Update in metabolic surgery What are the cutting-edge inventions in 2024?

Ricardo Cohen MD

Director, The Center for Obesity and Diabetes, Hospital Oswaldo Cruz Sao Paulo Brazil

President-elect, IFSO Global

Past-President, IFSO LAC

Past-President, Brazilian Society for Bariatric and Metabolic Surgery (2011-2012)

How do we make metabolic surgery great again in 2024?

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Disclosures

Research Grant, J&J Medical, Brasil

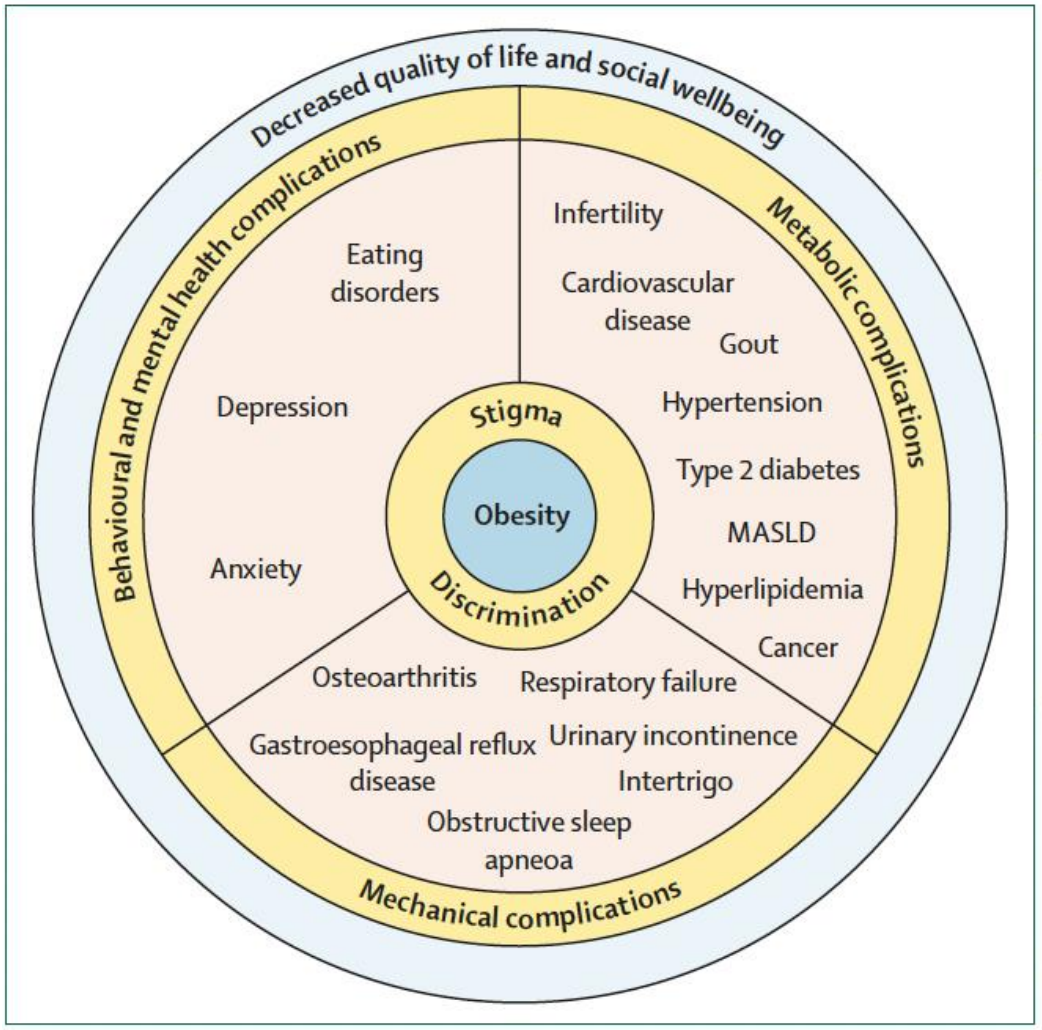
Research Grant, Medtronic

Research Grant, GI Dynamics

Research Grant, Hospital Oswaldo Cruz Bioscience Institute

SAB: Morphic medical, JJ Medical, Medtronic

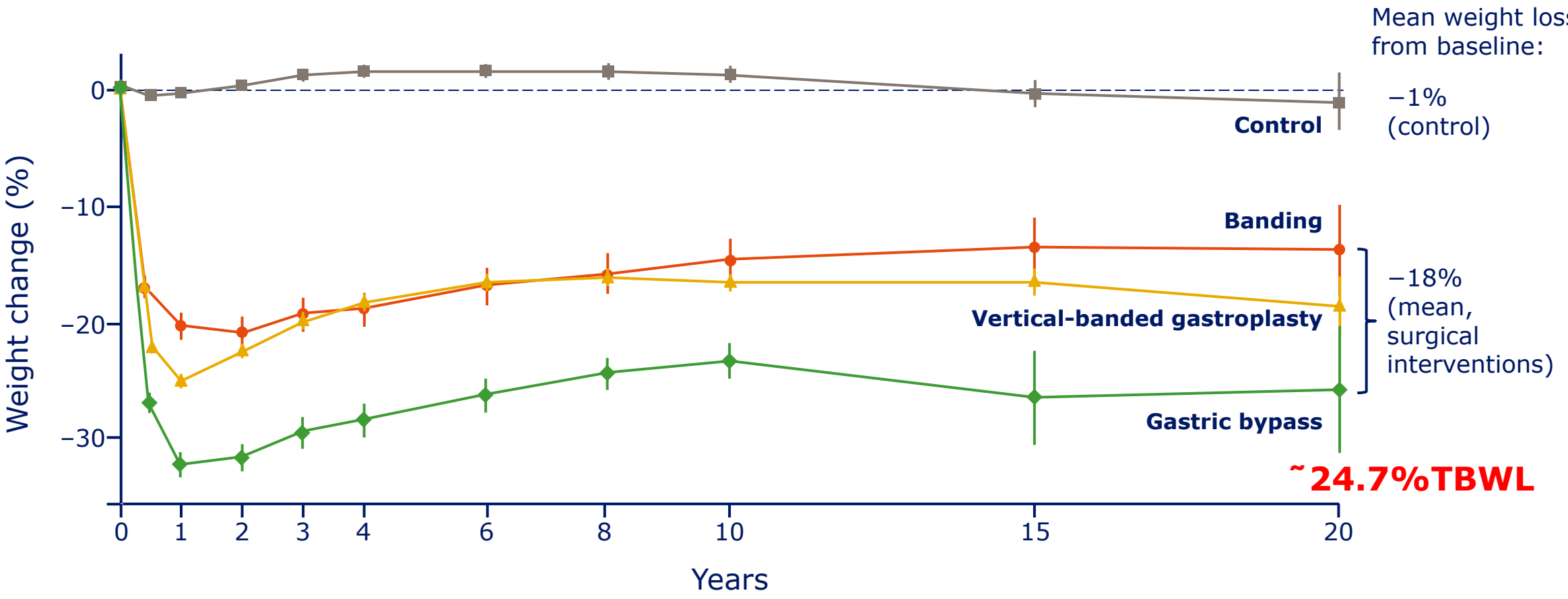
Speaker: J&J Medical, Medtronic, NovoNordisk



Lingvay I, Cohen RV et al, Lancet 2024

WHERE IS MBS STANDING TODAY

Long-term significant WL



Data are mean ±95% confidence interval

Sjöström L *et al. JAMA* 2012;307:56–65

RCTs of metabolic surgery x BMT, at least 2 years of FU, glucocentric outcomes

	Surgical intervention	Follow-up duration, years	Glycaemic target	Proportion reaching glycaemic target (surgical intervention *vs* current medical treatment), %	Total bodyweight loss (surgical intervention *vs* current medical treatment), %
Dixon et al[37]	AGB	2	FPG <126 mg/dL and HbA_{1c} <6·2% (44·3 mmol/mol), without glucose-lowering agents	73% *vs* 13%	20% *vs* 1%
Cohen et al[21]	RYGB	2	HbA_{1c} <6·5% (47·5 mmol/mol), regardless of glucose-lowering agents	71% *vs* 51%	26% *vs* 5%
Simonson et al[38]	RYGB	3	FPG <126 mg/dL and HbA_{1c} <6·5% (47·5 mmol/mol) regardless of glucose-lowering agents	42% *vs* 0%	25% *vs* 5%
Ikramuddin et al[39]	RYGB	5	HbA_{1c} <7% (53·0 mmol/mol), regardless of glucose-lowering agents	55% *vs* 14%	22% *vs* 10%
Courcoulas et al[40]	RYGB *vs* AGB	5	HbA_{1c} <6·5 (47·5 mmol/mol) or FPG <126 mg/dL, without glucose-lowering agents	30% (RYGB) *vs* 19% (AGB) *vs* 0%	25% (RYGB) *vs* 15% (AGB) *vs* 6%
Wentworth et al[41]	AGB	5	FPG <126 mg/dL and 2 h blood glucose concentration <200 mg/dL (75 g glucose oral challenge test)	23% *vs* 9%	12% *vs* 2%
Schauer et al[42]	RYGB *vs* sleeve gastrectomy	5	HbA_{1c} <6% (42·1 mmol/mol), regardless of glucose-lowering agents	29% (RYGB) *vs* 23% (sleeve gastrectomy) *vs* 5%	23% (RYGB) *vs* 19% (sleeve gastrectomy) *vs* 5%
Mingrone et al[43]	RYGB *vs* biliopancreatic diversion	10	FPG <100 mg/dL and HbA_{1c} <6·5% (47·5 mmol/mol), without glucose-lowering agents	25% (RYGB) *vs* 50% (biliopancreatic diversion) *vs* 5%	37% (RYGB) *vs* 42% (biliopancreatic diversion) *vs* 7%

HbA_{1c}=glycated haemoglobin. FPG=fasting plasma glucose. AGB=adjustable gastric banding. RYGB=Roux-en-Y gastric bypass.

Table 1: **Randomised controlled trials with follow-up duration of at least 2 years comparing bariatric surgery with current medical treatment**

Lingvay ….Cohen Lancet 2022

NON GLICOCENTRIC ENDPOINTS

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY VOL. 83, NO. 6, 2024

PUBLISHED BY ELSEVIER

ORIGINAL RESEARCH

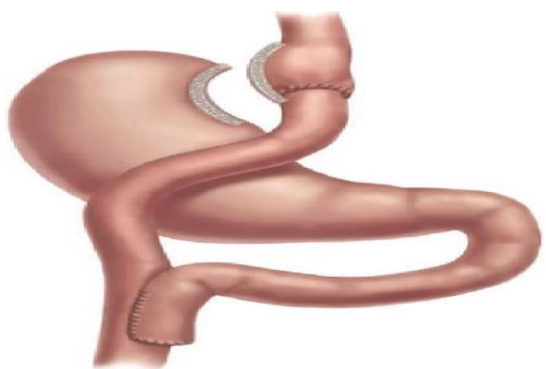
Randomized Trial of Effect of Bariatric Surgery on Blood Pressure After 5 Years

Carlos A. Schiavon, MD,[a,b] Alexandre B. Cavalcanti, MD,[a] Juliana D. Oliveira, CN,[a,b] Rachel H.V. Machado, CN,[a] Eliana V. Santucci, PT,[a] Renato N. Santos, STAT,[a] Julia S. Oliveira, STAT,[a] Lucas P. Damiani, STAT,[a] Débora Junqueira, MD,[a] Helio Halpern, MD,[c] Frederico de L.J. Monteiro, MD,[c] Patricia M. Noujaim, MD,[b] Ricardo V. Cohen, MD,[d] Marcio G. de Sousa, MD,[e] Luiz A. Bortolotto, MD,[f] Otavio Berwanger, MD,[g] Luciano F. Drager, MD[f,h,i]

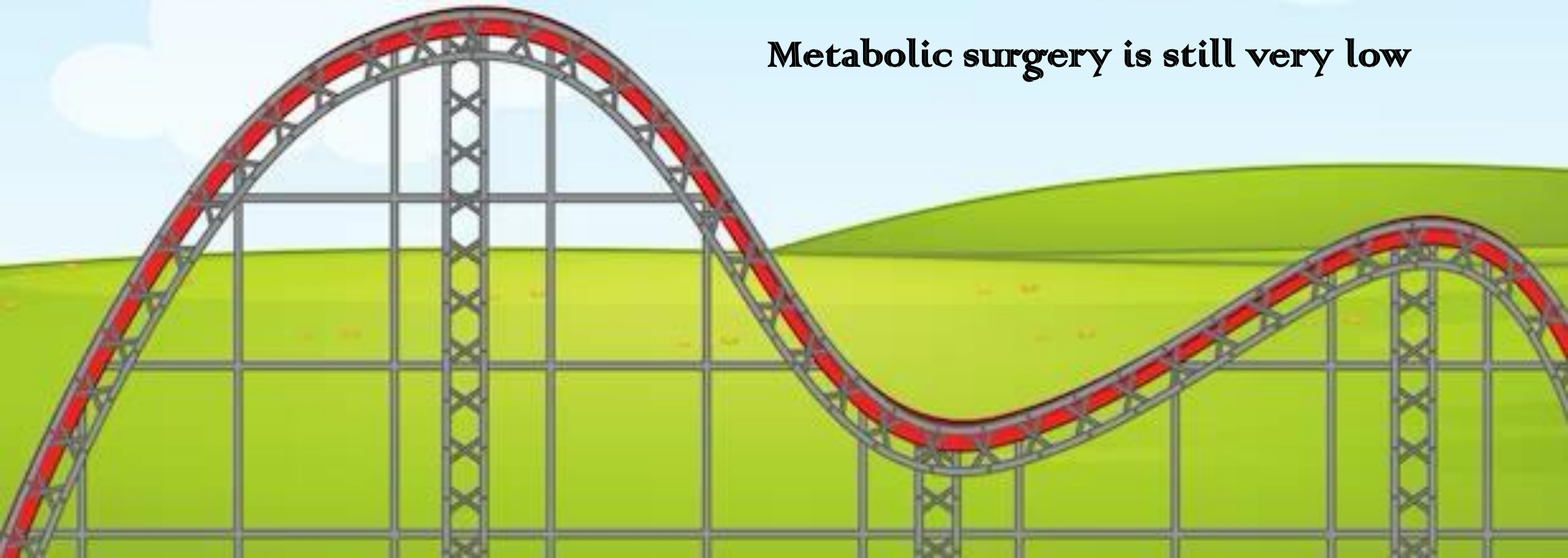
Gastric bypass *versus* best medical treatment for diabetic kidney disease: 5 years follow up of a single-centre open label randomised controlled trial

Ricardo V. Cohen,[a,] Tiago Veiga Pereira,[b,c] Cristina Mamédio Aboud,[a] Tarissa Beatrice Zanata Petry,[a] José Luis Lopes Correa,[a] Carlos Aurélio Schiavon,[d] Carlos Eduardo Pompílio,[a] Fernando Nogueira Quirino Pechy,[a] Ana Carolina Calmon da Costa Silva,[a] Lívia Porto Cunha da Silveira,[a] Pedro Paulo de Paris Caravatto,[a] Helio Halpern,[a] Frederico de Lima Jacy Monteiro,[a] Bruno da Costa Martins,[a] Rogerio Kuga,[a] Thais Mantovani Sarian Palumbo,[a] Allon N. Friedman,[e] and Carel W. le Roux[f,g]*

The Lancet Eclin , online Nov 11,2022



Compelling Data For Metabolic Surgery



It is NOT ENOUGH – Utilization of

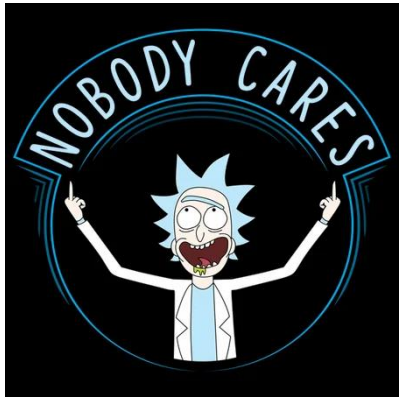
Metabolic surgery is still very low

	1991-NIH	2022–IFSO/ASMBS
BMI and co-morbidities	>40 kg/m²; or >35<40 kg/m² for individuals with co-morbidities (ie, diabetes, sleep apnoea, hypertension, osteoarthritis, etc)	>30 kg/m² with medically uncontrolled diabetes; >35 kg/m² individuals without comorbidities when suboptimal response after the best available medical treatment
Age	No data available for adolescents and people older than 70 years	Age limits expanded to include people older than 70 years after evaluation of risks and benefits; and adolescents with BMI >120% of the 95th percentile for their age with related medical problems; or adolescents with BMI >140% of the 95th percentile for their age
Special situations	None	Bridge to joint replacement, correction of abdominal wall hernia, or organ transplantation
Procedures recommended	RYGB, VBG	RYGB, SG

RYGB =Roux-en-Y gastric bypass. SG=sleeve gastrectomy. VBG=vertical banded gastroplasty.

Table 3: **Differences between the 1991 National Institutes of Health Guidelines (NIH)[109] and the 2022 joint International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) and American Society for Metabolic and Bariatric Surgery (ASMBS) guidelines for bariatric surgery[108]**

Lingvay I, Cohen RV et al, Lancet 2024



95% of PCPs were unaware of the 2022 updated guidelines.

HulseJ, Slay R et al, Obes Surg, 2024

2014:
Metabolic Surgery Seen as Too Risky

- Only 32% with class III obesity would even consider surgery
- Most often because they considered it too risky
- Minimization of their own health risks seems to be a factor, too

Brief Cutting Edge Report
CLINICAL TRIALS: BEHAVIOR, PHARMACOTHERAPY, DEVICES, SURGERY

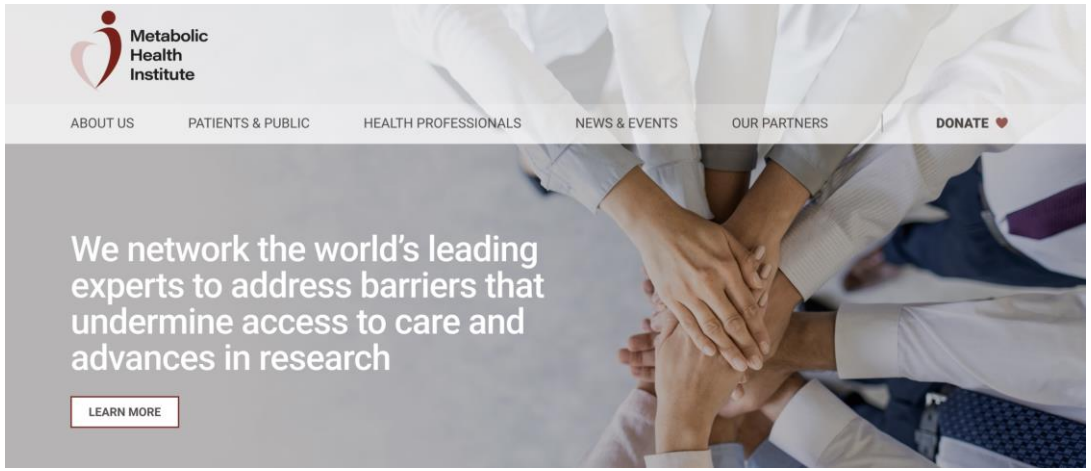
Obesity

The Influence of an Individual's Weight Perception on the Acceptance of Bariatric Surgery

Fatima Cody Stanford[1], Theodore K. Kyle[2,3], Mechelle D. Claridy[4], Joseph F. Nadglowski[3], and Caroline M. Apovian[5]

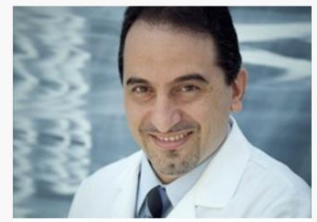
Objective: This study assessed the proportion of US adults with excess weight and obesity who consider bariatric surgery to be appropriate for themselves and how their own weight perception influences this consideration.
Methods: A stratified sample of 920 US adults in June 2014 was obtained through an online survey. The respondents were queried about bariatric surgery acceptability and personal weight perception. Average body mass index (BMI) was determined for each demographic variable, and responses were characterized according to BMI and concordance with perceived weight status. Chi-square analyses served to assess perceived weight concordance in relation to bariatric acceptance.
Results: Only 32% of respondents with Class III obesity indicated that bariatric surgery would be an acceptable option for them, most often because they considered it to be too risky. Respondents with Class III obesity and concordant perception of weight status were more likely ($P < 0.03$) than discordant Class III respondents to accept bariatric surgery. Likewise, concordant respondents with excess weight, but not obesity, were more likely ($P < 0.001$) to correctly consider bariatric surgery to be inappropriate for them.
Conclusions: Despite good safety and efficacy, many persons still believe bariatric surgery is too risky. Weight perception concordance or discordance influences one's decision to consider this treatment option.

Obesity (2014) **00**, 1–5. doi:10.1002/oby.20968



Founders and Directors

The Founding Team and Directors



Prof. Francesco Rubino, MD

Founder

Professor Francesco Rubino is a world-leading metabolic surgeon and pioneer of new surgical treatment methods for type 2 diabetes.

Dr. Ricardo Cohen, MD

Co-Founder

Dr. Ricardo Cohen is currently the Director of the Center for Obesity and Diabetes at the Oswaldo Cruz German Hospital in Sao Paulo, Brazil.

Prof. Carel le Roux, MBChB, MSC, FRCP, FRCPath, PhD

Co-Founder

Carel le Roux is a Professor of Experimental Pathology at Conway Institute, Diabetes Complications Research Centre, University College Dublin, Ireland.

Prof. Geltrude Mingrone, MD, PhD

Co-Founder

Professor Mingrone is Chief of the Division of Obesity and Related Disorders at the University Hospital Fondazione Policlinico A. Gemelli IRCCS and is...

Prof. Philip Schauer

Co-Founder

Dr. Philip Schauer is a Professor of Metabolic Surgery and Director of the Bariatric and Metabolic Institute at Pennington Biomedical Research Institute of...

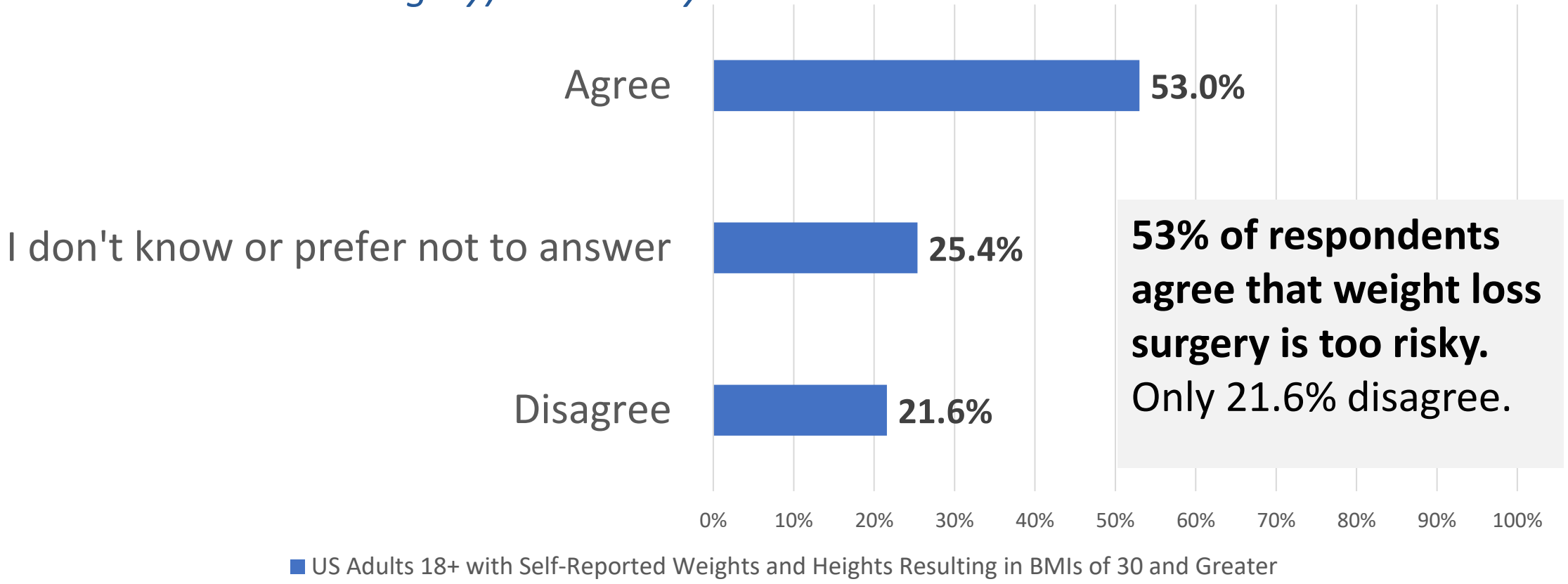
Prof. David E. Cummings, MD, FASMBS

Co-Founder

David E. Cummings, MD, FASMBS is a Professor of Medicine in the Division of Metabolism, Endocrinology and Nutrition at the University of Washington, based...

Bariatric/Metabolic Surgery Continues to be Seen as “Too Risky”

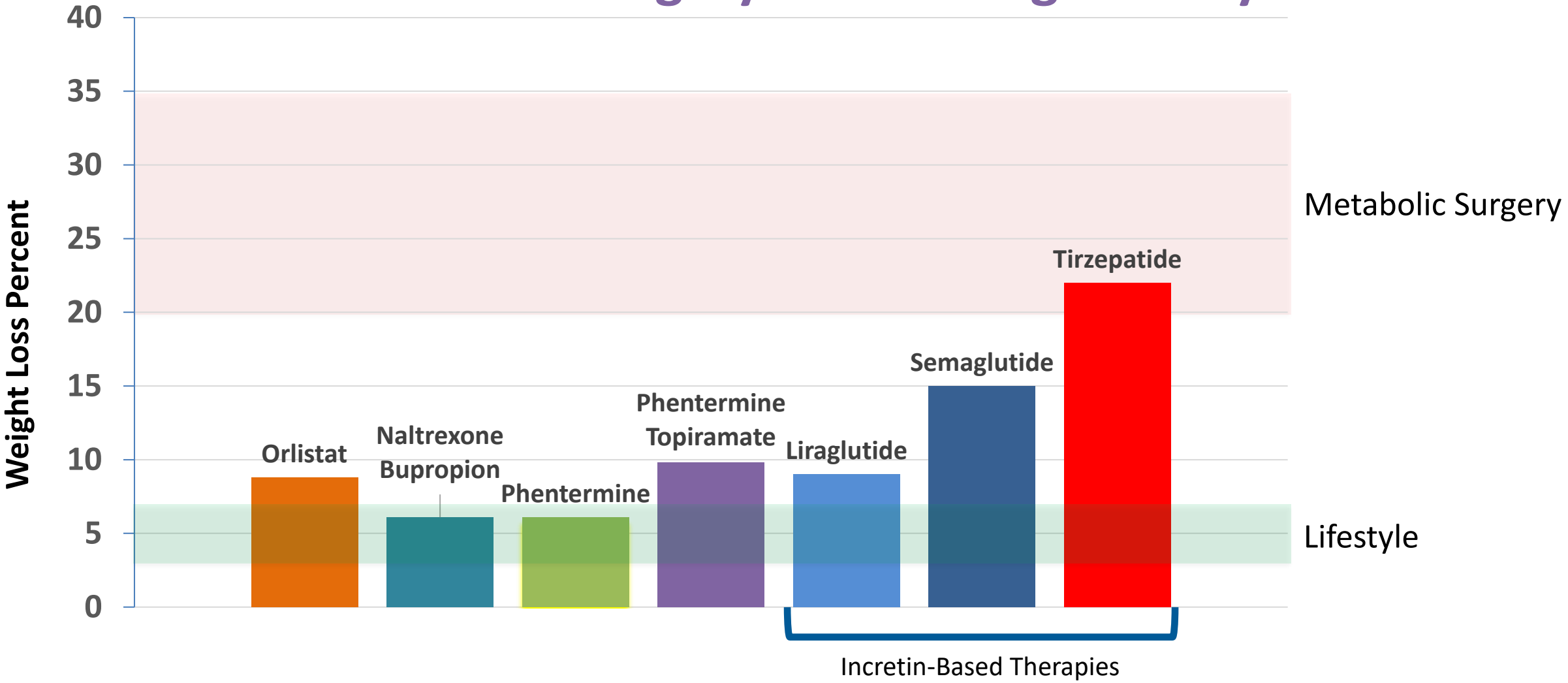
Do you agree or disagree with the following statement? "Weight loss surgery (also known as bariatric or metabolic surgery) is too risky.”



53% of respondents agree that weight loss surgery is too risky.
Only 21.6% disagree.

Suddenly safe and effective obesity management medications

Effectiveness of Anti-obesity Medications vs. Lifestyle and Bariatric Surgery for Treating Obesity



What is an invention?

invention noun

in·ven·tion in-ˈven(t)-shən

Synonyms of *invention* ›

1 **a** : something invented: such as

(1) : a device, contrivance, or process originated after study and experiment

(2) : a product of the imagination

especially : a false conception

b : a short keyboard composition featuring two- or three-part counterpoint

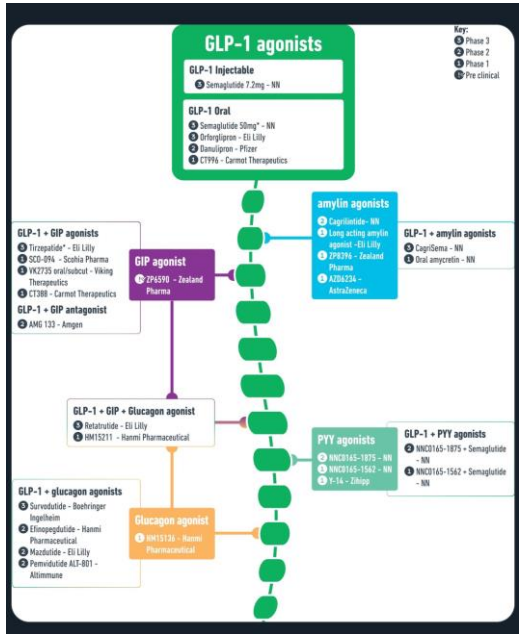
Obesity Surgery
https://doi.org/10.1007/s11695-023-06786-x

BRIEF COMMUNICATION

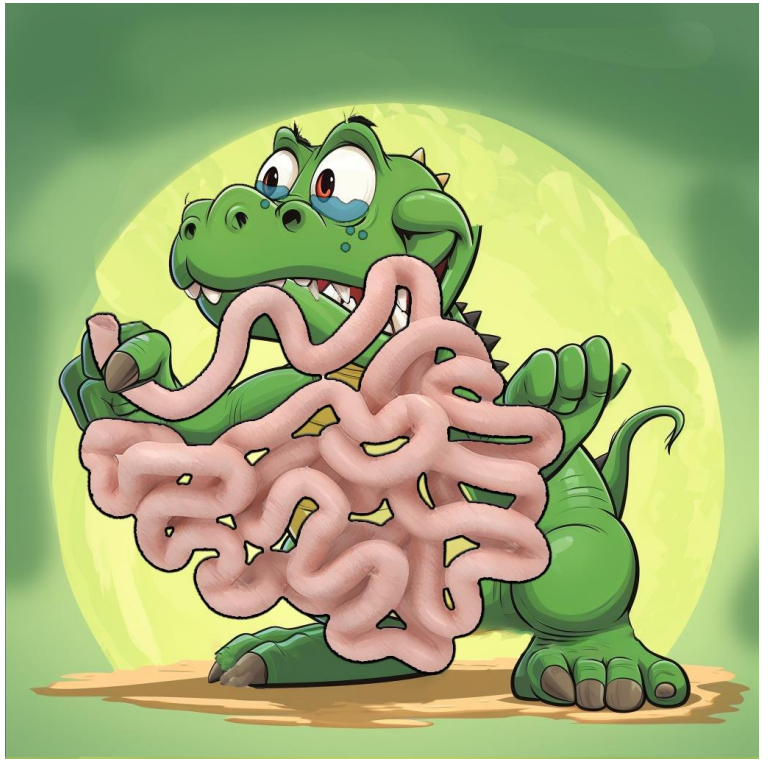
Is Metabolic Surgery Having an Identity Crisis?

Ricardo V. Cohen[1] · Ildiko Lingay[2] · Carel Le Roux[3] · Priya Sumithran[4]

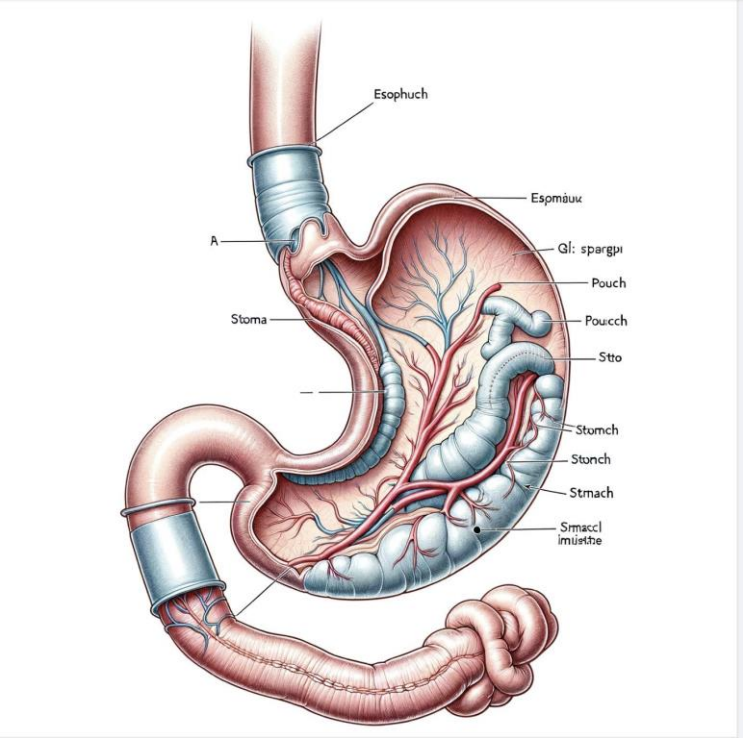
Received: 5 August 2023 / Revised: 9 August 2023 / Accepted: 10 August 2023



- ✓ Tablets (with >25% TBWL)
- ✓ Monthly/3 months/6months injections
- ✓ Decreased CV risk
- ✓ Decreased kidney disease
- ✓ Hepatic fibrosis reversal
- ✓ WL>30% 40-50 weeks



Novel surgical proposals WITHOUT robust evidence Safety/efficacy

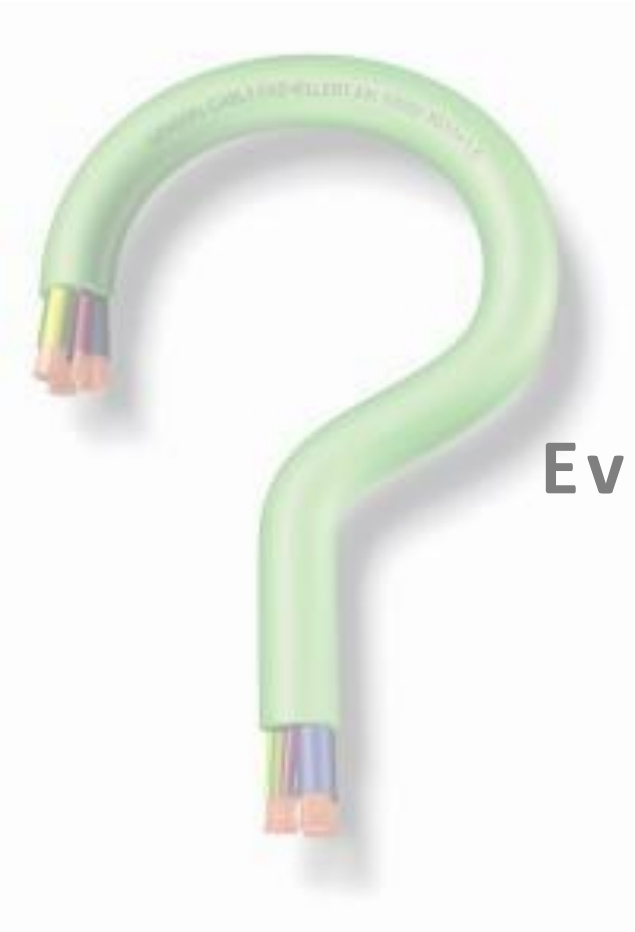


Do we need inventions?
YES

AT ALL COSTS?

NO

How metabolic/bariatric surgery is sometimes practiced



Eminence based medicine.

Webvidence based medicine .

Everybody-does-so-I'll do it based medicine

In-my-hand it works evidence based medicine.

Eloquence based medicine.

Conference based medicine.

Clarevidence based medicine .

Beliefs based medicine.

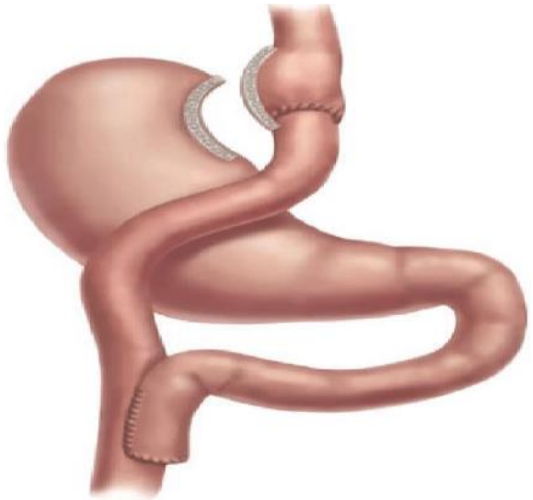
Trend based medicine

n

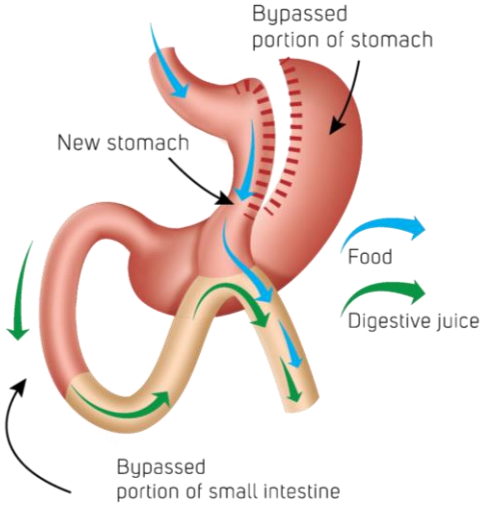
Identified physiological mechanisms of RYGB and SG

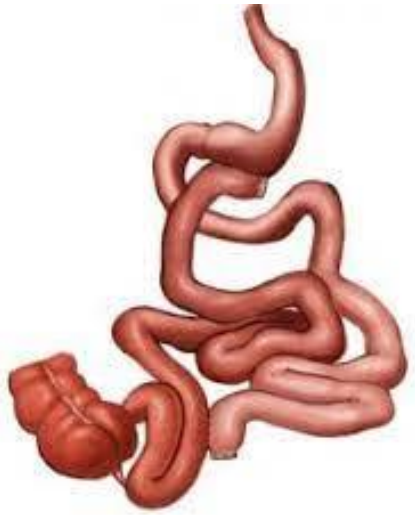
- Decreased appetitive drive
- Altered food preference
- Increased brown/beige thermogenesis
- Signaling through MC4R and LepR
- Increased circulating bile acids
- Altered luminal bile acid pool

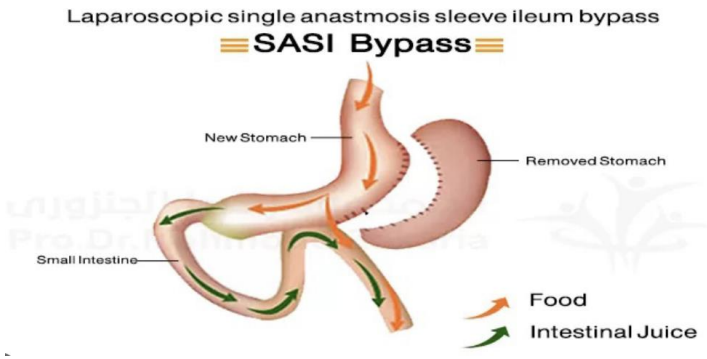
- Altered microbiota
- Altered circadian rhythm regulation
- Weight independent improvement in DM
- Intestinal epithelial hypertrophy
- Altered defended fat mass (set point)
- Vastly altered global metabolic physiology



Identified physiological mechanisms of “inventions”, or “innovative”operations





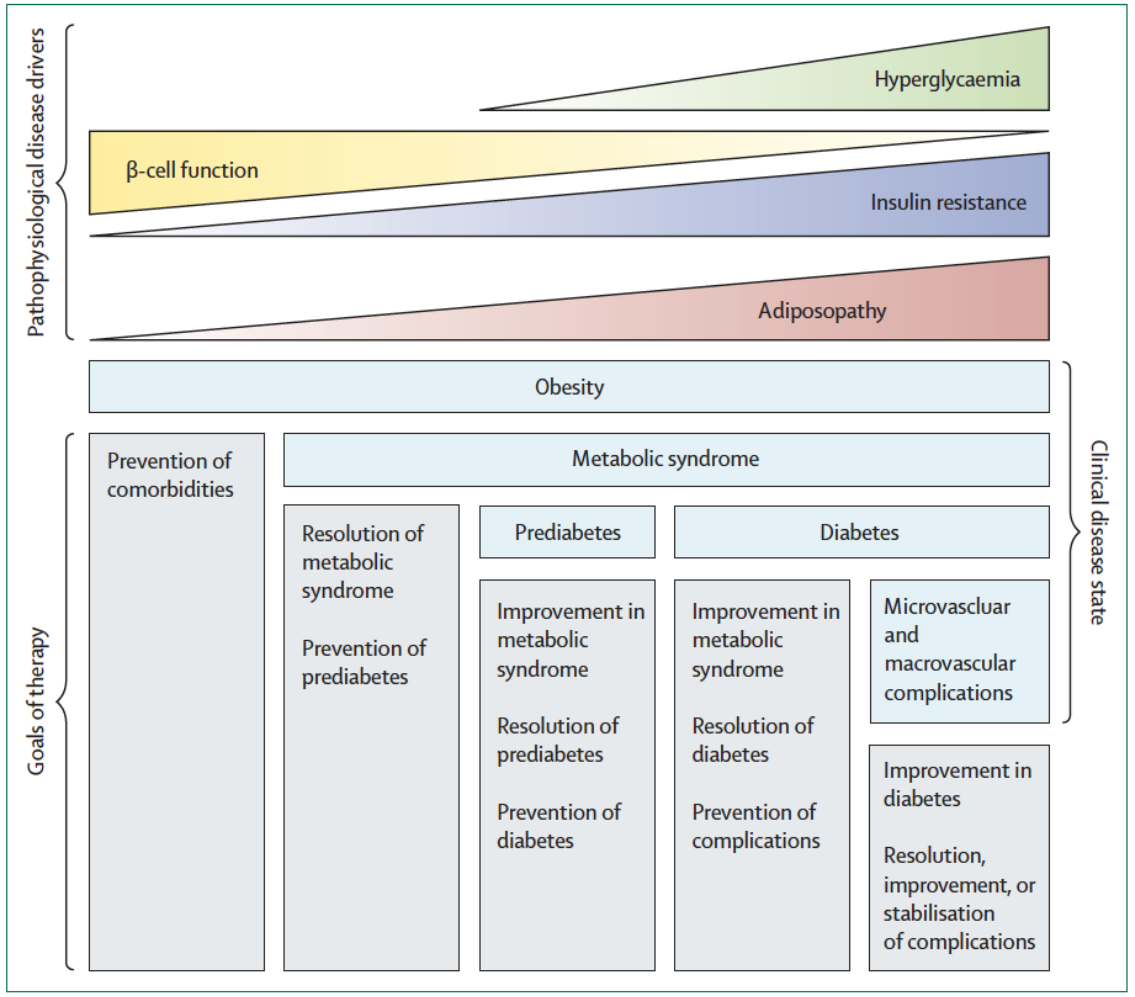


There are **no studies** that demonstrate **an enhanced effect** of **SADI-S, OAGB IT or transit bipartition** on any of these mechanisms

There are **no studies** that demonstrate a **therapeutic mechanism** of these newer metabolic operations that is **absent in RYGB or SG in a lesser extent**

Important Endpoints

- ✓Sustained WL> 15%
- ✓Lipid control
- ✓BP control
- ✓Glycemic control
- ✓MASH outcomes
- ✓Microvascular complications control/resolution
- ✓Prevention of fatal and non-fatal CV events
- ✓Safety



Lingvay I …. CohenRV, Lancet 2022

Level 1 or 2 showing effects of innovative procedures over BP,MASH,T2D complicationswhen compared to RYGB/SG

Endoscopic metabolic therapies

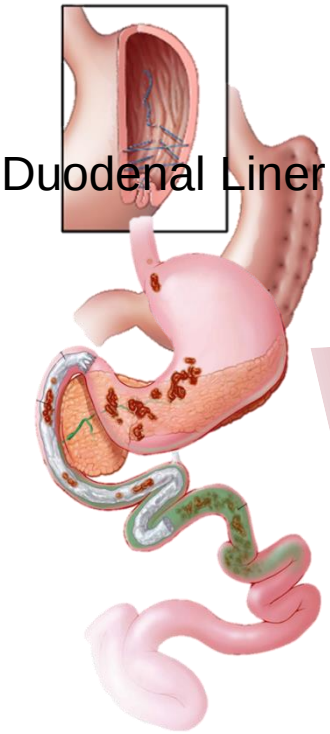
Harnessing the power of bariatric surgery

Gastric Balloon

Roux-en-Y
Gastric Bypass

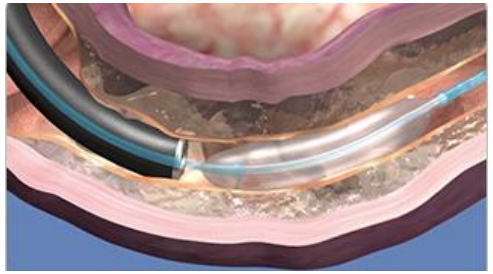
Gastric Plication

Duodenal Liner



Vagal
Blockade

Duodenal mucosal
resurfacing



Medications are as effective in operated x non operated patients, ⬆ WL

Adjunctive liraglutide treatment in patients with persistent or recurrent type 2 diabetes after metabolic surgery (GRAVITAS): a randomised, double-blind, placebo-controlled trial

Alexander Dimitri Miras, Belén Pérez-Pevida*, Madhawi Aldhwayan, Anna Kamocka, Emma Rose McGlone, Werd Al-Najim, Harvinder Chahal, Rachel L Batterham, Barbara McGowan, Omar Khan, Veronica Greener, Ahmed R Ahmed, Aviva Petrie, Samantha Scholtz, Stephen R Bloom, Tricia M Tan*

Research

JAMA Surgery | **Original Investigation**

Safety and Efficacy of Liraglutide, 3.0 mg, Once Daily vs Placebo in Patients With Poor Weight Loss Following Metabolic Surgery
The BARI-OPTIMISE Randomized Clinical Trial

Jessica Mok, BMBS, MPhil; Mariam O. Adeleke, PhD; Adrian Brown, PhD; Cormac G. Magee, MBBChir, MA; Chloe Firman, MRes; Christwishes Makahamadze, MRes; Friedrich C. Jassil, PhD; Parastou Marvasti, PhD; Alisia Carnemolla, PhD; Kalpana Devalia, MBBS, MS; Naim Fakih, MD; Mohamed Elkalaawy, MRCSEd, MS, MD; Andrea Pucci, MD, PhD; Andrew Jenkinson, MBBS, MS; Marco Adamo, MD; Rumana Z. Omar, PhD; Rachel L. Batterham, MBBS, PhD; Janine Makaronidis, MBChB, PhD

Received: 31 October 2022 | Revised: 4 January 2023 | Accepted: 6 January 2023
DOI: 10.1002/oby.23736

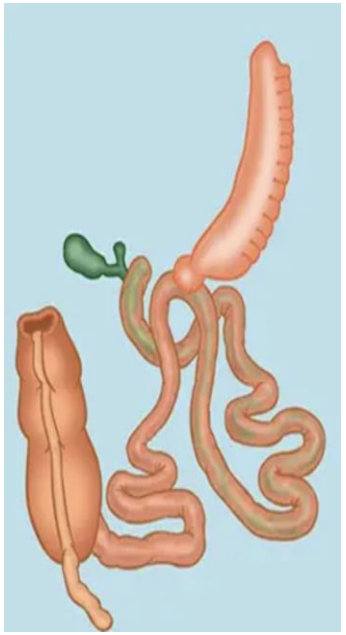
ORIGINAL ARTICLE
Clinical Trials and Investigations

Obesity THE OBESITY SOCIETY WILEY

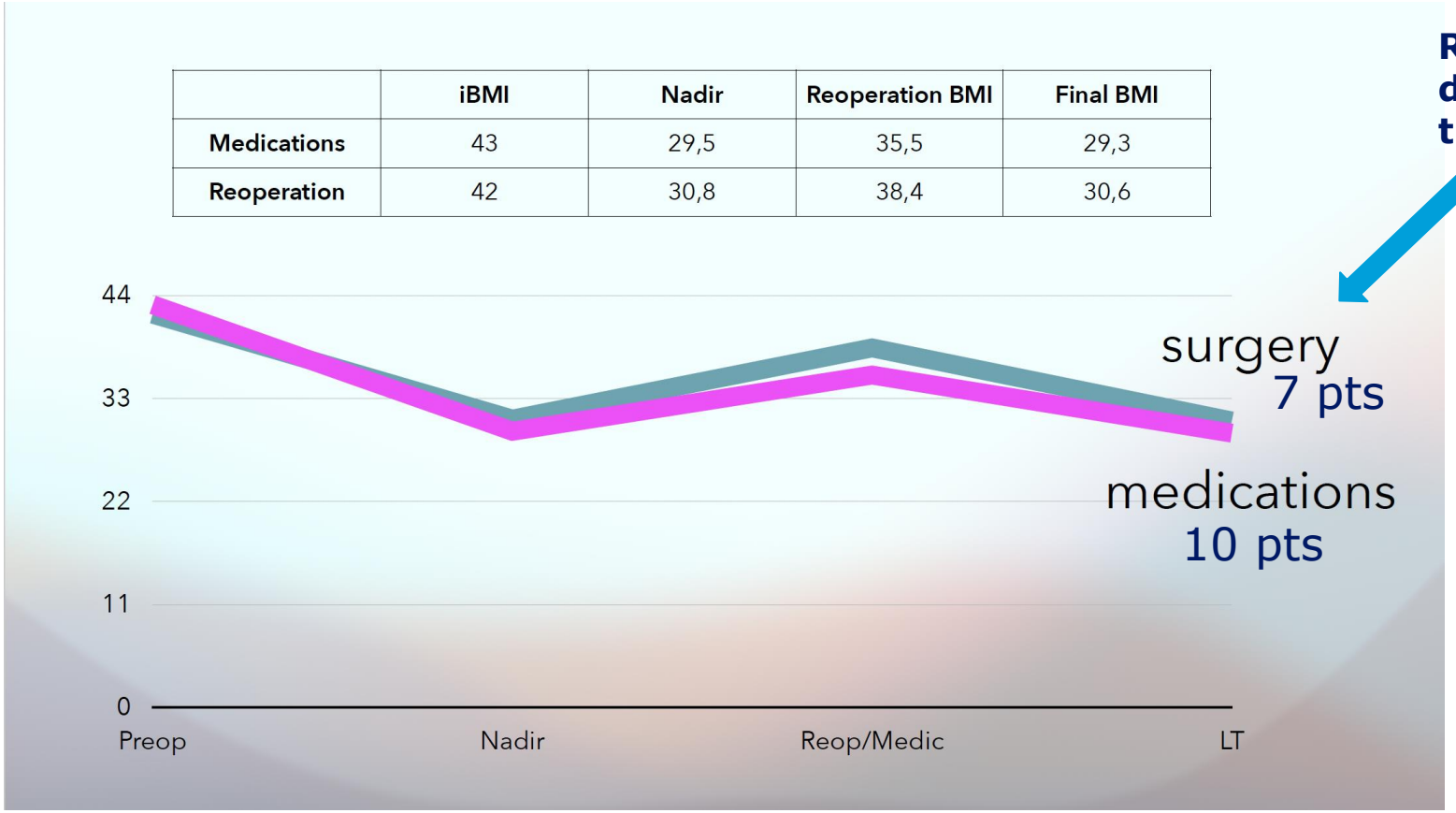
Effectiveness of semaglutide versus liraglutide for treating post-metabolic and bariatric surgery weight recurrence

Natia Murvelashvili[1] | Luyu Xie[2,3] | Jeffrey N. Schellinger[1] | M. Sunil Mathew[2,3] | Elisa Morales Marroquin[2,3] | Ildiko Lingvay[1,4] | Sarah E. Messiah[2,3,5] | Jaime P. Almandoz[1]

Revisional surgery x Obesity Management Medications



	iBMI	Nadir	Reoperation BMI	Final BMI
Medications	43	29,5	35,5	29,3
Reoperation	42	30,8	38,4	30,6



Re-sleeve or decrease the length of the common channel

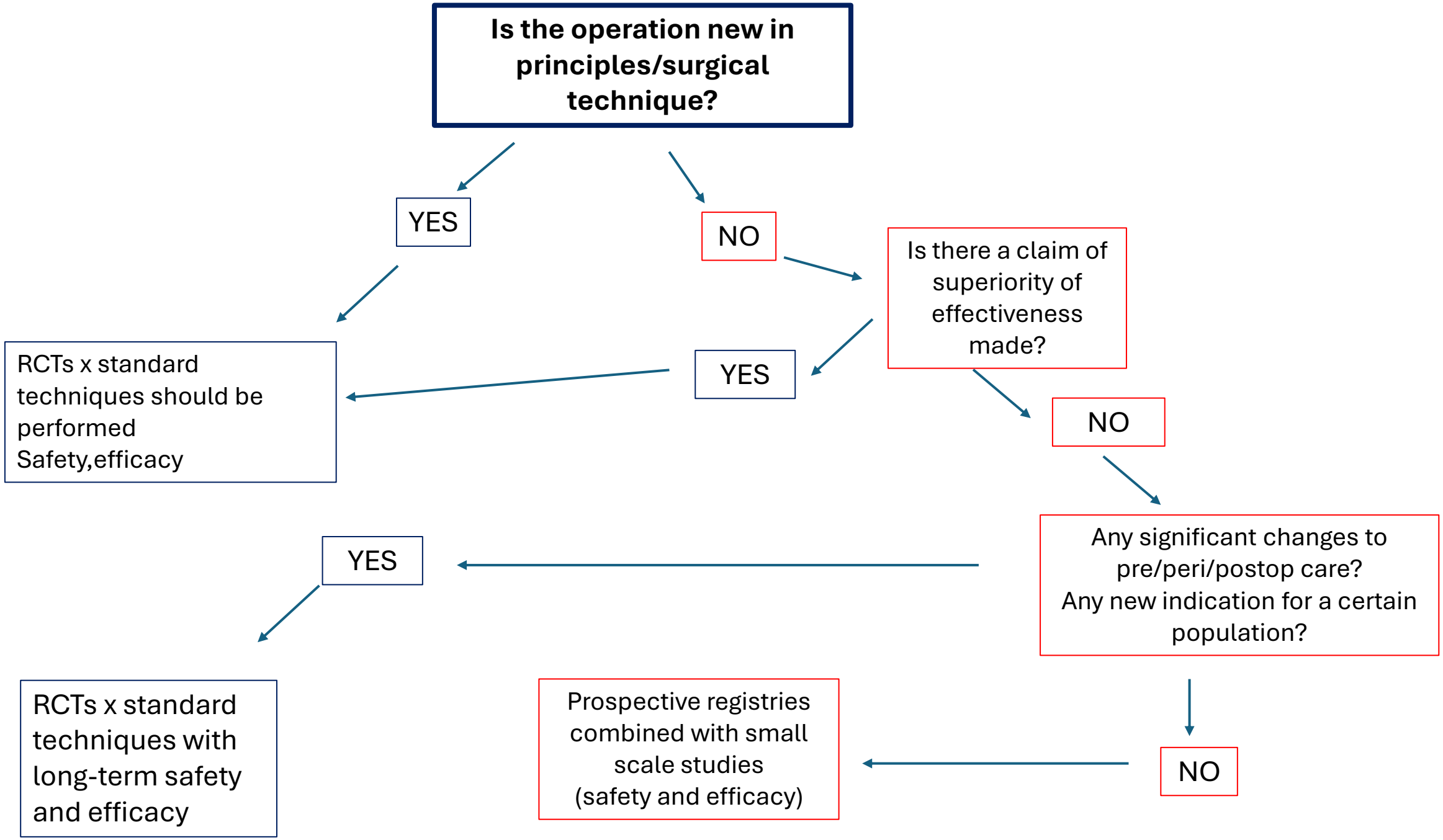
semaglutide

Revisional surgery = adjunctive modern pharmacotherapy

Courtesy of A Sanchez-Pernaute

But should surgeons stop innovating?

NO!



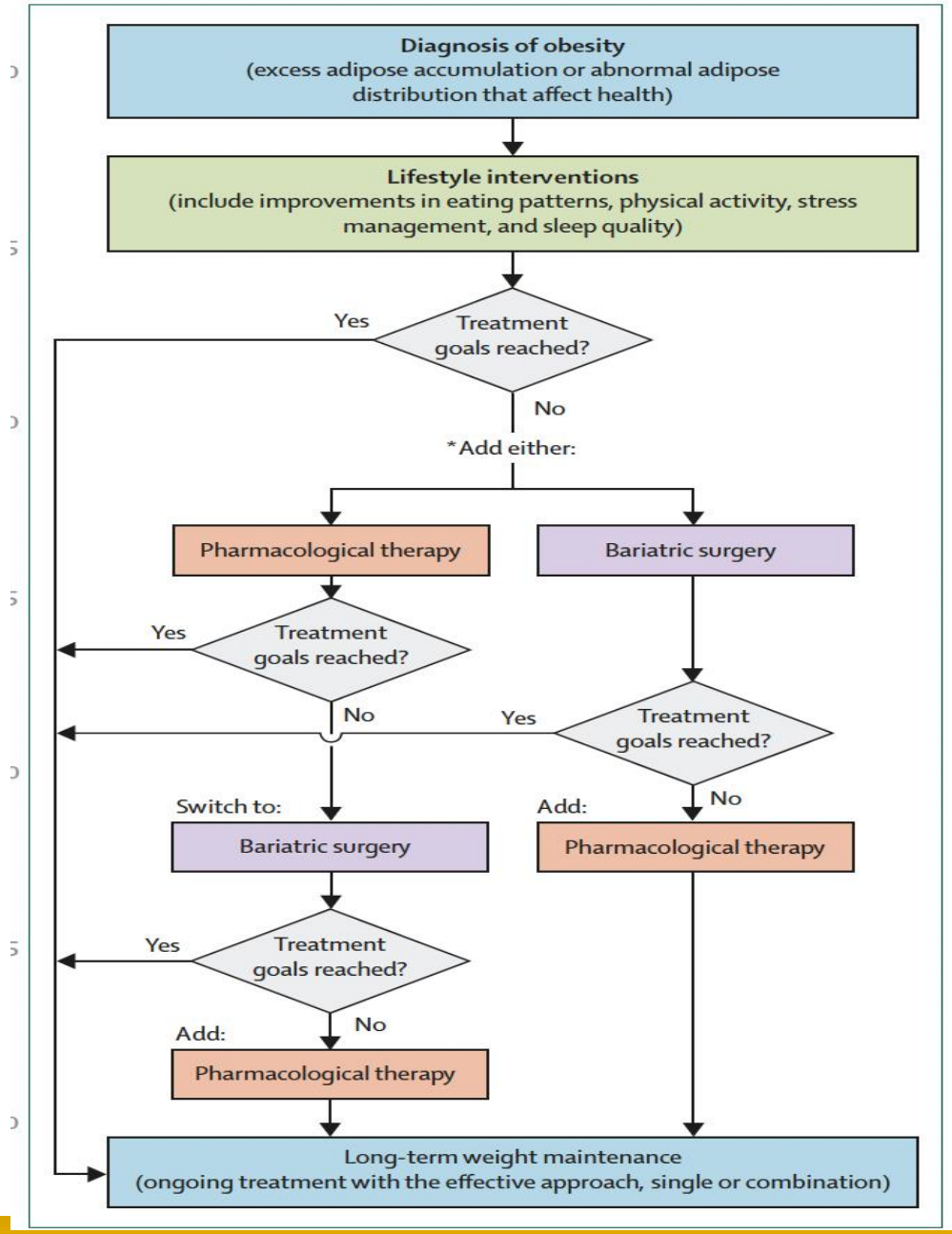
Adapted from Ideal D framework, BJS, 2016

CONCLUSIONS

✓**Patients believe that MBS is too risky**

✓ We need data to convince that innovations/inventions are safe and efficacious long-term, and not only WL or glycemic outcomes. Our target is to promote HEALTH

✓**Currently, the "best invention"we can pursue is MBS+OMMs whenever needed**



Oncology model

What would an oncologist do ?

Access to full spectrum of therapies

- Lingvay I, Cohen RV et al, Lancet 2024


Thank You
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