Clarunis
University Digestive Health Care Center
St. Clara Hospital and University Hospital Basel

IFSO MELBOURNE 2024

stClaraspital

University Hospital Basel

University of Basel

Recurrent weight gain after LRYGB
What is the treatment algorithm or is there one?

?

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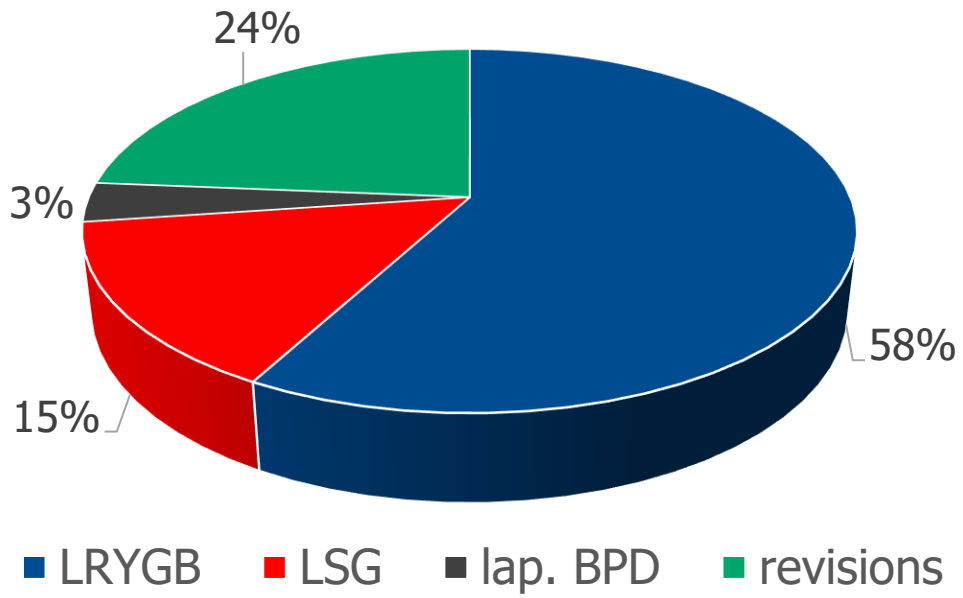
Disclosure

- Research grants: Swiss National Science Foundation, J&J, Hirzbrunnen Foundation NovoNordisk, UKBB, Novartis
- Lecture/consulting fees: Ethicon Endosurgery, Viatris, Falk Foundation, NovoNordisk, Lilly
- Case mix disclosure



OAGB, SADI: 0%

BACKGROUND *how to define initial & excess weight*

Initial weight:

- Comparison between series: initial weight
  - At time of operation
  - At time of indication
  - Max. weight

  - Consensus: at the beginning of weight loss therapy (including OMM and preoperative nutritional measures) *

Excess weight:

- Which measurement?
  - Δ initial BMI to 25
  - Δ initial weight to ideal (Brocca formula)
  - Δ initial weight to normal weight (height cm – 100)
  - Metropolitan life insurance weight table

BACKGROUND *how to define success*

Weight loss:

- What is "normal weight loss" ?
  - According to IFSO Consensus > 20%WL *
- What does the patient expect ?
- How much is needed = f (co-morbidity)

Which measurement?

- % excess BMI or % excess weight loss (EWL)
  - Success: > 50% EWL ?? (Reinhold's criteria #)
- % original weight (%WL)
  - Independent of height
- Recurrent weight gain:
  - 30% from weight nadir (71% of experts in IFSO Consensus agree) *

** Salminen Obes Surg 2024*
 # Reinhold, Surg Gynecol Obstet 1982

BACKGROUND *how to define success*

Weight loss:

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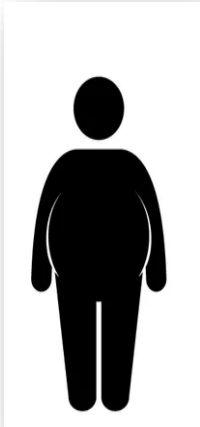
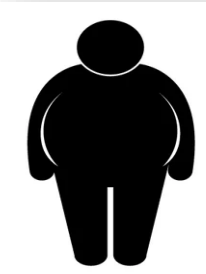
  - Success: > 50% EWL ?? (Reinhold's criteria #)
- % original weight (%WL)
  - Independent of height
- Recurrent weight gain:
  - 30% from weight nadir (71% of experts in IFSO Consensus agree) *

Example:

- Patient 1: initial weight 120 kg, 170 cm, BMI 41.5 kg/m^2
  - Weight loss: 40 kg
  - BMI: 27.7 kg/m^2
  - Δ BMI: 13.8
  - %WL: 30%
  - % EBMIL: 83.6%



- Patient 2: initial weight 120kg, 150 cm, BMI 53.3 kg/m^2
  - Weight loss: 40 kg
  - BMI: 35.6 kg/m^2
  - Δ BMI: 17.7
  - %WL: 30%
  - % EBMIL: 62.5%

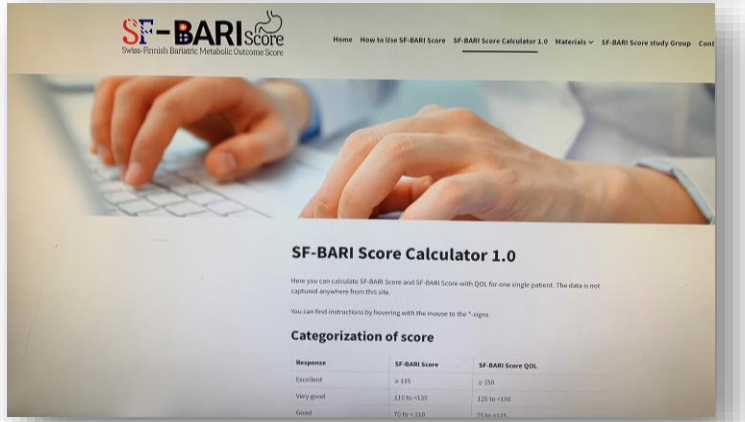


* Salminen Obes Surg 2024
# Reinhold, Surg Gynecol Obstet 1982

BACKGROUND *how to define success*

- Composite endpoint to compare different treatment modalities / series
  - Weight loss (%WL * 2)
  - Co-morbidities
    - T2DM
    - Dyslipidemia
    - Hypertension
    - OSAS
  - Complications / side effects
    - Comprehension complication index (0 = no complication / 100 = death)
  - (Quality of life)
  - Based on the merged patient level data of SLEEVEPASS & SM-BOSS *
    ** Wölnerhanssen, Peterli, Bueter, … Salminen, BJS 2020*
  - Is validated in large databases (SOREG Sweden & Norway, Dutch DATO)

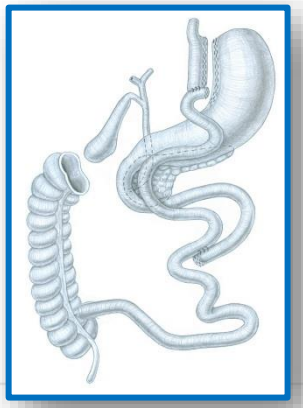
SF-BARI score
Swiss-Finnish Bariatric Metabolic Outcome Score

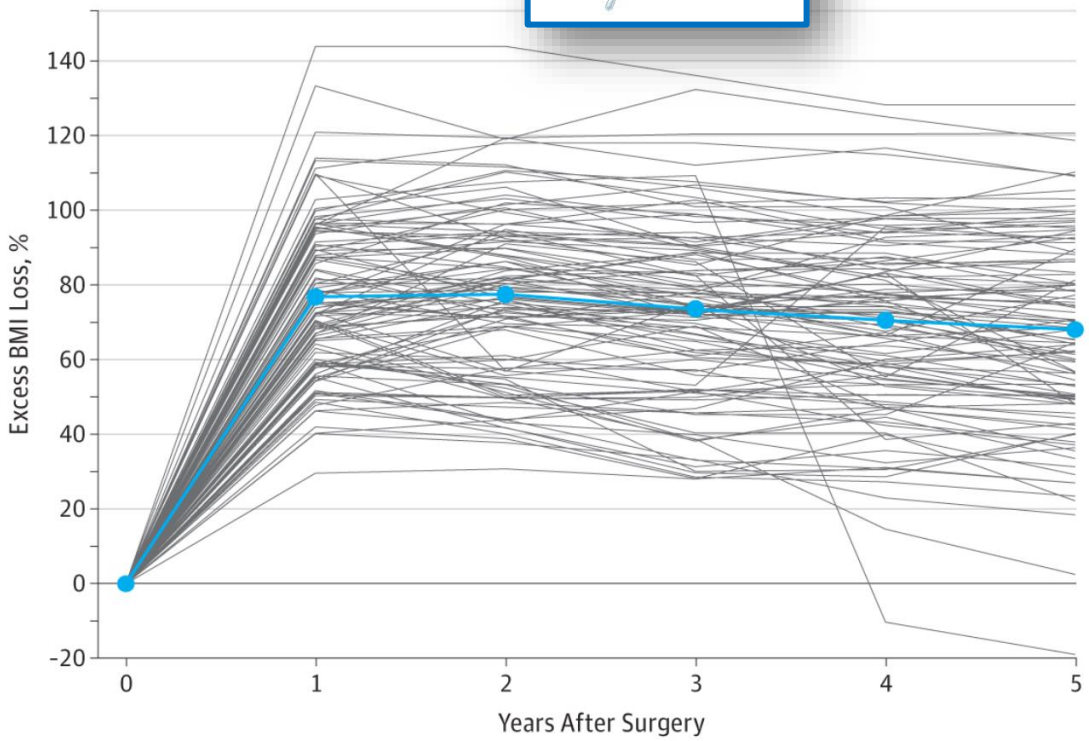


BACKGROUND

Variety of weight loss in highly standardized RYGB

- SM-BOSS





5y*	10y#
68 ±25.6 %	65 ±26.3 %

** Peterli, JAMA 2018, # Kraljevic & Peterli, submitted*

Patient Management

in the past

- Surgeon's decision alone with patient

- "Please, doc, I am still too fat. Do something! I can't continue to live like that"

Patient Management

today

- Interdisciplinary and interprofessional team
  - Endocrinologist
  - Nutritionist
  - Psychiatrist
  - Surgeon
  - ……
- Detection of pts with weight issues / comorbidity recurrence
  - During regular FU
    - Mandatory in Switzerland
    - FU rate > 75% at 5 years postop

SMOB
Swiss Society for the Study of Morbid Obesity and Metabolic Disorders

  - Patient
  - GP

Work-up 1

suboptimal initial clinical response & recurrent weight gain

- Weight evolution
  - No responder
  - Temporary responder
  - Weight loss nadir
  - Severity of recurrent weight gain
- Co-morbidity
  - Evolution
  - Severity
- Eating habits
  - Existing/newly developed eating disorder
  - Potential to improve?
  - Compliance (vitamin supplementation)
    - deficiencies ?
- Anatomical problem ?

Conservative options

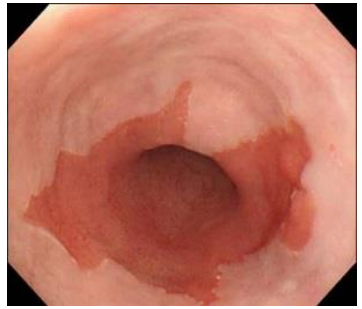
- Intensified dietary counselling & physical activity
- Additional psychological support
- Anti-obesity-meds

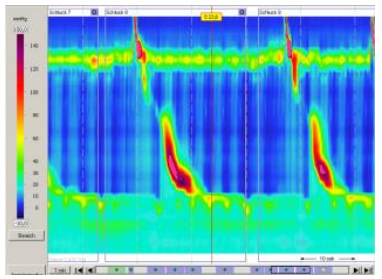
- Intensified medical therapy:
  - For T2DM
  - GERD
  - .....

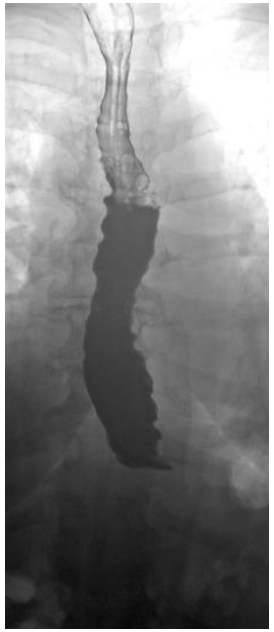
Work-up 2

after unsuccessful conservative Therapy

- Expectations of patient: realistic ?
  - Psychiatric re-evaluation
- Adherence:
  - In the past
  - Future
- Compliance (vitamin supplementation)
- Additional investigations:
  - Depending on symptoms:
    - Endoscopy
    - Manometry
    - Upper GI-series
    - Cardio-pulmonary work-up in T2DM
    - Ultrasound: gallstones?







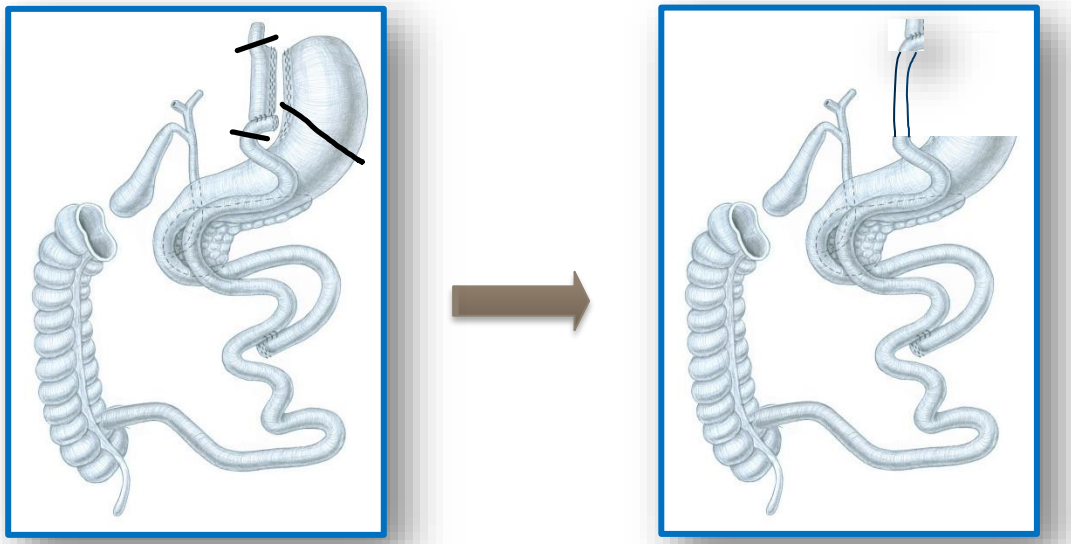
Metabolic Board

suboptimal initial clinical response & recurrent weight gain

- What kind of surgery:
  - Anatomical problem ?
    - Correction of initial operation
  - Hiatal hernia
    - Repair with/without additional weight loss measure
  - Additional problems
    - Pain
    - Reflux
    - Dumping
  - Escalation of metabolic surgery: add hypo-absorption ?
    - Adherence check
    - Proteins: can pt. eat enough; can pt. afford them?
    - Does pt. tolerate diarrhea, odorous stools?
    - Stool intolerance?

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

- Anatomical problem?
  - Fistula

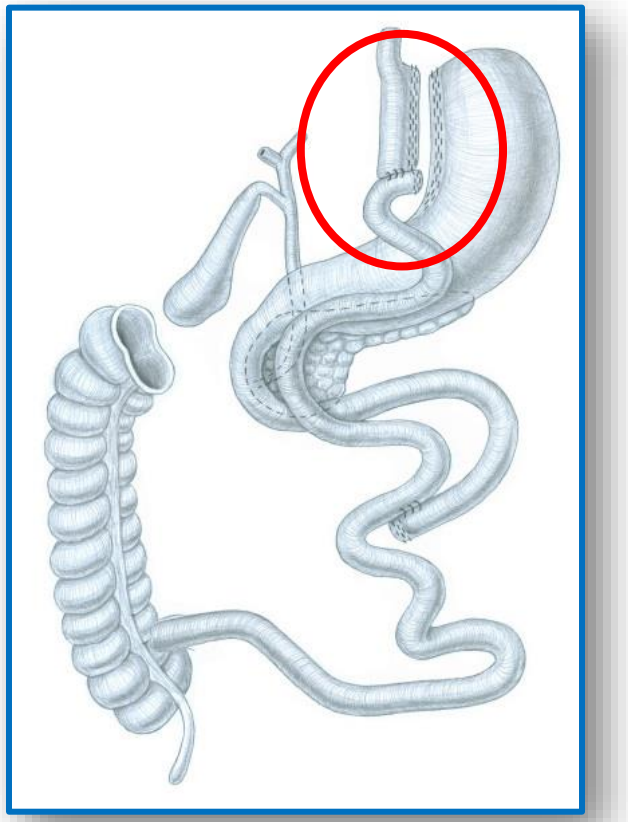


  - Candy cane?
  - Pouch size (open bypass)

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

- No anatomical problem
- Endoscopic / surgical options

  1. Add restriction

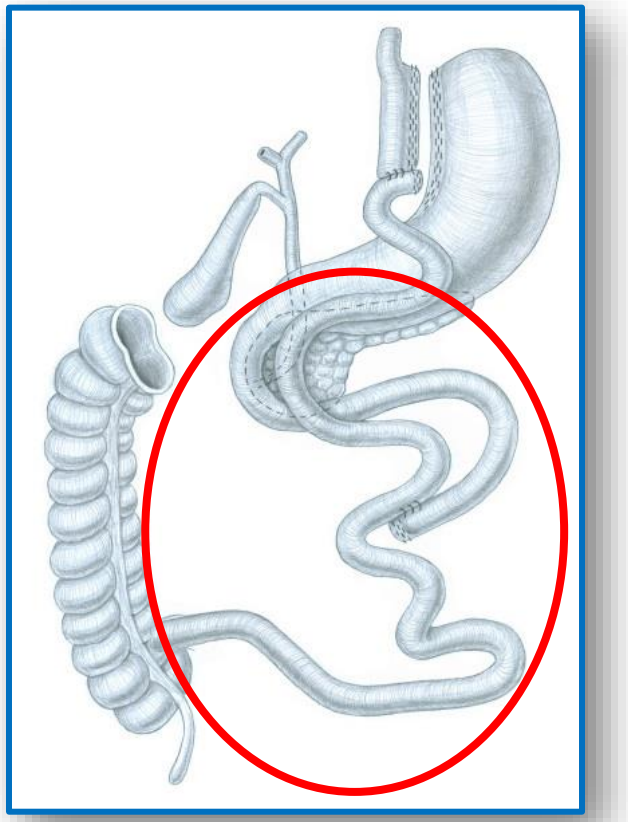


Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

- No anatomical problem
- Endoscopic / surgical options

1. Add restriction

2. Escalation of metabolic surgery: add hypo-absorption



Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

1. Add restriction by endoscopy: reshaping of stoma size at gastro-enterostomy
   - (Sclerotherapy)
   - Argon Laser Plasma Coagulation (APC)

   - Meta-analysis (4 trials with isolated APC, 828 pts)
     - Additional %WL: 6 % 1y, 11% 2y; 5% 3y
     - Complications 1.6%

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

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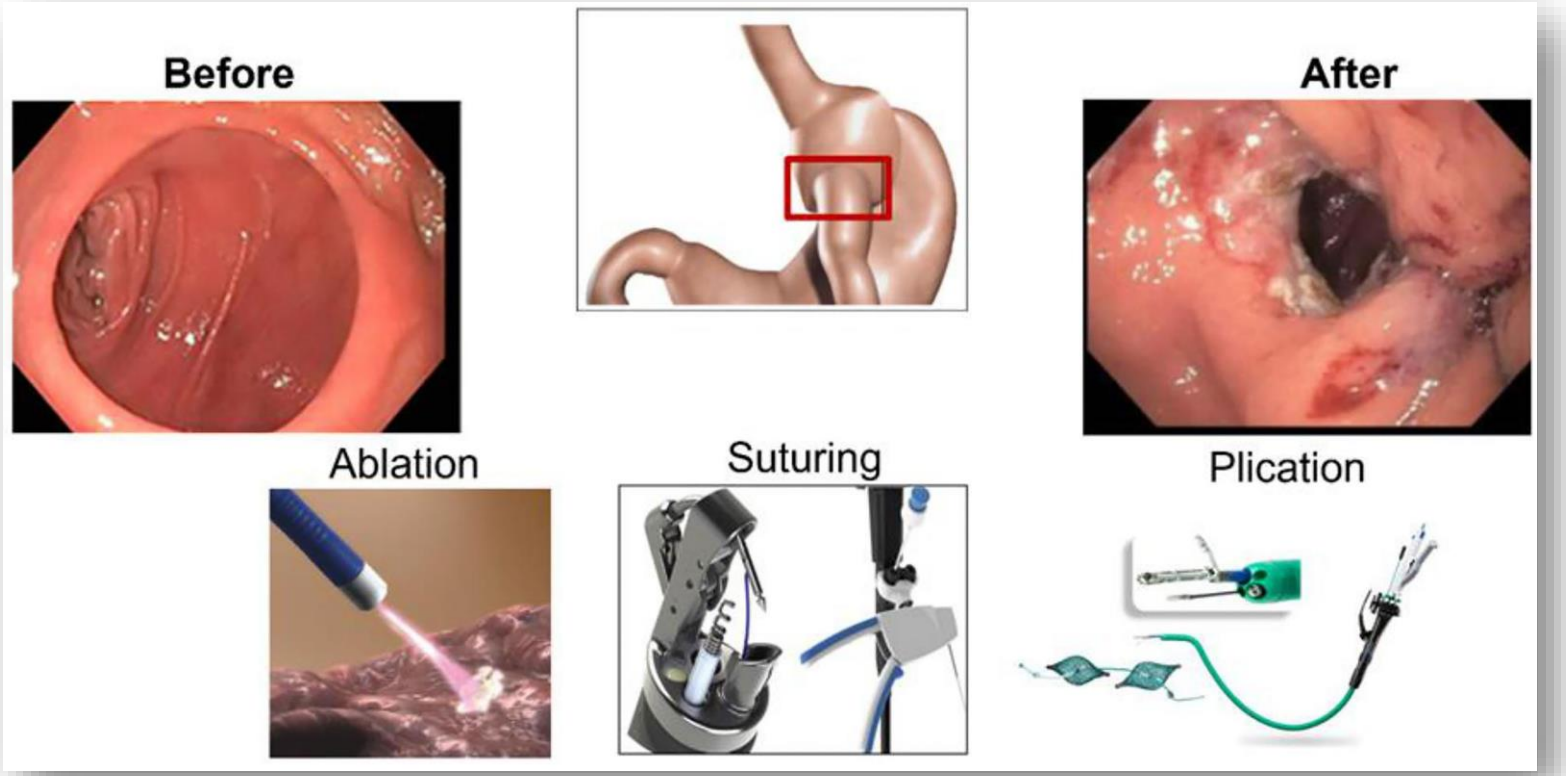
   - TORe (transoral outlet reduction) with Endostitch®
     - In combination with APC
     - Repeat TORe



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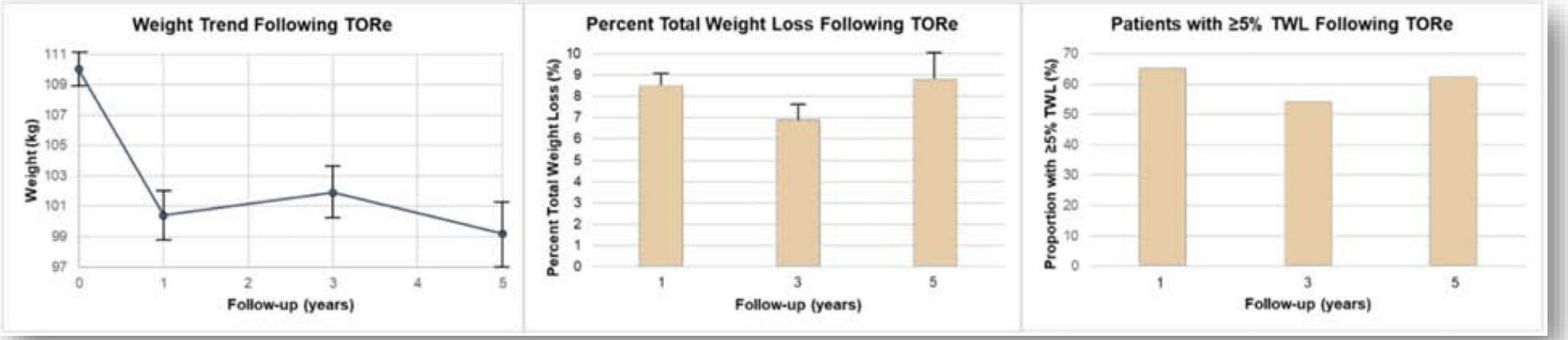
     - Repeat TORe
     - Single center study: 331 pts *
       - FU up to 5y (123 pts, FU rate > 80%)
       - 3.6 % repeat TORe
       - 39 % had additional therapy (pharmacotherapy or procedure ?)
       - No severe adverse events



** Jirapinyo & Thompson, Gastrointest Endosc. 2020*

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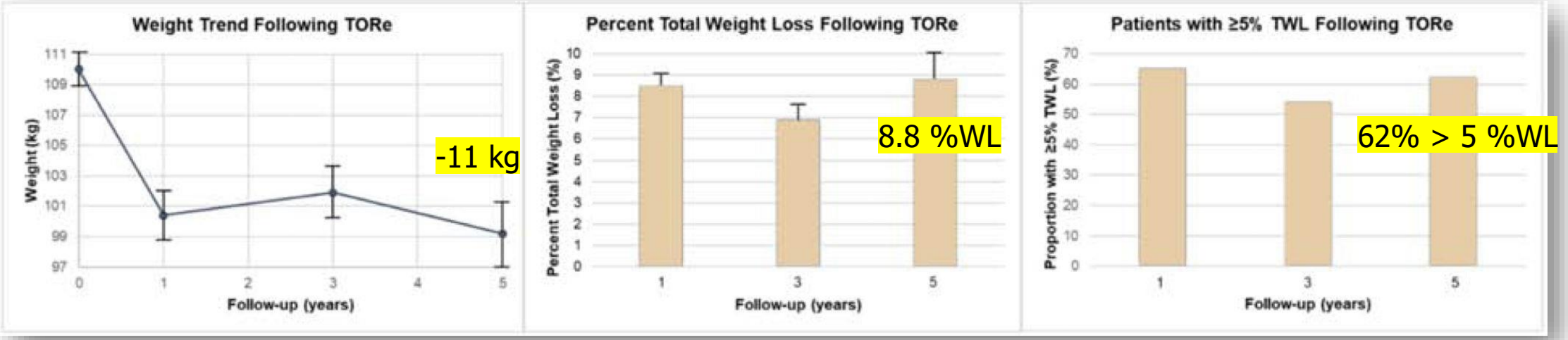

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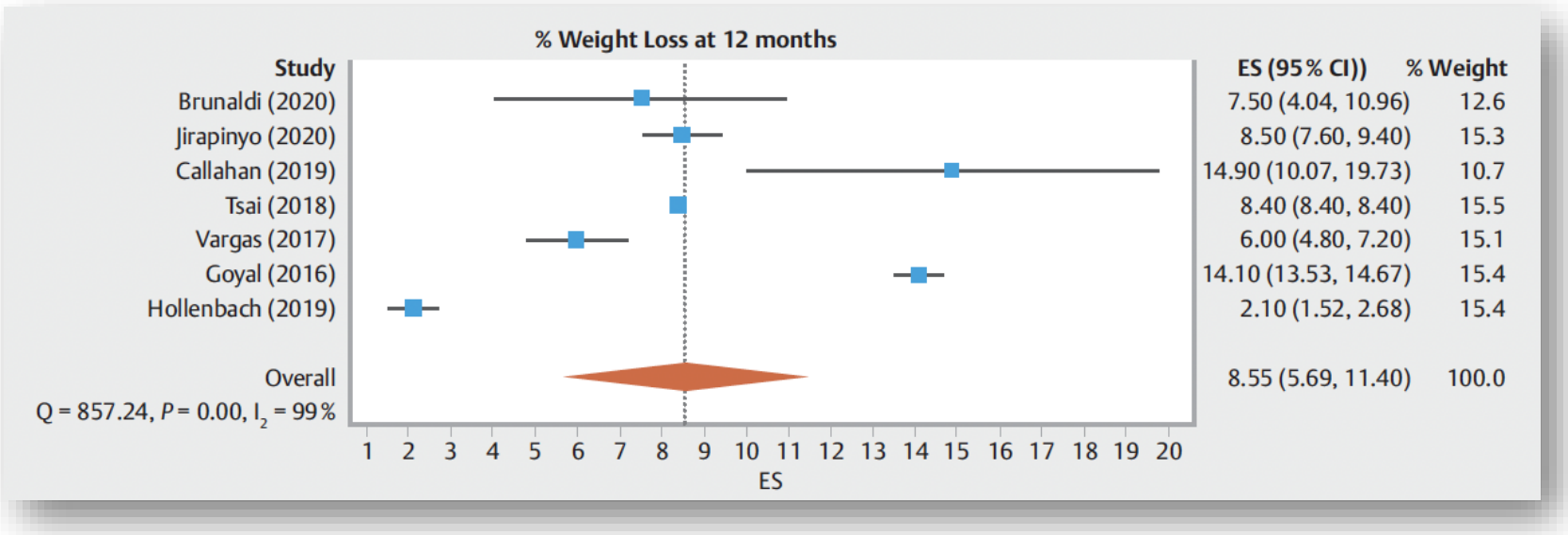
     - Meta-analysis: 13 studies on 810 pts *
       - Additional %WL: 8.6% 1y



* *Dhindsa B., Endoscopy International Open 2020*

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

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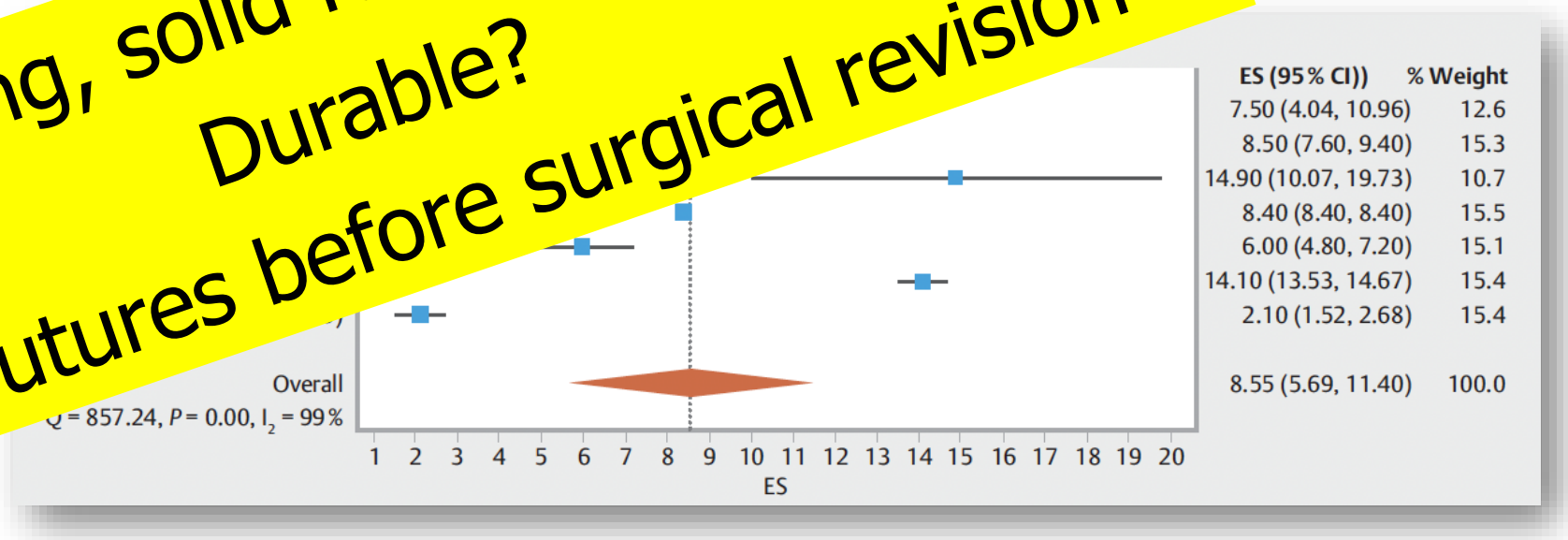
Vomiting, solid food intolerance
Durable?
Remove sutures before surgical revision ?

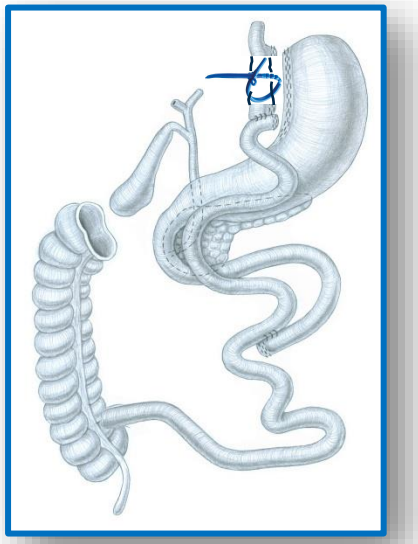


* *Dhindsa B., Endoscopy International Open 2020*

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

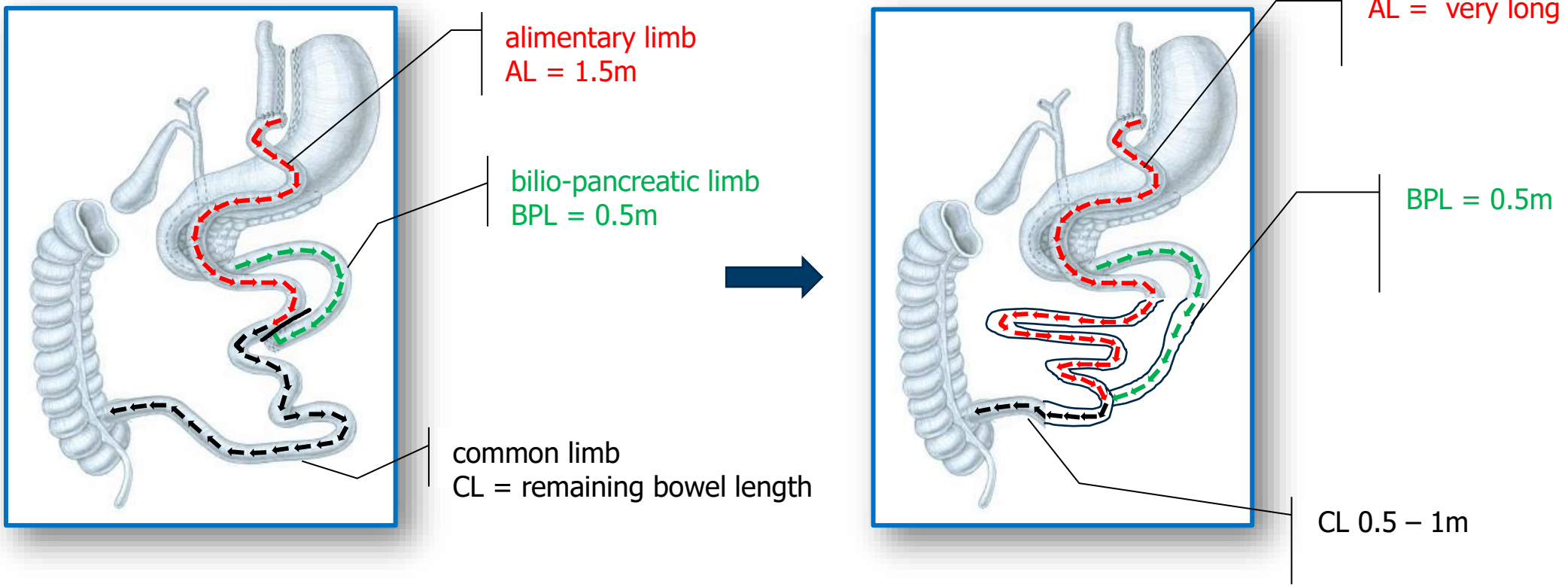
1. Add restriction by surgery
   - Band or Fobi ring (“ring augmented” LRYGB)
   - + / - additional pouch resizing

   - Indication: dumping



Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

2. Add hypo-absorption:
   - Taking down the BPL close to ileoceocal valve = "Type II Distalization"



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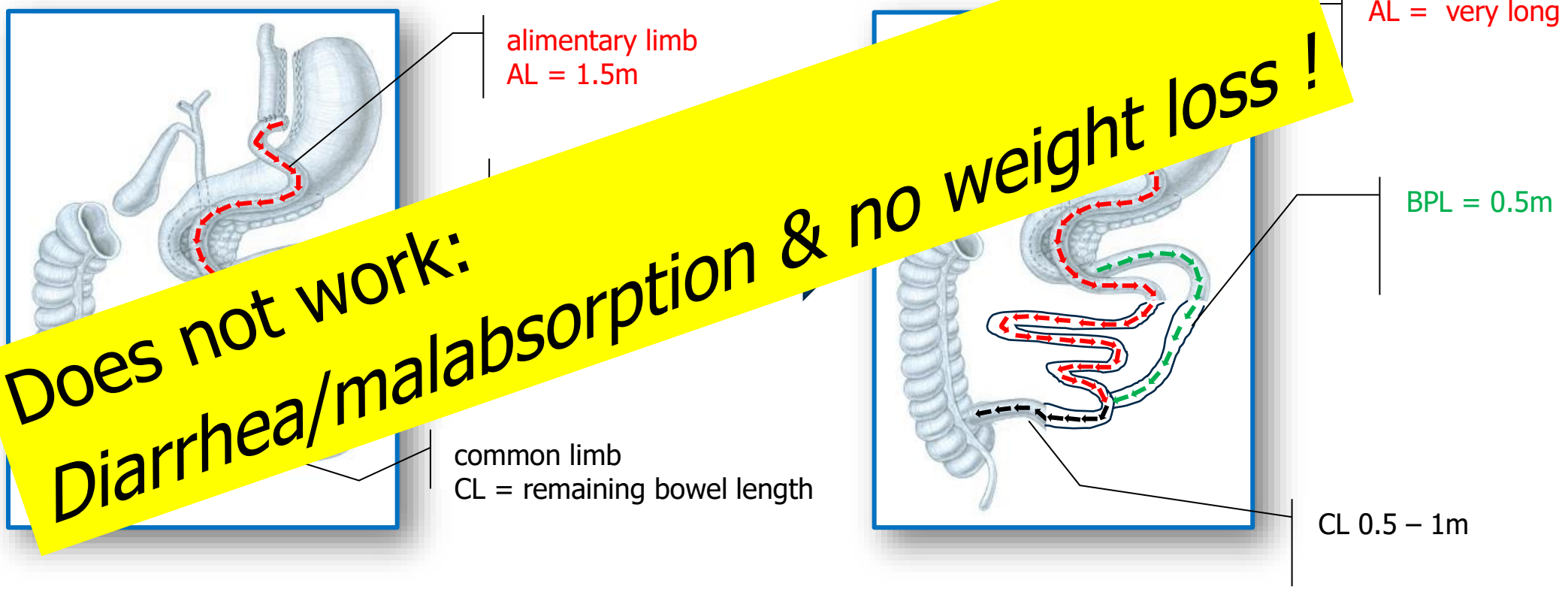
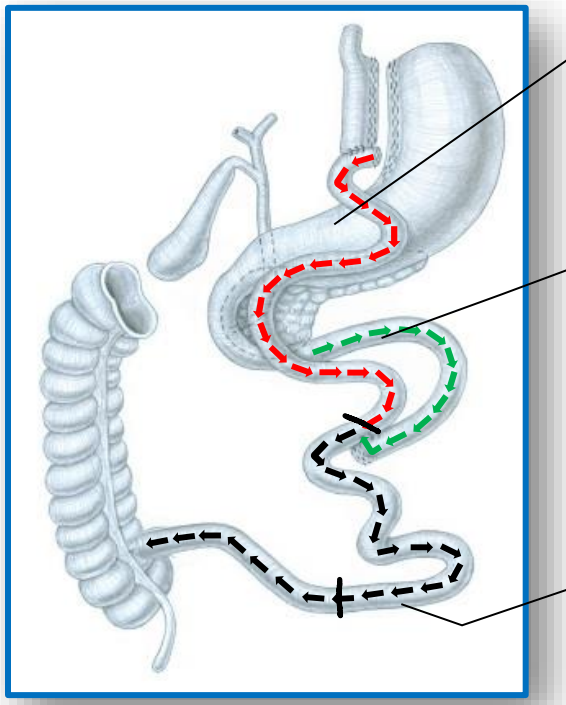


Does not work:
Diarrhea/malabsorption & no weight loss !

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

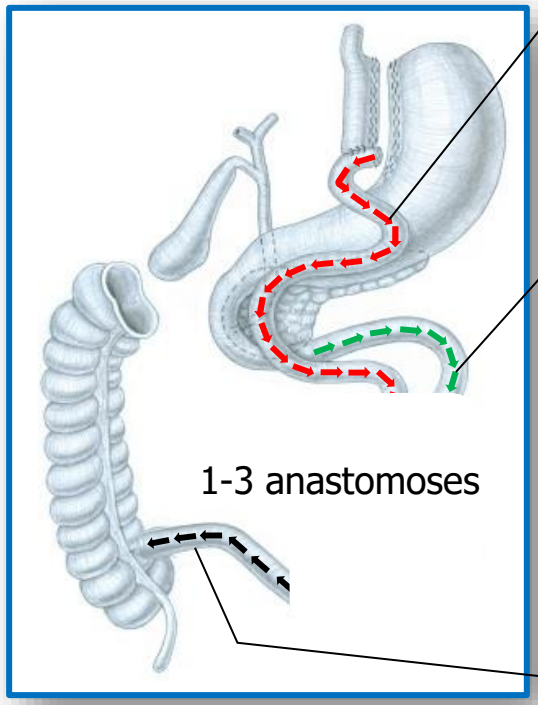
2. Add hypo-absorption:
   - Hess-Formula (1-3 anastomoses necessary) = BPD ("Type III Distalization")



alimentary limb
AL = 1.5m

bilio-pancreatic limb
BPL = 0.5m

common limb
CL = remaining bowel length



AL = 40%
of total small bowel length

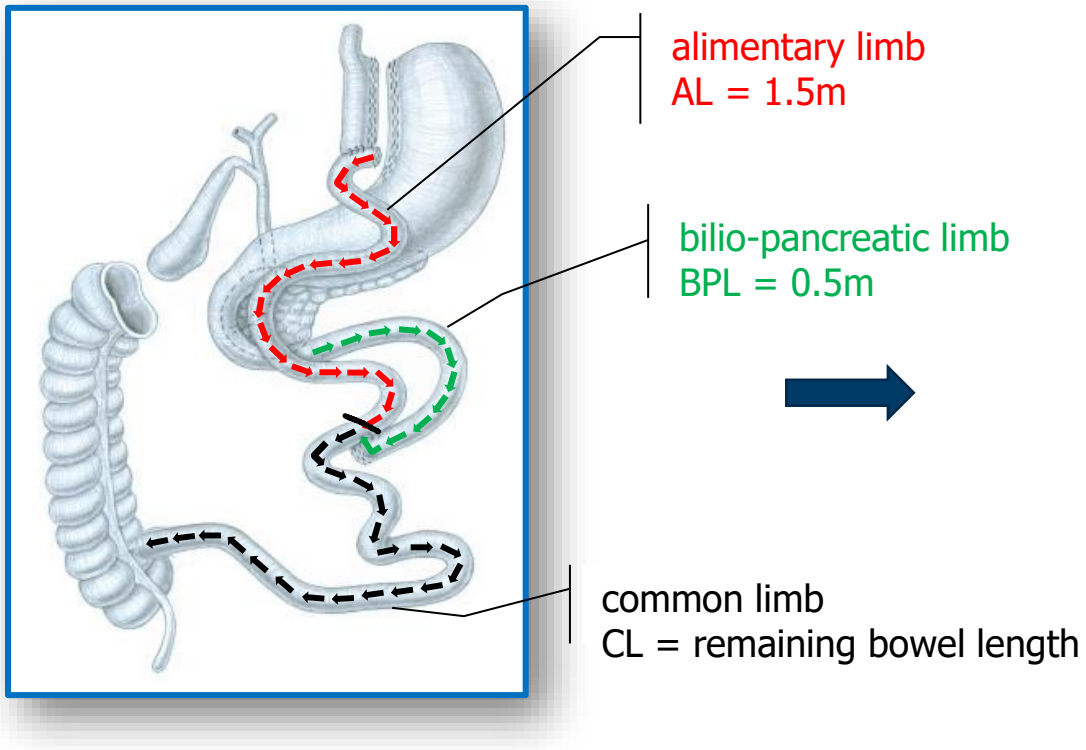
BPL = 50%
of total small bowel length

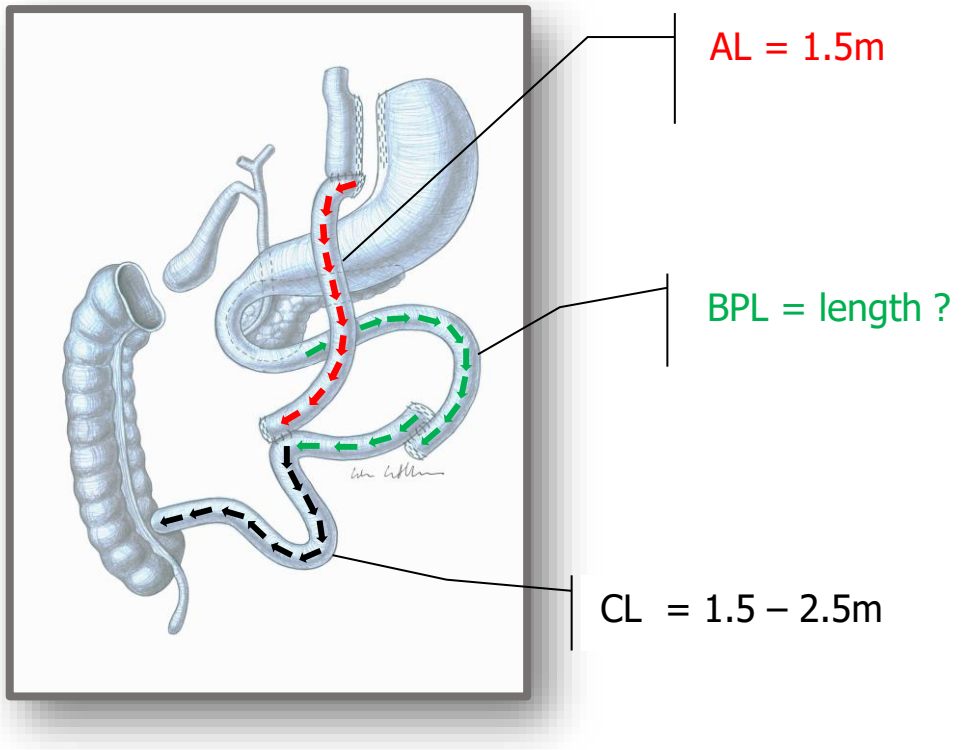
1-3 anastomoses

CL = 10% of total small bowel length
(min 0.75, max 1m)

Surgery *for suboptimal initial clinical response and recurrent weight gain RYGB*

2. Add hypo-absorption:
   - Higa-Formula: taking down the AL close to the ileoceocal valve (only one anastomosis) = "Type I Distalization"





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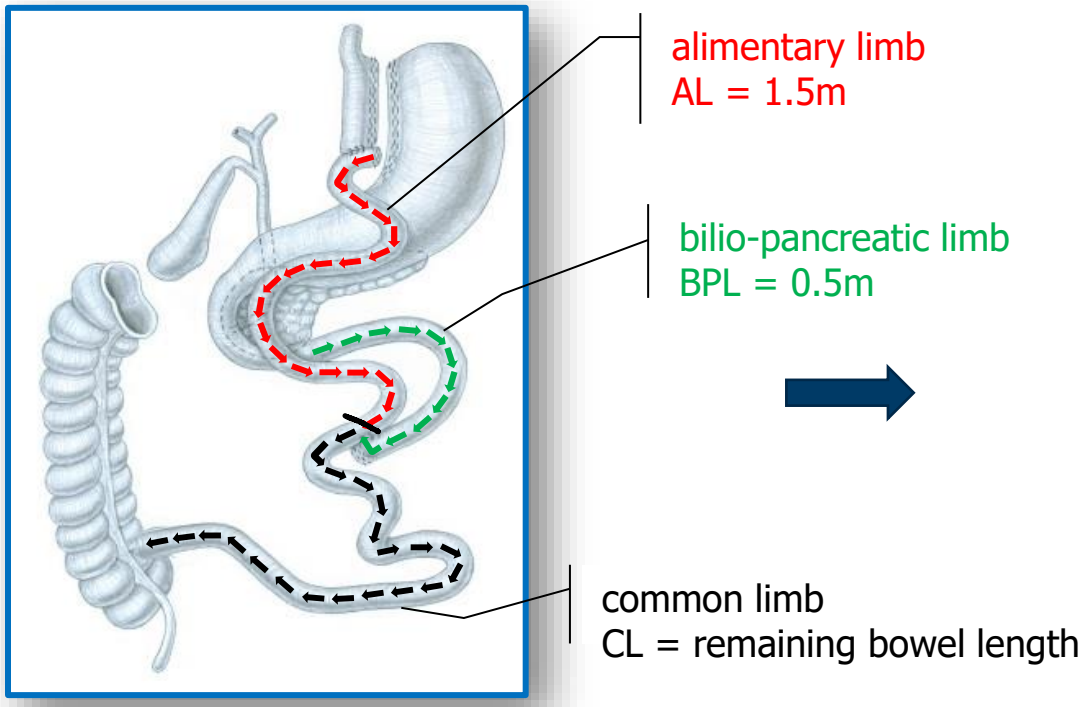
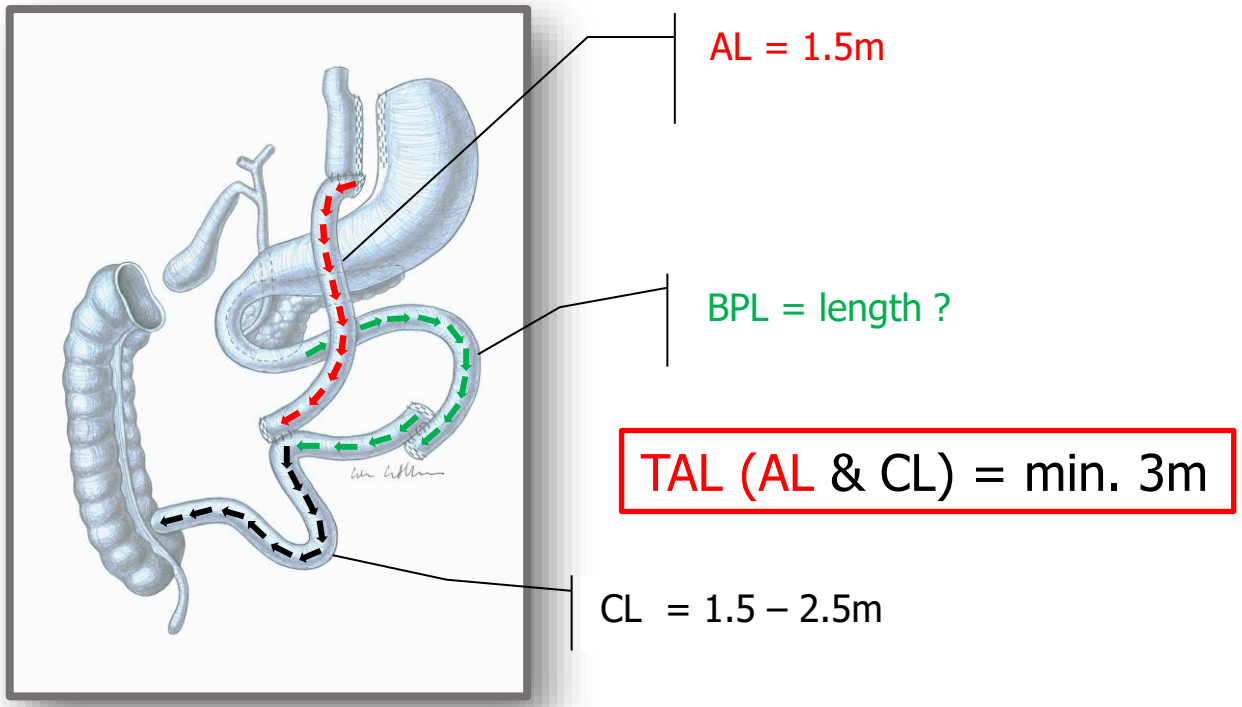
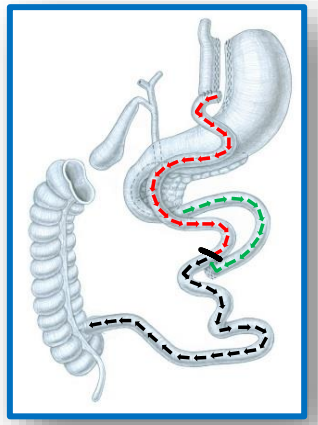




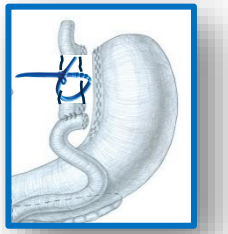
Results of Revisions/Conversions after Bypass

indication / early morbidity

N > 1630

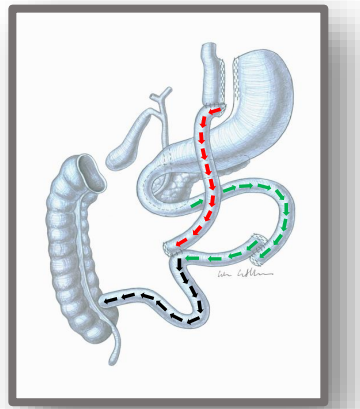


n=34 (3.3y post bypass)
insuff. weight loss
lacking restriction
dumping



early morbidity:
- major: 3% (obstruction: laparoscopic loosening of band)
- minor: 0

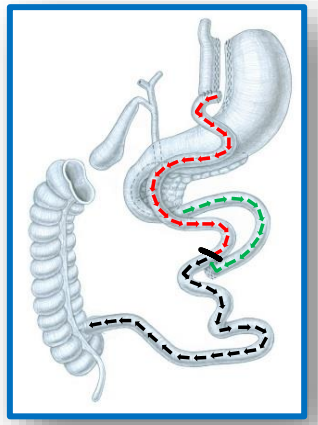
n= 20 (6.4y post bypass)
insuff. weight loss
sufficient restriction
good adherence



early morbidity:
- major: 0
- minor: 25%

Results of Revisions/Conversions after Bypass *result/FU time*

N > 1630



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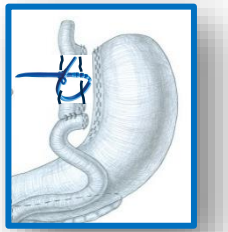
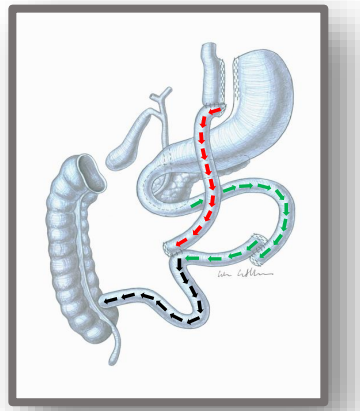


- BMI: 42 ➪ 31.4 ➪ 30
- co-morbidities
  - 4 pts with T2DM: 50% remission
  - 21 pts dyslipidemia: 10% remission
- complications
  - band removal 32% (12% band adjustment)
  - 12% conversion to BPD

FU time = 2y
FU rate 100%

n= 20 (6.4y post bypass)
insuff. weight loss
sufficient restriction
good adherence



- BMI: 45 ➪ 41 ➪ 31
- co-morbidities
  - 1 pt with T2DM: 100% remission
  - 5 pts dyslipidemia: 80% remission
- complications
  - 10% revision for protein malnutrition

Weightloss-Results of Revisions after Bypass

literature

- Banded revisional bypass ("ring augmented bypass)

Author	Year	N	FU years rate (%)	type of band/ring	revisions	%EWL (since revision)
Dapri	2009	6	1	adjustable band		70
Bessler	2010	22	2			43
Irani	2011	43	2			38
Aminian	2015	28	3			13
Jakobs & Dillemans	2021	35	2 (80%)	Adhesix® Bioring®	21%	61 (+50%)
Lazaridis	2021	20	3 (100%)	adjustable band	65%	79.5% (+38%)
Franken (Metaanalysis)	2023	362	3 (22-89%)	band +/- pouch resizing	40%	(+17 %WL)
Clarunis	*2020*	*34*	*2 (100%)*	*non adjustable*	*32%*	*70 (+9%)*

Weightloss-Results of Conversions after Bypass

literature

- Conversion into hypo-absorptive procedure

Author	Year	N	FU years	type of redo-surgery	Malnutrition	%EWL (since revision)
Sugerman	1997	22	5	Higa Formula		69
Fobi	2001	65	>1	50% AL	22%	(-7 BMI points)
Dapri	2011	7	2	?		57
Ghiassi & Higa	2017	96	3 (FU 50%)	Higa		66
Shin & Shikora	2019	22	?	Higa	14%	78 (62%)
Shah & Gislason	2023	48 42	1-8 (>90%)	Higa TAL 250 Higa TAL 300	35% 14%	3y 74% 8y 62%
Clarunis	*2020*	*20*	*2*	*Higa & Hess*	*10%*	*69 (48%)*

SUMMARY *suboptimal initial clinical response and recurrent weight gain*

- Obesity = chronic disease
- Definition suboptimal initial clinical response and recurrent weight gain
  - No set limit (<20%WL, +30% from Nadir)
  - Important if co-morbidities recur
- Prevalence after Bypass: 5-20%-? after 5-20y
- Revisional/conversion surgery may be indicated:
  - Depending also on co-morbidity evolution
  - 5% - 10%
- Adding restriction if dumping symptoms are present
  - TORe ?
  - Pouch-resizing & Band
- Adding hypo-absorption (=conversion in BPD)
  - Better weight loss, remission of co-morbidities BUT more severe side effects

CONCLUSION *Sleeve and suboptimal initial clinical response and recurrent weight gain*

- After unsuccessful conservative treatment:
  - Surgery can be taken into account
  - In selected patients
- Interdisciplinary decision
- More evidence needed to have a valid algorithm
- Outcome of salvage procedure equal compared to same procedure as primary intervention
- If hypo-absorption is added: excellent FU mandatory

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