



"Limb lengths in OAGB and SADI-S"

"

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- **Chairman IFSO's Board of Trustees 2015-2019**

Disclosures

Lectures & Consultant for

Johnson & Johnson

Medtronic

GT Metabolic

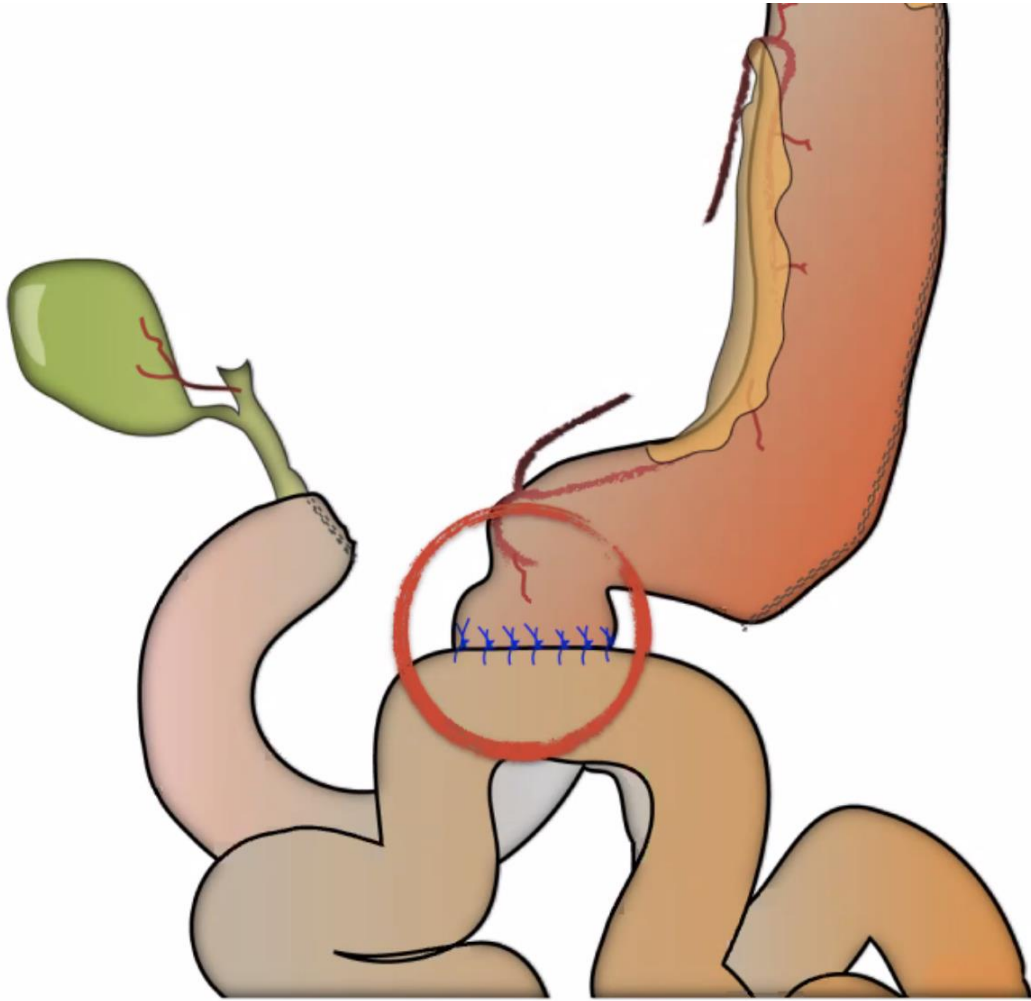
Meril

Gore Medical

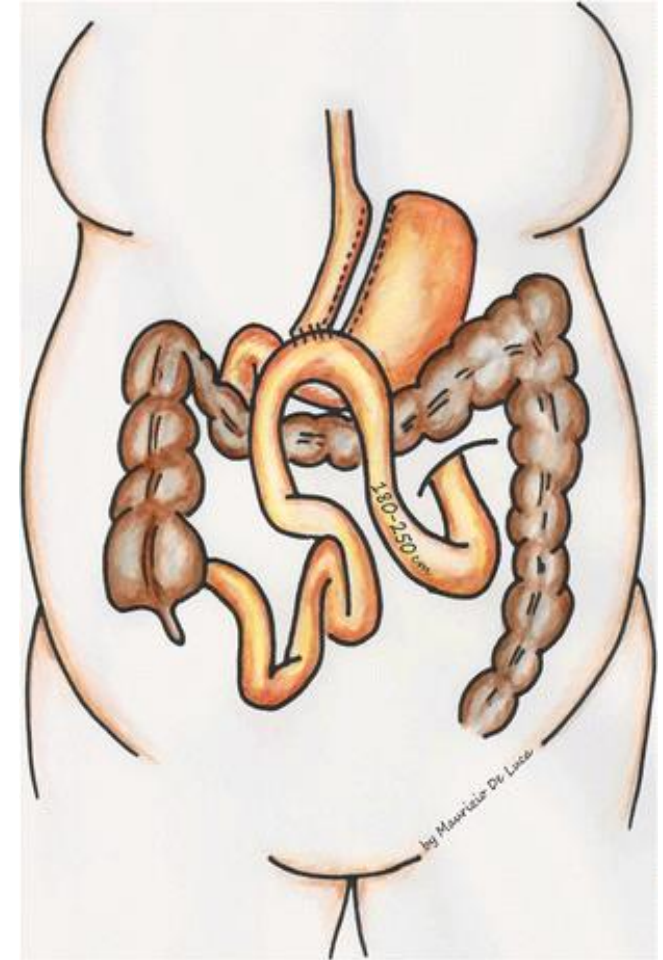


What is the **ideal** limb lengths in OAGB
and SADIS??

Limb Length



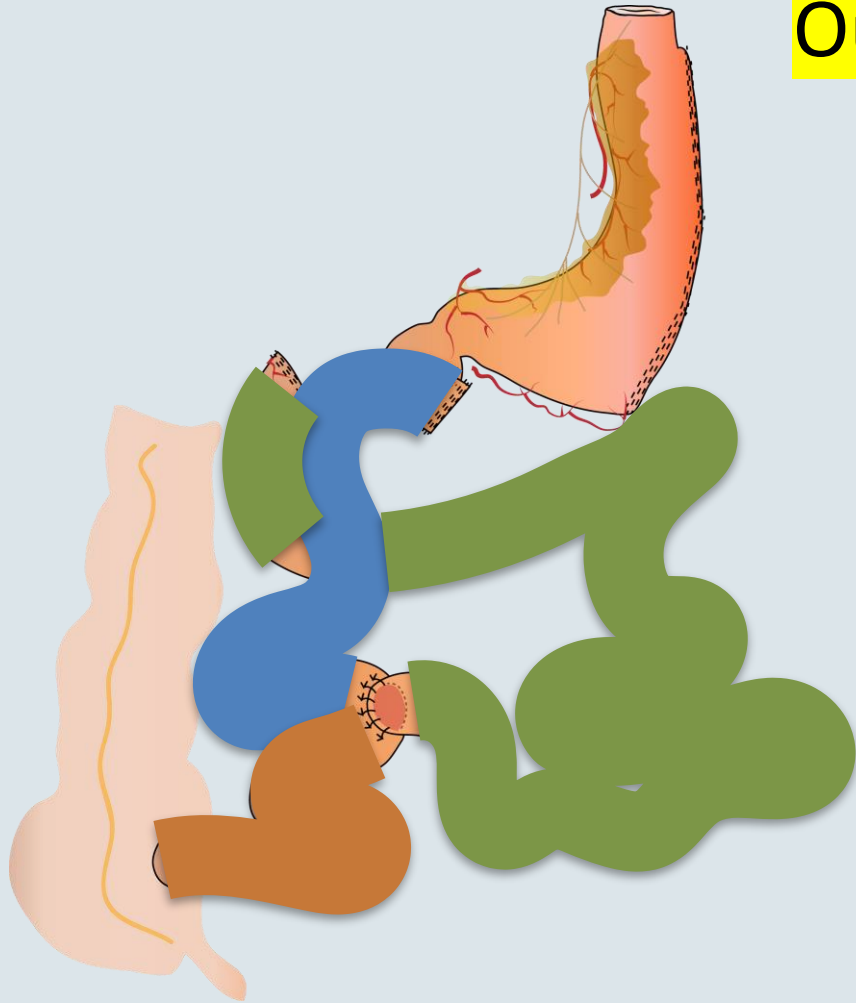
SADIS



OAGB

What should be the length of the common channel?

Our Duodenal Switch (2000 - 2007)

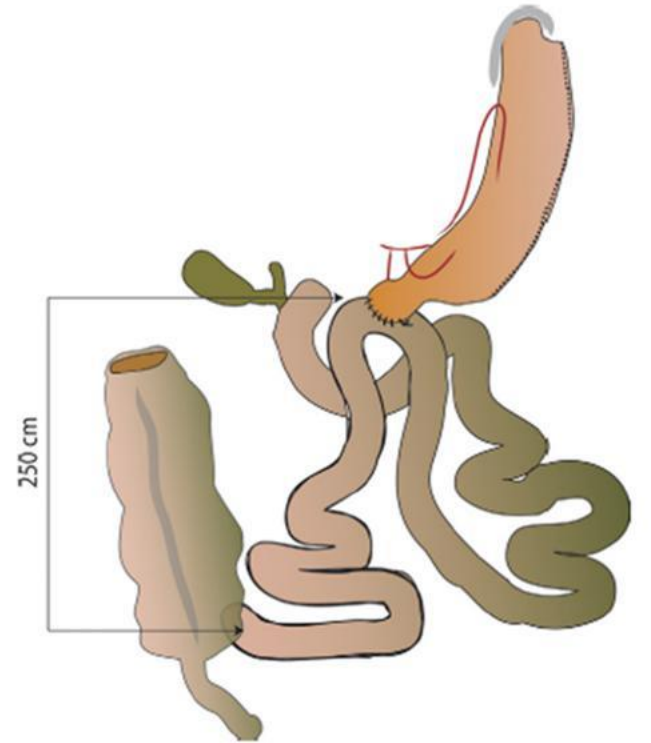


- Biliary - Very long
- Alimentary - 200 cm
- Common - 50 - 100 cm

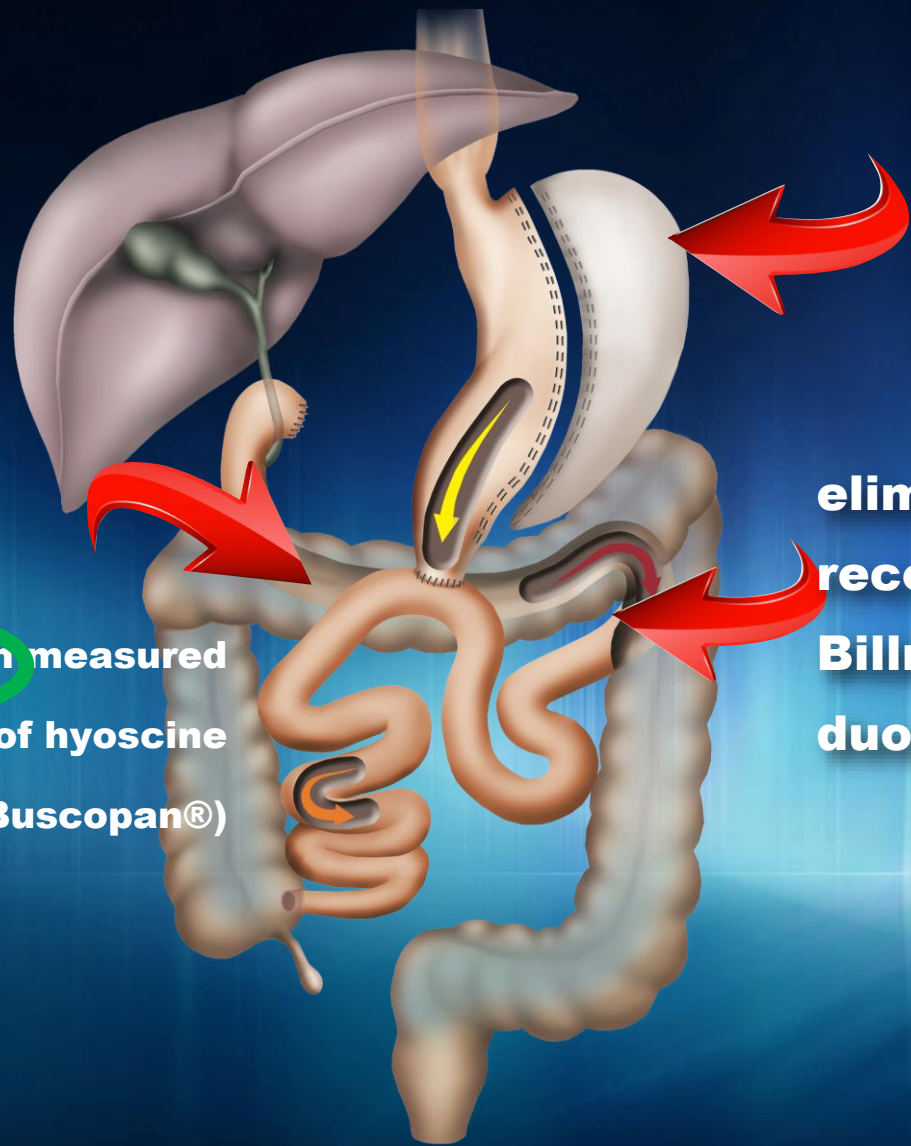
SADIS: Long BP limb



- ↑ biliary acids absorption
- ↑ stimulation FXR e TGR
- ↑ stimulation L-cells and enterocytes
- ↑ incretins (↑ GLP1, ↑ PYY, ↑ OXM, ↑ FGF-19)



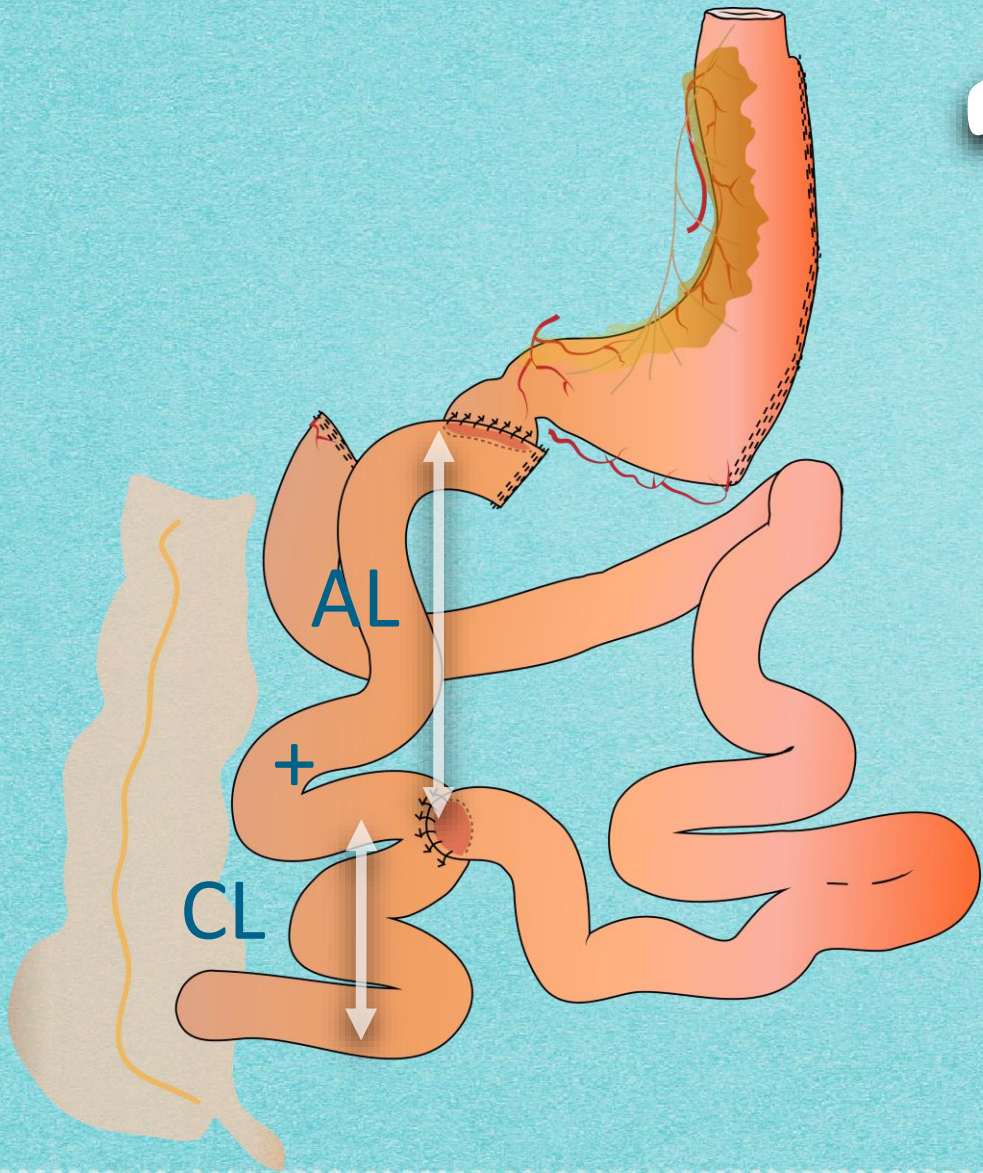
SADI-S



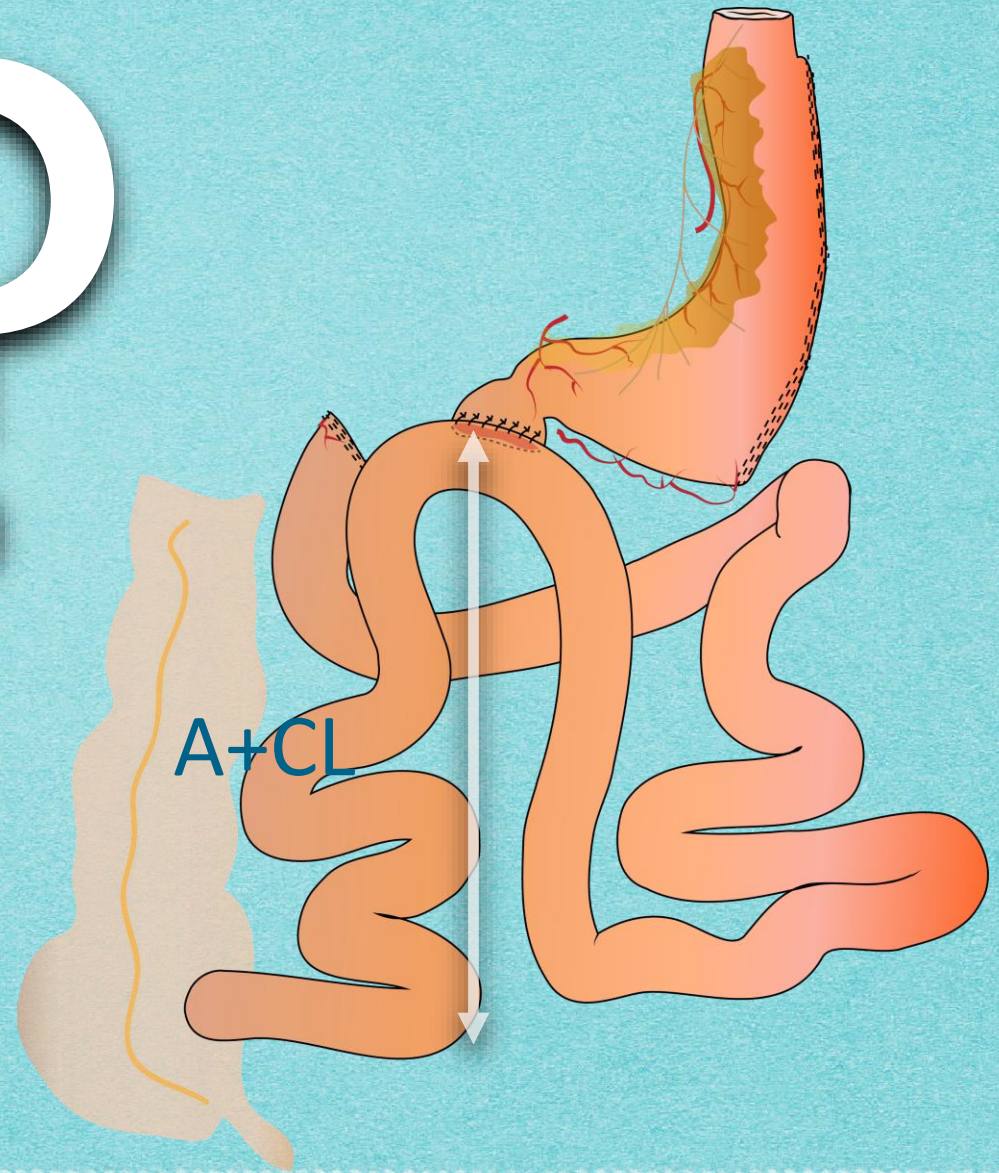
← sleeve gastric resection
over a 54F bougie

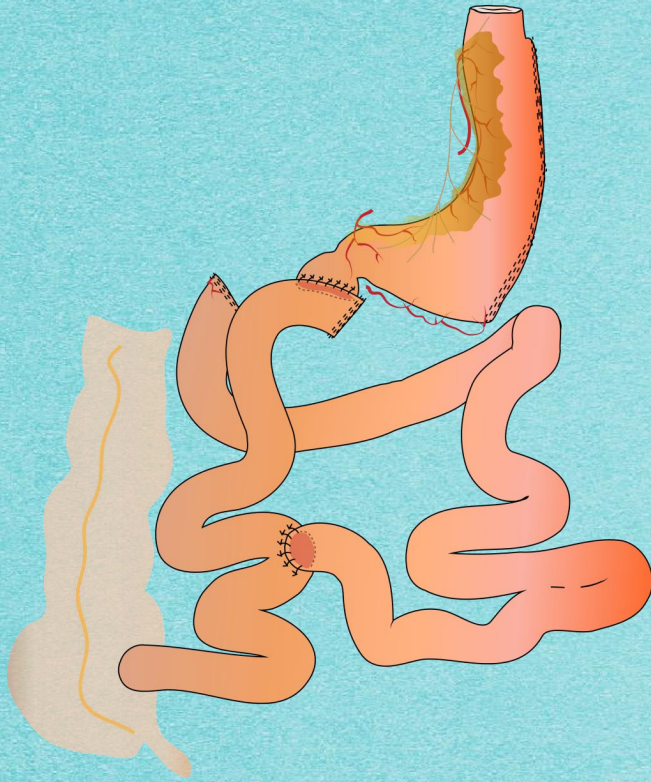
eliminates the Roux- en-Y
reconstruction and includes
Billroth II-type one-loop
duodenoileostomy instead

the ileocolic junction is identified and 250 cm measured
proximally (formerly 200 cm), after infusion of hyoscine
butylbromide (Buscopan®)



?





DS: 150 cm + 50 cm

AL

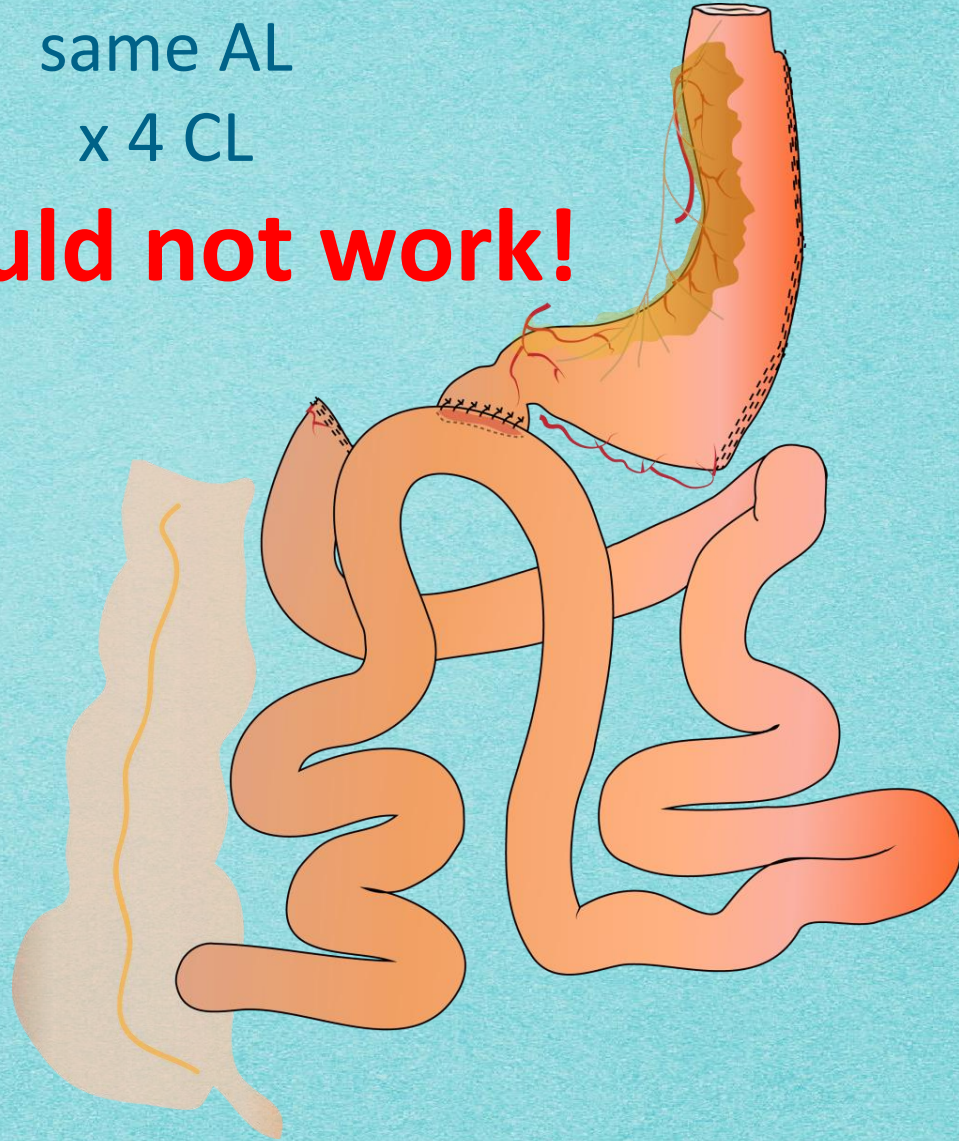
CL



SADI-S 200 cm

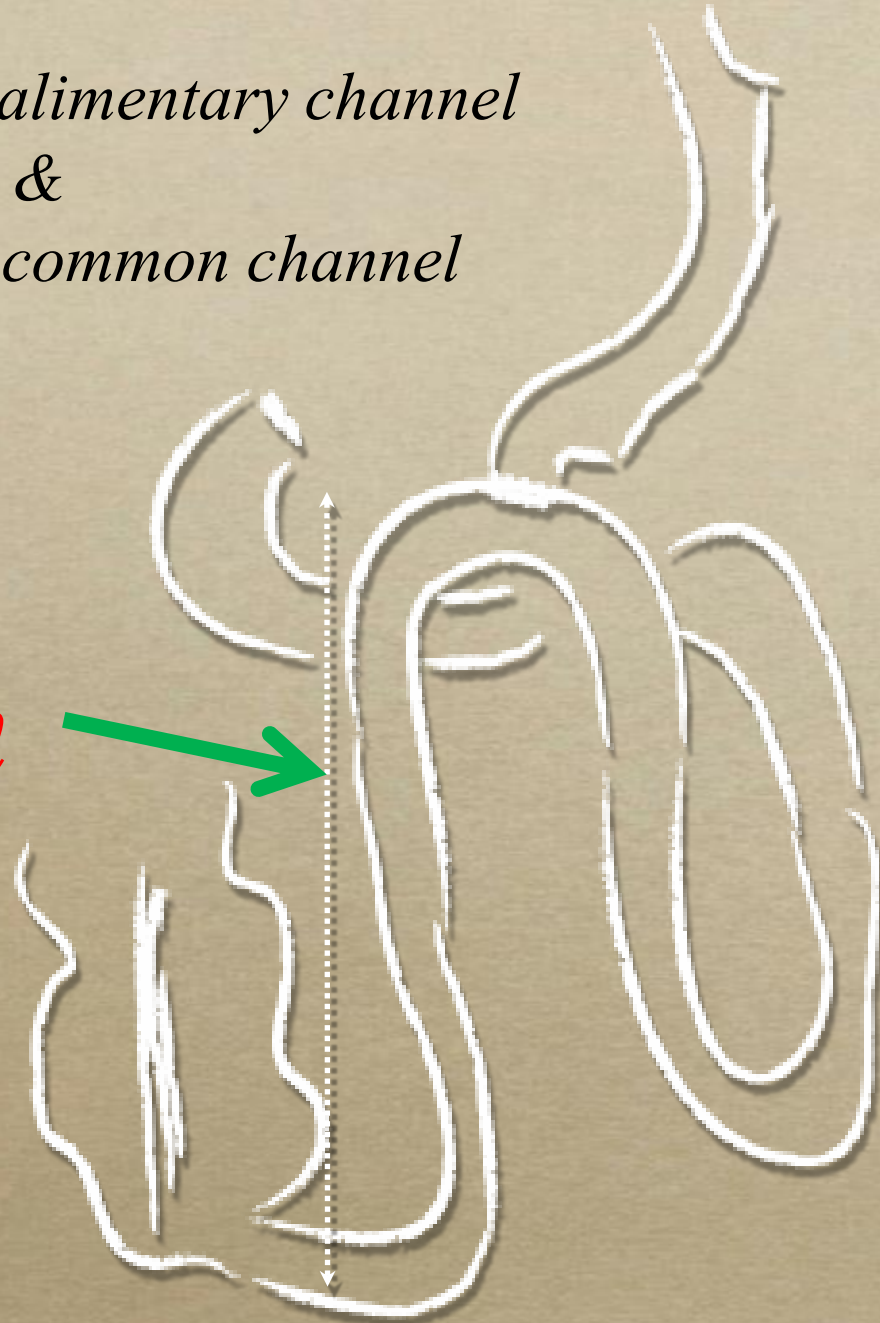
same AL
x 4 CL

it would not work!



*too short for an alimentary channel
&
too long for a common channel*

200 cm

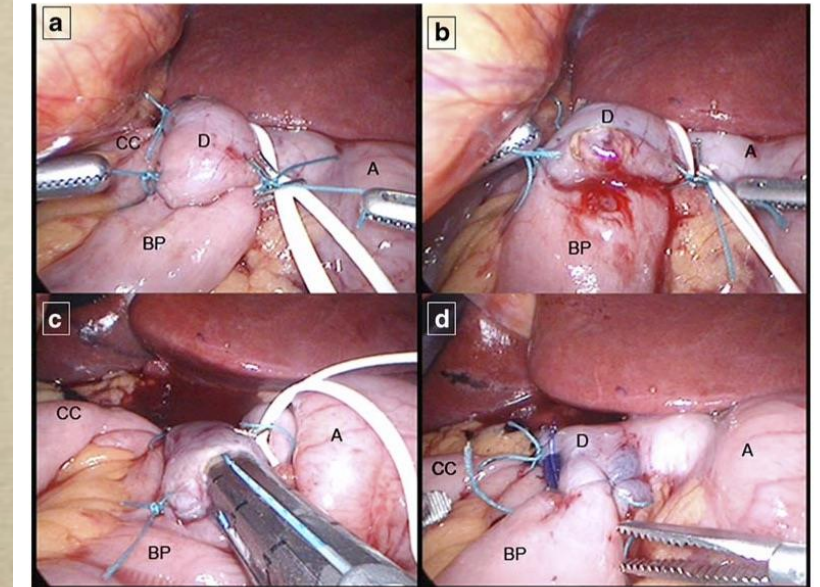


Proximal Duodenal–Ileal End-to-Side Bypass with Sleeve Gastrectomy: Proposed Technique

Andrés Sánchez-Pernaute · Miguel Angel Rubio Herrera ·
Elia Pérez-Aguirre · Juan Carlos García Pérez ·
Lucio Cabrerizo · Luis Díez Valladares · Cristina Fernández ·
Pablo Talavera · Antonio Torres



2007



OBES SURG (2007) 17:1614–1618

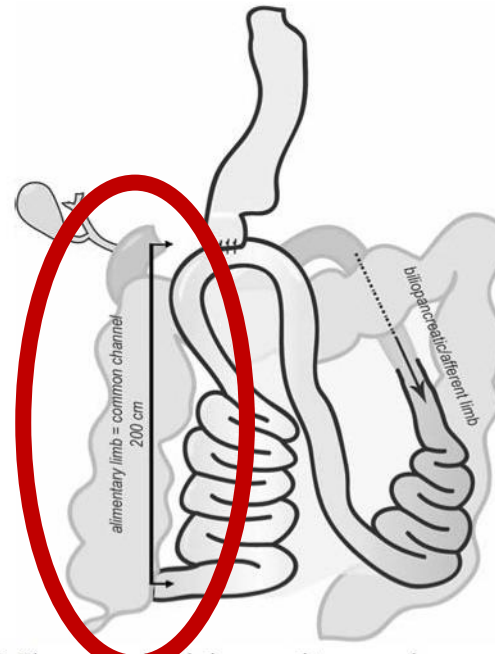
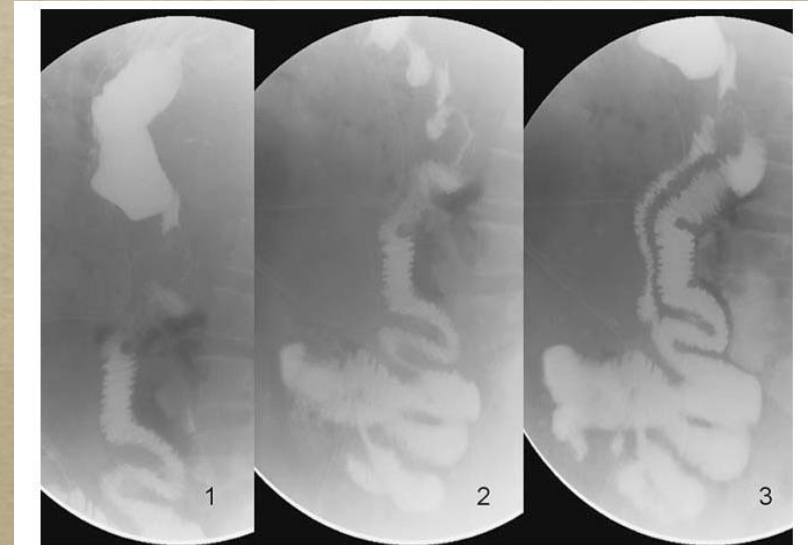
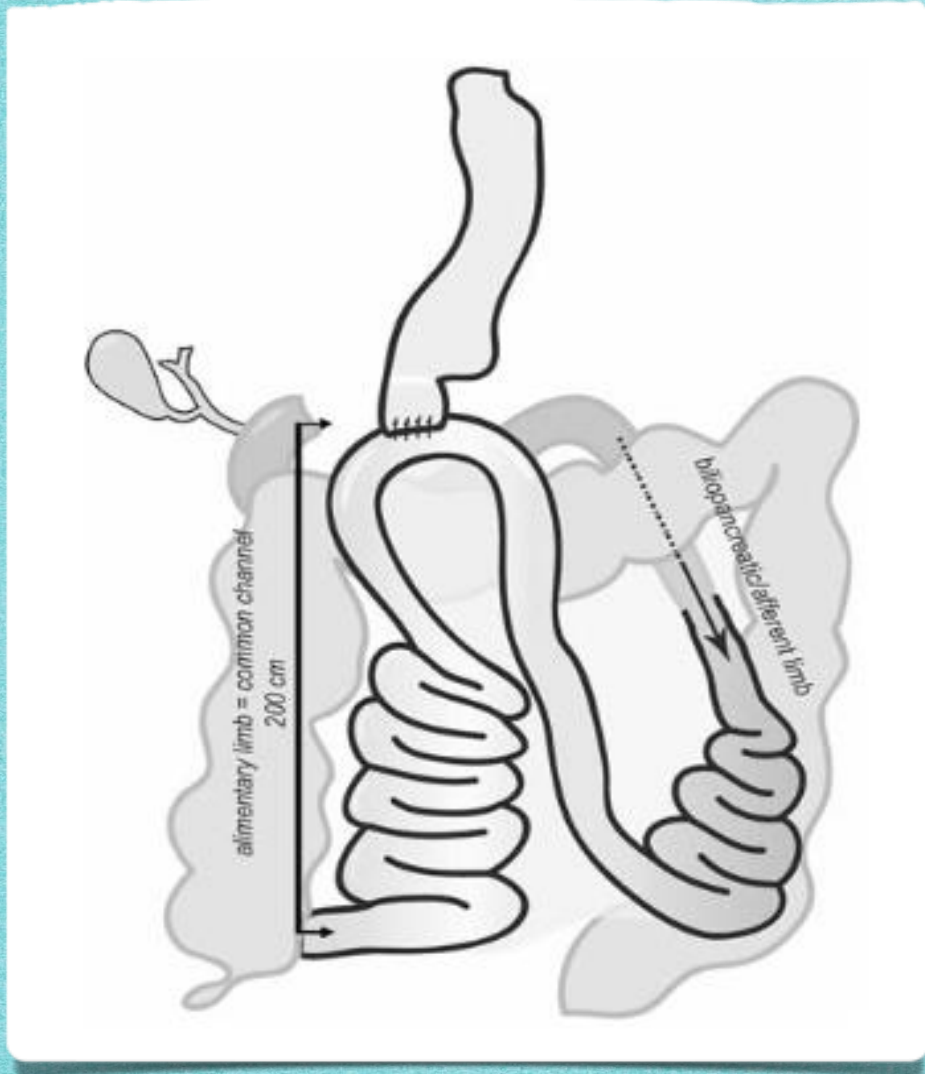


Fig. 1 The proposed technique consists on a sleeve gastrectomy followed by a loop duodeno-ileal anastomosis with a 200-cm efferent limb





2007 - SADI-S 200

Adequate Weight Loss

8% Malnutrition - Revisional
Rate

2009 - SADI-S 250

SADI-S:

SINGLE ANASTOMOSIS DUODENO-ILEAL BYPASS WITH SLEEVE GASTRECTOMY

2007 - 2009: 50 patients submitted to SADI-S **200 CM**

September 2009: SADI-S 250 cm

2009: First patient submitted to SADI-S as a second step

2007 - 2023: 729 patients submitted to SADI-S **200-250-300 cm**

Long term complications

Hypoproteinemia

12/164 re-operated – 7,3%

CC – 200 cm ——— 7 pts – 14%

CC – 250 cm ——— 5 pt – 5%

CC – 300 cm ——— 0 pts – 0%

Operative factors related to malnutrition

Common channel length

CC	Readmission	Reoperation
200 cm	26%	16%
250 cm	11%	6%
300 cm	0%	0%
	P = 0,02	P = 0,04

SADI-S vs DS: a Prospective Randomized Multicenter study

JORDI PUJOL GEBELLI

MARIO NORA

ANTONIO TORRES GARCÍA

ANDRÉS SÁNCHEZ PERNAUTE

AMADOR GARCÍA RUIZ DE GORDEJUELA

ANA MARTA PEREIRA

ORIGINAL CONTRIBUTION



Duodenal Switch vs. Sleeve Gastrectomy with Duodenal Switch (SADI-S) for the Treatment of Obesity: 1-Year Outcomes of a Multicenter Prospective Study

Jordi Pujol Gebellí¹ · Claudio Sánchez-Pernaute² · Ana Marta Pereira² · Andrés Sánchez-Pernaute³ · Jordi Pujol Gebellí¹ · Claudio Sánchez-Pernaute² · Ana Marta Pereira² · Andrés Sánchez-Pernaute³

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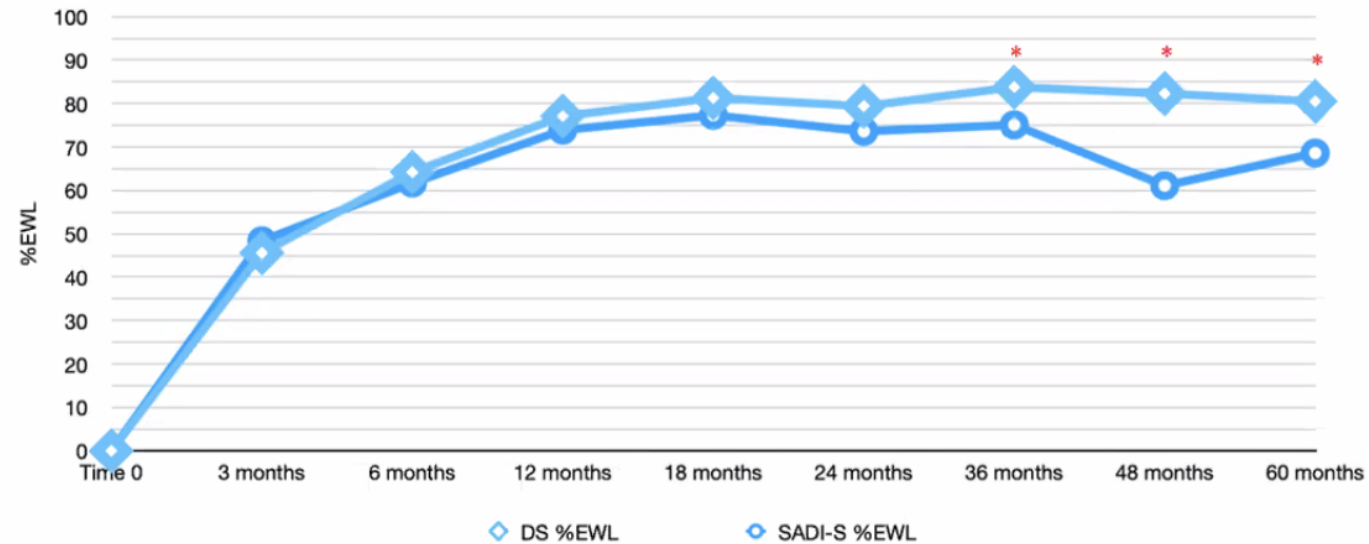
DS: 100
+ 200

SADI-S: 300 cm
Common Limb

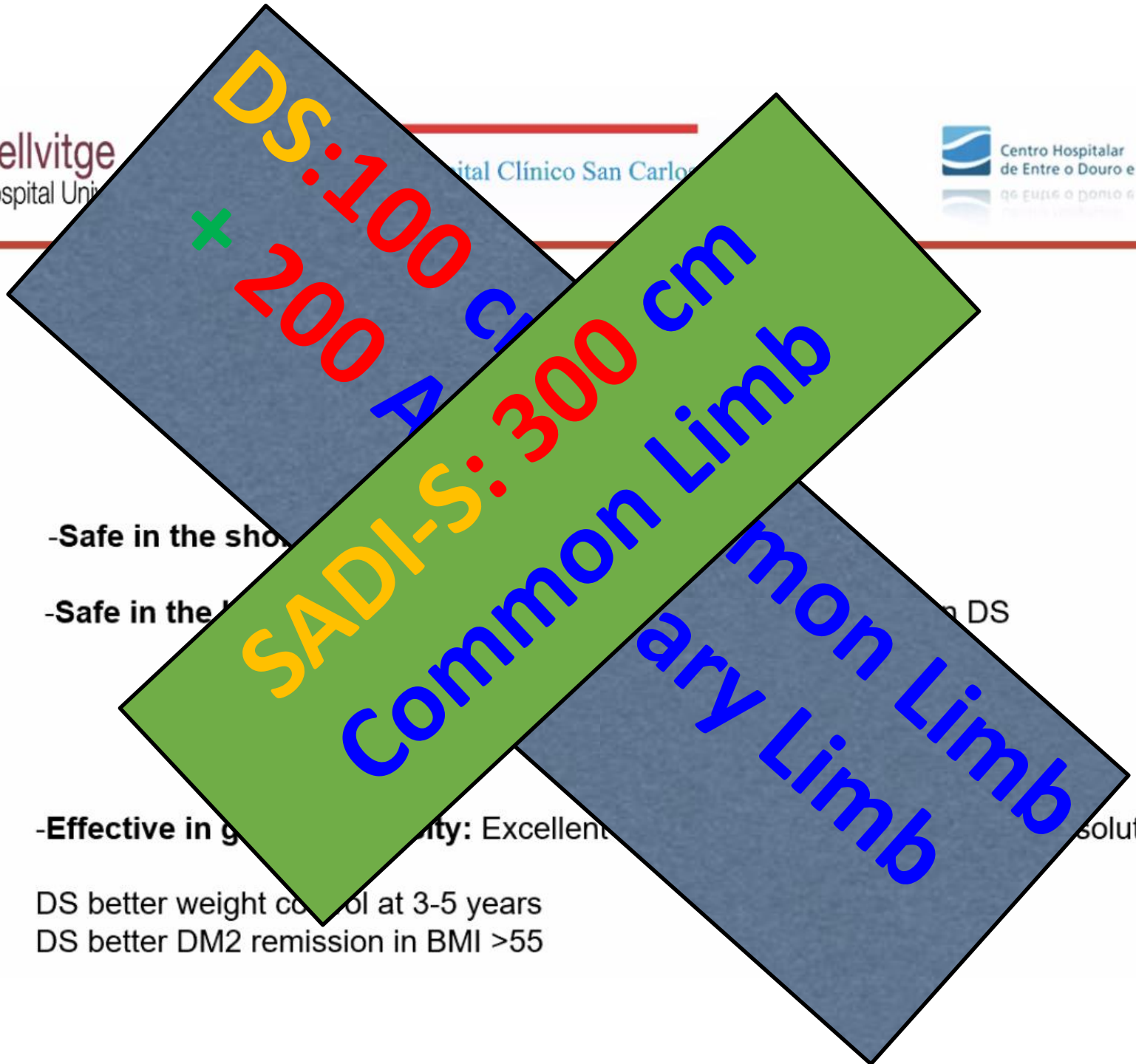
Common Limb
Sleeve Limb

Duodenal Switch vs. SADI-S for the treatment of grade IV obesity

5 years outcomes of a multicentre prospective cohort comparative study



	%EWL								
Time	3 months	6 months	12 months	18 months	24 months	36 months	48 months	60 months	
SADI-S	48,4	61,7	73,9	77,3	73,6	75	61	69	
DS	45,6	64,2	77,1	81,3	79,4	83,8	82,3	80,5	



-Safe in the short term

-Safe in the long term

-Effective in general population: Excellent

DS better weight control at 3-5 years

DS better DM2 remission in BMI >55

DS

solution

SADS vs DS

Short-term Outcomes

Single anastomosis duodeno-ileal bypass with sleeve gastrectomy (SADI-S): short-term outcomes from a prospective cohort study

Amin Andalib, M.D., M.Sc., Stéphanie Bouchard, M.D., M.Sc., Hussam Alamri, M.D., Alexandre Bougie, M.D., M.Sc., Sébastien Demyttenaere, M.D., M.Sc., Olivier Court, M.D.

Surgery for Obesity and Related Diseases 17 (2021) 414–424

Short-term weight outcomes stratified based on procedure and stage

	SADI-S, n = 42		P value	Changes in obesity-related comorbidities	Procedure and stage		
	DS, n = 20				DS, n = 20	1-stage, n = 8	Second-stage, n = 12
1-stage procedure, n (%)	31 (74)	8 (40)					
Baseline weight, kg, median (IQR)	132.5 (22.7)	140.8 (23.6)	.36				
Baseline BMI, kg/m ² , median (IQR)	48.7 (5.0)	45.9 (8.5)	.79				
6-mo follow-up, rate (%)	23/28 (82)	4/7 (57)					
BMI change, kg/m ² , median (IQR)	15.8 (4.6)	17.5 (8.0)	.41				
TWL, kg, median (IQR)	43.5 (16.0)	51.5 (21.4)	.31				
EWL, %, median (IQR)	72.6 (30.3)	76.6 (23.6)	.78				
12-mo follow-up, rate (%)	24/27 (89)	4/7 (57)					
BMI change, kg/m ² , median (IQR)	19.3 (7.3)	19.3 (5.5)					
TWL, kg, median (IQR)	51.5 (22.7)	55.6 (13.3)					
EWL, %, median (IQR)	86.8 (22.3)	85.8 (9.0)					
Second-stage procedure, n (%)	11 (26)	12 (60)					
Interval delay, mo, median (IQR)	23 (20)	26 (12)					
Pre-SG BMI, kg/m ² , median (IQR)	62.7 (29.3)	62.7 (29.3)					
Baseline weight, kg, median (IQR)	121.1 (53.1)	121.1 (53.1)					
Baseline BMI, kg/m ² , median (IQR)	46.8 (12.7)	46.8 (12.7)					
6-mo follow-up, rate (%)	7/11 (64)	2/12 (17)					
BMI change, kg/m ² , median (IQR)	6.2 (5.1)	6.2 (5.1)					
TWL, kg, median (IQR)	20.4 (10.1)	20.4 (10.1)					
EWL, %, median (IQR)	38.8 (29.2)	38.8 (29.2)					
12-mo follow-up, rate (%)	5/8 (63)	7/12 (58)					
BMI change, kg/m ² , median (IQR)	5.3 (5.3)	6.7 (8.4)					
TWL, kg, median (IQR)	17.7 (15.4)	17.7 (27.7)					
EWL, %, median (IQR)	36.8 (27.5)	31.6 (18.7)					

SADI-S: 250 cm
Common Limb

ORIGINAL CONTRIBUTIONS



Single- versus Double-Anastomosis Duodenal Switch: Outcomes Stratified by Preoperative BMI

Romulo P. Lind¹ · Muhammad Ghanem¹ · Andre F. Teixeira¹ · Muhammad A. Jawad¹ · Javier Osorio² · Claudio Lazzara² · Lucia Sobrino² · David Ortiz-Ciruela² · Amador Garcia Ruiz de Gordejuela³

Characteristics	BPD-DS	SADI-S	<i>p</i> value
Age, year mean (± SD)	44.3 (10.11)	47.9 (9.9)	0.00
Female, gender, <i>n</i>	156	190	
Preop. BMI mean, kg/m ² (± SD)	53.2 (10.1)	50.1 (9.2)	0.00
T2D, <i>n</i>	65	86	
HTN, <i>n</i>	124	136	
DLP, <i>n</i>	56	74	
OSA, <i>n</i>	104	105	
Subgroup 1, <i>n</i>	98	139	
Subgroup 2, <i>n</i>	40	39	
Subgroup 3, <i>n</i>	82	62	
LOS, mean, days ± SD	3.48 ± 3.7	3.13 ± 2.3	0.000
Op. time, mean, minutes ± SD	167.25 ± 33.67	140.85 ± 56.74	0.000

SD, standard deviation; *T2D*, type 2 diabetes; *HTN*, hypertension; *DLP*, dyslipidemia; *OSA*, obstructive sleep apnea



Table 2 Weight loss in BPD-DS and SADI-S after 6, 12, and 24 months

	BPD-DS				SADI-S			
	<i>n</i>	BMI ± SD (kg/m ²)	%EWL	%TBWL	<i>n</i>	BMI ± SD (kg/m ²)	%EWL	%TBWL
Preop. BMI	220	53.2 ± 10.1*			240	50.1 ± 9.2*		
6 months	199	40.2 ± 8.9*	44.2 ± 13.2*	25 ± 6.3	219	36.8 ± 8.3*	48.4 ± 14*	26.2 ± 6.2
12 months	175	34.3 ± 7.0*	62.4 ± 14.3	35.9 ± 7.9	199	31.5 ± 6.6*	64.5 ± 15.1	35 ± 7.5
24 months	137	31.7 ± 6.3*	69.4 ± 15.3	40.3 ± 9.3*	158	30.3 ± 5.2*	67.1 ± 17.1	36.9 ± 10.3*

BMI, body mass index; *SADI-S*, single-anastomosis duodenal-ileal bypass; *DS*, duodenal switch; *%EWL*, percentage of excess weight loss; *%TBWL*, percentage of total body weight loss

*Represents *p* values lower than 0.05

Subgroup 1. BMI < 50; Subgroup 2. 50 ≤ BMI < 55; Subgroup 3. BMI ≥ 55

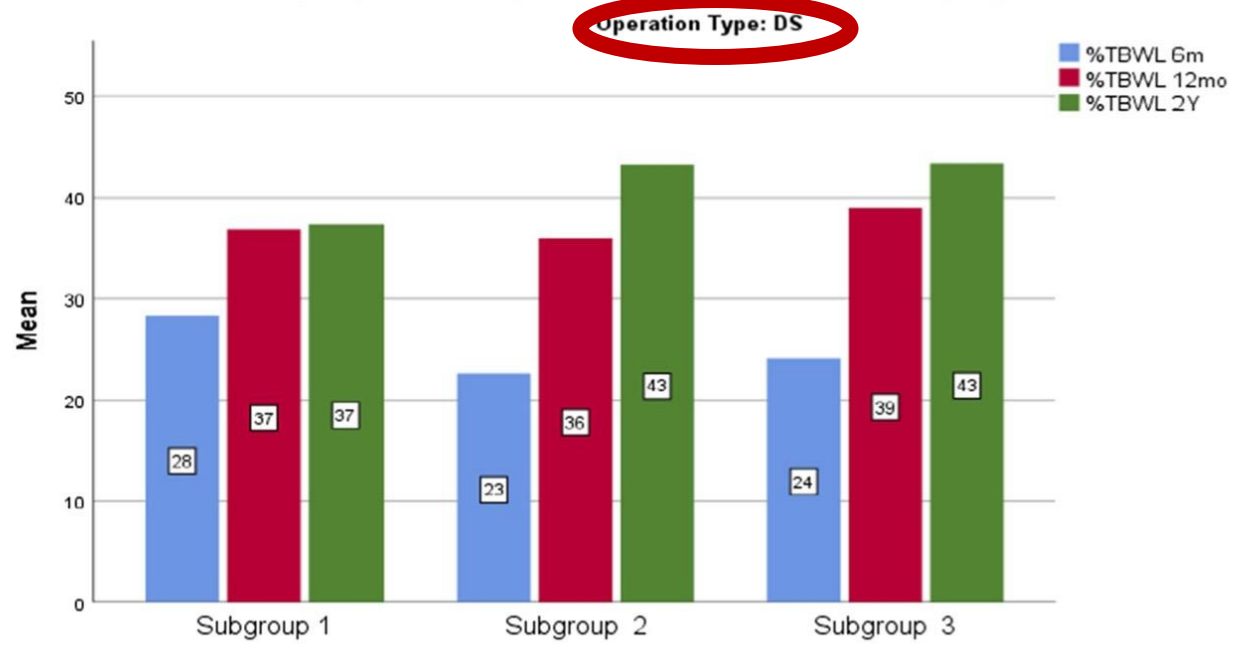


Fig. 2 %TBWL stratified in the subgroups 6, 12, and 24 months after surgery, in BPD-DS and SADI-S groups

new research [12,13] article assessed the safety and results demonstrates at all comparison points when without superiority of any procedure; SA to significantly lower operative time; conversely, we noticed higher an unexpected outcome.

DS: 125 +
Alime +
SADI-S: 250 cm
Common Limb
Common +
Limb

5-year SADI-S: 250 vs 300 cm common channel length. Retrospective **MULTICENTER** comparison.

Nº		SADIS 250 CC	SADIS 300 CC	
	Nº	179	57	235
	Age			47
116	Diabetes	50%	45%	P<0.07
48	REVISIONAL			
	BMI	48	45	P<0.05



5-year SADI-S: 250 vs 300 cm common channel length. Retrospective **MULTICENTER** comparison.

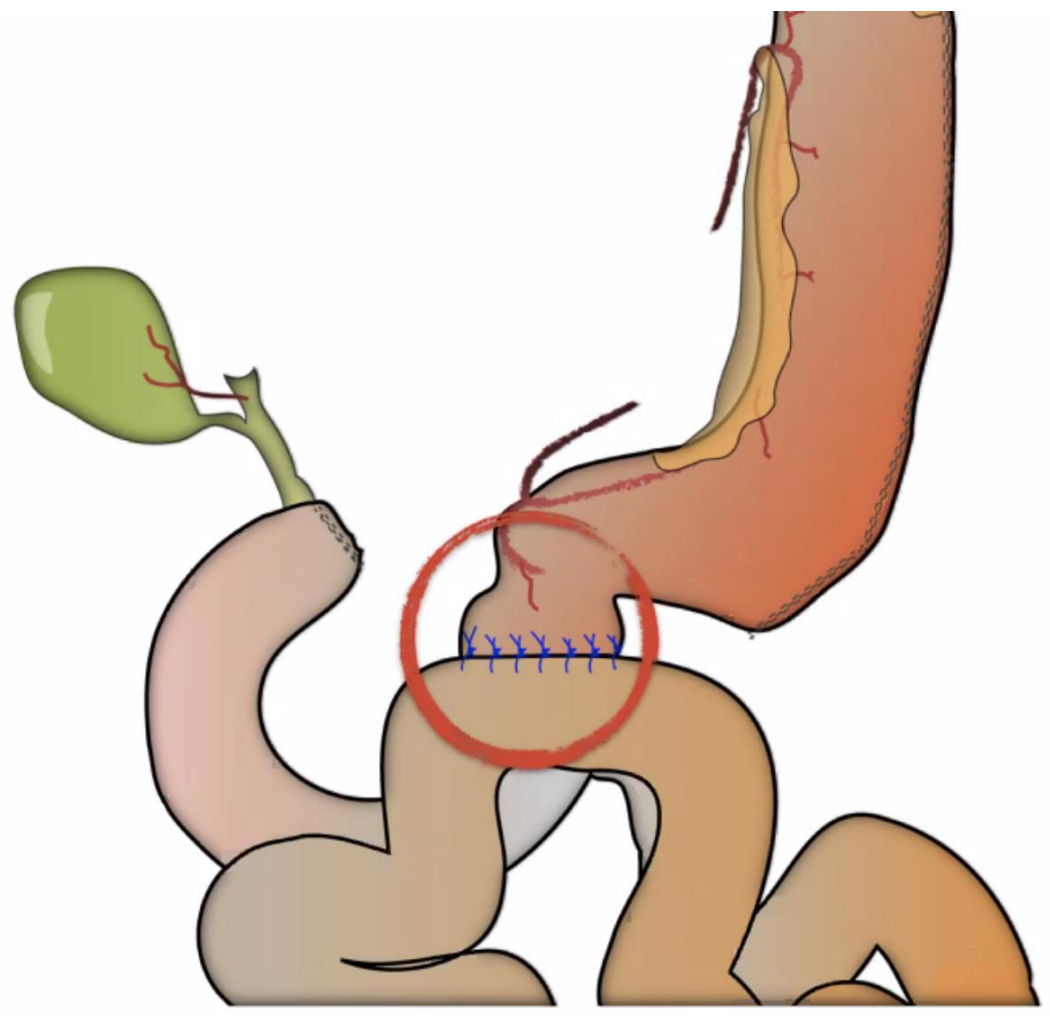
RESULTS		SADIS 250 CC	SADIS 300 CC	
	TWL > 30%	86 %	52 %	P<0.03
	Diabetes Remission	64 %	29 %	P=0.01
	HbA1	5,51 %	6,07 %	P=0.01
	Ca, Vitam. D	lower	higher	
	REOPERATION	9	0	P=0.08



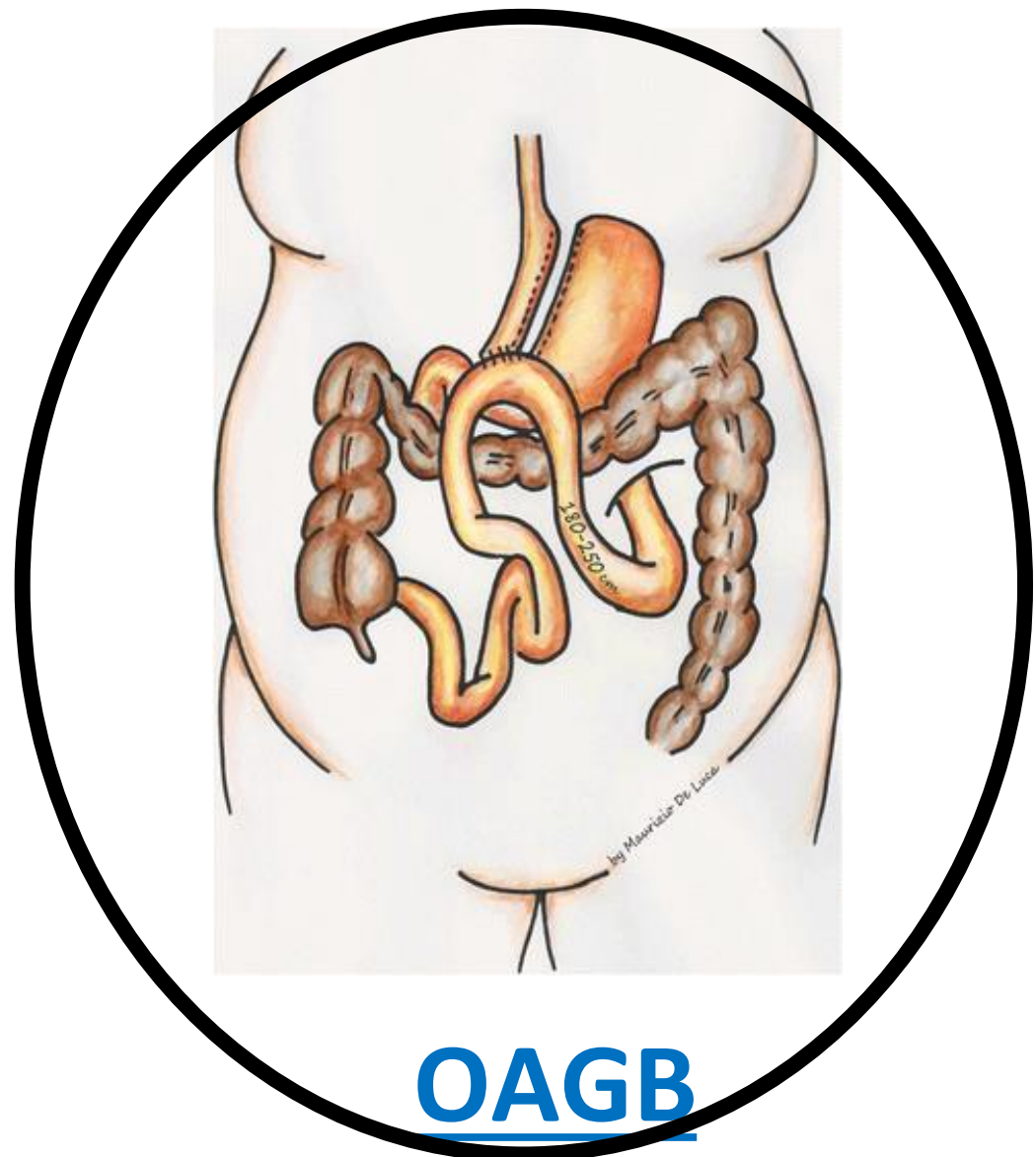
Conclusions

- 1.- Don't do SADI-S with common limb < 250 cm
- 2.- Pay special attention when measuring (30% errors in reoperated patients)

Limb Length

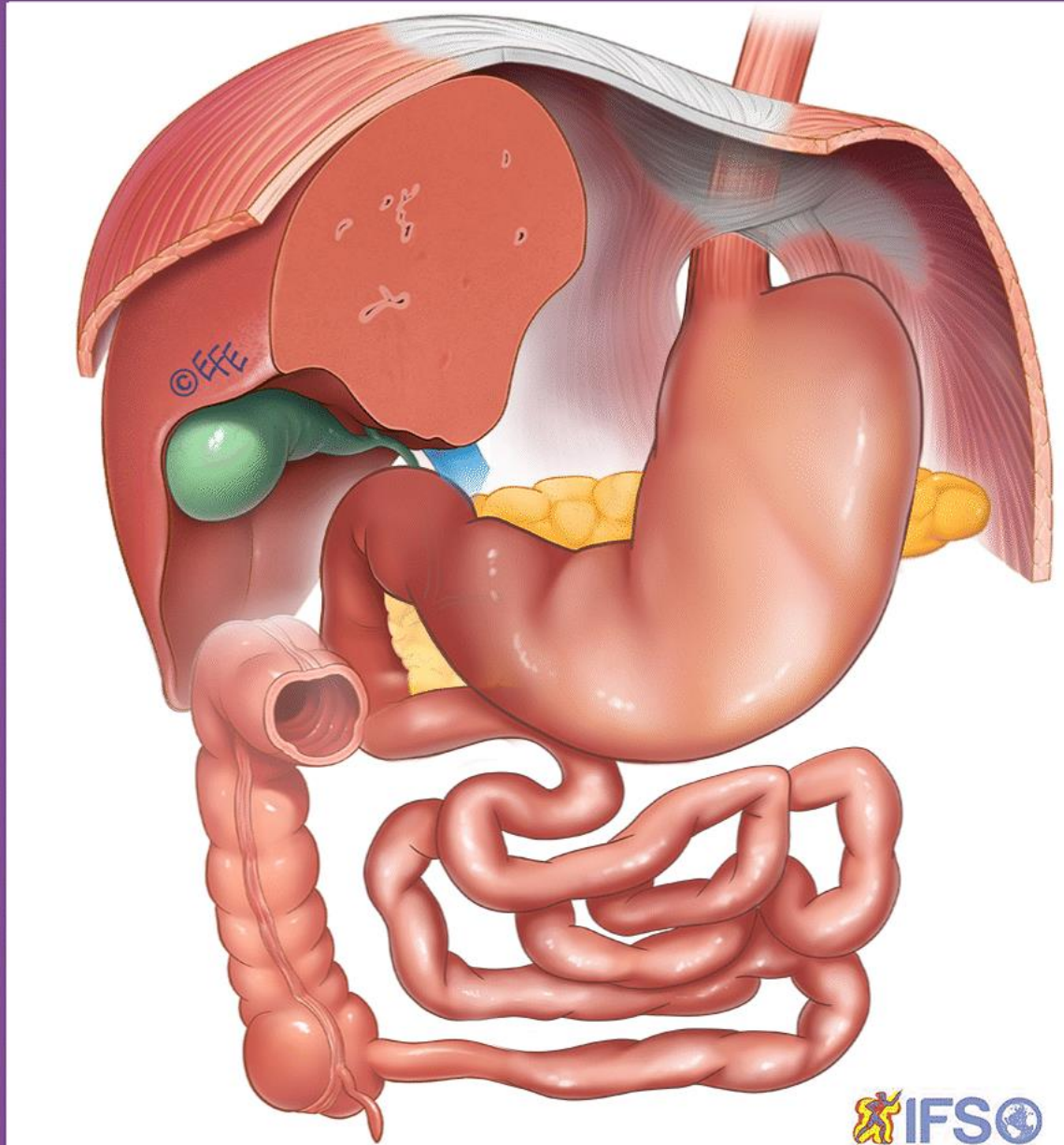


SADIS



OAGB

OAGB - One Anastomosis Gastric Bypass



ONE ANASTOMOSIS GASTRIC BYPASS (OAGB)

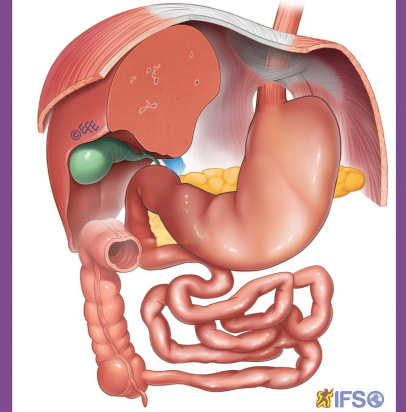




BP limb length in OAGB (cm.):

- 150
- 180
- 200
- 40%/60%
- 300 from ICV
-





Alternatives in Determining Limb Lengths

Fixed Limb Lengths:

⇒ Measure BPL with unknown CC

- 150 cm...and even shorter BPL lead to similar outcomes with less nutritional complications
- Long-term studies prove otherwise

⇒ Measure BPL and ensure sufficient CC length

- Subjective

⇒ Measure CC with unknown BPL

- More recent approach to ↓ complications

Altern

Complete SB Me

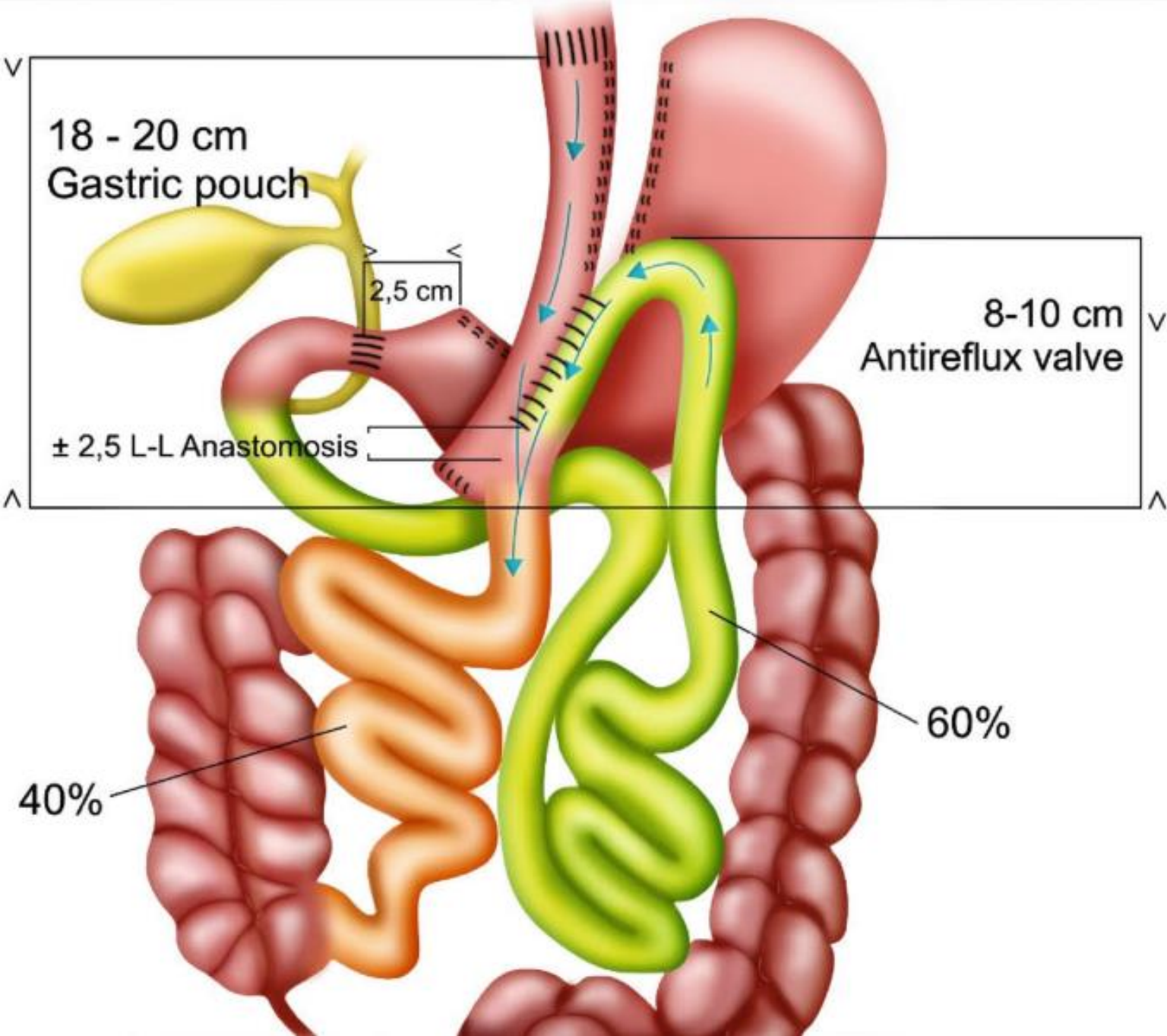
Small bowel length

⇒ BPL according

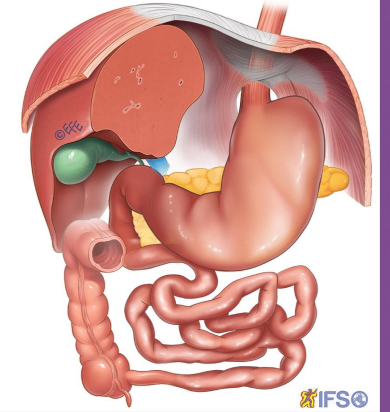
- Better, but on even measure

⇒ Using ratios be

- Considers se
- Longer BPL..
- Aim: betterme



OAGB - One Anastomosis Gastric Bypass





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Table 3 BPL length data on patients requiring revision for malnutrition

	BPL
Mean	214 cm
Median	200 cm
Mode	200 cm (appeared 70 times)
Count	233
Largest value	450 cm



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Table 4 CC length data on patients requiring revision for malnutrition

	CC
Mean	327 cm
Median	300 cm
Mode	300 cm (appeared 39 times)
Count	208
Smallest value	45 cm
Largest value	900 cm



REVIEW



IFSO Update Position Statement on One Anastomosis Gastric Bypass (OAGB)

Maurizio De Luca¹ · Giacomo Piatto² · Giovanni Merola³ · Jacques Himpens⁴ · Jean-Marc Chevallier⁵ · Miguel-A Carbajo⁶ · Kamal Mahawar^{7,8} · Alberto Sartori² · Nicola Clemente² · Miguel Herrera⁹ · Kelvin Higa^{10,11} · Wendy A. Brown¹² · Scott Shikora^{13,14}

Limb length has been reported in 25 studies, including 3 RCTs*

In the RCTs, length of the BPL was

200 cm in 227 patients],
150 to 180 cm in 101 individuals], and
depending on total bowel length in 180 individuals]

average BPL length of 279 cm.

*Robert M, Espalieu P, Pelascini E, et al. Lancet. 2019;393(10178):1299–309.(200 cm)
Shivakumar S, Tantia O, Goyal G, et al. Obes Surg. 2018;28(9):2820–8.
Ospanov O, Buchwald JN, Yeleuov G, et al. Obes Surg. 2019;29(12):4131–7. (200 cm)

Given that BPL length appears to be an important variable, RCTs are warranted to address this important issue.



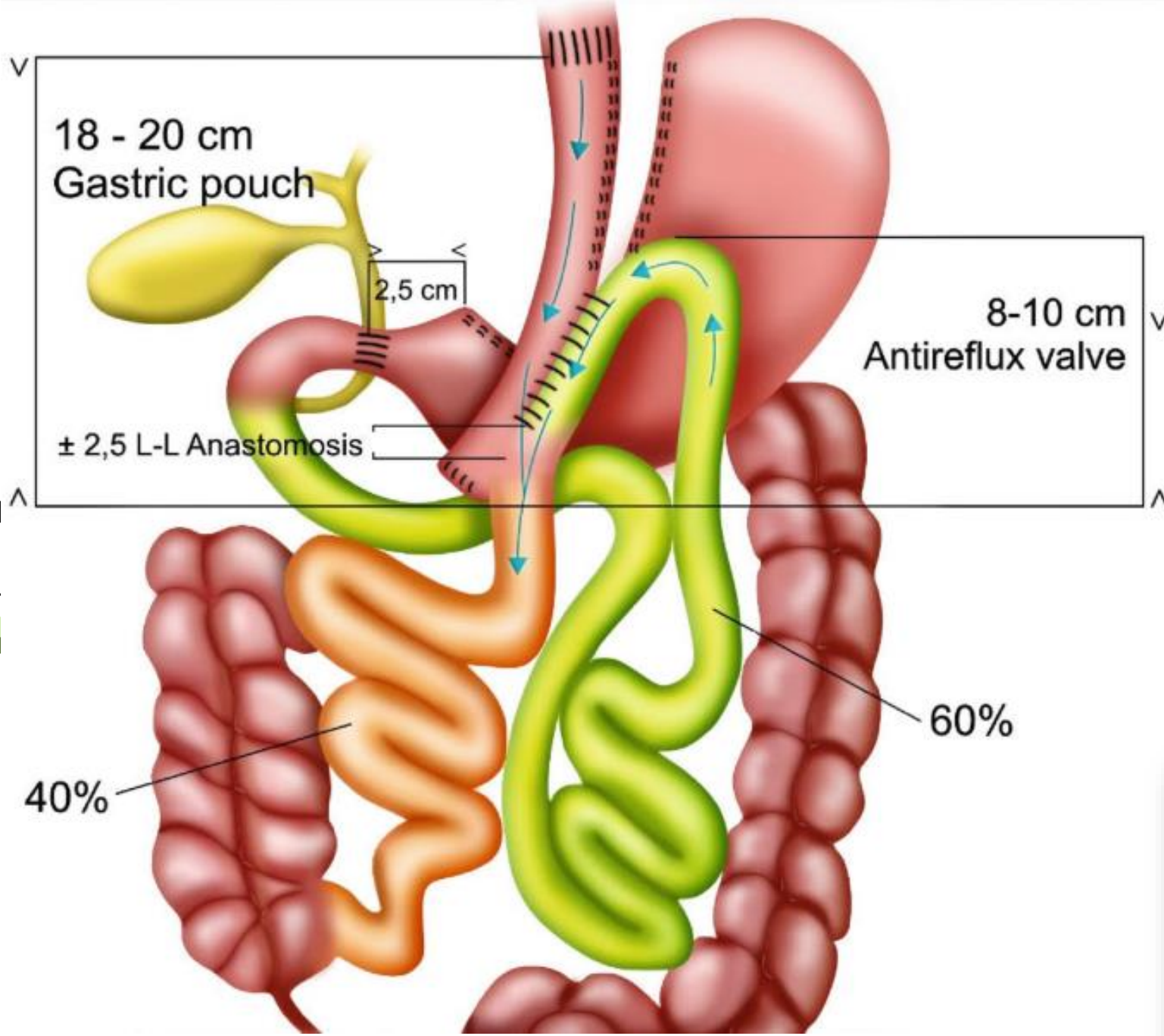
Effect of Biliopancreatic Limb Length on Weight Loss, Postoperative Complications, and Remission of Comorbidities in One Anastomosis Gastric Bypass: a Systematic Review and Meta-analysis

Obesity Surgery

Tasdighi, Erfan; Barzin, Maryam; Mahawar, Kamal K.; ...
Vol. 32 Issue 3, pp. 892–903, 2022.

- Both BPL length < 200 cm significantly decreased BMI.
- Effect on comorbidities and postoperative complications, BPL < 200 cm is safer and more effective.

Therefore, standardization of **BPL length < 200 cm is suggested.** Bypassing ≥ 200 cm of the small bowel does not ameliorate weight loss or resolve comorbidities significantly, and it is related to more frequent postoperative complications and nutritional deficiencies

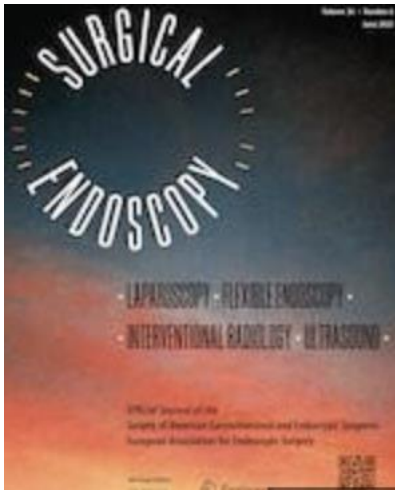


Patients

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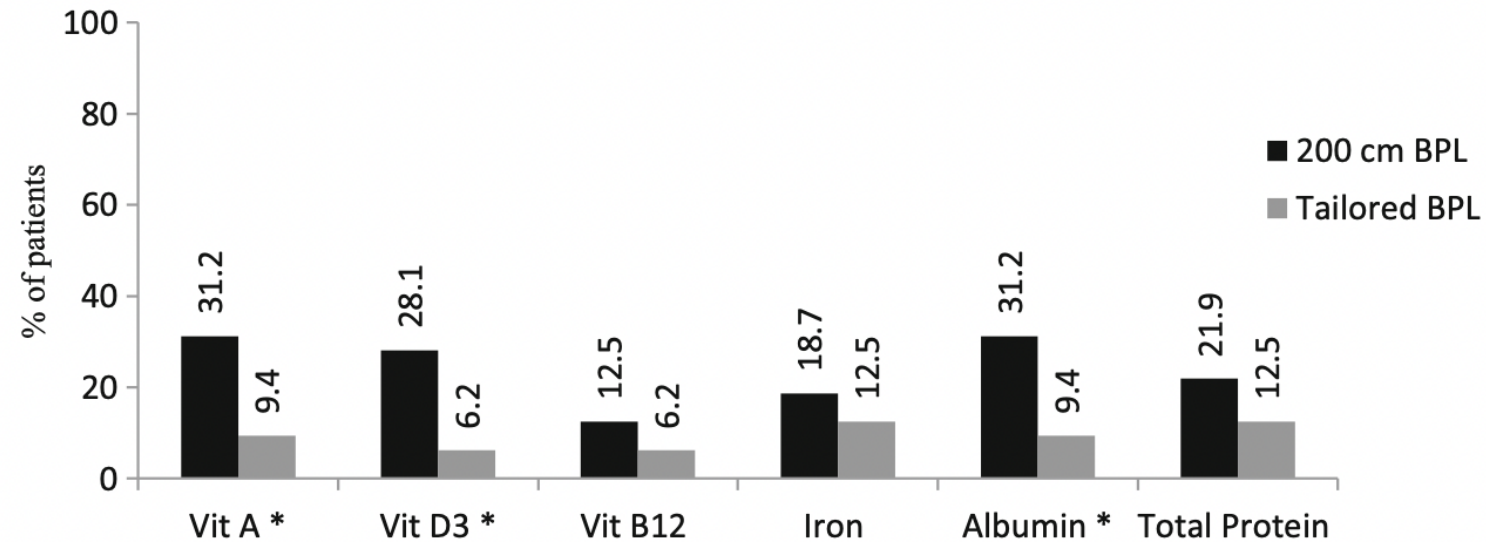
NEW CONCEPT



One Anastomosis Gastric Bypass–Mini Gastric Bypass with Tailored Biliopancreatic Limb Length Formula Relative to Small Bowel Length: Preliminary Results

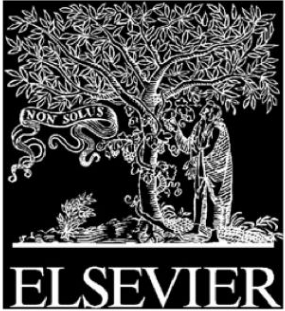
Iman Komaei¹ · Federica Sarra¹ · Claudio Lazzara¹ · Michele Ammendola² · Riccardo Memeo³ · Giuseppe Sammarco² · Giuseppe Navarra¹ · Giuseppe Currò^{1,2}

Retrospective: BPL 200 cm versus 40% of entire SB length



Percentage of patients with nutritional deficiencies in 200 cm BPL and tailored BPL lengths

1 year follow-up
32 patients in both groups



Original article

Measuring the small bowel length may decrease the incidence of malnutrition after laparoscopic one-anastomosis gastric bypass with tailored bypass limb

Tien-Chou Soong, M.D.^{a,b}, Owaid M. Almalki, M.D.^{b,c}, Wei-Jei Lee, M.D., Ph.D.^{b,*},
Kong-Han Ser, M.D.^b, Jung-Chien Chen, M.D.^b, Chun-Chi Wu, M.D.^b,
Shu-Chun Chen, R.N.^b

Since 2005, we have performed OAGB with tailored limb according to preoperative BMI (Group 1).
The biliopancreatic (BP) limb was 150-cm long for BMI <35 kg/m², with a 10-cm increase or decrease for every BMI unit increase

From July 2014, we measured the whole small bowel length to keep the common channel at least 400-cm long (Group 2).
In 2019, data from 470 patients of Group 2 were compared with those of a matched group from Group 1.

Table 4

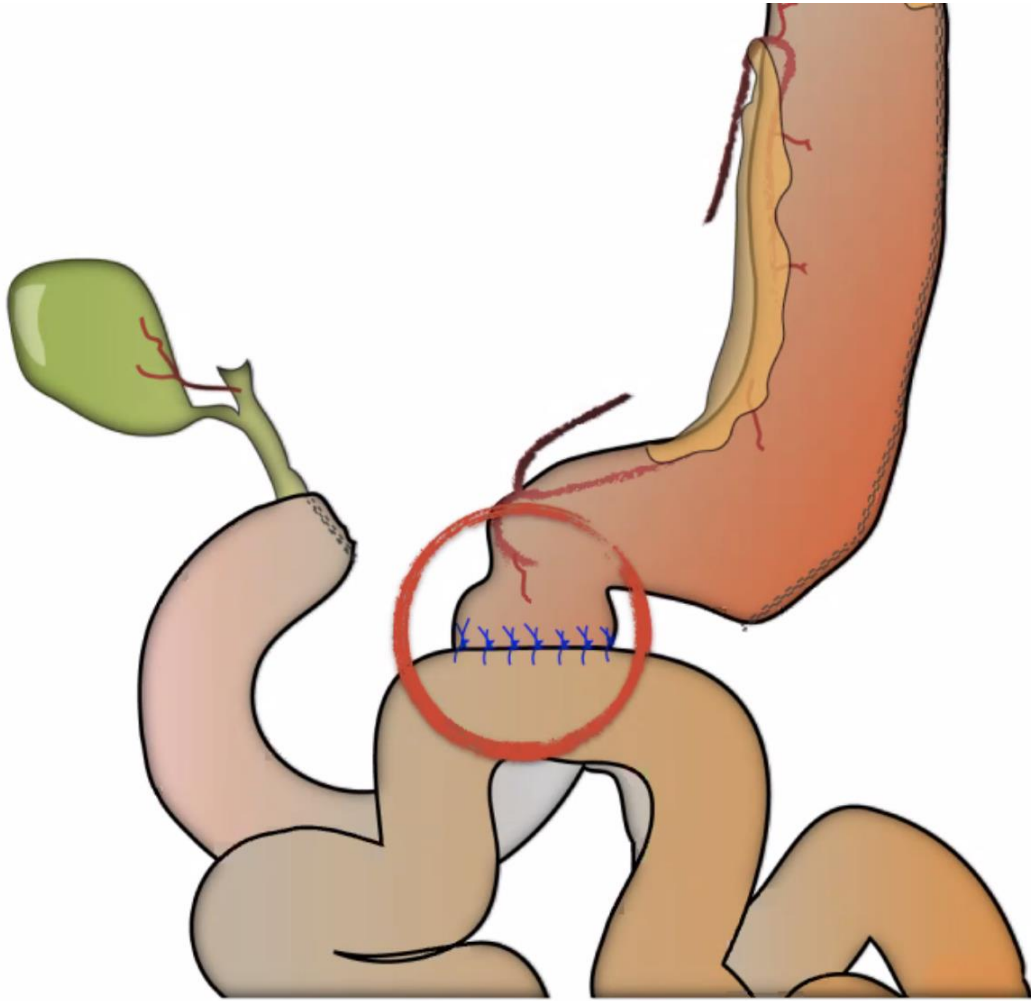
Weight loss and nutrition deficiency in both groups before and 1 year after surgery

	Group I (%)	Group II (%)	P value
Anemia, n			
preop	4.8	3.7	.259
1-yr postop	11.1	5.9	<.001*
SHPT, n			
preop	23.1	22.4	.450
1-yr postop	33.8*	21.7	<.001*
Hypoalbuminemia, n			
preop	.7	.9	.670
1-yr postop	2.8	1.5	<.001*

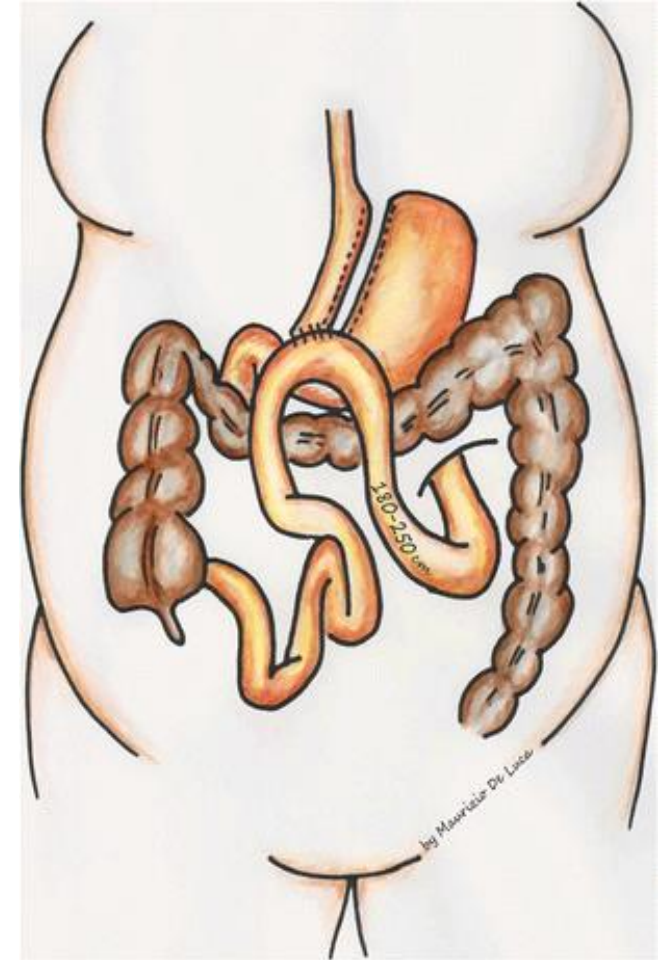
Preop = preoperative; postop = postoperative, SHPT = secondary hyperparathyroidism.

* $P < .05$.

Limb Length

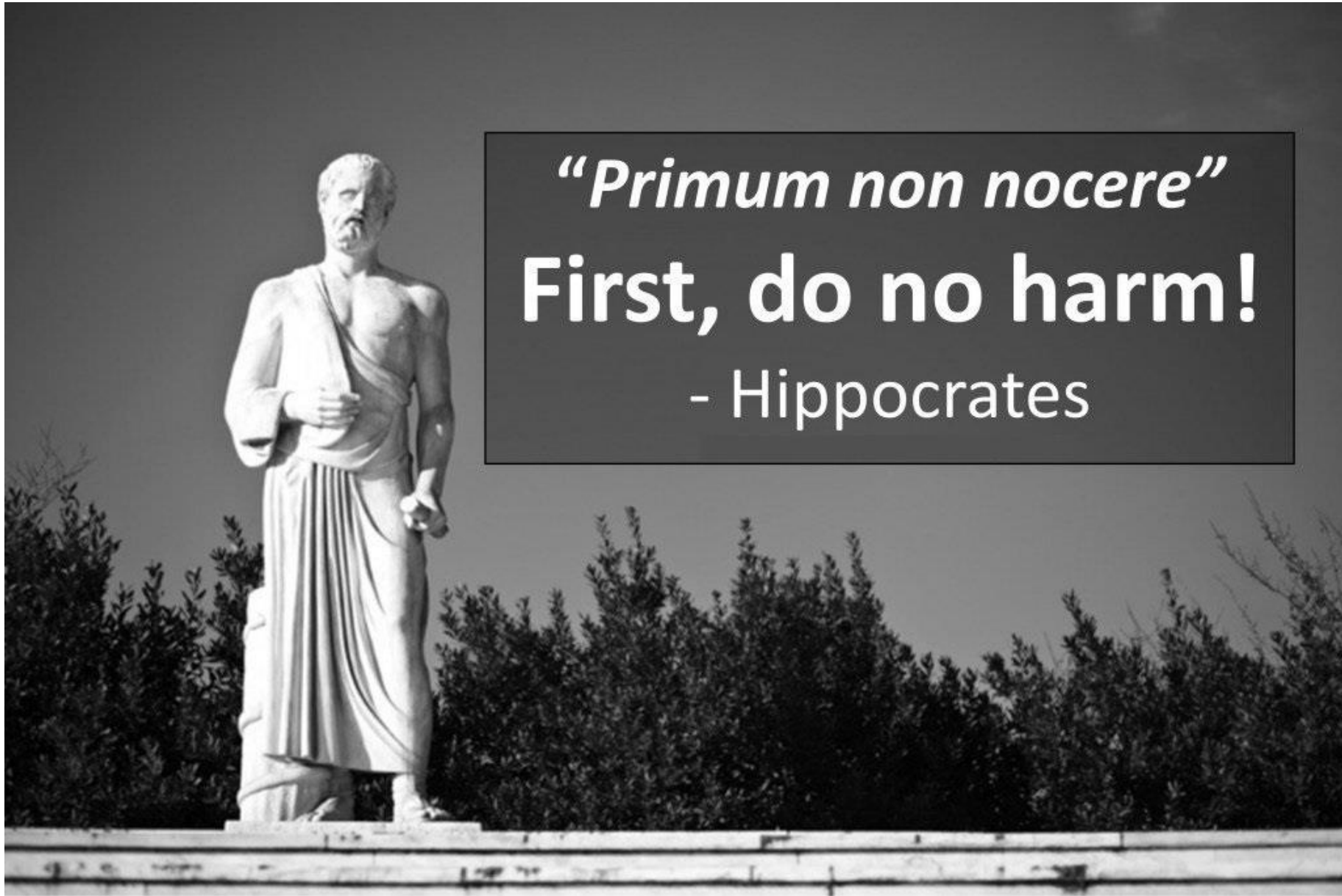


SADIS



OAGB

SHOULD WE REALLY MEASURE THE ENTIRE BOWEL LENGTH?



“Primum non nocere”
First, do no harm!
- Hippocrates



Primum Non Nocere

INACCURACY

MORBIDITY!

*Bowel length: measurement, predictors,
and impact on bariatric and metabolic
surgery*

Roberto M. Tacchino, M.D.

Surgery for Obesity and Related Diseases
Volume 11 Issue 2 Pages 328-334 (March 2015)
DOI: 10.1016/j.soard.2014.09.016

Fig. 1

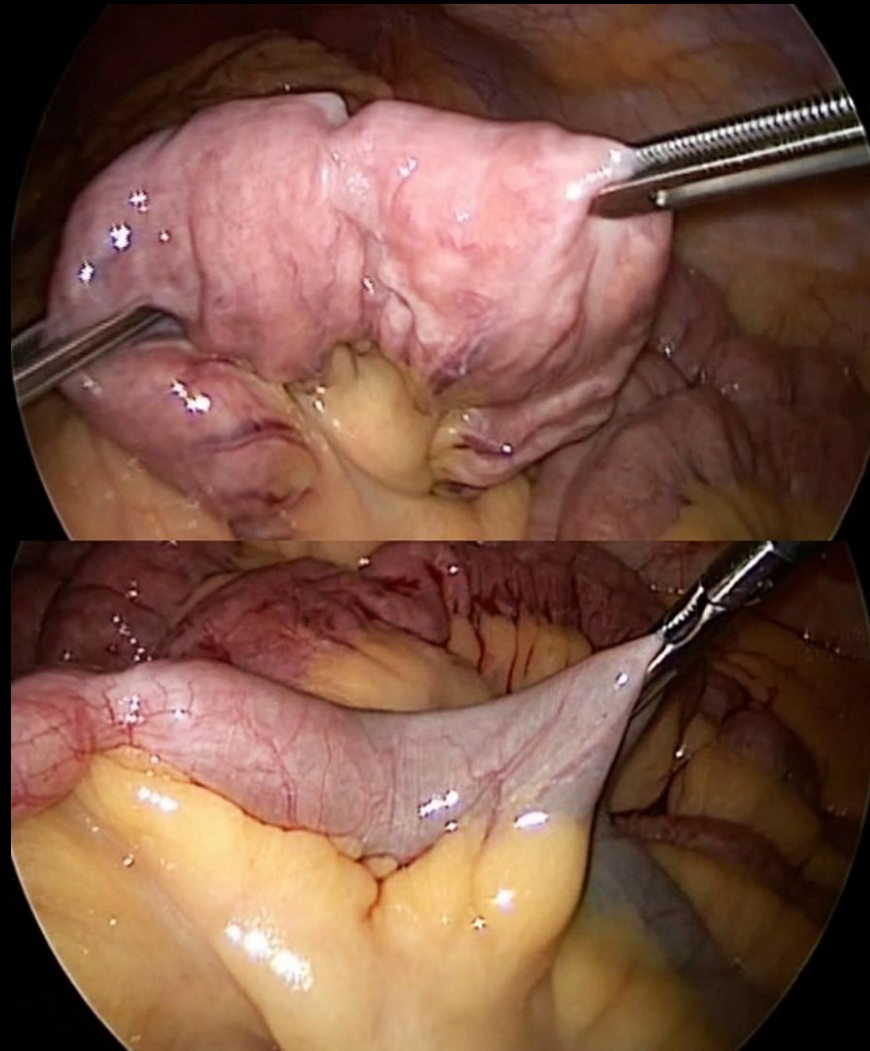
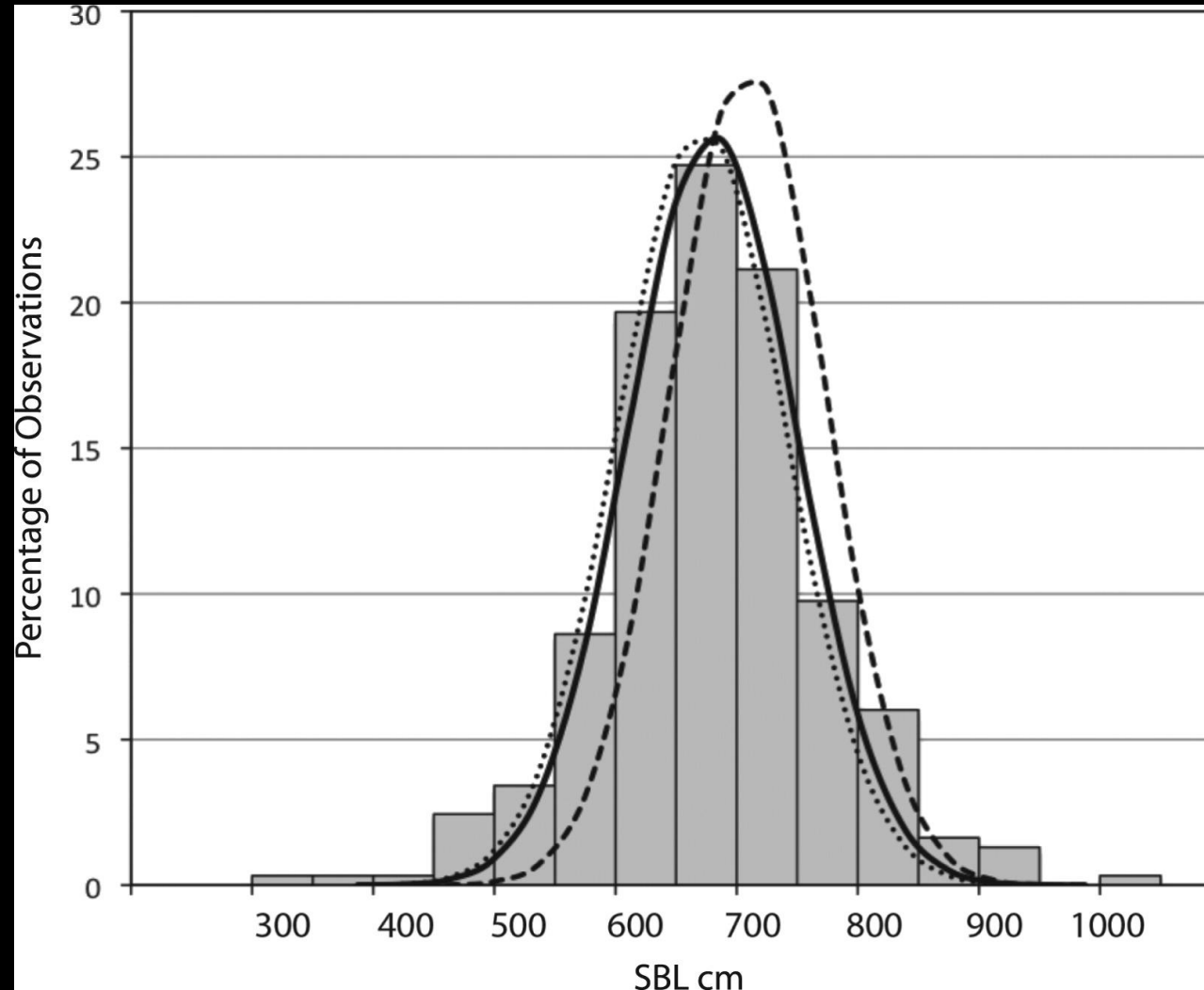


Fig. 2



How accurate is the visual estimation of bowel length by endoscopic surgeons?

Sahar Mirzaee ¹, Mahdiah Golzarand ², Reza Parsaei ³, Karamollah Toolabi ¹,
Alireza Amirbeigi ⁴

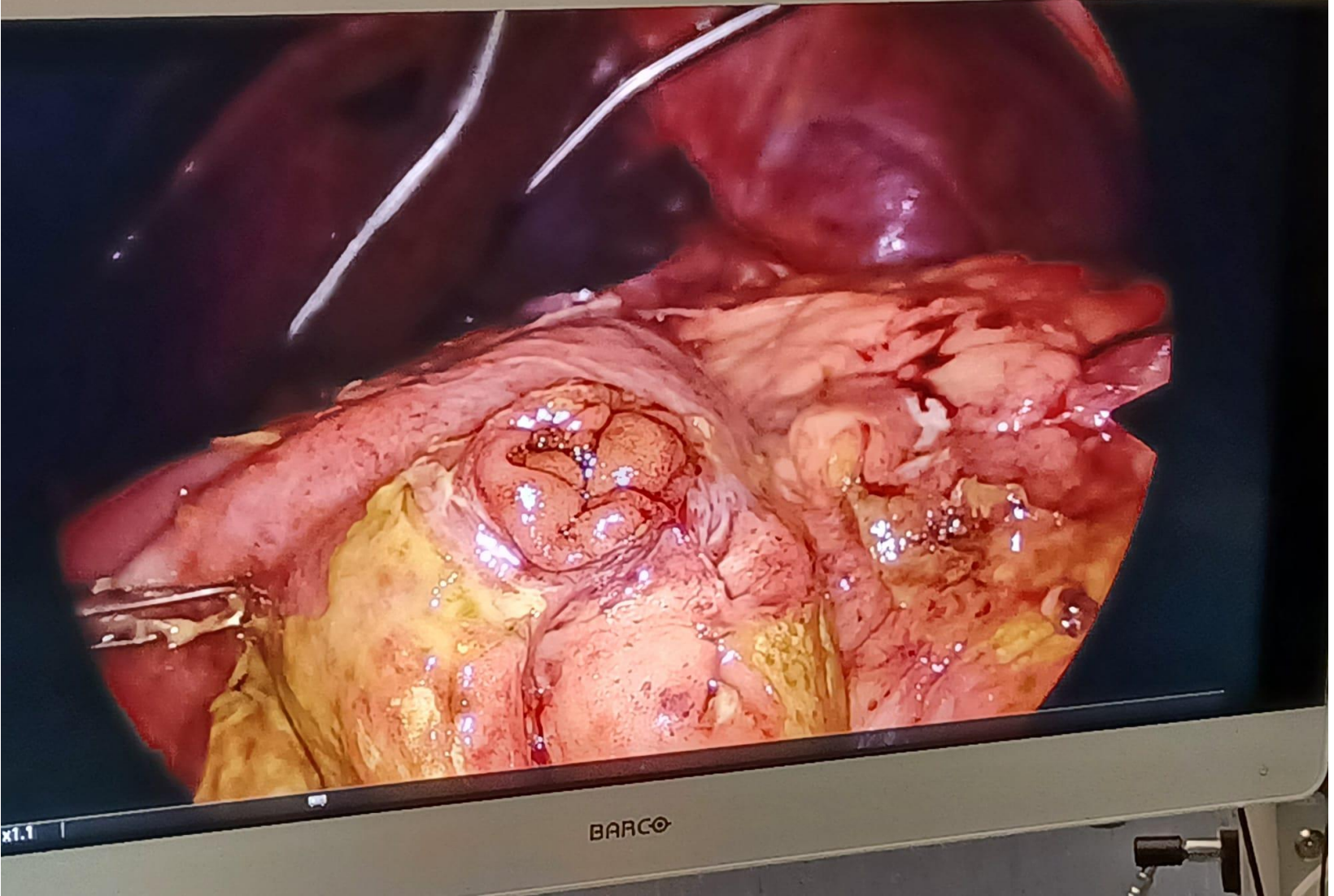
A total of 86 participants answered the questionnaire. The mean error of estimation was 4.62 cm (27%). Twenty-eight participants (33%) had significant errors in estimation of bowel length.



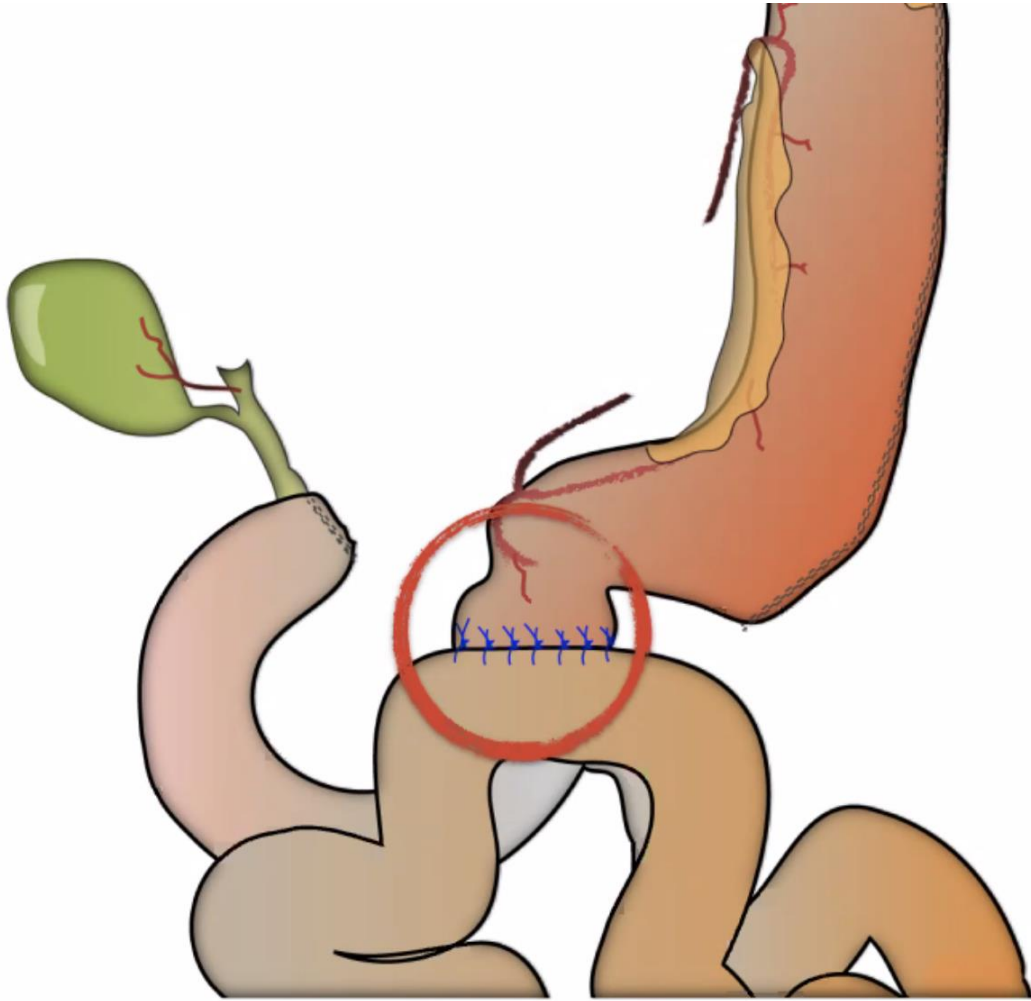
Primum Non Nocere

INACCURACY

MORBIDITY!



Limb Length



SADIS



OAGB

Tacchino et al. have SB <400 or >800

This is to measure the
common patients
undergo resective
surgery (BPD, DJB, or
OAC)

BUT: do not forget the
restrictive component
of the procedure



Primum Non Nocere

→ common limb (TALL) should be at least 250-300 cm long (longer in vegetarians)

→ take into account the Restrictive component of the procedure



13th Congress of the International Federation for the Surgery of Obesity (IFSO) European Chapter

15-17 May 2025 | Venice, Italy

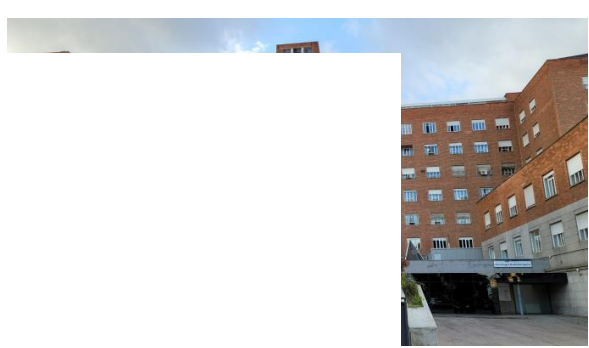


[IFSO-EC2025.COM](https://ifso-ec2025.com)

XXVII Ifso World Congress



Melbourne 2024



THANK YOU

GRACIAS
ARIGATO
SHUKURIA

DANKSCHEEN
JUSPAXAR

TASHAKKUR ATU
GOZAIMASHITA
EFCHARISTO

YAQHANYELAY
MEHRBANI
BOLZİN

SUKSAMA
EKHMET
PALDIES

BIYAN
SHUKRIA
MERCİ

TINGKI
MINMONCHAR

SPASSIBO
SNACHALHUYA
NUHUN
CHALTU
WABEEJA
MAITEKA
HUI
YUSPAGARATAM
ATTO
ANINA
UNALCHEESH
MERSI
SPASIBO
DENKAUJA
NENACHALHYA
HATUR
EKOJU
SIKOMO
MAKETRI
BAIKA
TAVTAPUCH
MEDAWAGSE
MERASTAWHY
GAEJTHO
AGUYJE
FAKAAUE
KOMAPSUMNIDA
LAH
MAAKE
LAH