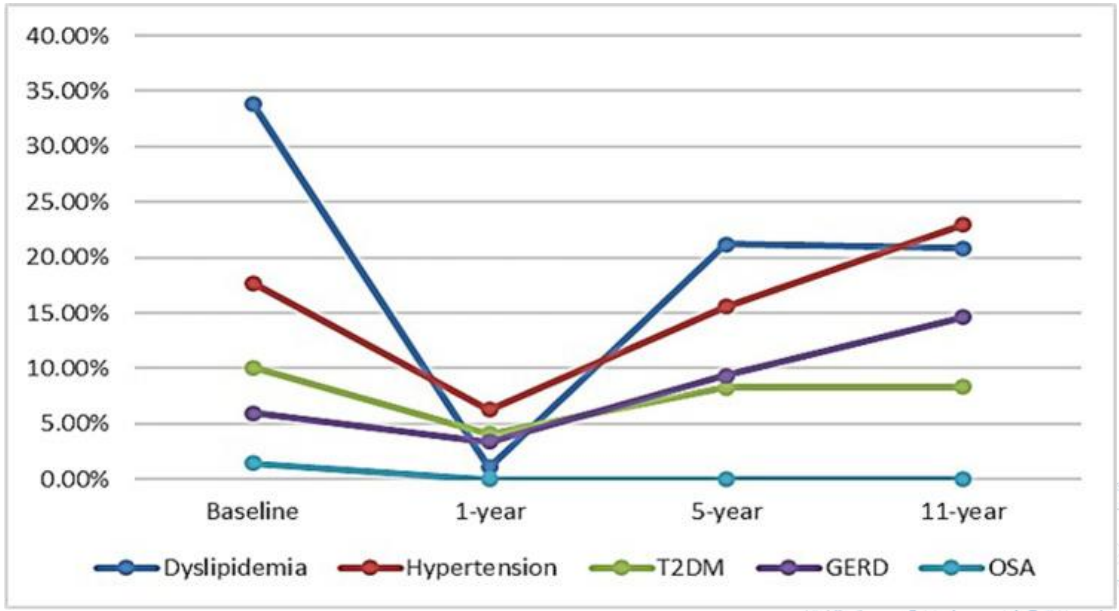
EBWL %

- 1-year follow-up - 860 = 84.57 ± 18.41%
- 5-year -193 = 64.22 ± 15.53%
- 11 years 48 = 66.01 ± 8.66%

The patients' weight loss outcome after surgery



The patients' obesity-related complications resolution outcome after surgery



What do I do ?

For inadequate weight loss or weight regain after LSG

How to improve and sustain weight loss for patients

Suggestion

Selection of the patient

Surgical technique

Follow-up of the patients

What do I do ?

For inadequate weight loss or weight regain after LSG

How to improve and sustain weight loss for patients

Suggestion

Selection of the patient

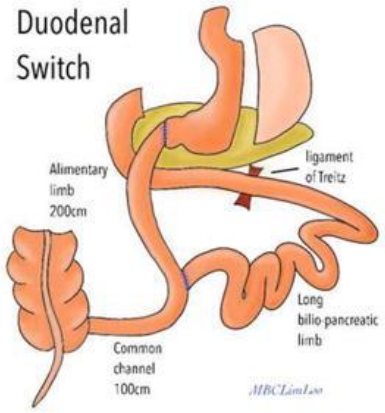
Surgical technique

Follow-up of the patients

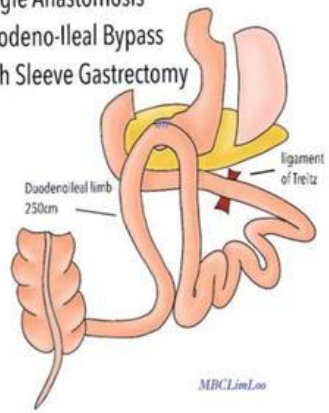
How about Sleeve Plus Procedure ?

Preserve the strengths, fix the weaknesses
of Sleeve Gastrectomy

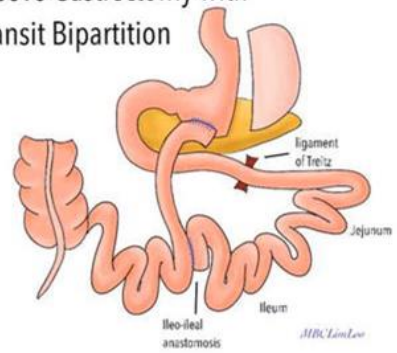
Duodenal Switch



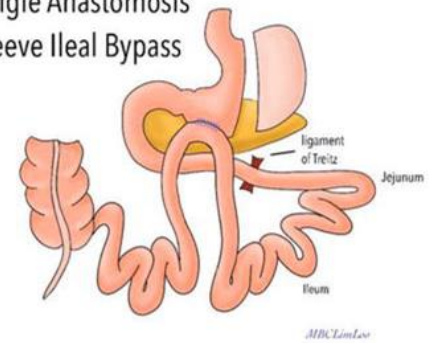
Single Anastomosis Duodeno-Ileal Bypass with Sleeve Gastrectomy



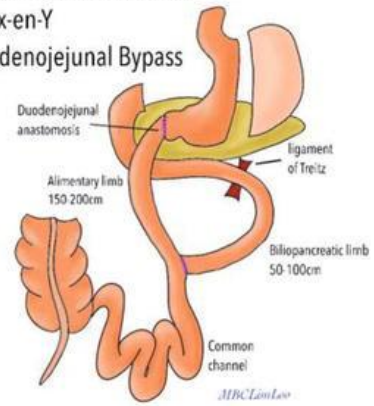
Sleeve Gastrectomy with Transit Bipartition



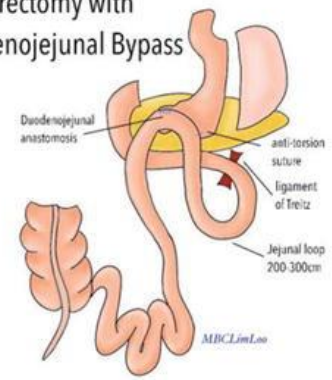
Single Anastomosis Sleeve Ileal Bypass



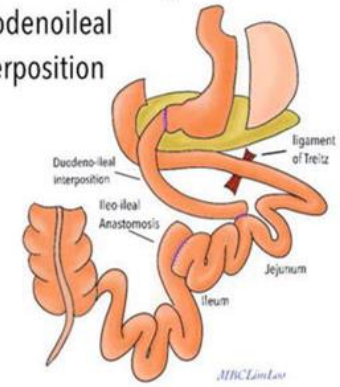
Sleeve Gastrectomy with Roux-en-Y Duodenojejunal Bypass



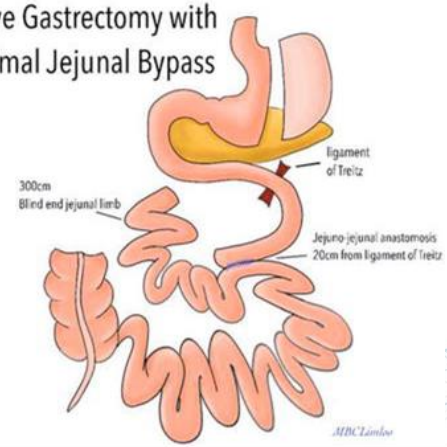
Sleeve Gastrectomy with Loop Duodenojejunal Bypass



Sleeve Gastrectomy with Duodenoileal Interposition



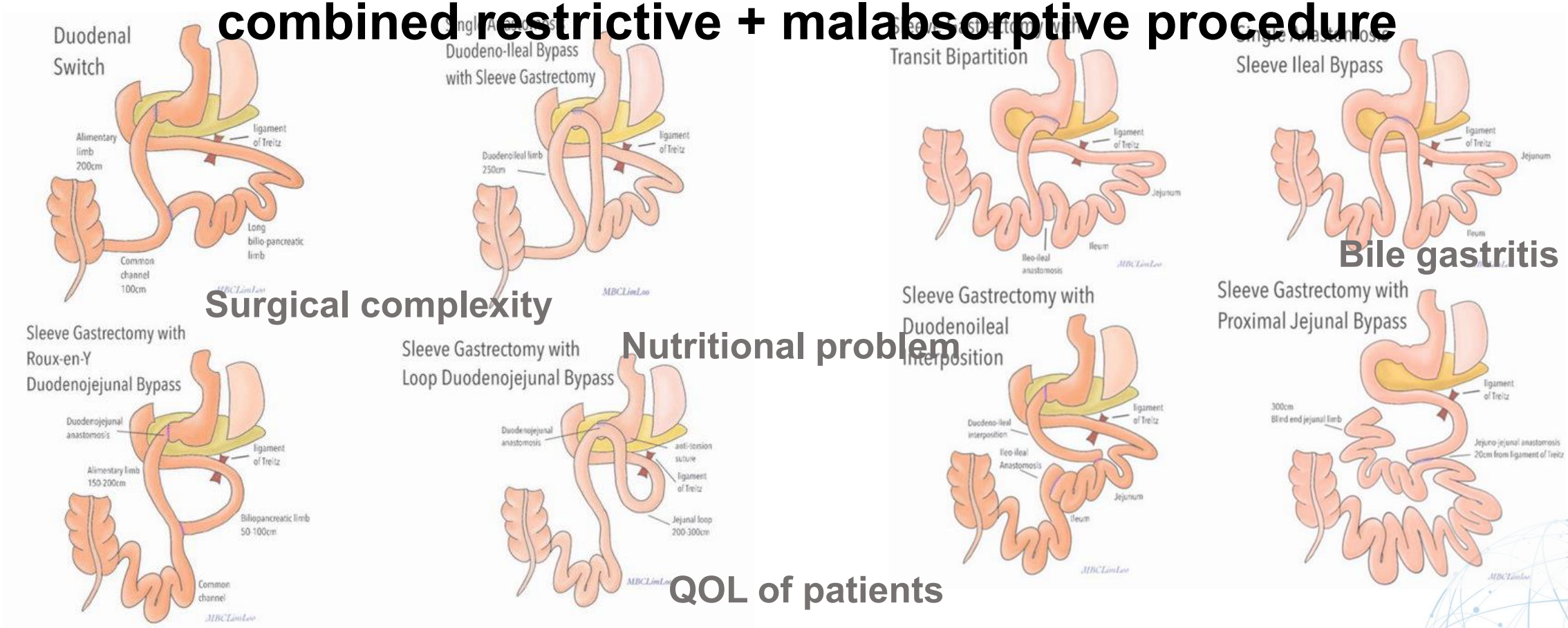
Sleeve Gastrectomy with Proximal Jejunal Bypass



How about Sleeve Plus Procedure ?

Preserve the strengths, fix the weaknesses of Sleeve Gastrectomy

combined restrictive + malabsorptive procedure



Surgical complexity

Nutritional problem

Bile gastritis

QOL of patients

Proximal Jejunal bypass with Sleeve gastrectomy

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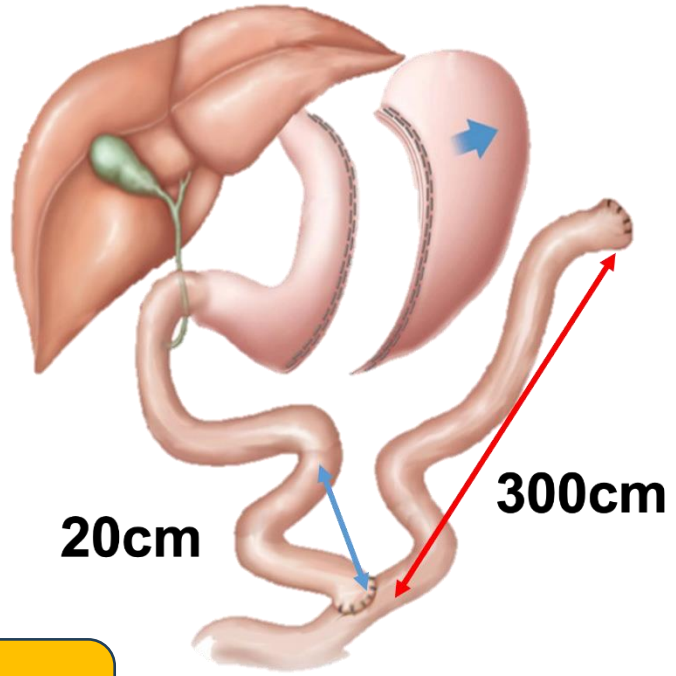
- **Conventional Sleeve Gastrectomy**
- **Proximal jejunum divided**

  (20 cm distal from treitz ligament)
- **Bypass of proximal jejunum**

  Side-to-side jejunojejunostomy

  at 300cm below jejunal division ; 300cm bypass



Variability in Weight loss outcomes

Proximal Jejunal bypass with Sleeve gastrectomy

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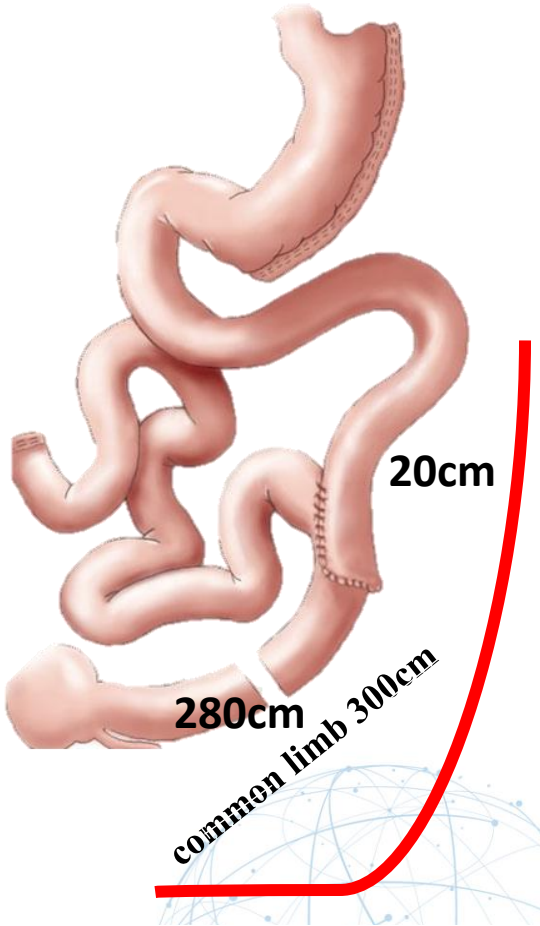
  (20 cm distal from treitz ligament)
- **Bypass of proximal jejunum**

Side-to-side jejunojejunostomy

Common Limb 300cm (20+280) : Bowel from DJ till ICV

Excellent Weight loss result



LPJB-SG by C.K Huang

LPJB-SG 5 years

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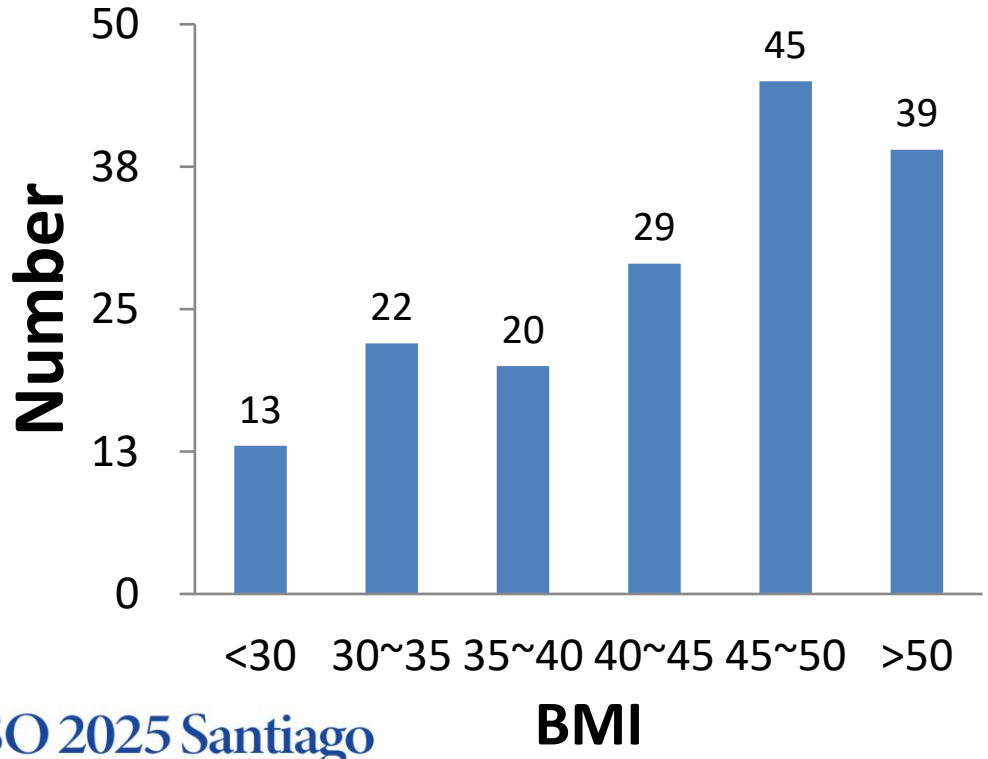
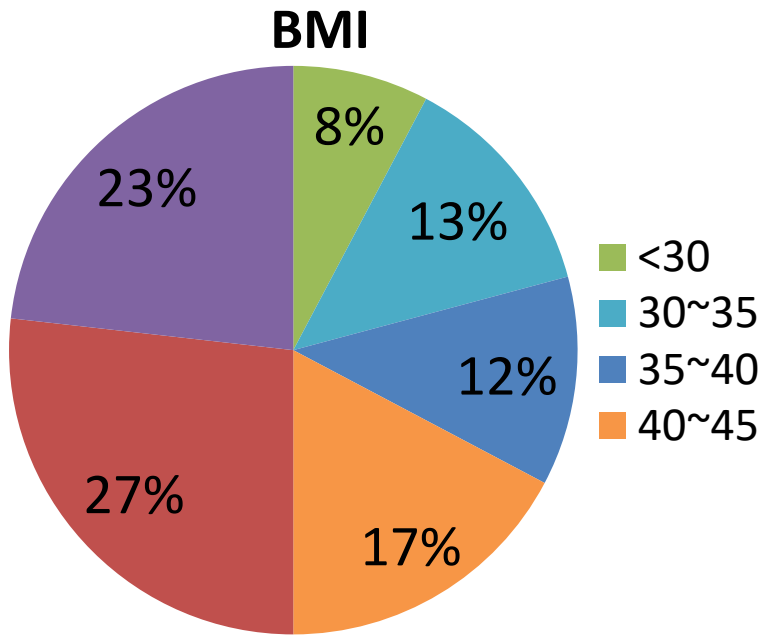
Results:

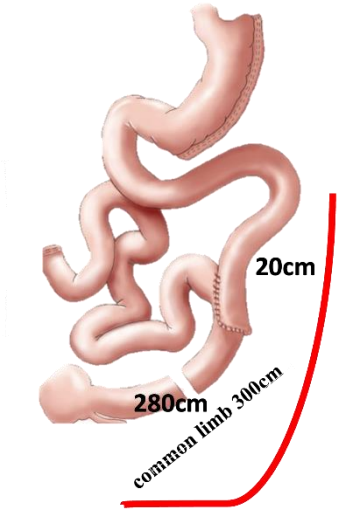
A total of **168 patients** were followed up for more than 5 years.

Weight change, Metabolic syndrome, DM condition and revision reasons are analyzed.



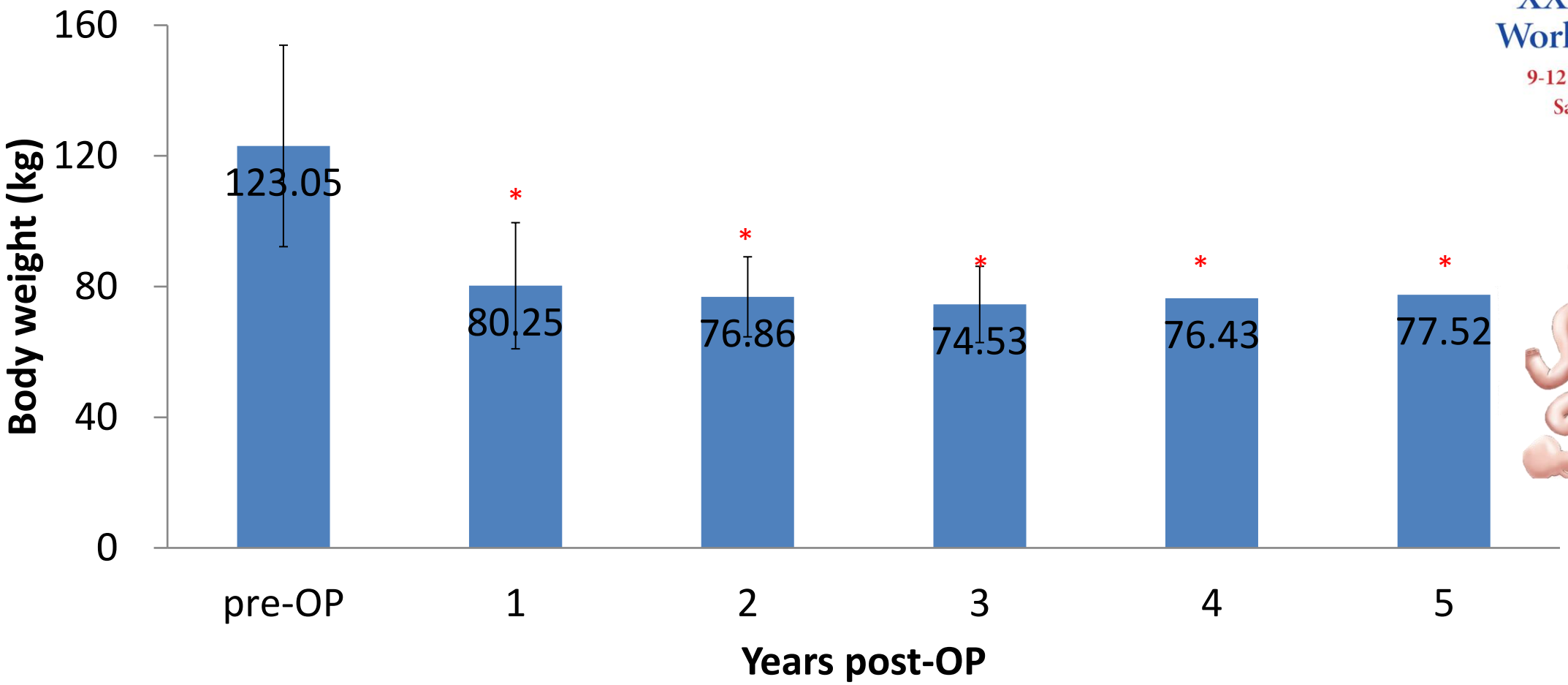


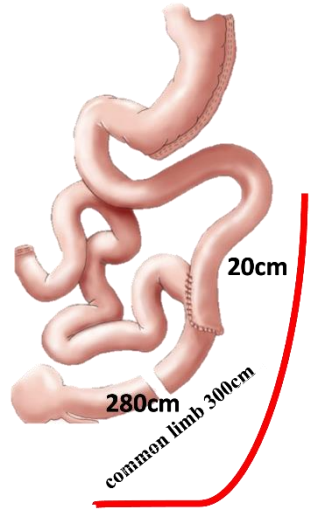
Total number (≥ 5year post-OP) = 168



Slide provided by Prof. C.K Huang

LPJB-SG 5 years





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* Indicates P < 0.001 (compare with Pre-OP)

Total number (≥ 5 year post-OP) = 168

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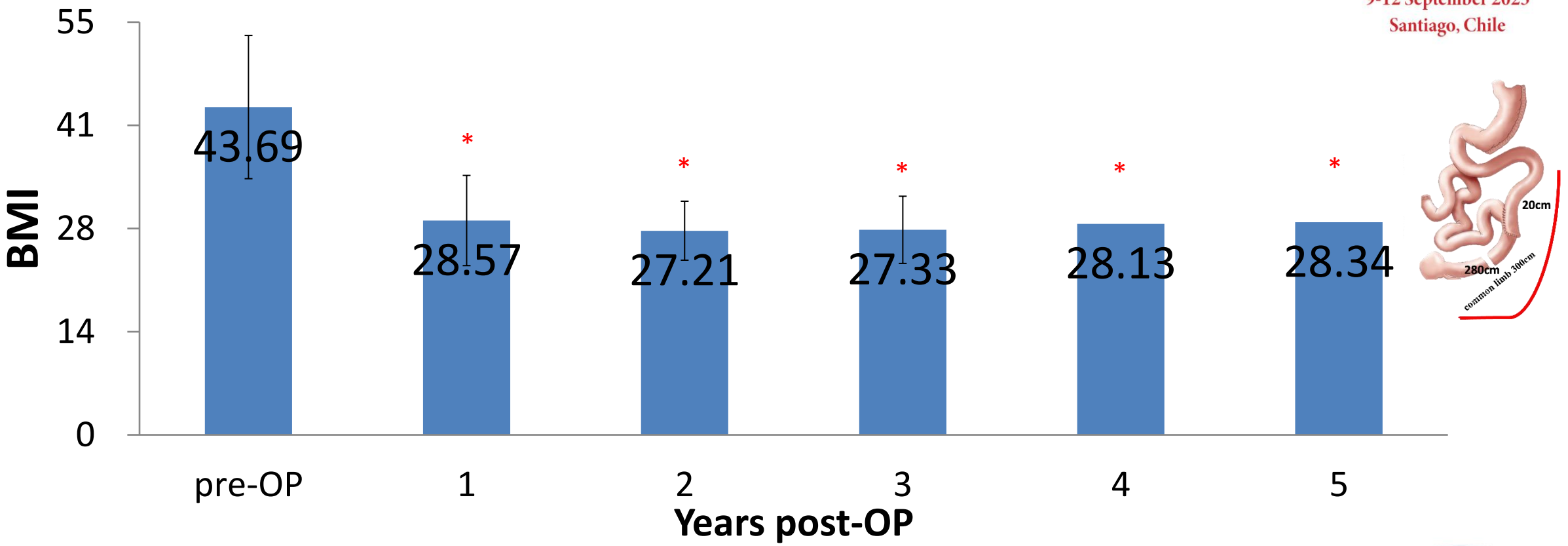
LPJB-SG 5 years



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Total number (≥ 5 year post-OP) = 168

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LPJB-SG 5 years

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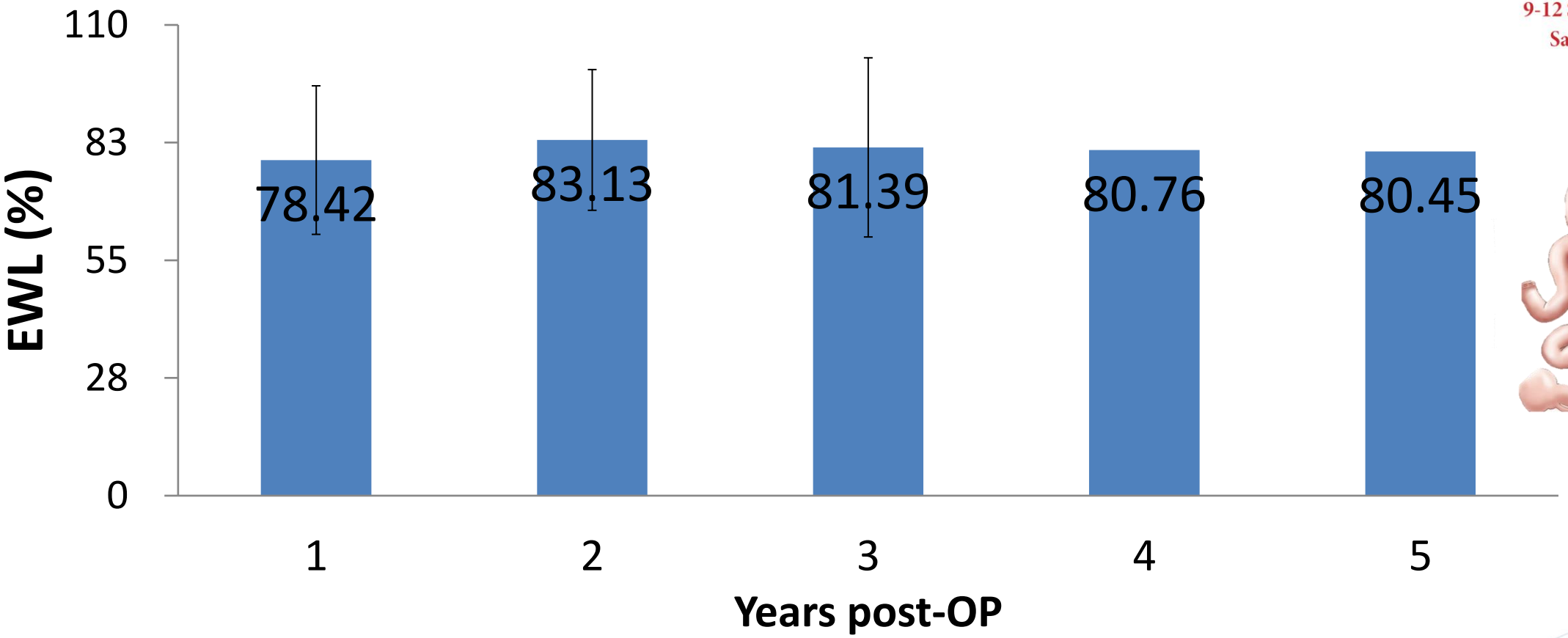

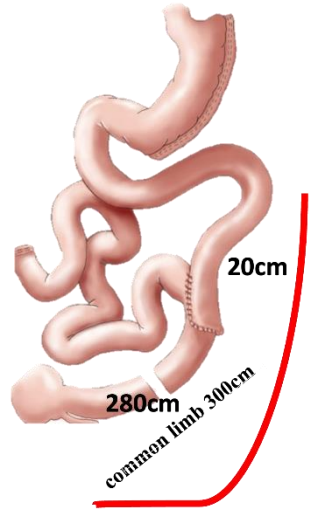

EWL: BMI24 as ideal body weight

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LPJB-SG 5 years

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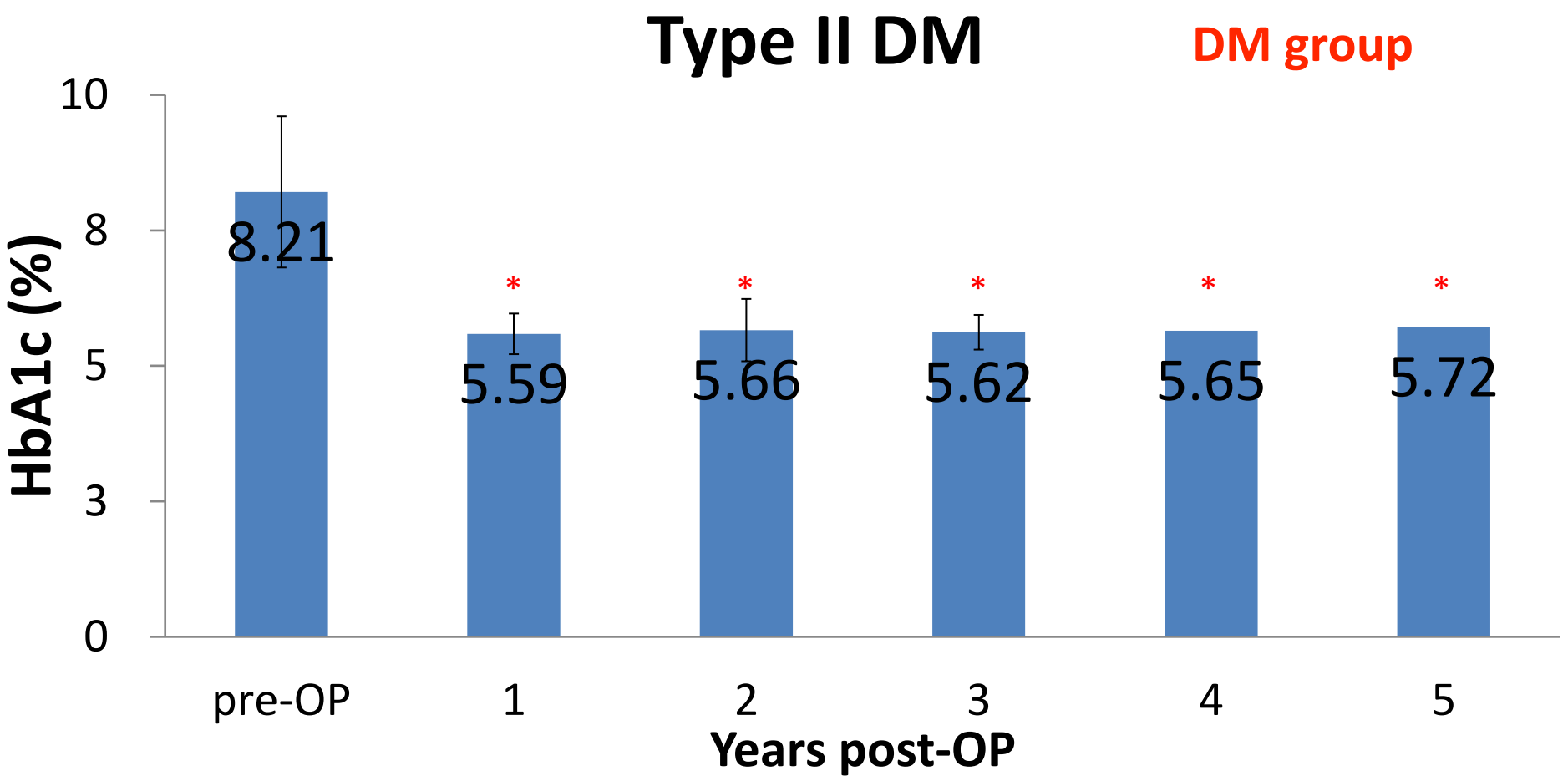

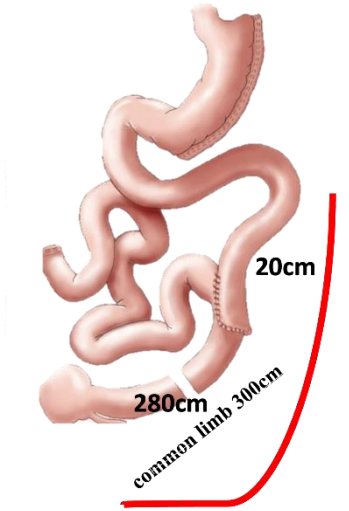

* Indicates P < 0.001 (compare with Pre-OP)

Total number (HbA1c ≥ 6.5) = 86

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LPJB-SG 5 years

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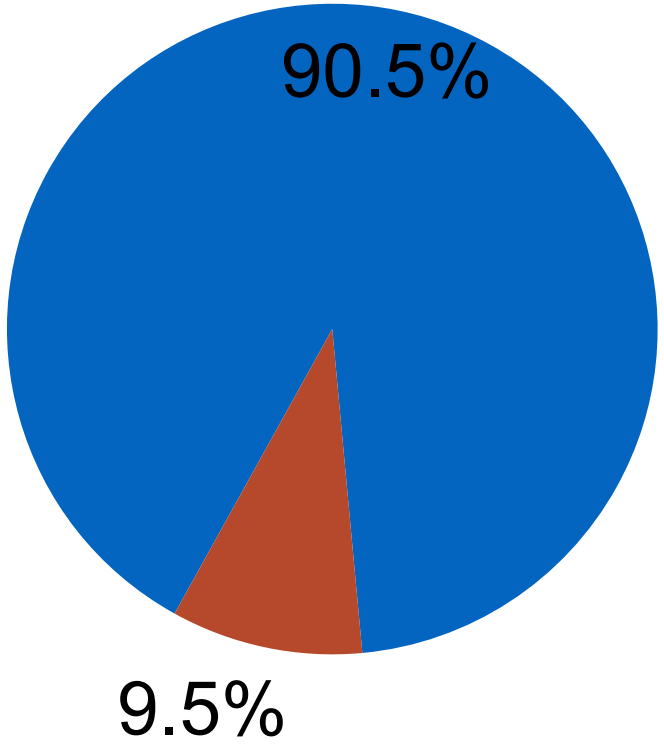
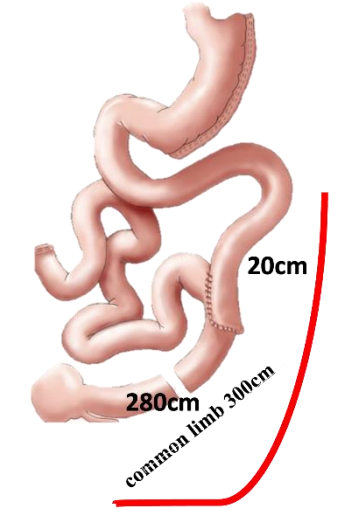
Type II DM



remission



Remission: HbA1c < 6.5 without medication

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Proximal Jejunal bypass with Sleeve gastrectomy

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- **Conventional Sleeve Gastrectomy**
- **Proximal jejunum divided**

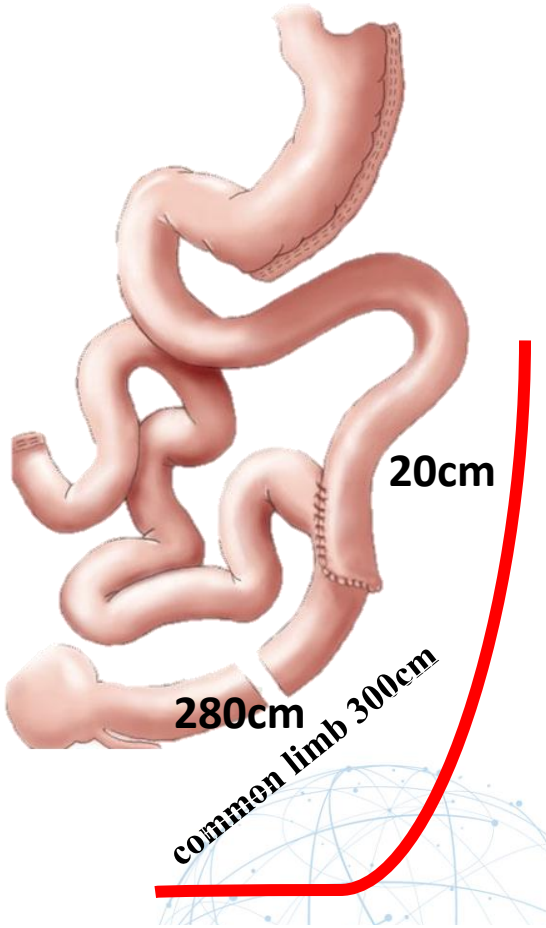
  (20 cm distal from treitz ligament)
- **Bypass of proximal jejunum**

Side-to-side jejunojejunostomy

Common Limb 300cm (20+280) : Bowel from DJ till ICV

Excellent Weight loss result

Odorous gas and diarrhea



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Proximal Jejunal bypass with Sleeve gastrectomy

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- **Conventional Sleeve Gastrectomy**
- **Proximal jejunum divided**

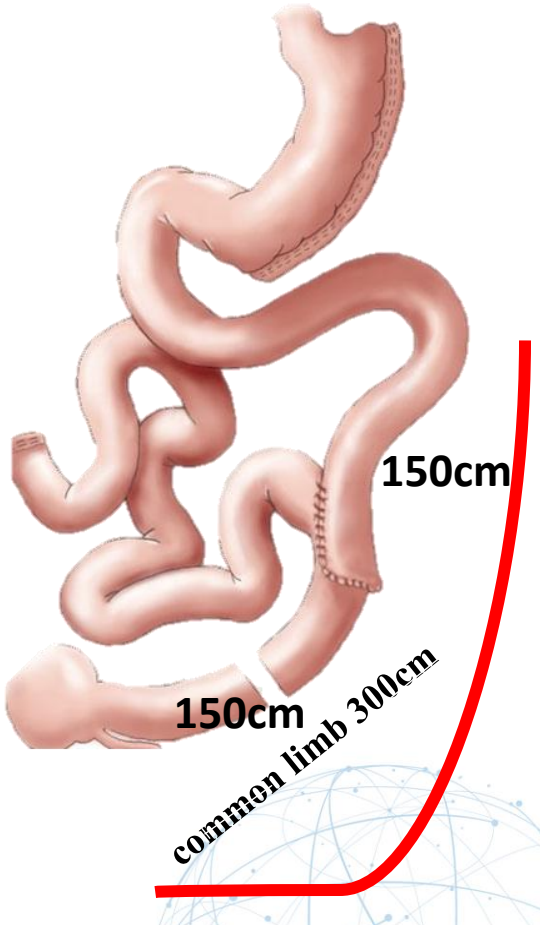
  (20 cm distal from treitz ligament)
- **Bypass of proximal jejunum**

Side-to-side jejunojejunostomy

Common Limb 300cm (150+150) : Bowel from DJ till ICV

X Jejunoileal bypass

But Bowel shortening with preservation of jejunum and ileum



LPJB-SG by C.K Huang

- **Bypassing duodenum and jejunum**

  make iron, calcium and much vitamin deficiency, fat and protein malabsorption

- **Totally Bypassing Jejunum will make poor absorption of Fat, protein, and some water soluble vitamins**

- **Both cause more and odorous gas, diarrhea and vitamin deficiency**

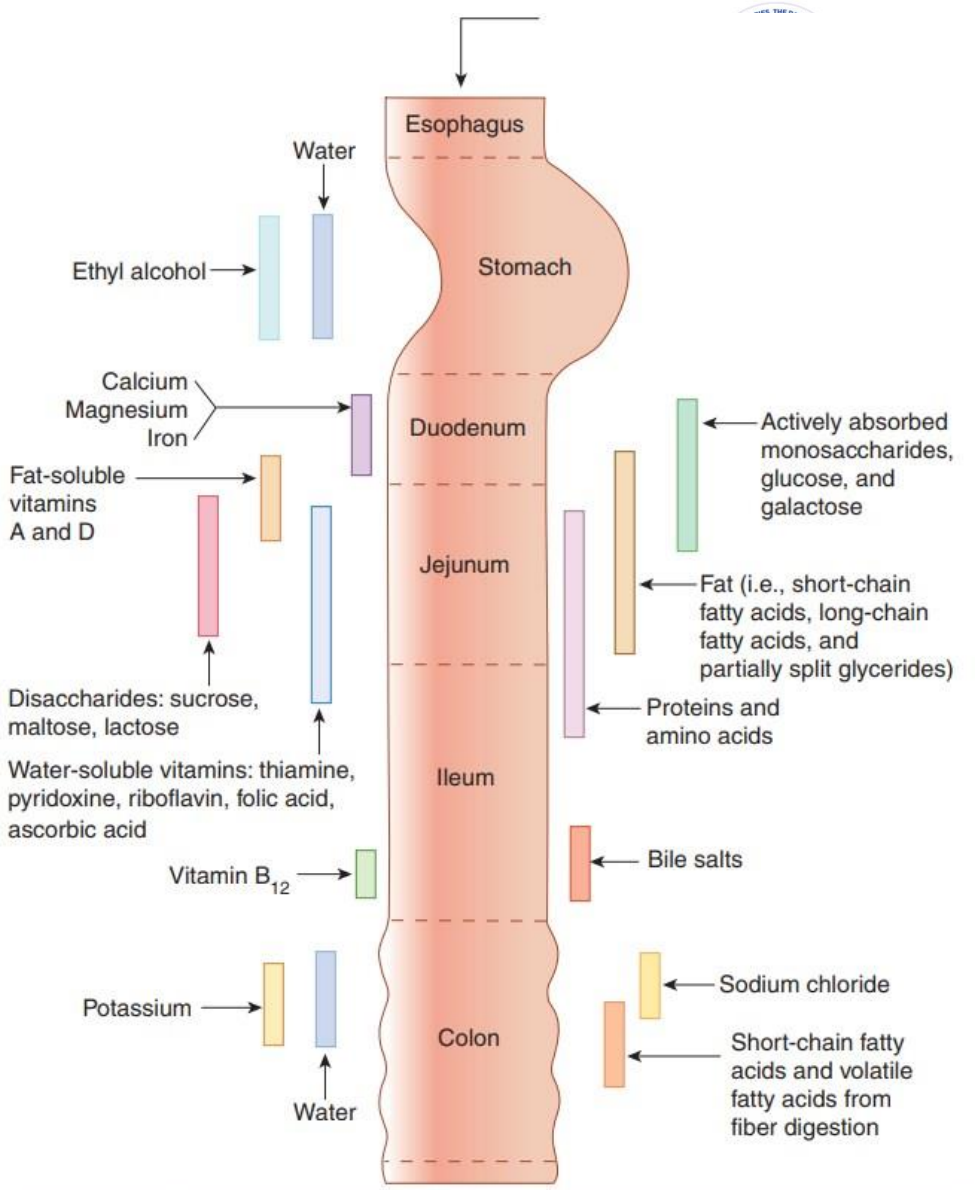


Figure 3-3 *Absorption in the gastrointestinal tract.*

Prospectively collected data and Retrospective cohort study

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From June 1 to December 31, 2023

1 year follow-up LPJBSG : 82 patients

Female : 56.1%

Mean age : 37

Weight Loss Status

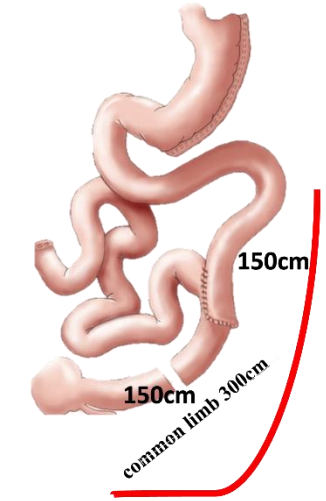
- BW, BMI, %TWL and %EWL

Remission of Metabolic Disorders

- DM, Hyperinsulinemia, Dyslipidemia and Hyperuricemia Remission Rate

Nutritional Status

- Serum iron, folic acid, vitamin B12 and Hb



*BW = Body Weight *%TWL : percentage of total weight loss

*BMI = Body Mass Index *%EWL : percentage of excess weight loss

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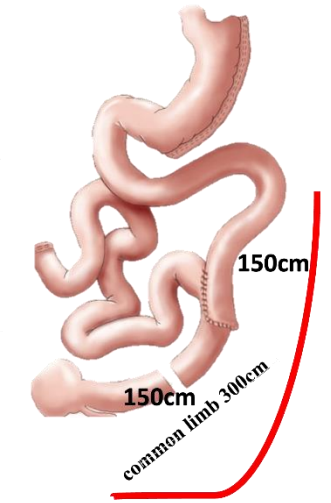
Result : Weight Loss Status

	Pre-op BMI (kg/m^2)	Post-op BMI (kg/m^2)	ΔBMI (kg/m^2)	Pre-op BW (kg)	Post-op BW (kg)	AWL (kg/m^2)	%TWL	%EWL
Mean	37.9 ±5.3	25.9 ±3.4	-12.0 ±3.7	104.5 ±518.9	71.1 ±12.6	-33.4 ±10.8	31.5 ±6.9	93.0 ±31.9
P-value	**<*0.001**			**<*0.001**				



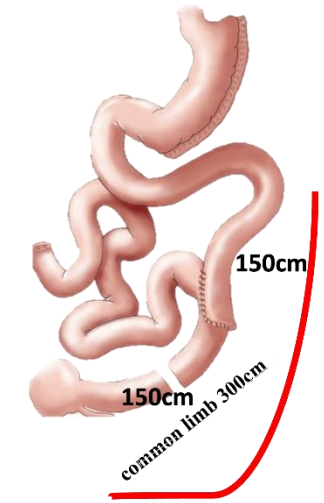
***ΔBMI = Post op BMI change**

***AWL – Absolute Weight Loss**

***Ideal body weight for BMI of 24**

Result : Mean %TWL, Successful weight loss rate

	Mean %TWL	Successful weight loss rate (Based on TWL > 25%)
LPJBSG (N=82)	**31.5±6.9**	**82.9% (68)**
LSG (n=76) *(*Lee Sangjun et al,2023; 1 year follow up)*	**24.6±7.7**	**47.4% (36)**
LRYGB (n=61) *(*Lee Sangjun et al,2023; 1 year follow up)*	**23.3±6.8**	**37.7% (23)**



**Lee Sangjun et al. Analysis of Various Weight Loss Success Criteria Models After Bariatric Metabolic Surgery in Korean Morbid Obese Patients. J Metab Bariatr Surg.. 2023 Dec;12(2):67-75*

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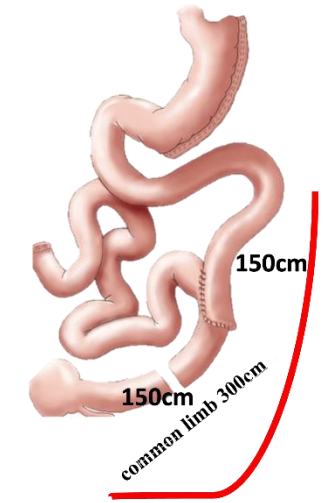
Result : Remission rate of DM

XXVIII IFSO World Congress
9-12 September 2025
Santiago, Chile

Pre-op DM prevalence : 26.8%

	Partial Remission Rate (defined as HbA1C < 6.5%)	Completd Remission Rate (defined as HbA1C < 6% & without medication use)
DM (n=22)	13.6% (n=3)	86.4% (n=19)



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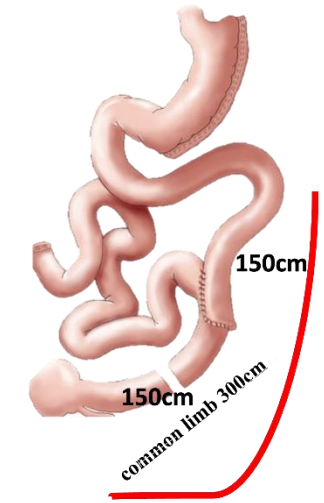
Result : Nutritional Deficiencies

	B12	Folic acid	Iron	Hb
LPJBSG	**9%**	**5%**	**5%**	**11%**
LSG deficiency rate *(*Gu,Lihu et al.,2020 ; A Systematic Review)*	**12%**	**12.7%**	**16.8%**	**19.4%**
LRYGB deficiency rate *(*Gu,Lihu et al.,2020 ; A Systematic Review)*	**22.9%**	**9.8%**	**23.4%**	**26.2%**



*Gu Lihu et al. In Terms of Nutrition, the Most Suitable Method for Bariatric Surgery: Laparoscopic Sleeve Gastrectomy or Roux-en-Y Gastric Bypass? A Systematic Review and Meta-analysis Obes Surg. 2020 May;30(5):2003-2014.

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Take Home Message : Sleeve Gastrectomy

- Effective with sustained weight-loss and diabetes control outcomes
- Well-suited to Asia's high gastric cancer prevalence
- Lower complication, readmission, reoperation, and mortality
- Long-term issue: inadequate weight loss/weight regain → high revision rates
- **Proximal jejunal bypass plus sleeve gastrectomy** could overcome these weaknesses while preserving sleeve benefits.
- We need to demonstrate this through a multicenter prospective collaboration.

IFSO 2028 in Seoul

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