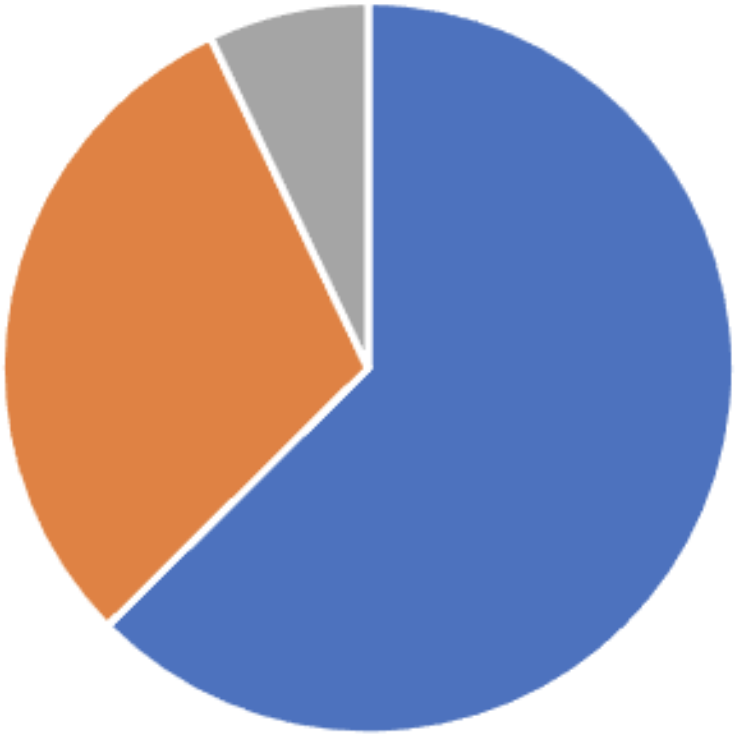
Surgical treatment of obesity: procedure choice and algorithm for primary procedures

Lilian Kow

Adelaide , Australia

CASE MIX DISCLOSURE



LAGB

SG

RYGB

Total > 6000

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CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report

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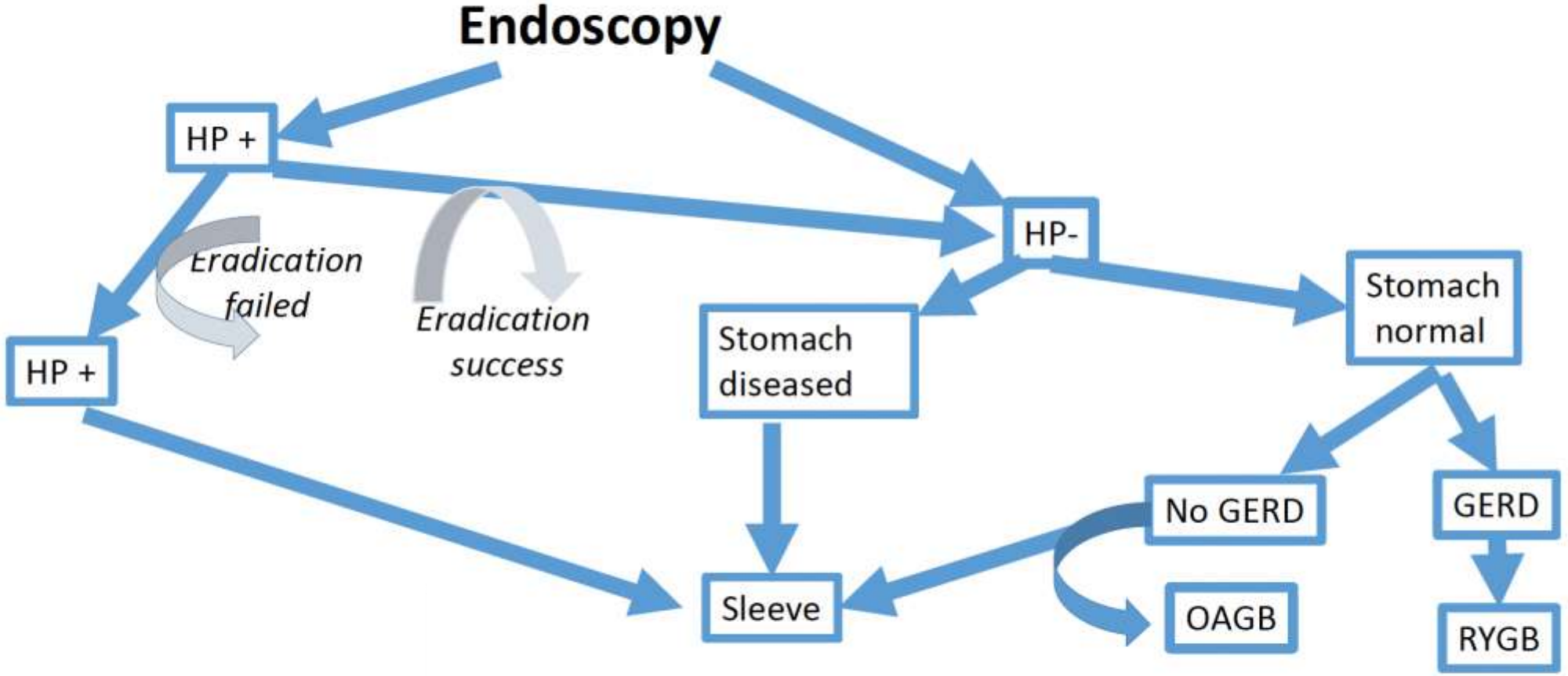
Algorithm for MBS in patients with obesity

Consensus on MBS

135 statements 26 surgeons/43 attendees

- Preoperative decision making
- Indications
- Contraindications
- Specifics of each procedure
- Comparisons between procedures

Algorithm for MBS in patients with obesity



Algorithm for MBS in patients with obesity

Endoscopy

- **Preoperative endoscopy** is a must for safe MBS (level 1: Wang et al)
  - Severe gastric disease)
  - Esophagitis)
  - BE)

may exist in asymptomatic patient (level 1: Qumseya et al)

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Wang et al Obesity surgery. 2021;31:337-42
Qumseya et al Obesity surgery. 2022;32:3513-22
Lewis et al SOARD 2021;17:72-80
Xie et al World Journal Gastroenterology. 2013;19:6098-107.

Beware Pathological Findings of the Stomach in Patients Undergoing Bariatric Surgery: a Systematic Review and Meta-analysis

Shiqi Wang[1] · Quan Wang[2] · Lei Xu[3,4] · Pengfei Yu[1] · Qin Li[1] · Xiaohua Li[1] · Man Guo[1] · Bo Lian[1] · Gang Ji[1]

Obesity → ↑ incidence of
- atrophic gastritis
- intestinal metaplasia
- gastric cancer

MBS without endoscopy will miss these lesions

Disadvantageous for RYGB with excluded stomach remnant

endoscopy prior/after MBS

59 studies = 32789 patients

Level Evidence: 1

Incidences pathology	Overall %	Preoperative endoscopy N=28		
		Overall	Routine	Unknown
Atrophic gastritis	3.05 (1.53–6.09)	3.69 (1.52–8.99)	2.64 (0.78–8.9)	6.68 (1.41–31.5)
Intestinal metaplasia	2.44 (1.76–3.25)	3.21 (1.65–5.26)	2.70 (0.9–5.42)	4.93 (2.83–8.56)
GIST	0.45 (0.31–0.60)	0.23 (0.11–0.52)	–	–

Obesity Surgery (2021) 31:337–342

Algorithm for MBS in patients with obesity

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  - Severe gastric disease) *may exist in*
  - Esophagitis) *asymptomatic patient*
  - BE) *(level 1: Qumseya et al)*

- **H Pylori** must be evaluated before any MBS with gastric exclusion
  - HP may →gastric Ca, atrophy, ulceration or GIST (level 1: Wang et al)
  - HP should be eradicated before MBS to ↓ the risk of gastric Ca (level 1: Cochrane gut).
  - HP protects however against esophageal adenoCa (level 1:Xie et al)

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Wang et al Obesity surgery. 2021;31:337-42
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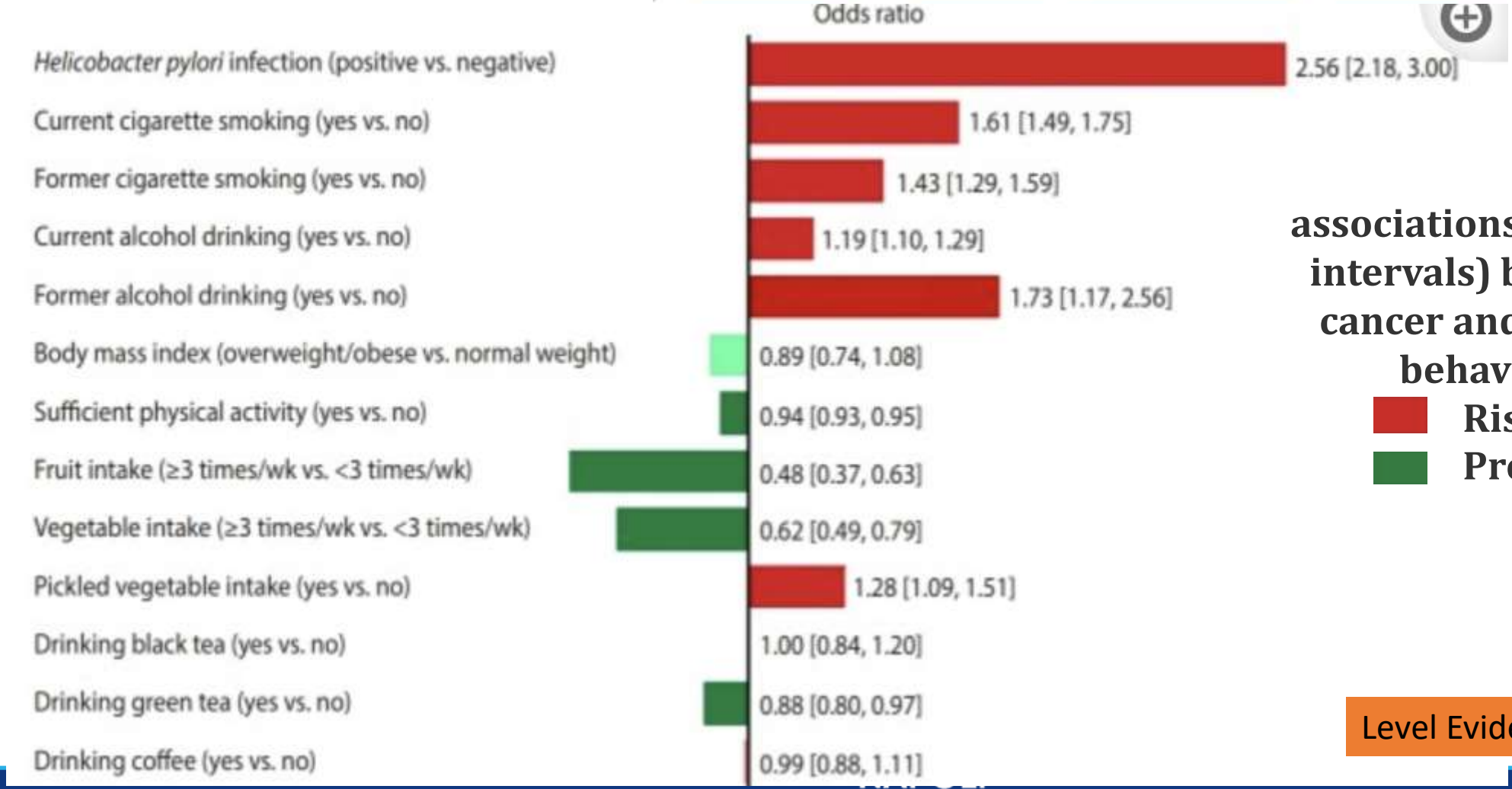
epiH Epidemiology and Health
http://www.e-epih.org/
This Article | Aims and Scope | Instructions to Authors | e-Submission

Epidemiol Health. 2020; 42: e2020004.
Published online 2020 Feb 2. doi: 10.4178/epih.e2020004
PMCID: PMC7056944
PMID: 32023777

Risk factors for stomach cancer: a systematic review and meta-analysis

Jalal Poorolajal,[1,2,3] Leila Moradi,[1] Younes Mohammadi,[1,4] Zahra Cheraghi,[1,3] and Fatemeh Gohari-Ensaf[1]

232 studies n= 33,831,063



associations (95% confidence intervals) between stomach cancer and nutritional and behavioral factors

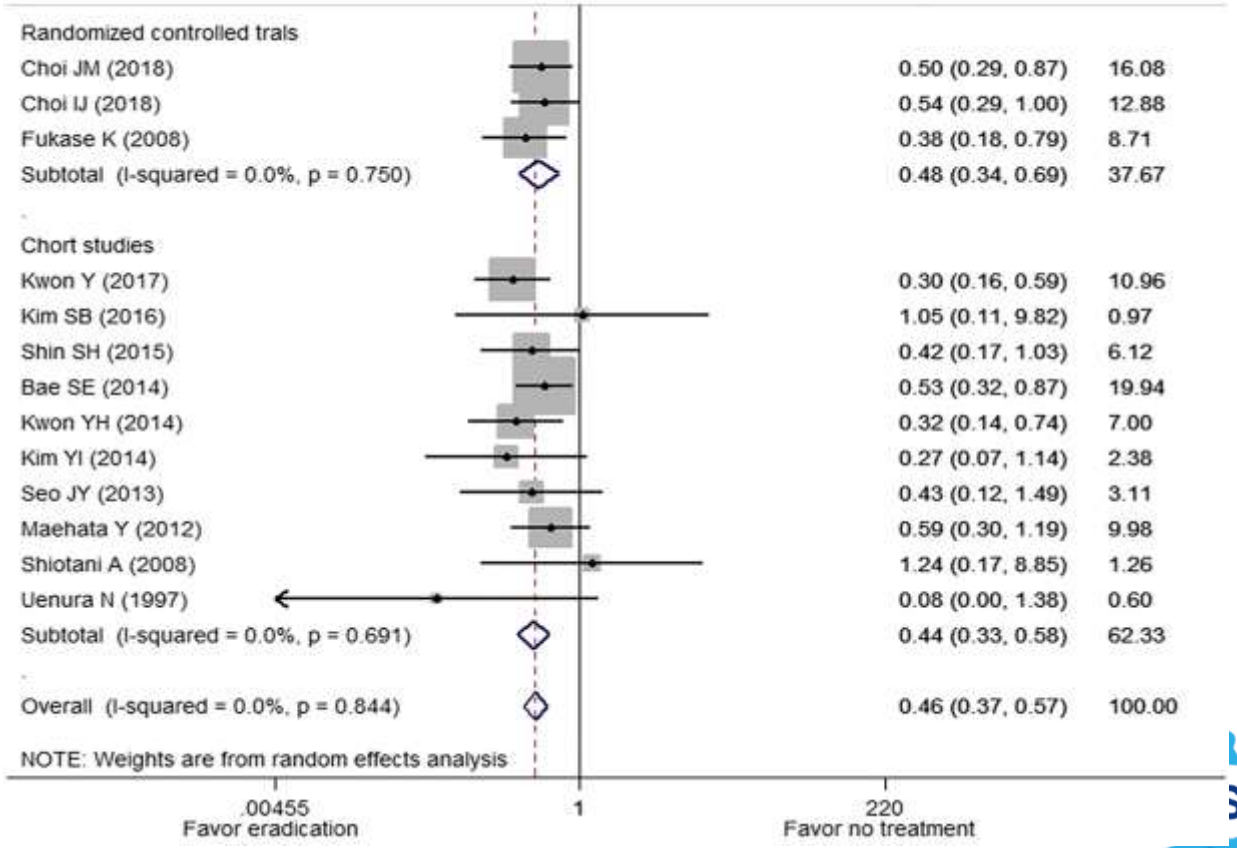
- **Risk factors**
- **Protective factors**

Level Evidence: 1

COMPREHENSIVE REVIEW

WILEY Journal of Evaluation in Clinical Practice
International Journal of Public Health Policy and Health Services Research

Effects of eradicating *Helicobacter pylori* on metachronous gastric cancer prevention: A systematic review and meta-analysis



13 studies 3863 patients

		metachronous gastric cancer
HP eradicated	2480	163 (6.57%)
HP persistent	1383	176 (12.73%)

The pooled risk ratio of metachronous gastric cancer for these studies was 0.46 (95% CI, 0.37-0.57, $P < .001$)

Eradicating *H pylori*

↓

↓ rates of metachronous gastric cancer by 50% → effective preventive measure

Level Evidence: 1

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Evaluation Clinical Practice, Volume: 26, Issue: 1, Pages: 308-315, First published: 29 May 2019, DOI: (10.1111/jep.13179)

Algorithm for MBS in patients with obesity

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  - HP protects however against esophageal adenoCa (level 1:Xie et al)
- **BE** - ↑ Prevalence BE after LSG - ↑ year by year. Not ↑ after RYGB (level 1:Qumseya et al.)
- **Hiatus Hernia** +/- reflux → LSG + HHR improves oesophagitis and GERD
  → RYGB .

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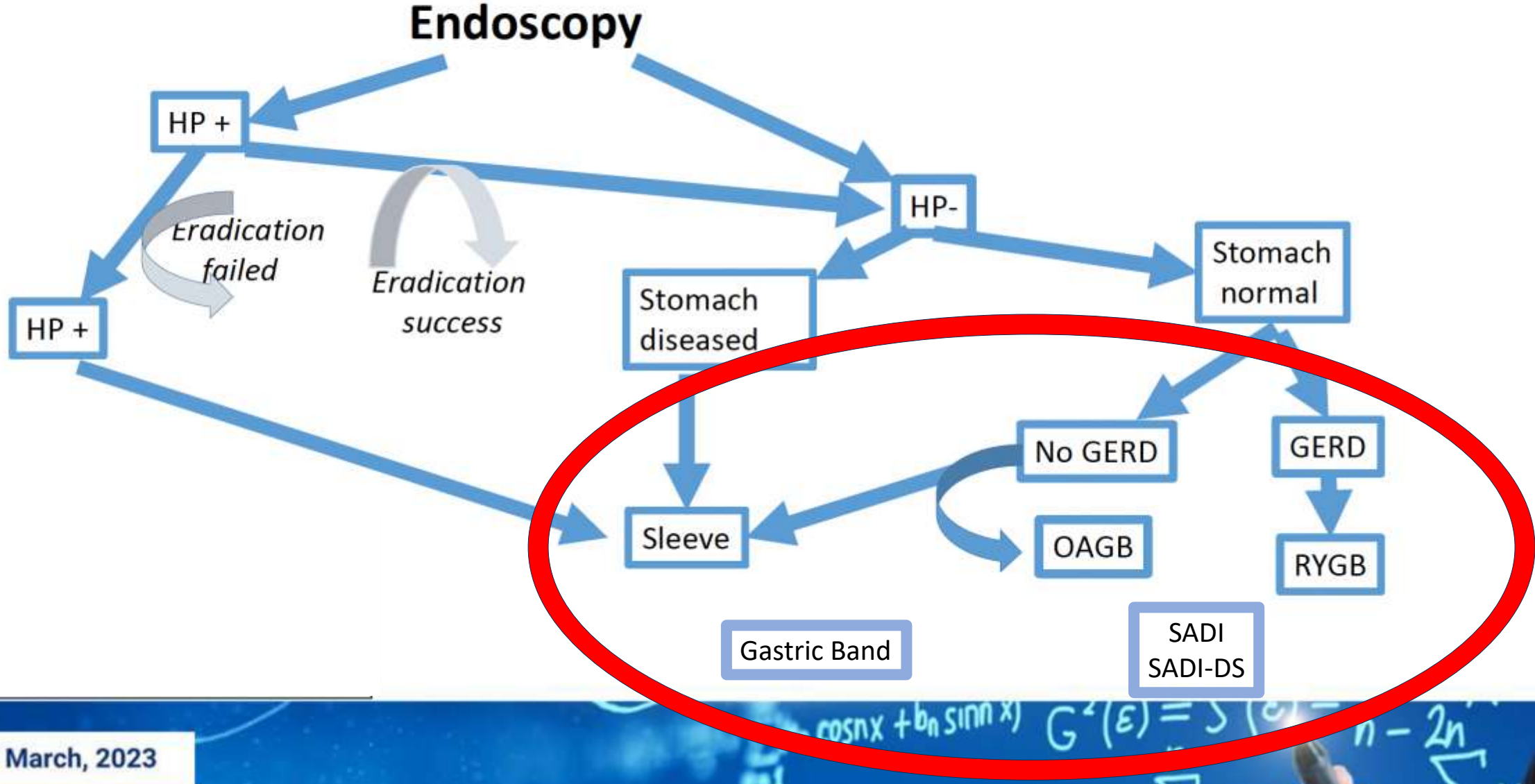
Wang et al Obesity surgery. 2021;31:337-42
Qumseya et al Obesity surgery. 2022;32:3513-22
Lewis et al SOARD 2021;17:72-80
Xie et al World Journal Gastroenterology. 2013;19:6098-107.

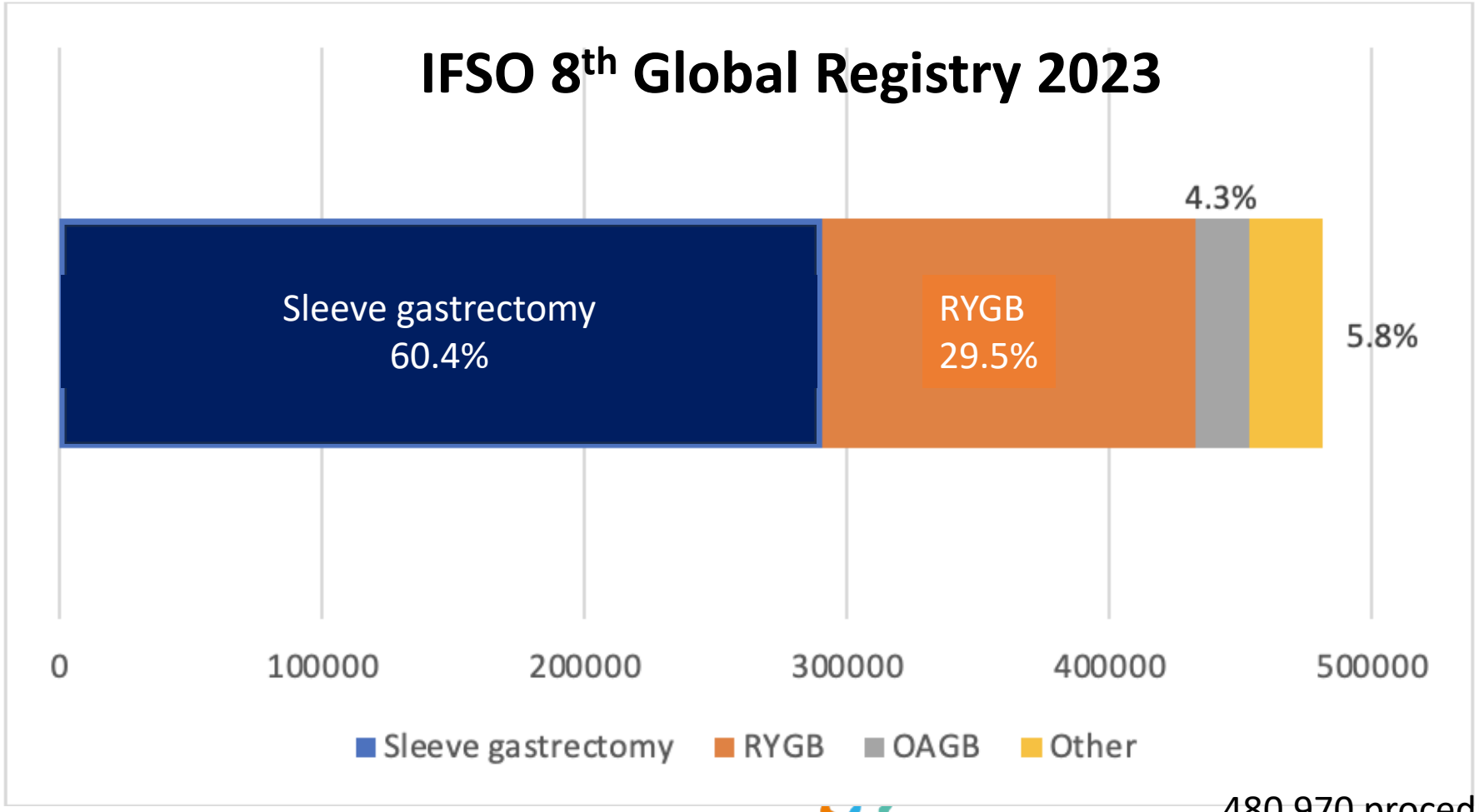
Effect of Laparoscopic Sleeve Gastrectomy vs Roux-en-Y Gastric Bypass on Weight Loss, Comorbidities, and Reflux at 10 Years in Adult Patients With Obesity The SLEEVEPASS Randomized Clinical Trial

	LSG	RYGB
Median %EWL	43.5% (2.1-109.2)	50.7%(1.7-111.7)
Mean estimate%EWL	1	8.4 (95% CI,3.1-13.6)
Remission T2DM	26%	33% (P=.63)
Dyslipidemia	19%	35% (P=.23)
SAS	16%	31% (P=.30)
Hypertension remission	8%	24% (P=.04)
Esophagitis	**31%**	**7% (P<.001)**
Barrett esophagus	4%	4% (P=.29)
Reoperation rate	15.7%	18.5% (p=.57)

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


Endoscopy
HP +
HP +
Eradication failed
Eradication success
HP-
Stomach diseased
Stomach normal
No GERD
GERD
Sleeve
OAGB
RYGB
Gastric Band
SADI
SADI-DS

MBS Options



480,970 procedures
24 national and 2 regional registries
81.3% of all MBS registries

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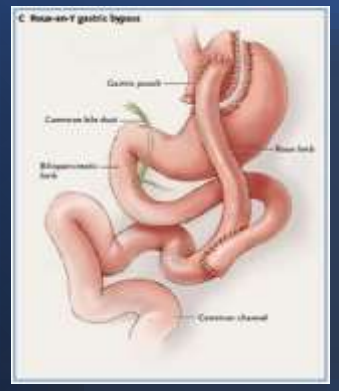
Mechanistic Studies – Human Studies



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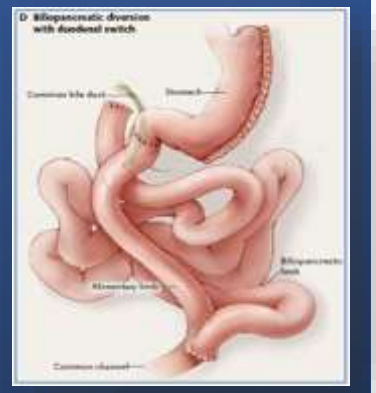


Metabolic Effects of Bariatric Surgery in Patients With Moderate Obesity and Type 2 Diabetes

Analysis of a randomized control trial comparing surgery with intensive medical treatment

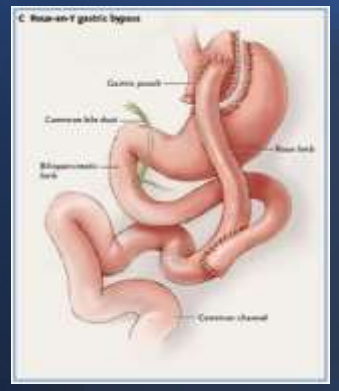
SANGEETA R. KASHYAP, MD[1]
DEEPAK L. BHATT, MD, MPH[2]
KATHY WOLSKI, MPH[3]
RICHARD M. WATANABE, PHD[4]
MUHAMMAD ABDUL-GHANI, MD, PHD[5]
BETH ABOOD, RN[1]
CLAIRE E. POTHIER, MPH[3]
STACY BRETHAUER, MD[6]
STEVEN NISSEN, MD[3]
MANJULA GUPTA, PHD[1]
JOHN P. KIRWAN, PHD[7]
PHILIP R. SCHAUER, MD[6]

progressive hyperglycemia, subsequent microvascular complications, and macrovascular complications. Although lifestyle modifications and oral hypoglycemic agents improve glycemic control, the majority of patients do not achieve the optimal

STAMPEDE TRIAL:

Despite similar weight loss as sleeve gastrectomy, **RYGB uniquely restores beta-cell function and reduces truncal fat”**

Clinical Studies – Long-term Outcomes



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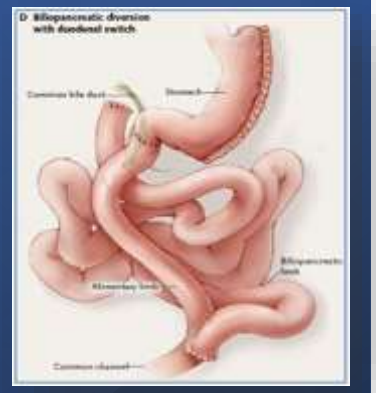
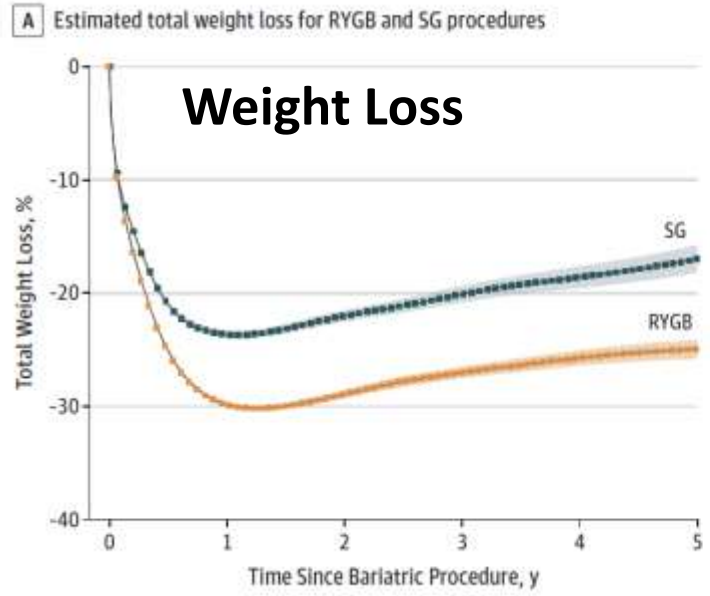


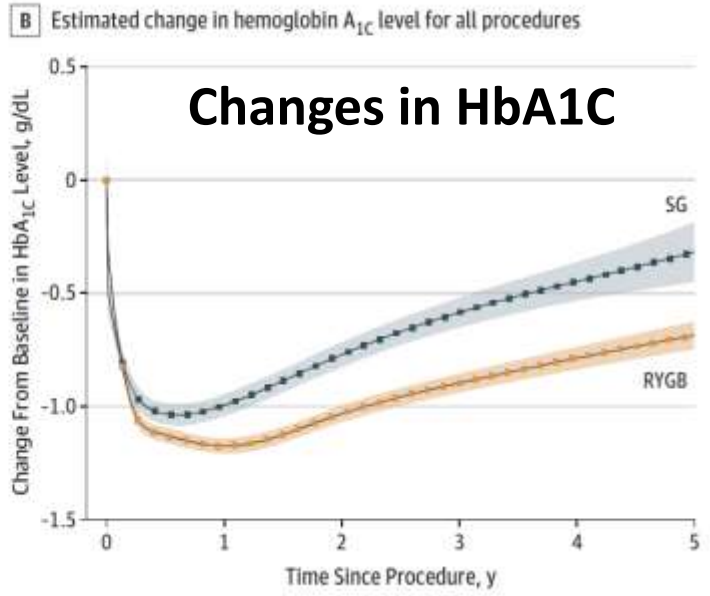
JAMA Surgery | Original Investigation

Comparing the 5-Year Diabetes Outcomes of Sleeve Gastrectomy and Gastric Bypass

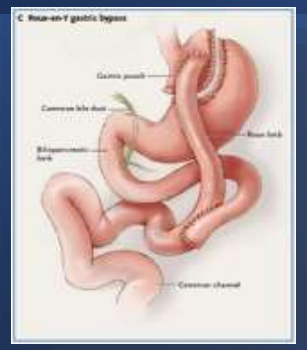
The National Patient-Centered Clinical Research Network (PCORNet) Bariatric Study

Kathleen M. McTigue, MD; Robert Wellman, MS; Elizabeth Nauman, MPH, PhD; Jane Anau, BS; R. Yates Coley, PhD; Alberto Odor, MD; Julie Tice, MS; Karen J. Coleman, PhD; Anita Courcoulas, MD; Roy E. Pardee, JD; Sengwee Toh, ScD; Cheri D. Janning, MS; Neely Williams, MDiv; Andrea Cook, PhD; Jessica L. Sturtevant, MS; Casie Horgan, MPH; David Arterburn, MD; for the PCORnet Bariatric Study Collaborative





Cost-Effectiveness-Medication Usage



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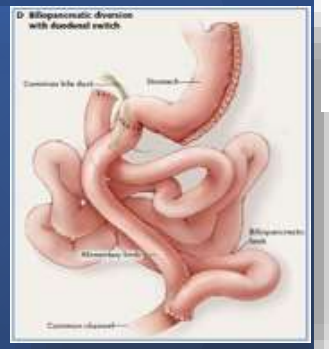


Original Investigation

January 12, 2022

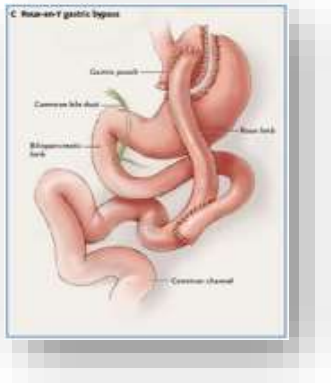
Medication Use for Obesity-Related Comorbidities After Sleeve Gastrectomy or Gastric Bypass

Ryan Howard, MD[1,2]; Grace F. Chao, MD, MSc[3,4,5]; Jie Yang, PhD[2]; Jyothi R. Thumma, MPH[2]; David E. Arterburn, MD, MPH[6]; Dana A. Telem, MD, MPH[1,2,7]; Justin B. Dimick, MD, MPH[1,2,7]

» Author Affiliations

JAMA Surg. 2022;157(3):248-256. doi:10.1001/jamasurg.2021.6898

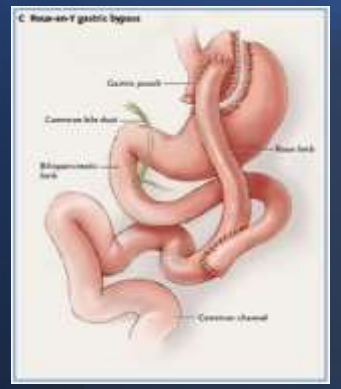
95405 pts, 5 y FU



- ✓ **Anti diabetics withdrawal**
- ✓ **BP meds withdrawal**
- ✓ **Statins withdrawal**

Reintroduction meds for diabetes BP, statins after initial withdraeal

Clinical Studies – Long-term Outcomes



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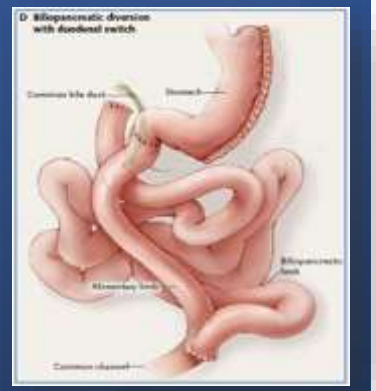


Late Relapse of Diabetes After Bariatric Surgery: Not Rare, but Not a Failure

Diabetes Care 2020;43:534–540 | https://doi.org/10.2337/dc19-1057

Ali Aminian,[1] Josep Vidal,[2,3,4] Paulina Salminen,[5,6,7] Christopher D. Still,[8] Zubaidah Nor Hanipah,[1,9] Gautam Sharma,[1] Chao Tu,[10] G. Craig Wood,[8] Ainitze Ibarzabal,[2] Amanda Jimenez,[2,4,11] Stacy A. Brethauer,[1,12] Philip R. Schauer,[1,13] and Kamal Mahawar[14]

425 pts; 8 years f.u. (5-14 y), 32% T2D recurrence
Recurrence associated with:

✓ longer T2D history
✓Less WL

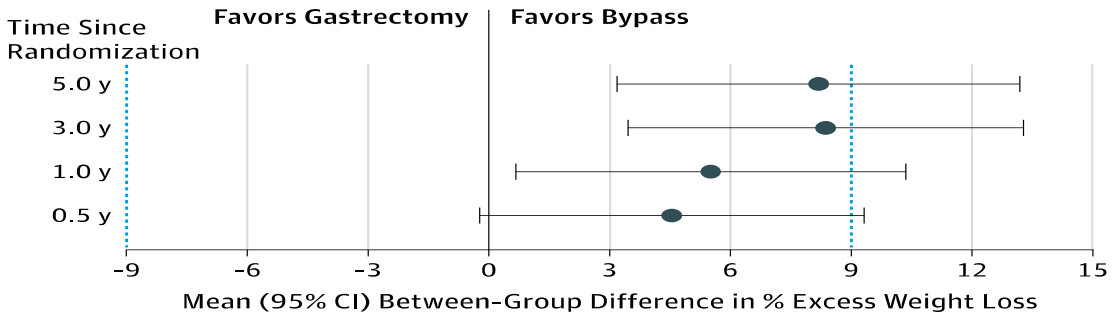
✓ Choice of **SG as index operation**

IFSO Consensus on definitions and clinical practice guidelines

SLEEVEPASS %EWL & SM-BOSS %EBMIL: JAMA 5-year follow-up – NO DIFFERENCE IN WEIGHT LOSS BETWEEN THE PROCEDURES IN SEPARATE RCTs

SLEEVEPASS %EWL: LSG 49% vs. LRYGB 57%

Figure 4. Differences in Estimates of Mean Percentage Excess Weight Loss Between Laparoscopic Sleeve Gastrectomy and Laparoscopic Roux-en-Y Gastric Bypass Over 5-Year Follow-up

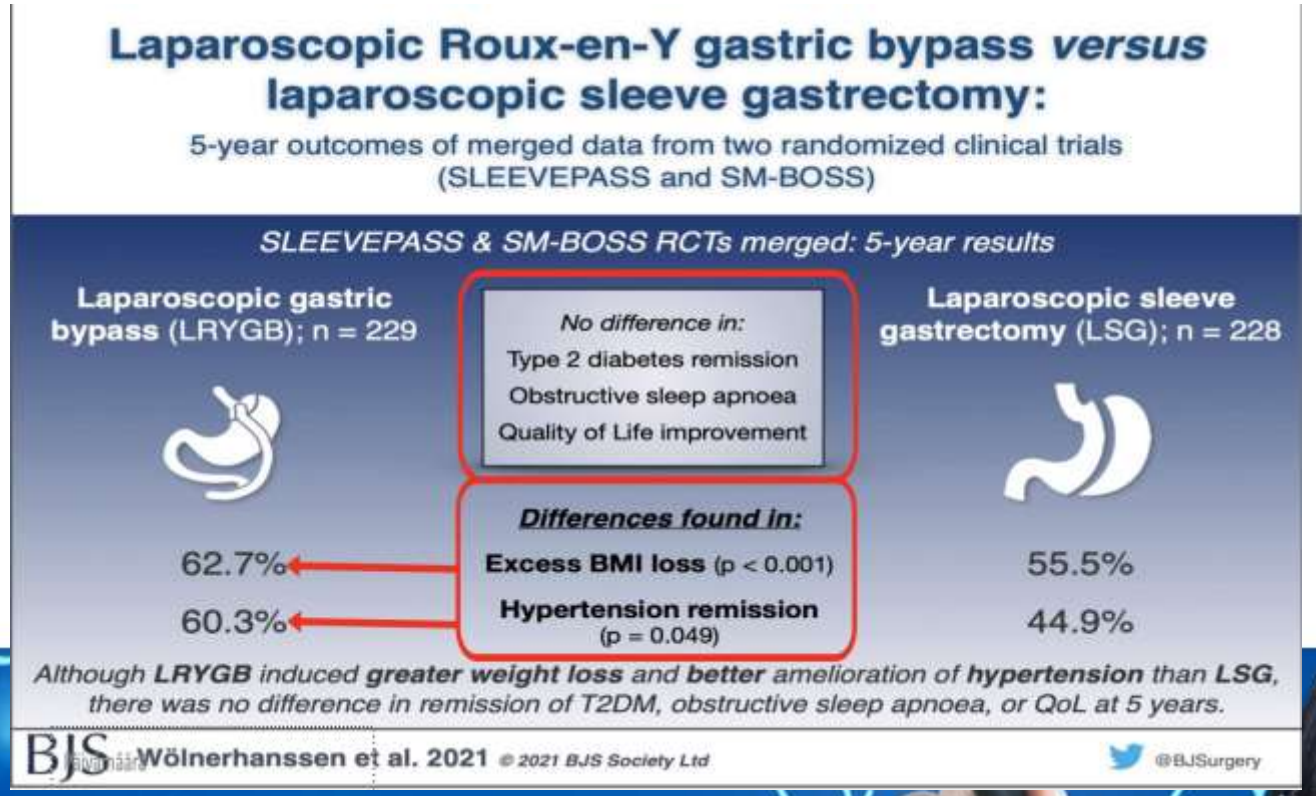


Prespecified equivalence margins (blue dotted lines) for the clinical significance of weight loss differences between gastric bypass and sleeve gastrectomy were −9% to +9% excess weight loss. Error bars indicate 95% confidence intervals.

%EWL after LSG vs. LRYGB not equivalent, but no clinically significant difference based on the prespecified equivalence margins.

SM-BOSS %EBMIL: LSG 61.1% vs. LRYGB 68.3%

- Absolute difference -7.18% (95%CI: -14.30% to -0.06%)
- p=0.22 after adjustment for multiple comparisons



IFSO

IFSO Consensus on definitions and clinical practice guidelines

One ANASTOMOSIS GASTRIC BYPASS:

Long Term Results

J-M Chevallier

IFSO-EC President

Level of evidence:

mostly I

some II

Hamburg, 9-10 March, 2023

Conclusion

- Hamburg 2019 Consensus Conference statement :
  - Good WL

OAGB-MGB produces weight loss that is:	51	> SG	96%

  - Bile reflux does not seem to be a major issue but regular endoscopic survey is recommanded

OAGB-MGB is contraindicated in patients with diagnosis of Barrett's esophagus.	50	Agree	78%
OAGB-MGB should not be considered a carcinogenic procedure.	44	Agree	86%

- Update:
  - Experimental studies in rats do not show a carcinogenic risk
  - Surgeons must be cautious using a BPLimb > 150 cm with OAGB as that would be associated with a definite serious malnutrition rate. **150 cm BPL length have less complications with same WL than 200 cm long.**

A biliopancreatic limb of 200 cm or longer may increase the risk of malabsorption and protein-calorie malnutrition.	46	Agree	96%

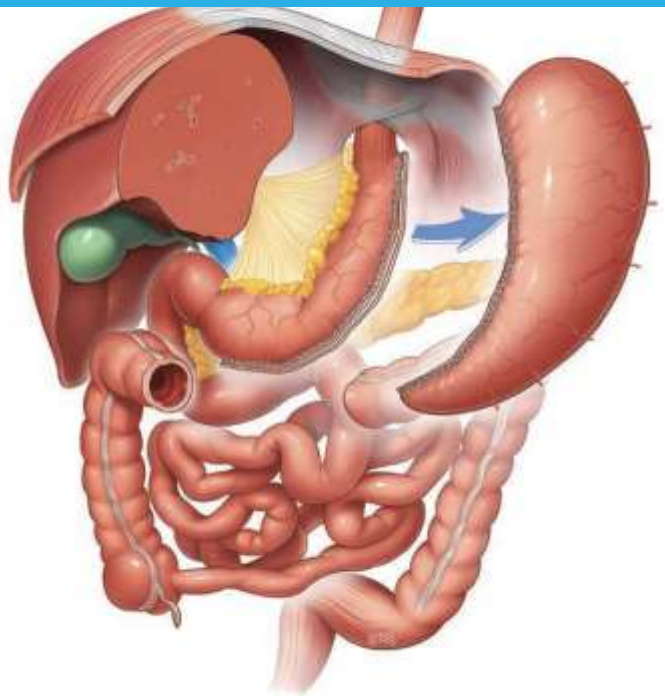
Algorithm for MBS in patients with obesity

Overall Consensus MBS

- BMI 30-35 kg/m2 + T2DM who do not achieve substantial, durable weight loss and diabetes improvement with reasonable nonsurgical methods.
- BMI 30-35 kg/m2 + obesity-related complications, but no T2DM, who do not achieve substantial, durable weight loss and improvement in their complications with reasonable nonsurgical methods.
- BMI 30-35 kg/m2 + no obesity-related complications who do not achieve substantial, durable weight loss with reasonable nonsurgical methods.

Algorithm for MBS in patients with obesity

Choice of procedures



SG

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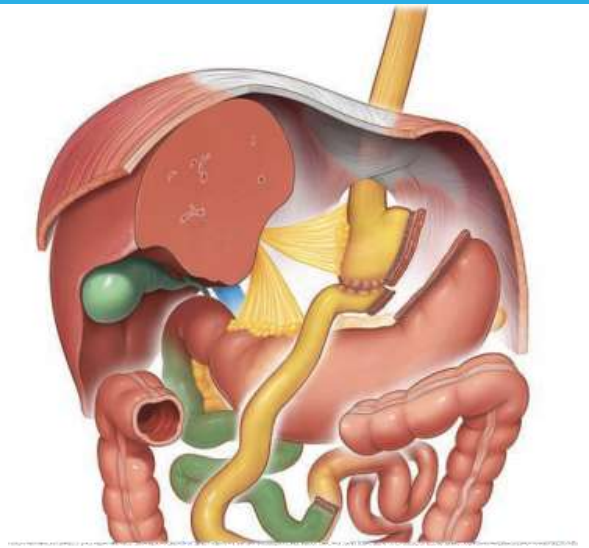

RYGB

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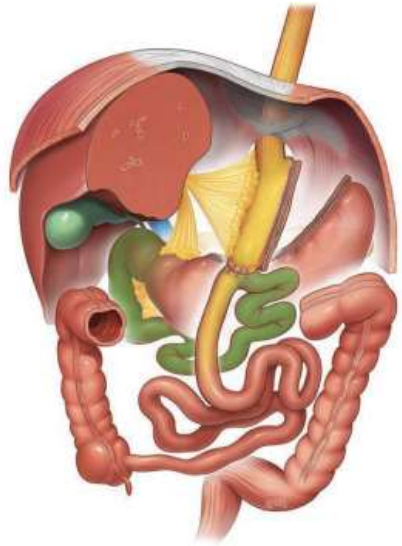

OAGB

>

SADI-S

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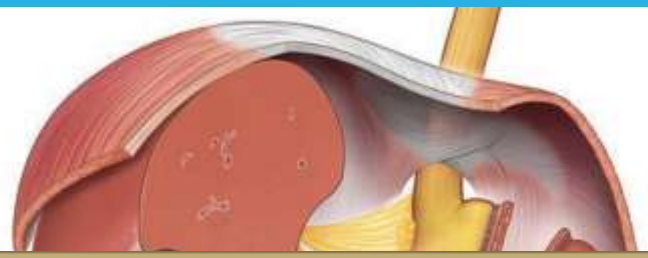
For patients with large HH, severe GERD or BE

Choice of procedures



Statements	N	Rounds required	Most common selection	Percentage consensus
In individuals with evidence of a large hiatal hernia and/or severe gastro-oesophageal disease or Barrett's oesophagus, RYGB IS/IS NOT preferable to SG.	40	1	Is	97.5%

- control reflux symptoms
- ↓ risks of worsening BE

RYGB

SG

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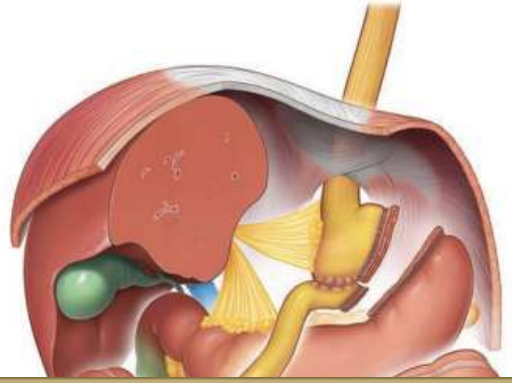
Adults T2DM

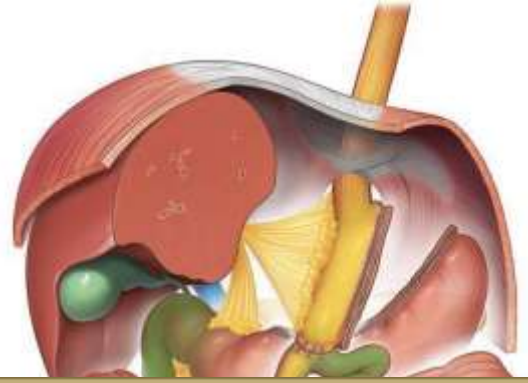
Choice of procedures

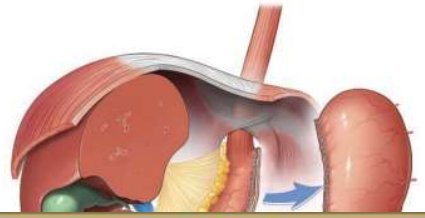
Statements	N	Rounds required	Most common selection	Percentage consensus
Unless contraindicated, gastric bypass (including RYGB & one-anastomosis procedures) is generally preferable to SG for adults with T2DM and obesity.	41	1	Agree	78.0%
Sleeve gastrectomy is not the ideal procedure for individuals with severe T2DM on insulin.	35	1	Agree	80.0%
OAGB SHOULD/SHOULD NOT be considered a carcinogenic procedure.	37	1	Should NOT	83.8%
With OAGB, a biliopancreatic limb of 200 cm or longer may increase the risk of protein deficiency.	39	1	Agree	100.0%

Adults T2DM

Choice of procedures







SADI-S

Statements	N	Rounds required	Most common selection	Percentage consensus
Indications for a primary SADI-S include a BMI ≤ 45kg/m².	36	2	Agree	66.7% (NC)
Compared with classic Roux-en-Y Duodenal Switch, SADI-S provides a better quality of life.	33	2	Agree	51.5% (NC)
Suitable candidates for classic Duodenal Switch or SADI-S would be individuals with a BMI >50 kg/m² and previous SG / severe or uncontrolled T2DM / Both / Neither.	35	2	Both BMI>50 & severe DM	77.1%

Algorithm for MBS in patients with obesity

Summary

- MBS should be considered in individuals with class I obesity who do not achieve substantial or durable weight loss or co-morbidity improvement using nonsurgical methods.
- Pre-operative endoscopy is a must for safe MBS
  - To exclude
    - severe gastric disease
    - esophagitis
    - BE
  - Hiatus hernia +/- reflux → LSG + HHR or RYGB
- H Pylori must be evaluated before any MBS with gastric exclusions
- SG > RYGB > OAGB > SADI-DS
- Large HH, severe GERD or BE -→ RYGB > SG
- T2DM → RYGB or OAGB

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Algorithm for MBS in patients with obesity

thankyou

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INTEGRATE YOUR...

IFSO
MELBOURNE 2024

Future patients team Science world

XXVII IFSO World Congress

3 - 6 September 2024

www.ifso2024.org

IFSO
International Federation for Surgery of Obesity & Metabolic Disorders