What don’t we know about sleeve gastrectomy?

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Disclosures

- Employment: University of Turku, Turku University Hospital, private practice Terveystalo
- Lecture fees: Novo Nordisk, Consultation fees: BD, J&J, GT Metabolics
- Research group leader and PI: SLEEVEPASS, APPAC
- IFSO-EC President, member of the IFSO Executive Board, member of IFSO Scientific Commitee
- Editor-in-Chief, Scandinavian Journal of Surgery
- Editor, BJS
- Editorial Board Member JAMA Surgery and Surgery
- Data safety monitoring committee: BEST trial, MAGNET-study
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  - European Research Council
  - Academy of Finland
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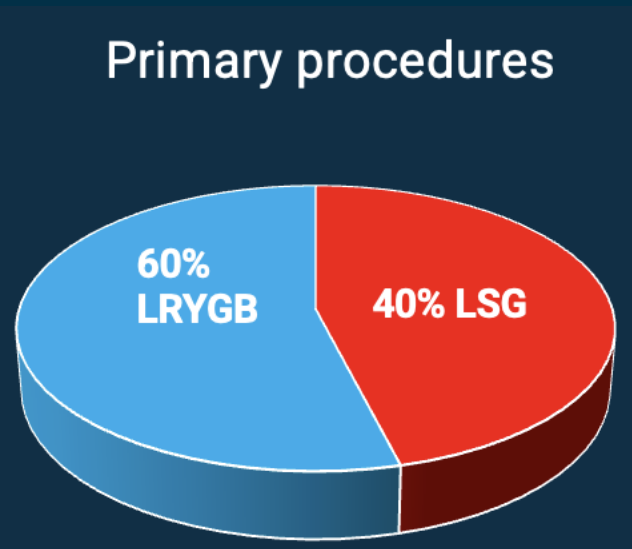
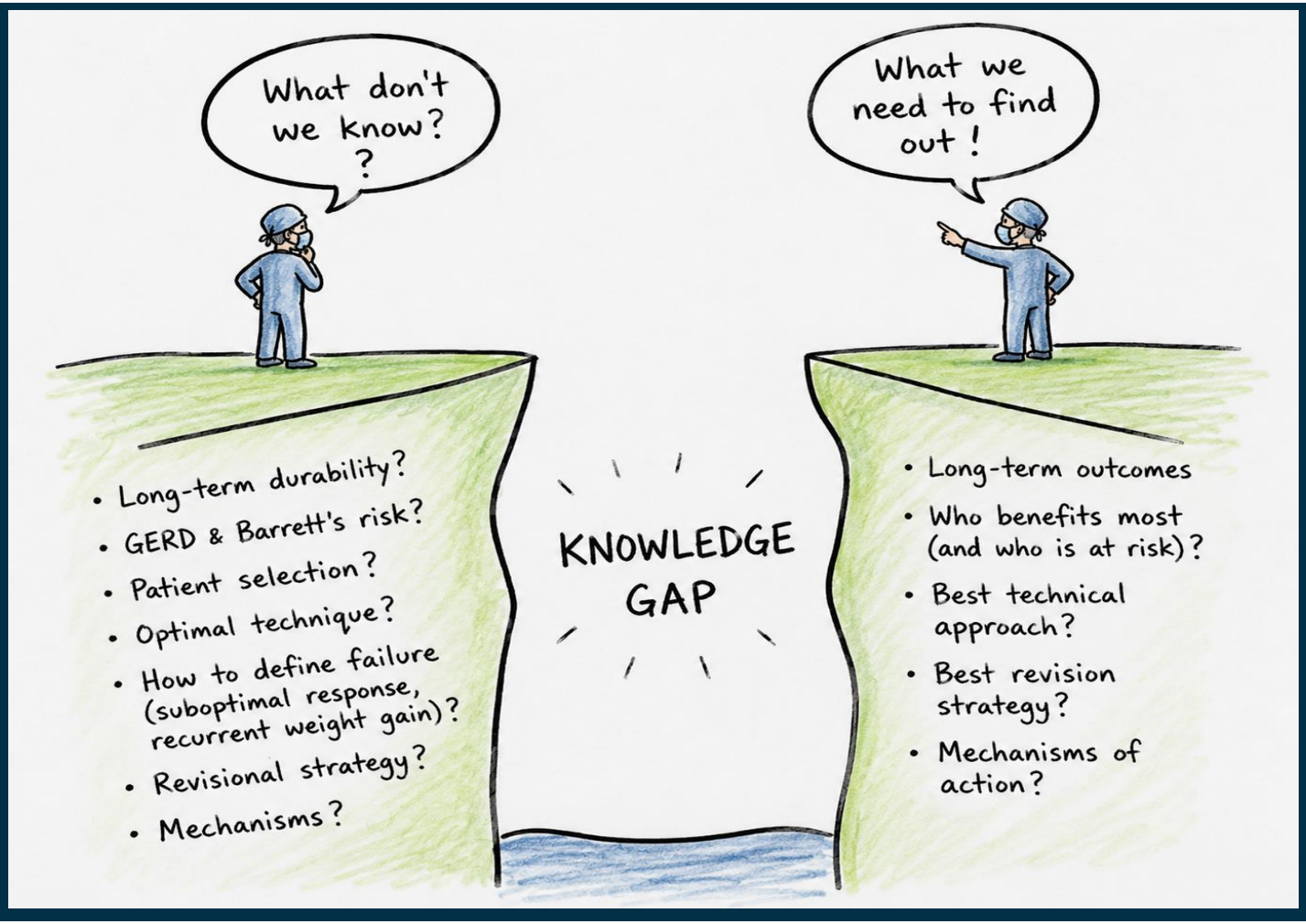


UNIVERSITY OF TURKU SUOMEN AKATEMIA erc European Research Council SLEEVEPASS Terveystalo TYKS Turku University Hospital

Major knowledge gaps in sleeve gastrectomy

1. Long-term durability
2. Need for revisions
3. Gastroesophageal reflux
4. Patient selection
5. Mechanisms of action
6. Optimal synergy with OMMs



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Major knowledge gaps in sleeve gastrectomy

1. *Long-term durability*
2. *Need for revisions*
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4. Patient selection
5. ***Mechanisms of action***
6. ***Optimal synergy with OMMs***

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JAMA Surgery 2022; 2022; 157(8):656-666

SLEEVEPASS 10-y flowchart

240 patients randomized
LSG (n=121), LRYGB (n=119)

SLEEVE

121 randomized to LSG group
121 received intervention as randomized

102 completed 10-year follow-up
19 lost to follow-up
5 deaths unrelated to intervention
14 could not be reached by telephone or at clinic follow-up
18 converted to LRYGB
14 for GERD
2 for inadequate weight loss
1 for fistula
1 for sleeve stenosis
4 converted to SADI-S for inadequate weight loss

98 included in weight loss and comorbidity analysis
91 included in post hoc outcome assessment of endoscopic examination

BYPASS

119 randomized to LRYGB group
116 received intervention as randomized
1 converted to LSG for poor visibility
2 no surgery
1 liver chirrosis at laparoscopy
1 unsuitable for general anaesthesia

95 completed 10-year follow-up
24 lost to follw-up
5 deaths unrelated to intervention
14 could not be reached by telephone or at clinic follow-up
1 converted to LSG for poor visibility
1 converted to long limb RYGB for inadequate weight loss

95 included in weight loss and comorbidity analysis
85 included in post hoc outcome assessment of endoscopic examination

OPERATION

10-Y FOLLOW-UP

Overall follow-up%: 85%

Gastroscopy-%: 78%

ANALYSIS

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SLEEVEPASS

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10-Y FOLLOW-UP

Overall follow-up%: 85% (98/116)

Gastroscopy-%: 78% (91/116)

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ANALYSIS

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SLEEVEPASS

SLEEVEPASS 10-y follow-up: weight loss %EWL

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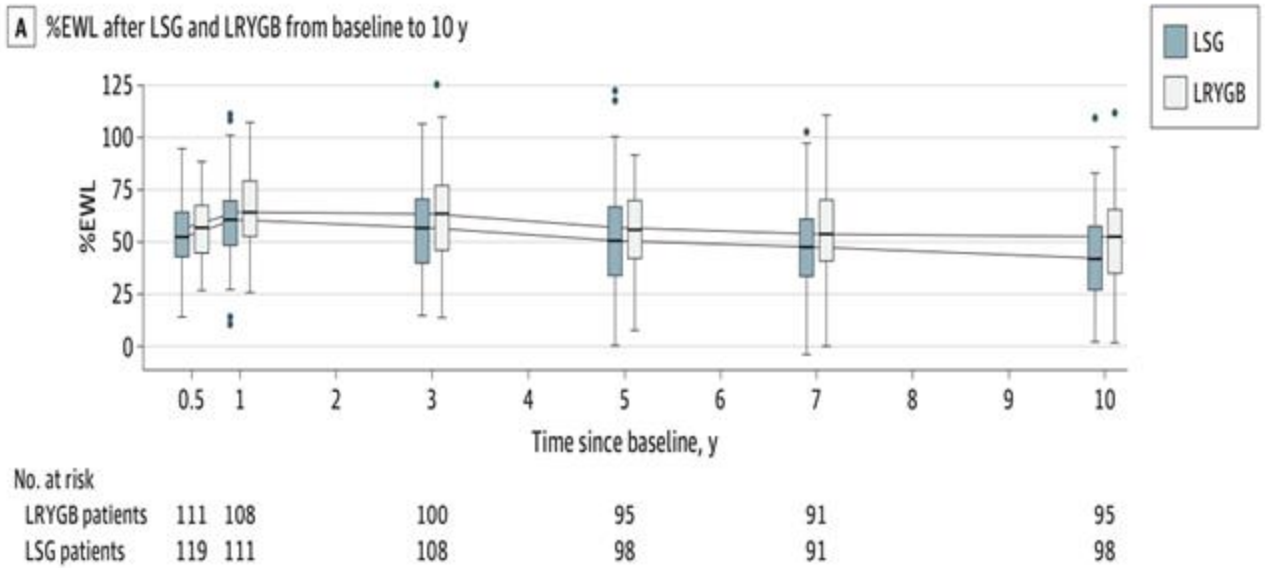
- SLEEVE 43.5%
  - Range 2.1% - 109.2%
- BYPASS 50.7%
  - Range 1.7% - 111.7%
- %EWL mean difference 8.4%
  - NOT equivalent (RCT design)
  - NO clinically significant difference (predefined equivalence margins)

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



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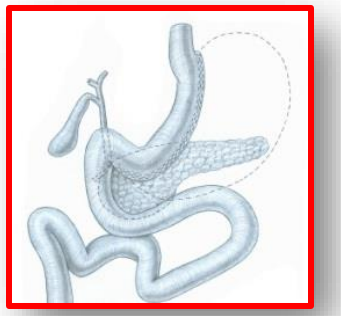
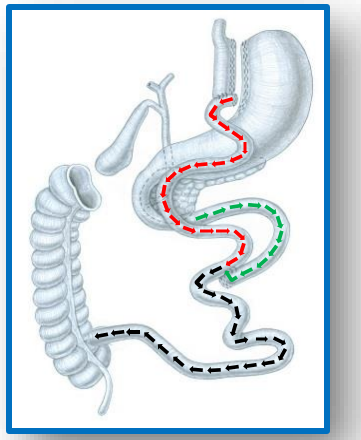
SM-BOSS: 10-year Results

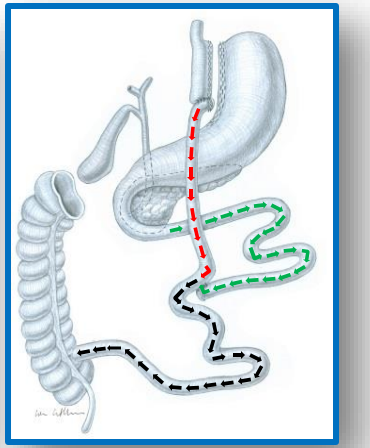
Conversion to different anatomy

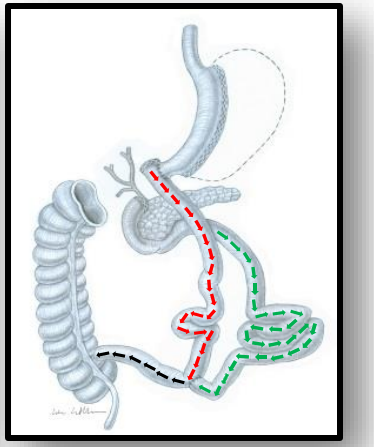
- Sleeve group had significantly higher rates of conversion (30% vs. 5.5%, $p < 0.001$)

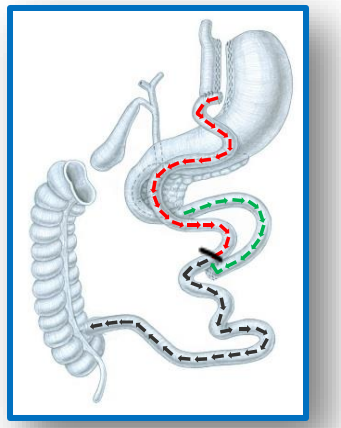


- n=32
- Indication:
  - Reflux 50%
  - Suboptimal weight loss 30%
  - Both 20%

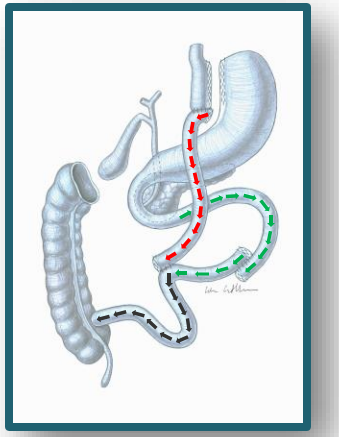








- n = 6
- Indication:
  - Suboptimal weight loss 100%



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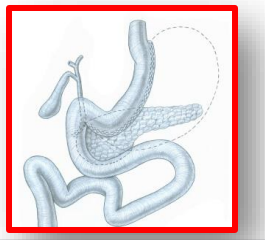
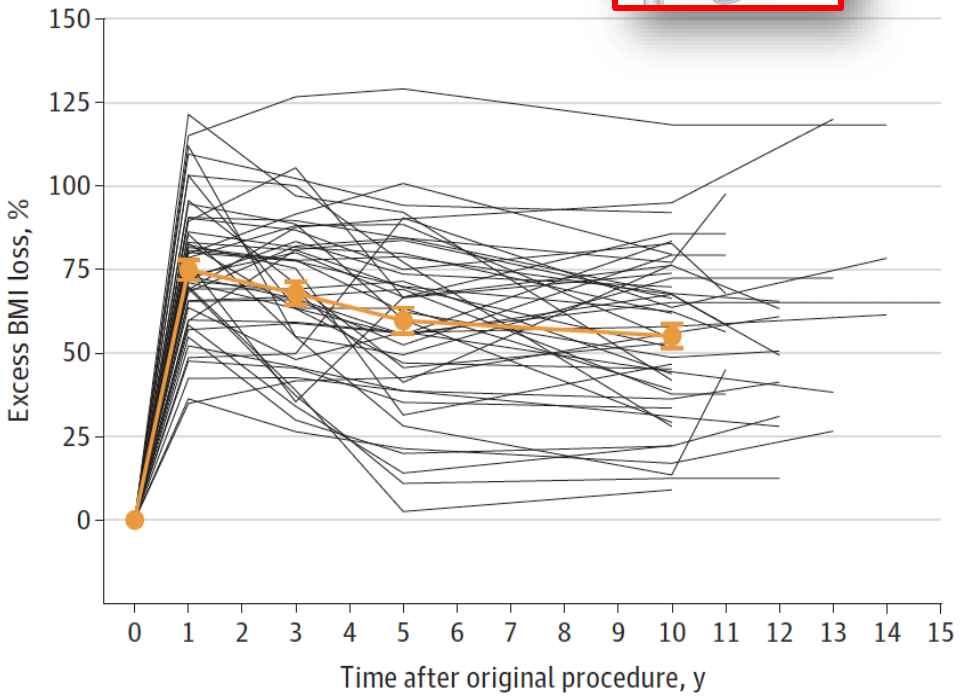
SM-BOSS: 10-year Results

*%EBMIL for **PP** Population*

n = 48

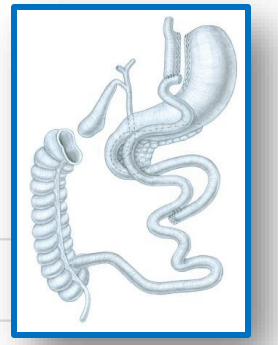


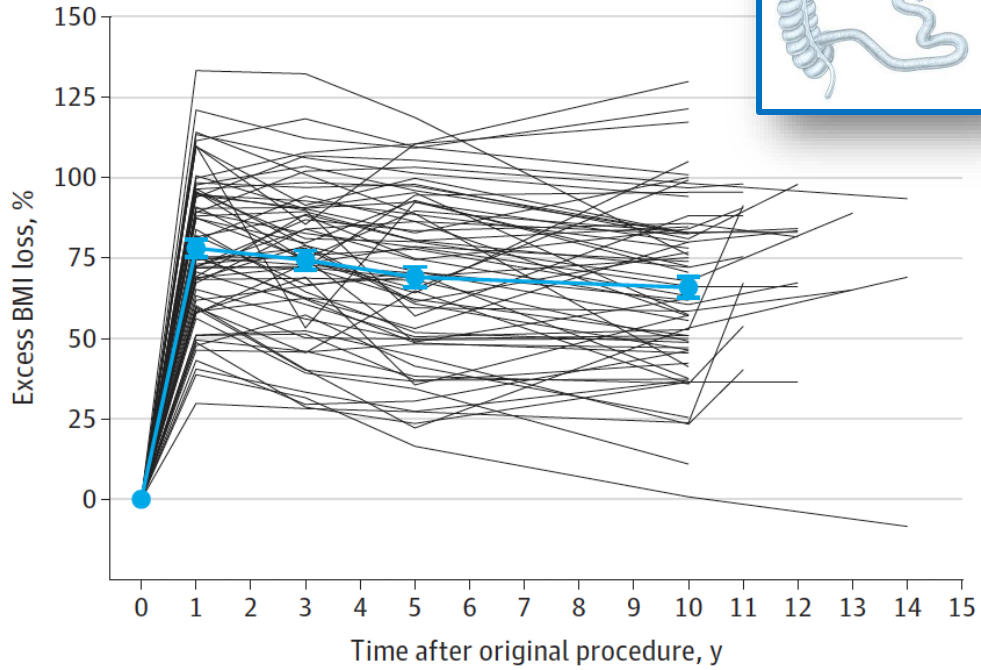


Sleeve 56.1 ±25.2%

p = 0.048

n = 66





Bypass 65.9 ±26.3%

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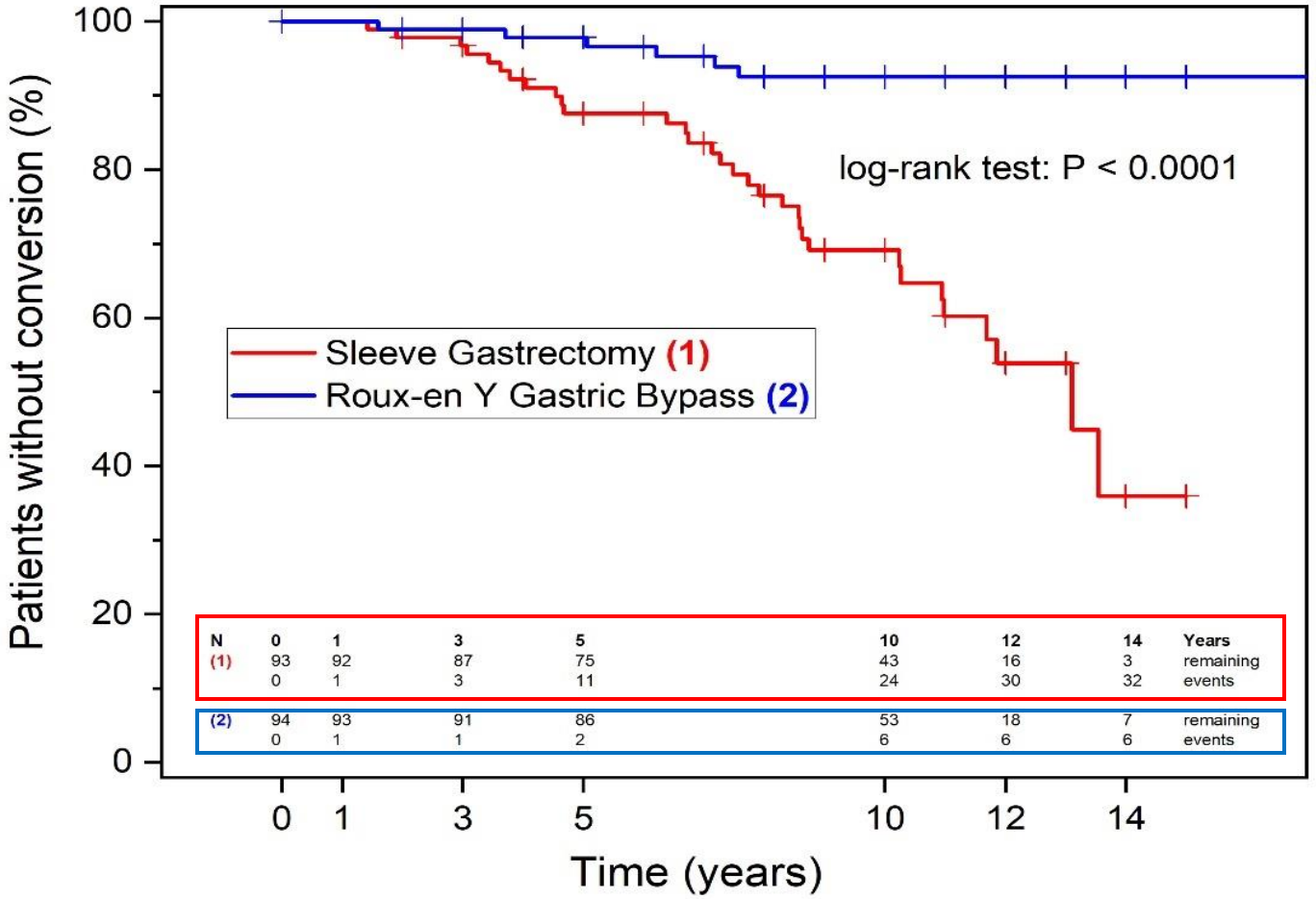
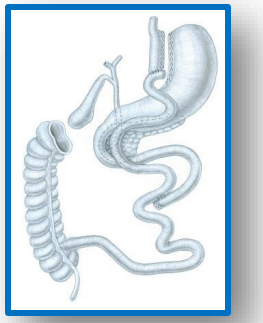
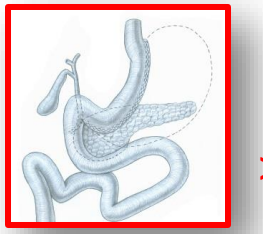
SM-BOSS: 10-year Results

Probability of Conversion over time







> 60%

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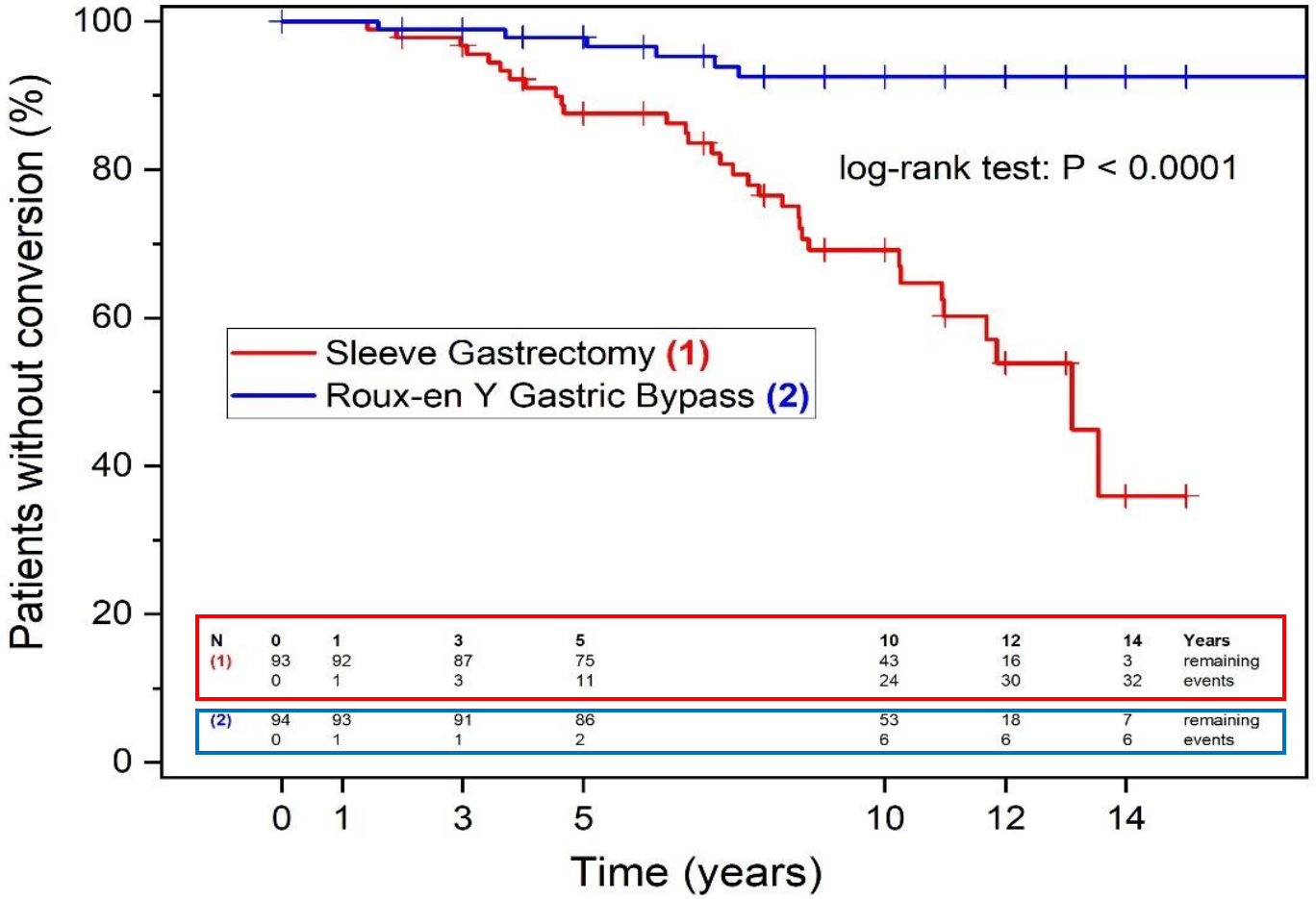
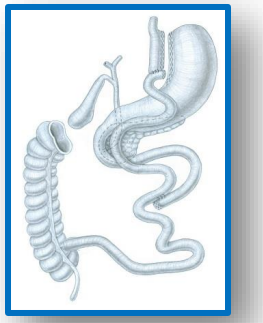
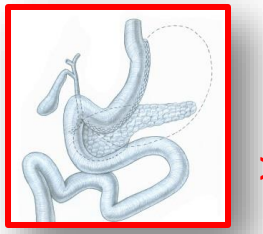
SM-BOSS: 10-year Results

Probability of Conversion over time







> 60%

Kraljevic & Peterli, JAMA Surg 2025

JAMA Surgery 2022; 2022; 157(8):656-666

SLEEVEPASS 10-y per protocol analysis

240 patients randomized
LSG (n=121), LRYGB (n=119)

SLEEVE		BYPASS
121 randomized to LSG group **121** received intervention as randomized	*OPERATION*	**119** randomized to LRYGB group **116** received intervention as randomized **1** converted to LSG for poor visibility **2** no surgery **1** liver chirrosis at laparoscopy **1** unsuitable for general anaesthesia
102 completed 10-year follow-up **19** lost to follow-up **5** deaths unrelated to intervention **14** could not be reached by telephone or at clinic follow-up **17.7%** **18** converted to LRYGB **14** for GERD **2** for inadequate weight loss **1** for fistula **1** for sleeve stenosis **4** converted to SADI-S for inadequate weight loss	*10-Y FOLLOW-UP* p-value = ns	**95** completed 10-year follow-up **24** lost to follw-up **5** deaths unrelated to intervention **14** could not be reached by telephone or at clinic follow-up **1** converted to LSG for poor visibility **1** converted to long limb RYGB for inadequate weight loss
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University Digestive Health Care Center
St. Clara Hospital and University Hospital Basel Switzerland
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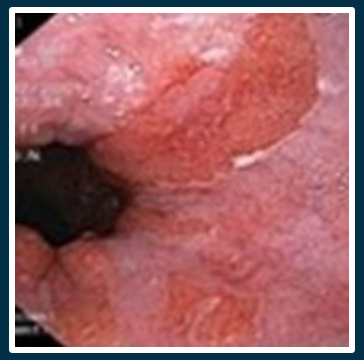
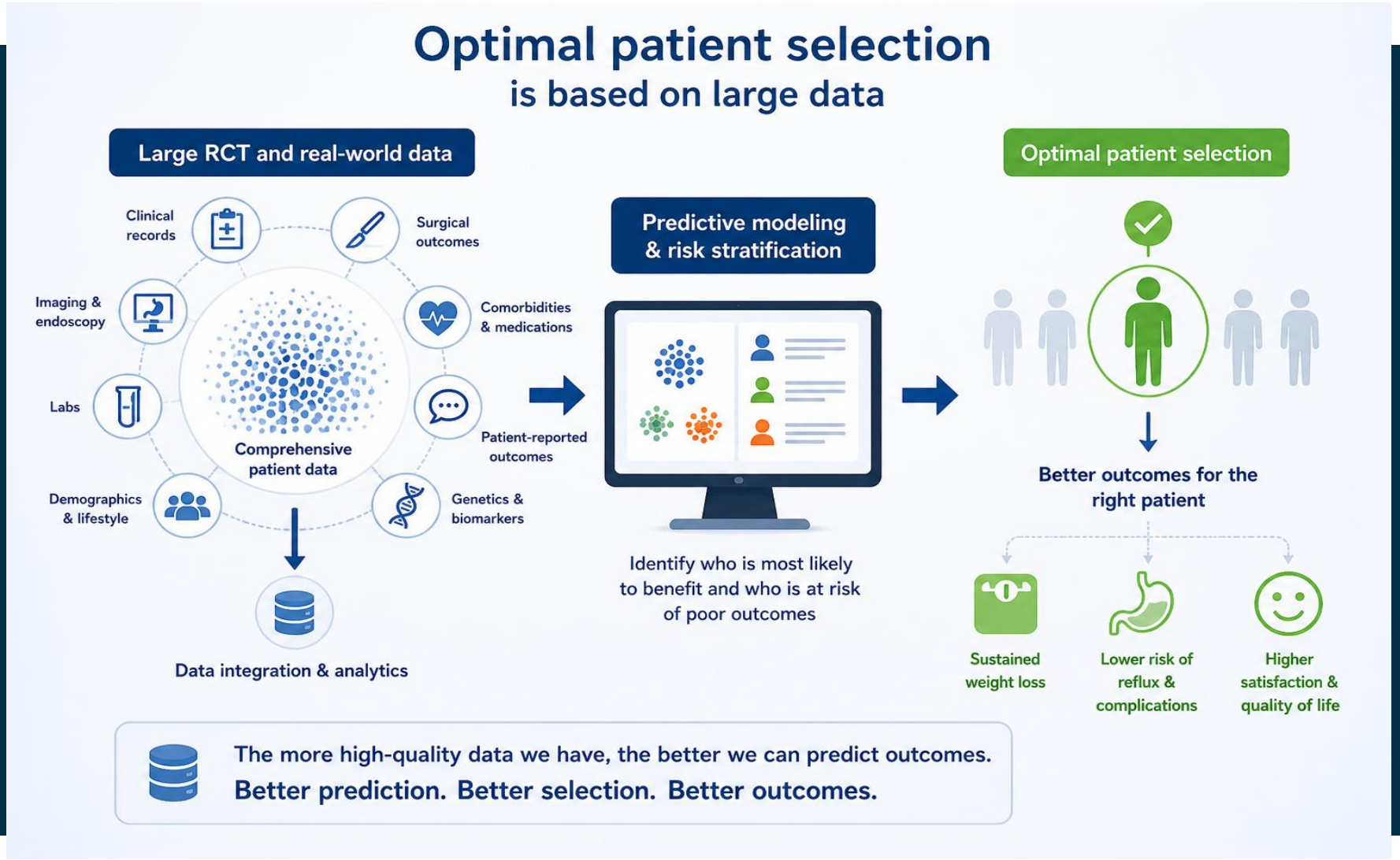
SLEEVEPASS 10-y follow-up: Esophagitis and Barrett's esophagus



- Prevalence of esophagitis was significantly higher after LSG ($p<0.001$)
- LSG 31% vs. LRYGB 7%
- Most LA grade A or B, 92.9% LSG and 83.3% LRYGB ($p = 0.655$)
- No difference in the prevalence of Barrett's esophagus ($p=0.287$)
- LSG 4% vs. LRYGB 4%
- All short-segment non-dysplastic Barrett's esophagus (=intestinal metaplasia)
- Diagnosis: endoscopic finding of suspected Barrett's, biopsies taken form endoscopic findings above the Z-line, confirmation by histopathology

Optimal patient selection



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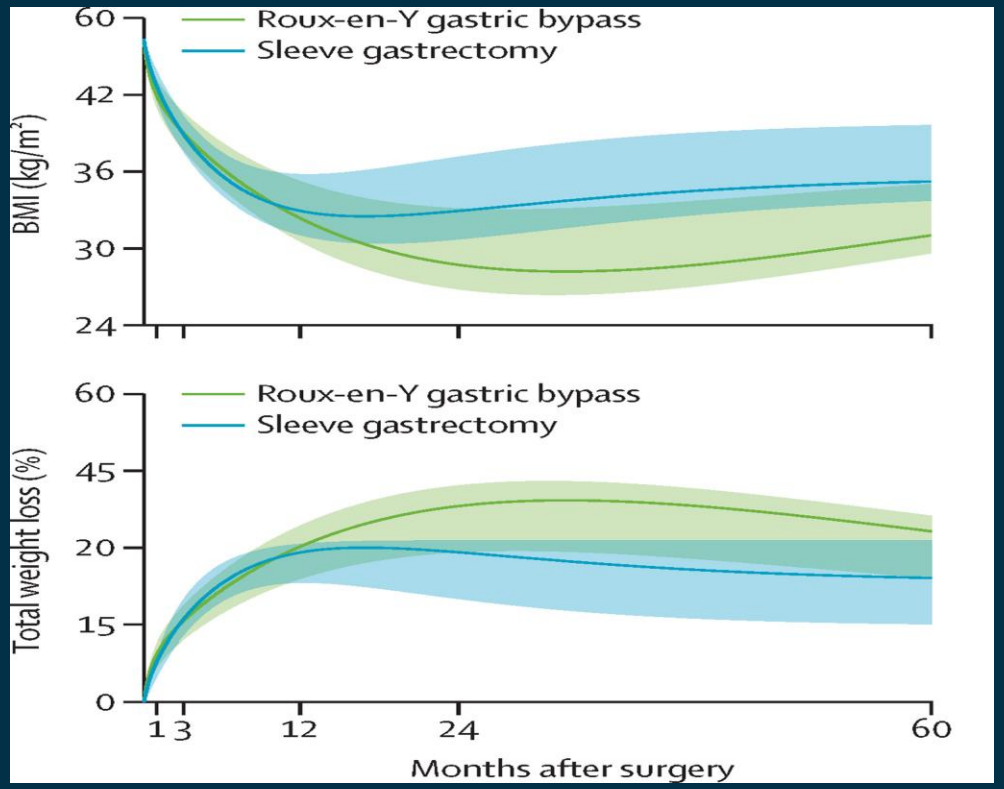
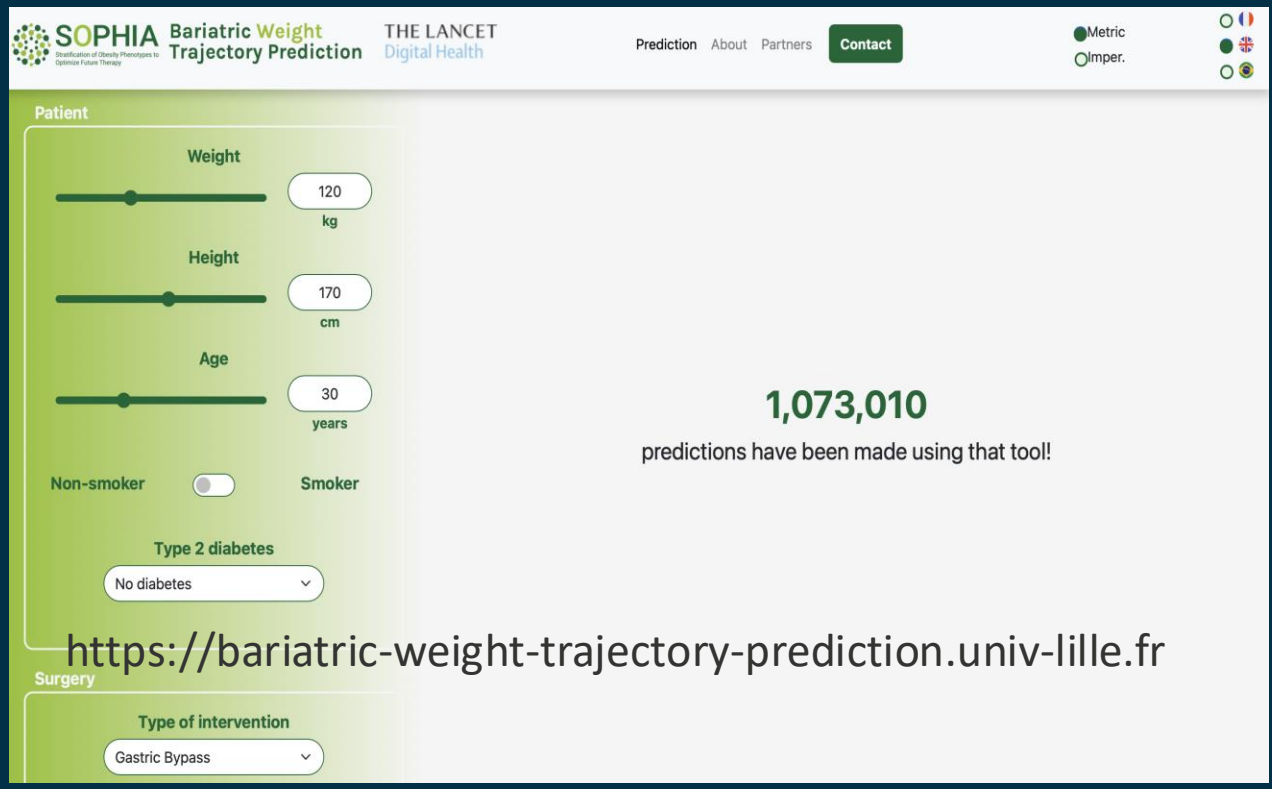
Development and validation of an interpretable machine learning-based calculator for predicting 5-year weight trajectories after bariatric surgery: a multinational retrospective cohort SOPHIA study

Patrick Saux, Pierre Bauvin*, Violeta Raverdy, Julien Teigny, Hélène Verkindt, Tomy Soumphonphakdy, Maxence Debert, Anne Jacobs, Daan Jacobs, Valerie Monpellier, Phong Ching Lee, Chin Hong Lim, Johanna C Andersson-Assarsson, Lena Carlsson, Per-Arne Svensson, Florence Galtier, Guelareh Dezfoulian, Mihaela Moldovanu, Severine Andrieux, Julien Couster, Marie Lepage, Erminia Lembo, Ornella Verrastro, Maud Robert, Paulina Salminen, Geltrude Mingrone, Ralph Peterli, Ricardo V Cohen, Carlos Zerrweck, David Nocca, Carel W Le Roux, Robert Caiazzo, Philippe Preux, François Pattou*





https://bariatric-weight-trajectory-prediction.univ-lille.fr

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Standardized composite endpoint

SF-BARI Score
Swiss-Finnish Bariatric Metabolic Outcome Score

Home | How to Use SF-BARI Score | SF-BARI Score Calculator 1.0 | Materials | SF-BARI Score study group | Contact

Response	SF-BARI Score	SF-BARI Score QOL
Excellent	≥ 135	≥ 150
Very good	110 to <135	125 to <150
Good	70 to < 110	75 to <125
Fair	35 to < 70	40 to <75
Suboptimal	< 35	< 40

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Research

JAMA Surgery, 2024; 159 (3): 306-14

JAMA Surgery | Original Investigation

Standardized Assessment of Metabolic Bariatric Surgery Outcomes

Secondary Analysis of 2 Randomized Clinical Trials

Ralph Peterli, MD; Saija Hurme, MSc; Marco Bueter, MD, PhD; Sofia Grönroos, MD; Mika Helmiö, MD, PhD; Paulina Salminen, MD, PhD

SF-BARI Score

Swiss-Finnish Bariatric Metabolic Outcome Score

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St. Clara Hospital and University Hospital Basel Switzerland

RCTs in MBS

International collaboration: Individual Patient Data Meta-Analysis (IPDMA) on T2DM remission

- **GLOBAL IPDMA** for T2DM remission
  - 700-800 patients with T2DM for 10-percentage point's difference
- All RCTs with LRYGB vs. LSG groups and 5-year follow-up

N= 3100, patients with T2D 800

A SYSTEMATIC REVIEW ON RCTs within MBS 2000 – 2010 – 2020

Numbers and quality assessment

IPDMA: SG vs. RYGB

- SLEEVEPASS
- SM-BOSS
- SleeveBypass
- STAMPEDE
- By-Band-Sleeve
- BEST?
- 3100 randomized patients
- 800 patients with T2D

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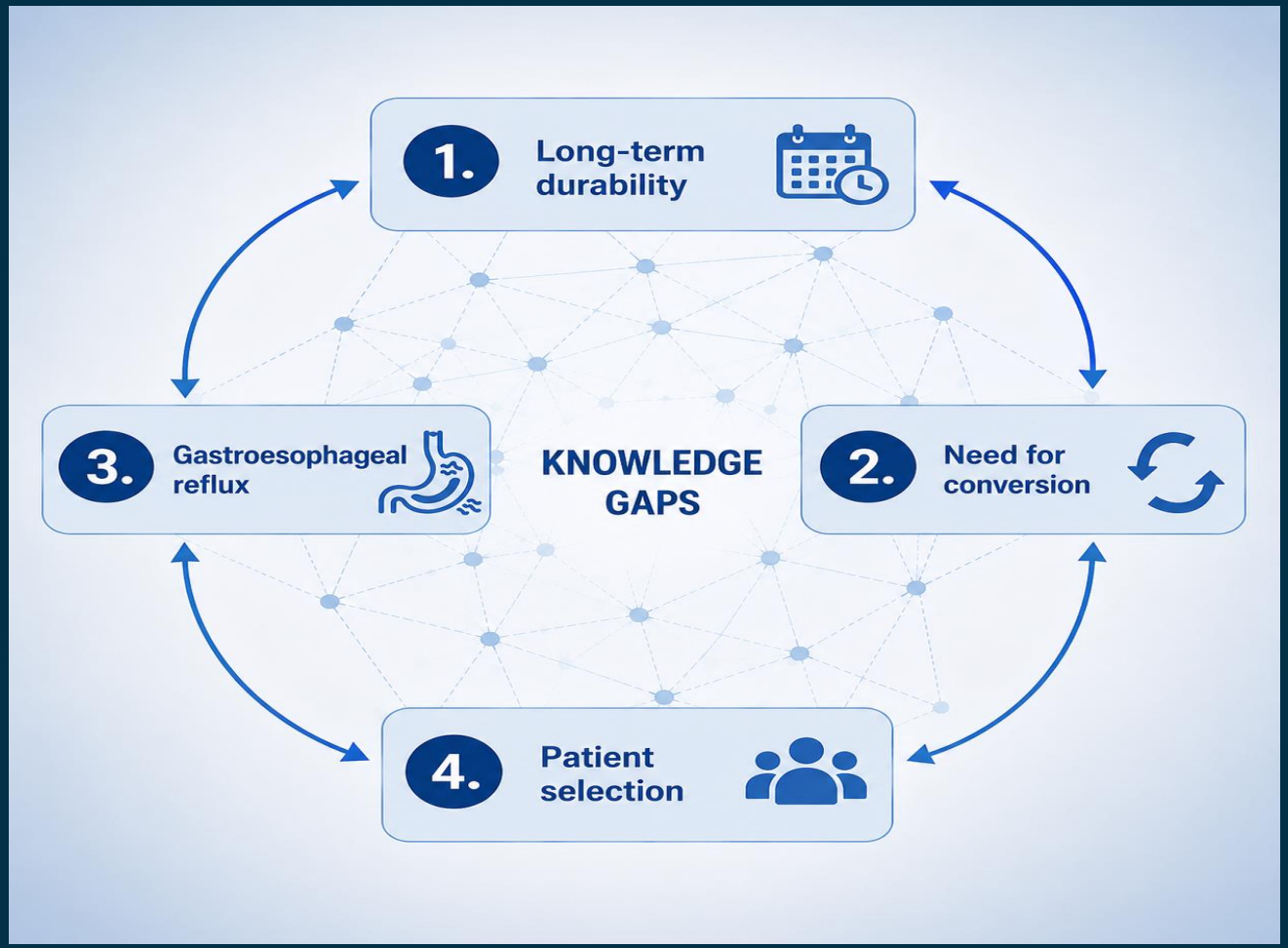
In conclusion:



- Long-term durability
- Chronic disease – treatment enhancement during f-u
- Conversion rate <-> patient selection
- GERD!!!
- How to optimize patient selection?

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Merged SLEEVEPASS and SM-BOSS Study Group

- Switzerland
  - Ralph Peterli (PI), Bettina Wölnerhanssen, Marco Bueter
- Finland
  - Paulina Salminen (PI), Mika Helmiö, Sofia Grönroos, Ilmari Saarinen
  - Biostatistics: Saija Hurme

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Thank you!

EASO
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