

Futuro de la Cirugia Bariatrica

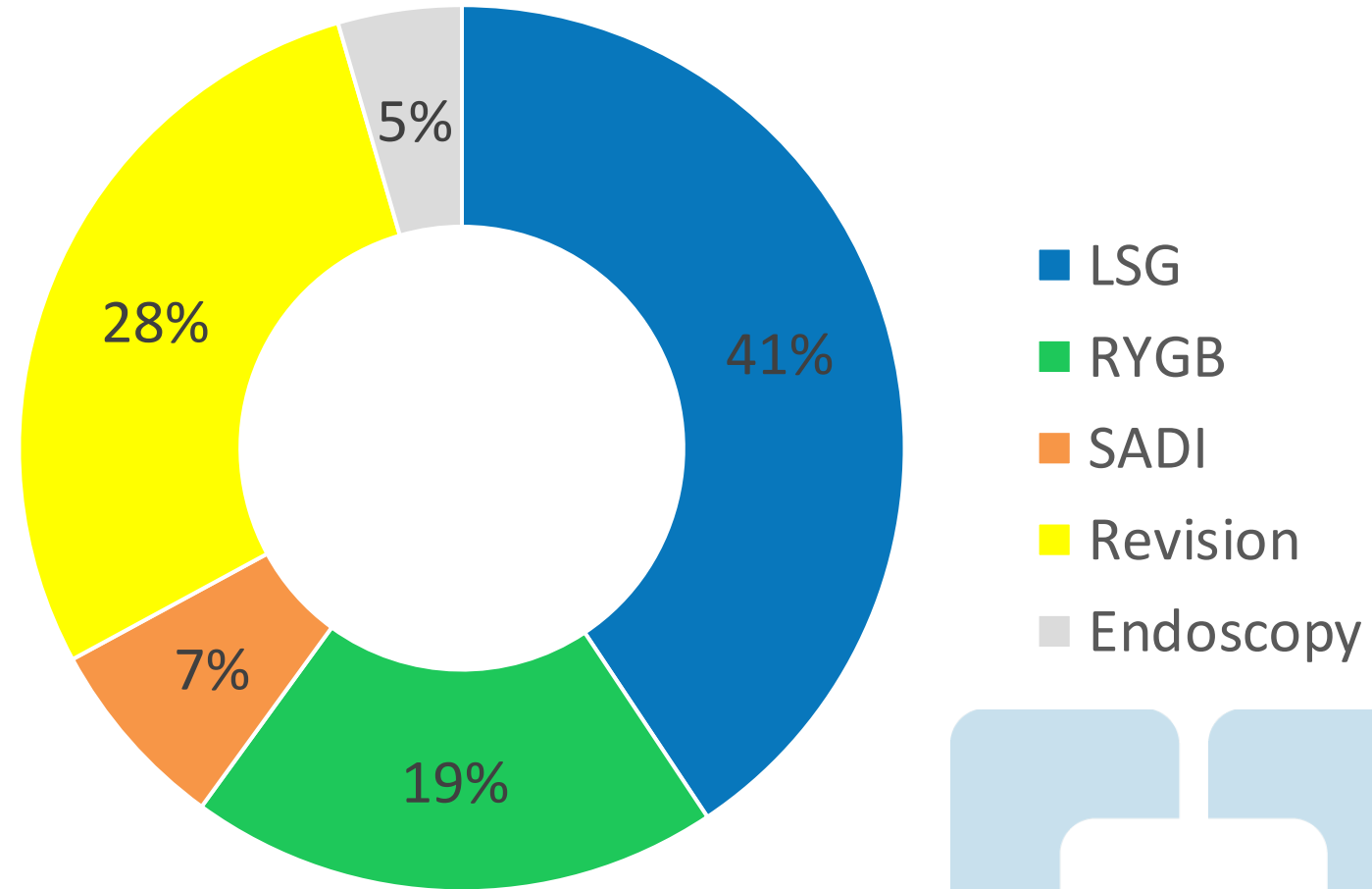
Daniel Guerron MD, FACS, FASMBS

Digestive Disease Institute
Cleveland Clinic Abu Dhabi



Disclosures

Medtronic – Speaker/Proctor
BD – Speaker/Proctor
JnJ - Proctor
Intuitive – training



Maria Callas: Transformation and Cost



Maria Callas lost nearly 80 pounds in the early 1950s. Her transformation was celebrated, but her voice changed—fragile, unstable, less commanding.

Her journey reminds us that profound transformation can come at a cost.

In bariatric surgery, we must always ask: What are we healing—and what might we lose?

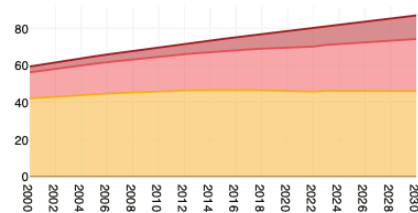


Chile

Overweight and obesity prevalence over time

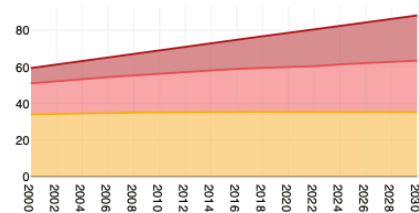
Projected proportion of adults living with high Body Mass Index (25kg/m² and above)

% men with high BMI



■ BMI 25-30 ■ BMI 30-35 ■ BMI 35+

% women with high BMI



Adult population living with high BMI estimated in 2010, 2015 and projected to 2030 (in thousands)

BMI (kg/m ²)	Men			Women		
	2010	2015	2030	2010	2015	2030
25-30	2,730	3,020	3,660	2,150	2,360	2,860
30-35	1,100	1,360	2,230	1,300	1,540	2,290
35+	300	430	1,010	770	1,020	2,010
All high BMI	4,130	4,800	6,900	4,220	4,910	7,160

Totals may not add up due to rounding

83%

Adults with high BMI in 2025

42%

Adults living with obesity in 2025

14.06m

Adults with high BMI in 2030

3,572

Premature NCD deaths due to high BMI, 2021

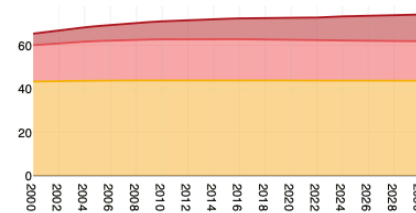


United Arab Emirates

Overweight and obesity prevalence over time

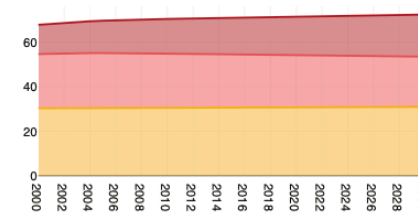
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Adult population living with high BMI estimated in 2010, 2015 and projected to 2030 (in thousands)

BMI (kg/m ²)	Men			Women		
	2010	2015	2030	2010	2015	2030
25-30	1,680	2,050	2,820	480	650	1,010
30-35	720	880	1,170	390	510	730
35+	320	440	790	250	350	620
All high BMI	2,720	3,370	4,790	1,120	1,510	2,360

Totals may not add up due to rounding

73%

Adults with high BMI in 2025

35%

Adults living with obesity in 2025

7.14m

Adults with high BMI in 2030

2,058

Premature NCD deaths due to high BMI, 2021

- “Despite these numbers...the world remains heavier than ever.”

– **IFSO Worldwide Survey 2020–2021: Current Trends for Bariatric and Metabolic Procedures**

Table 1 The number and the type of operations worldwide in 2018, 2020, and 2021

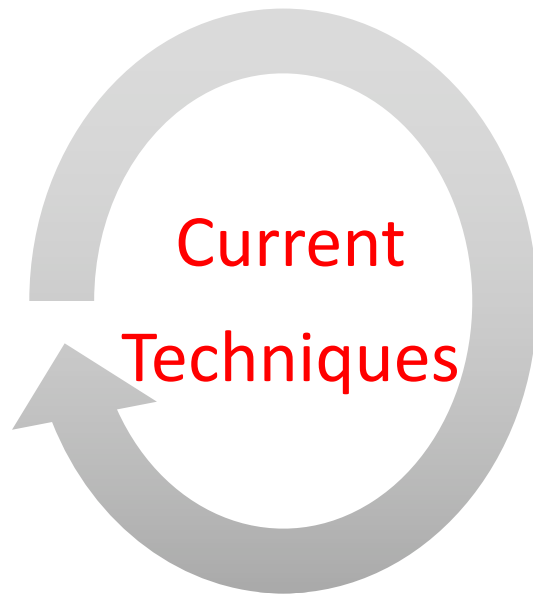
	2018	2020	2021
Sleeve gastrectomy (SG)	386,096	304,352	351,689
Roux-en-Y gastric bypass (RYGB)	203,769	133,007	159,543
One anastomosis gastric bypass (OAGB)	46,406	29,117	46,113
Biliopancreatic diversion (BPD)	6506	6896	7973
Adjustable gastric banding (AGB)	9757	6116	5010
Other surgical operations	14,346	13,949	13,238
Intragastric balloons	27,780	11,492	12,421
Other endoluminal procedures	1531	2877	2707
Total	696,191	507,806	604,099

Table 4 The number and the type of operations performed in the LAC in 2018, 2020, and 2021

	2018	2020	2021
Sleeve gastrectomy (SG)	56,844	39,515	46,067
Roux-en-Y gastric bypass (RYGB)	94,146	36,004	44,177
One anastomosis gastric bypass (OAGB)	4044	857	1898
Biliopancreatic diversion (BPD)	1138	1436	1795
Adjustable gastric banding (AGB)	578	83	707
Other surgical operations	810	618	4439
Intragastric balloons	13,034	3778	4436
Other endoluminal procedures	555	232	720
Total	171,149	82,523	104,239

Worldwide

LATAM



- Established
 - LSG
 - RYGB - Mason 1960
 - DS
 - SADI-s — Sanchez Pernaute 2007
 - OAGB — Rutledge/Carbajo 1997
- Emergent
 - SASI
 - TB
 - (MAGNETS)??

Guerron AD et al Endocrino Metab Clinic N Am 2021

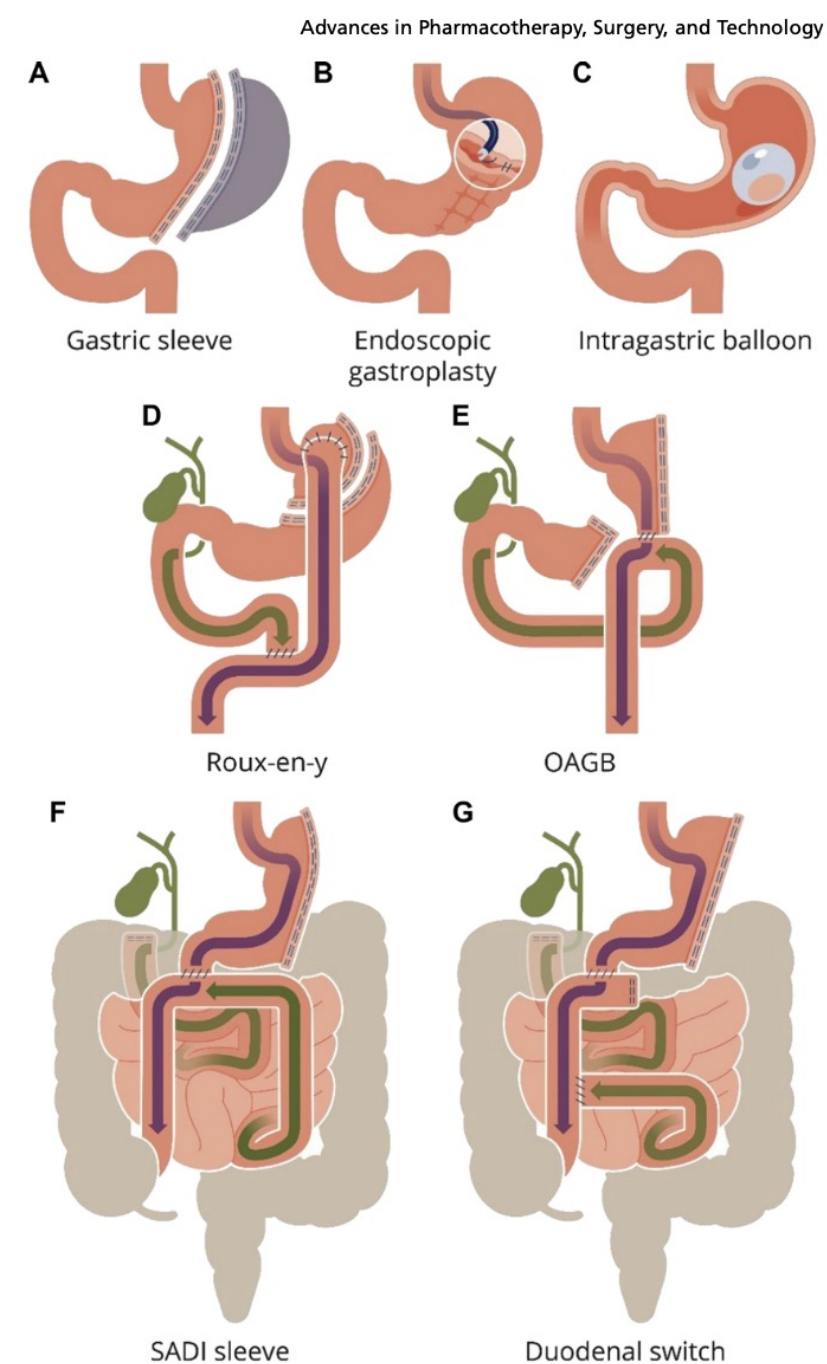
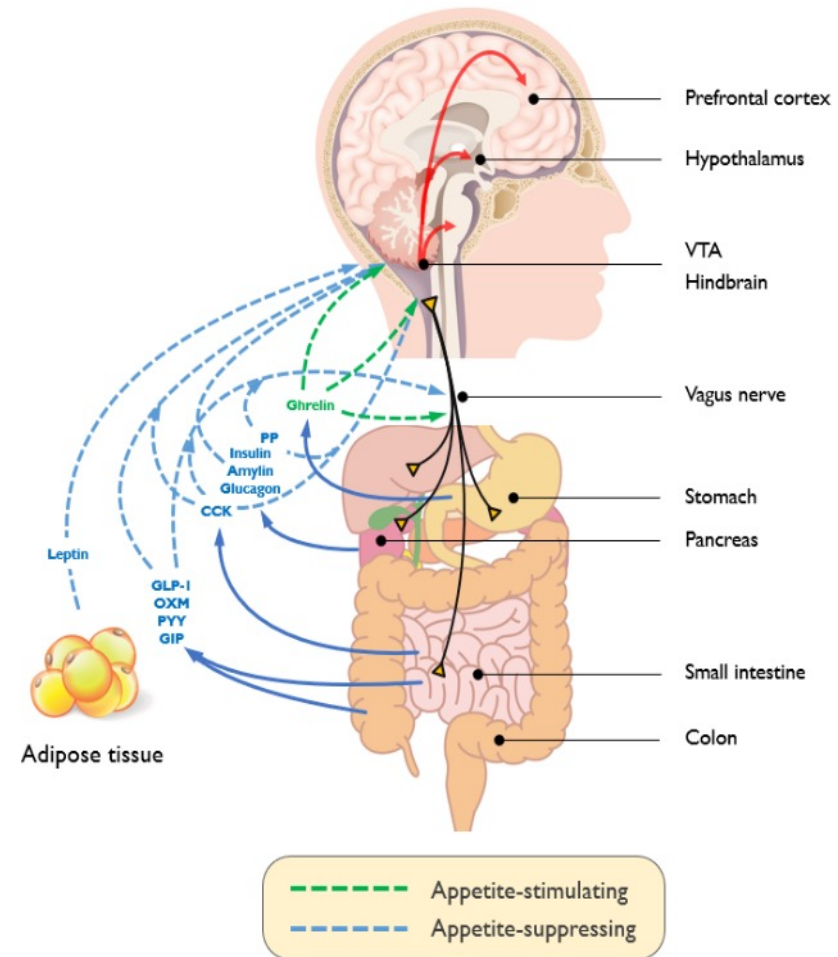


Fig. 2. Metabolic surgery techniques. (A) SG: a purely restrictive procedure that has gained popularity due to its technical simplicity and low incidence of complications.⁸⁶ (B)

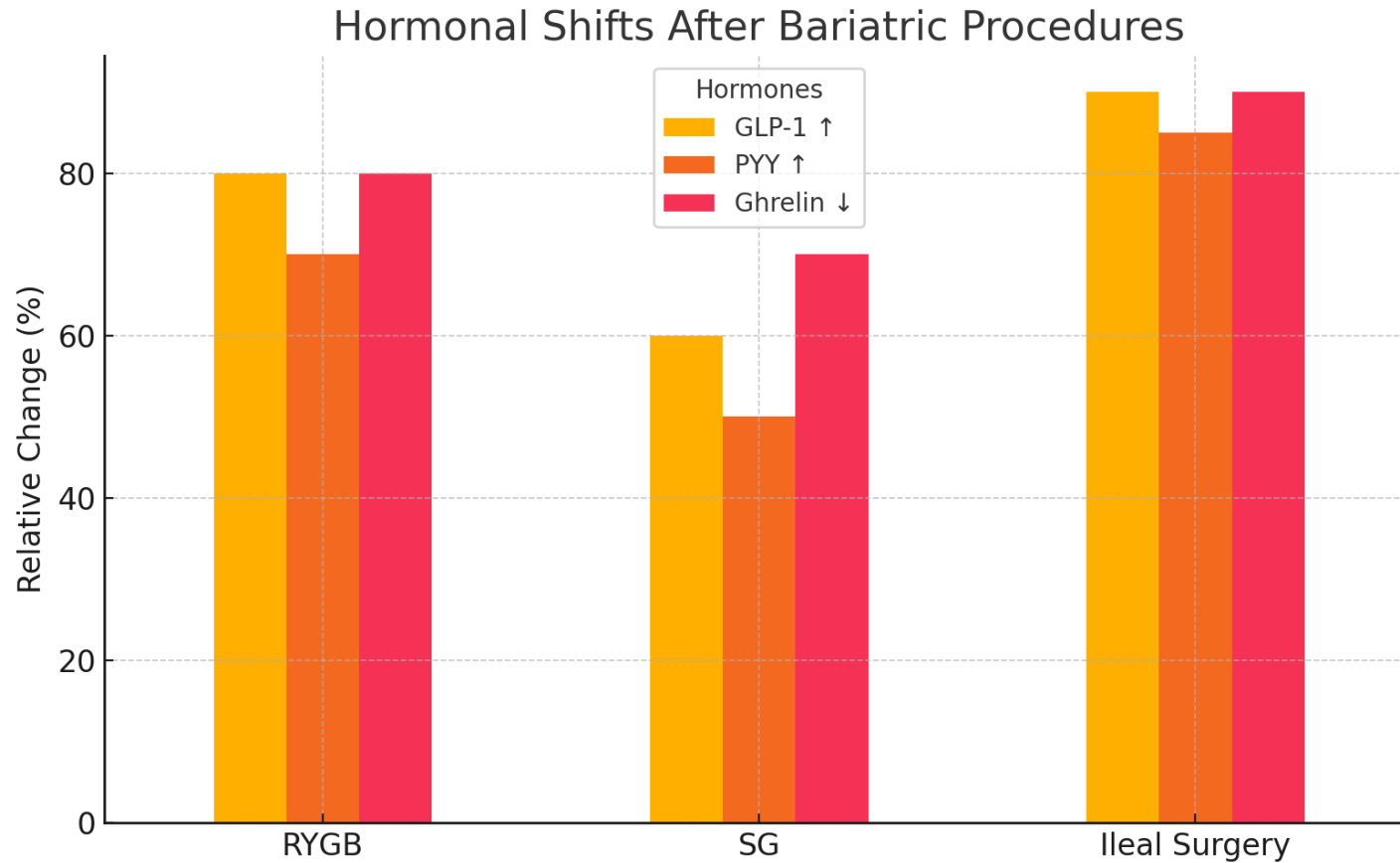
Obesity is not what we thought it was!

- Anorexogenic pathway
- Orexigenic pathway
- Amylin, insulin, glucagon- From the pancreas.
- GIP, GLP-1, PYY, Oxyntomodulin- From the **small intestine**.
- Ghrelin from the **stomach**.
- Leptin, secreted from fat cell, level is proportional white **adipose tissue** mass.



Adapted from Mendieta-Zerón, López, Diéguez (2008)

From Restriction to Endocrine Reprogramming



Future Trends: 2025–2035

Hybrid
hormonal
surgeries

AI
phenotype
profiling

Endoluminal
devices

Adolescent
early
interventions



Vision for the Future

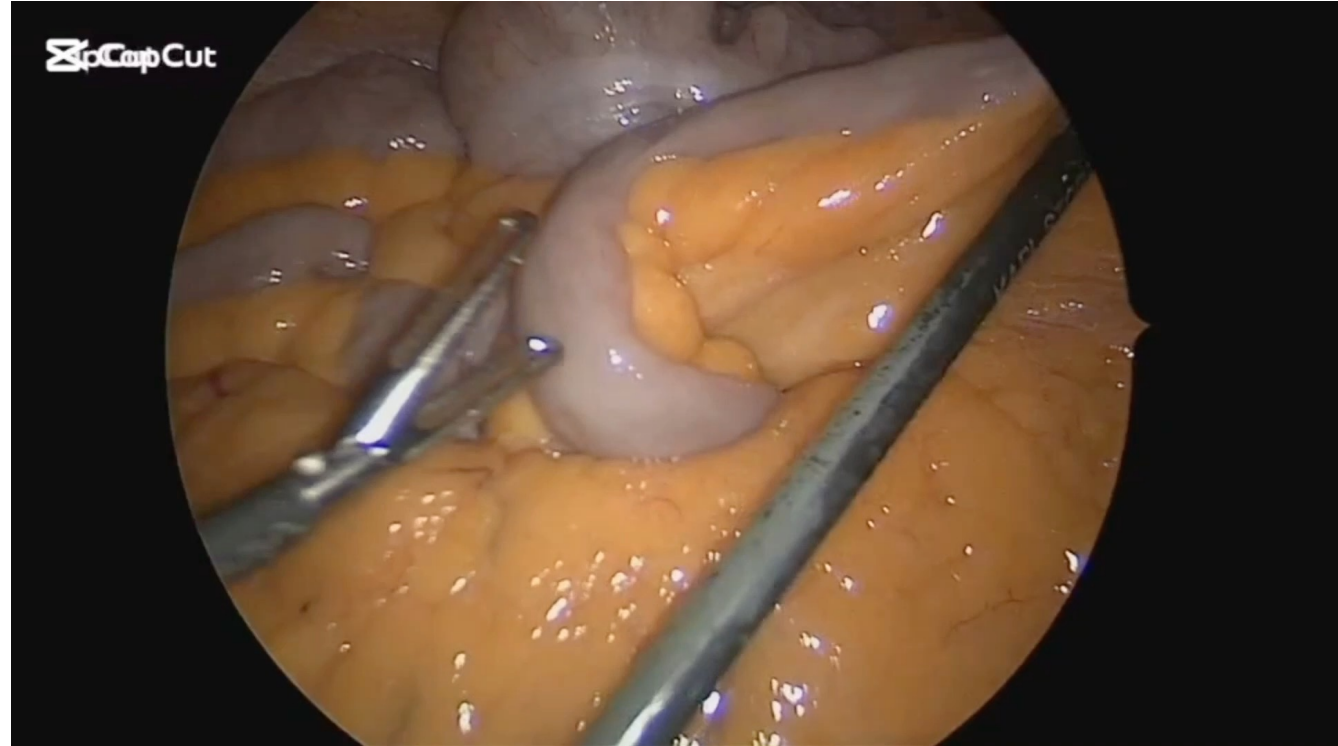
- “The future of bariatric surgery is not about manipulating the GI anatomy. It’s about making the patient’s **metabolic future bigger.**”



The Next Era in Bariatric Surgery:

1. Targeted hormonal interventions

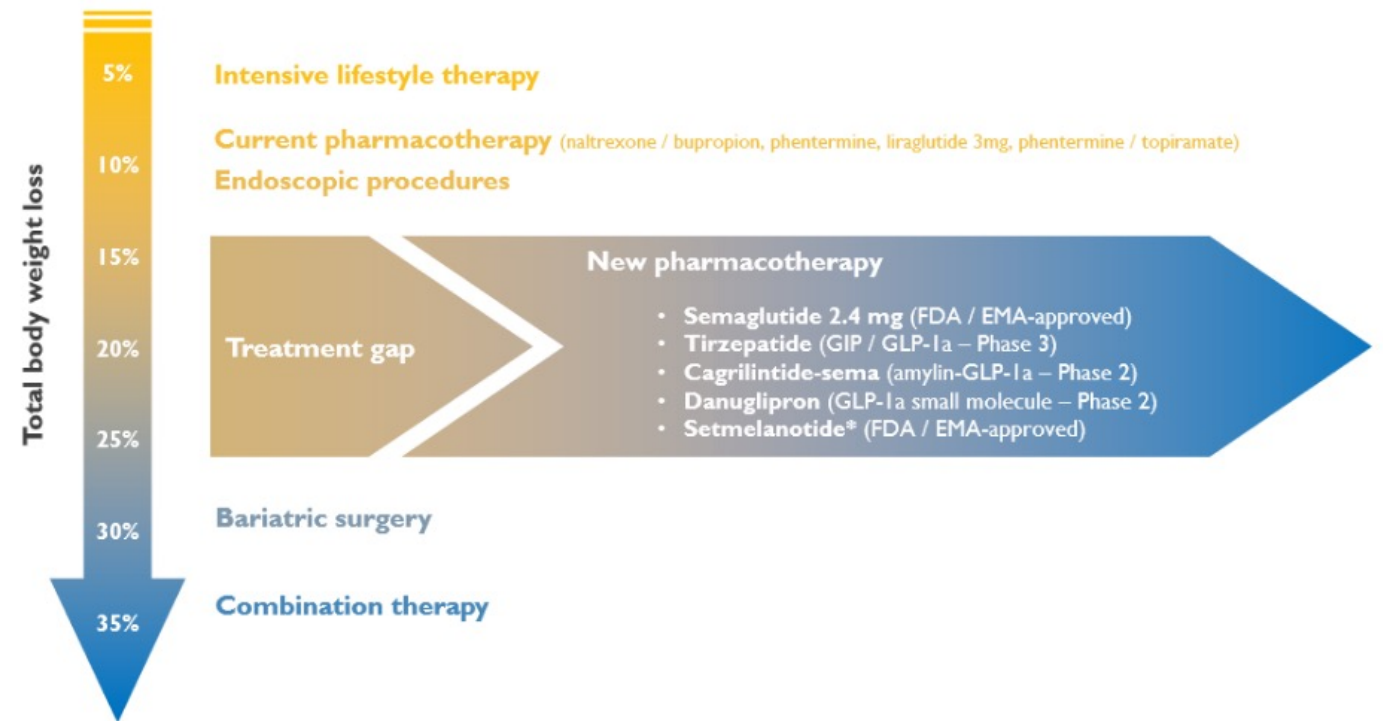
- **Surgical techniques will continue moving distally**, aiming to trigger early ileal stimulation and enhance PYY, GLP-1, FGF19, and GIP antagonism.
- New procedures like ileal interposition, duodenal diversion without gastric manipulation, and loop hybrids



The Next Era in Bariatric Surgery:

2. Surgery–drug synergy

- GLP-1 analogs (semaglutide, tirzepatide) are no competition—they're allies.
- We will **combine minimally invasive procedures with incretin-based therapies**, tailoring them to patient phenotype and metabolic fingerprint.



Medications in the pipeline

- **Bimagrumab** - A human monoclonal antibody that preferentially improves body composition via muscle mass gain (+ 6.5%) as well as providing weight loss (- 21%).
- **Cagrisema** - A combination of an amylin analogue and semaglutide, 17.1% Vs 9.5% in 20 wks.
- **Retatrutide** - Triple-hormone receptor agonist, 24.2% Vs 2.1% in 48 wks.
- **Oral Semaglutide (50mg)** – Oasis trial, 17% vs 1.8% in 68 wks
- **Orforglipron** – Oral GLP1 RA, 14.7% Vs 2.3% in 36 wks.

The Next Era in Bariatric Surgery:

3. Endoluminal and robotic precision

- **Devices** like EndoBarrier, duodenal mucosal resurfacing, and intraluminal liners will re-emerge stronger—with better design, longer durability, and personalized indications.
- **Democratization of Robotic platforms**
- **Magnetic assisted surgery**



Robotics in Gastrointestinal Endoscopy

by Sang-Hyun Kim ✉, Hyuk-Soon Choi * ✉, Bora Keum ✉ and Hoon-Jai Chun ✉

Figure 3. Flex Robotic System (Medrobotics, Raynham, MA, USA) [18]. (a) The robot's flexible distal end including two working channels with a needle-knife and grasper. (b) Performing ESD with the robotic system using three-dimensional high-definition visualization. A—Console with the physician controller. B—3-Dimensional high-definition monitor. C—Base and drive of the robot. D—Instrument support assembly.

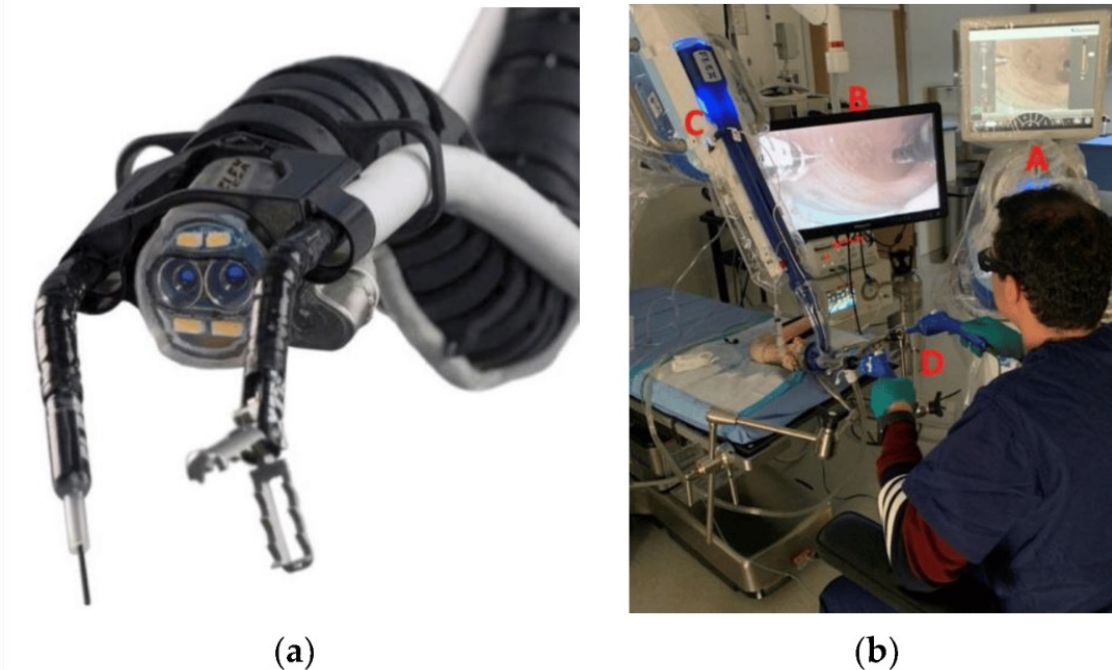
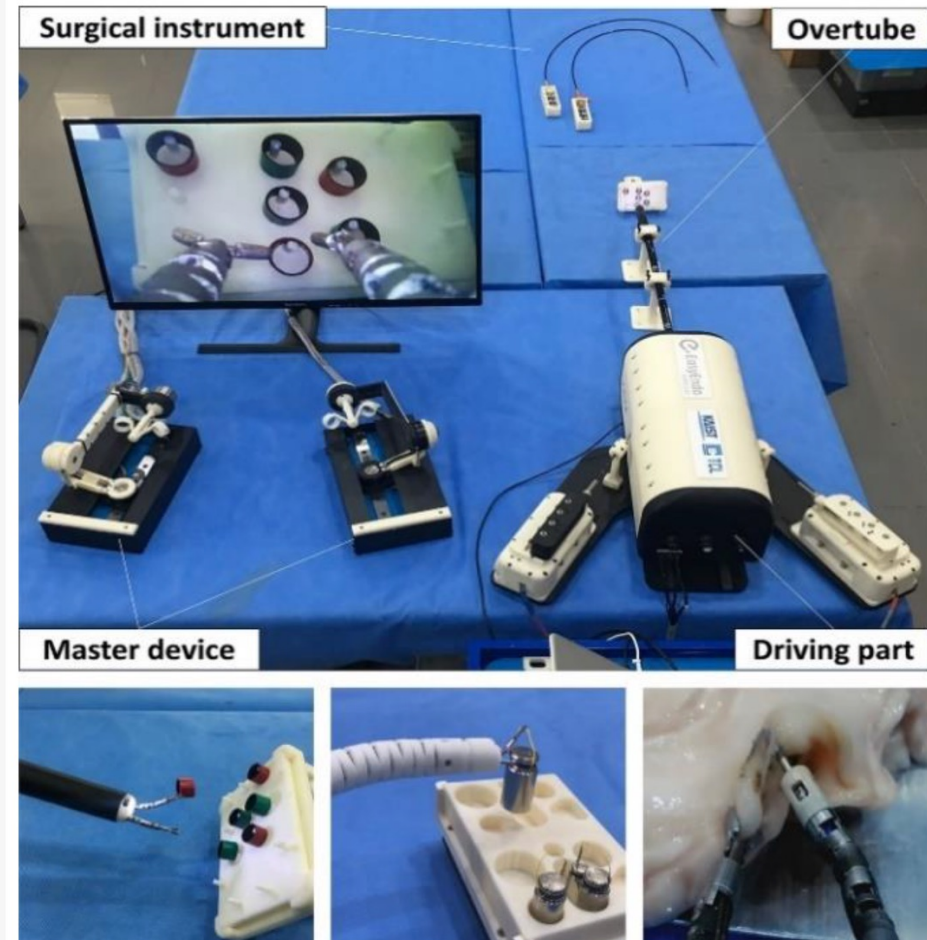


Figure 4. K-FLEX (EasyEndo Surgical, Daejeon, Korea). The K-FLEX system is composed of two surgical instruments, overtube, driving robot arm, and a master console [20].



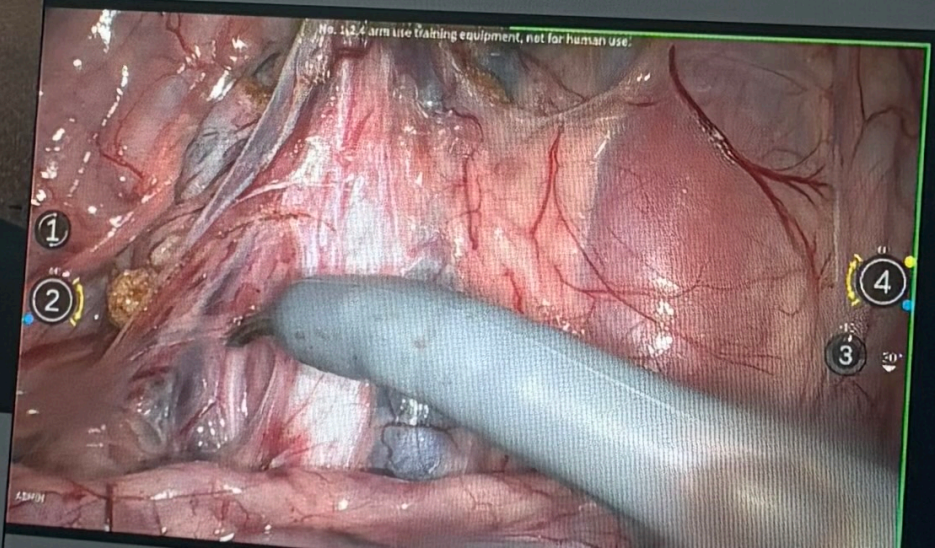


TELESURGERY TELEPROCTORING



1280x720

上海微创机器人动物实验室



> [Obes Surg](#). 2019 Mar;29(3):1068-1073. doi: 10.1007/s11695-018-03655-w.

Magnetic Liver Retraction: an Incision-Less Approach for Less Invasive Bariatric Surgery

[Matthew Davis](#)¹, [Gerardo Davalos](#)¹, [Camila Ortega](#)¹, [Sugong Chen](#)¹, [Scott Schimpke](#)¹, [Kunoor Jain-Spangler](#)¹, [Jin Yoo](#)¹, [Keri Seymour](#)¹, [Ranjan Sudan](#)¹, [Dana Portenier](#)¹, [Alfredo D Guerron](#)²

Affiliations + expand

PMID: 30604079 DOI: [10.1007/s11695-018-03655-w](#)

> [J Laparoendosc Adv Surg Tech A](#). 2021 Feb;31(2):194-202. doi: 10.1089/lap.2020.0388. Epub 2020 Jul 14.

Magnetic Liver Retraction Decreases Postoperative Pain and Length of Stay in Bariatric Surgery Compared to Nathanson Device

[Leonard K Welsh](#)¹, [Gerardo Davalos](#)¹, [Ramon Diaz](#)¹, [Andres Narvaez](#)¹, [Juan Esteban Perez](#)¹, [Melissa Castro](#)¹, [Maragatha Kuchibhatla](#)², [Thomas Risoli](#)², [Dana Portenier](#)¹, [Alfredo D Guerron](#)¹

Affiliations + expand

PMID: 32678701 PMCID: [PMC7885817](#) DOI: [10.1089/lap.2020.0388](#)

[Clinical Trial](#) > [Surg Obes Relat Dis](#). 2021 Jan;17(1):147-152. doi: 10.1016/j.soard.2020.08.017.

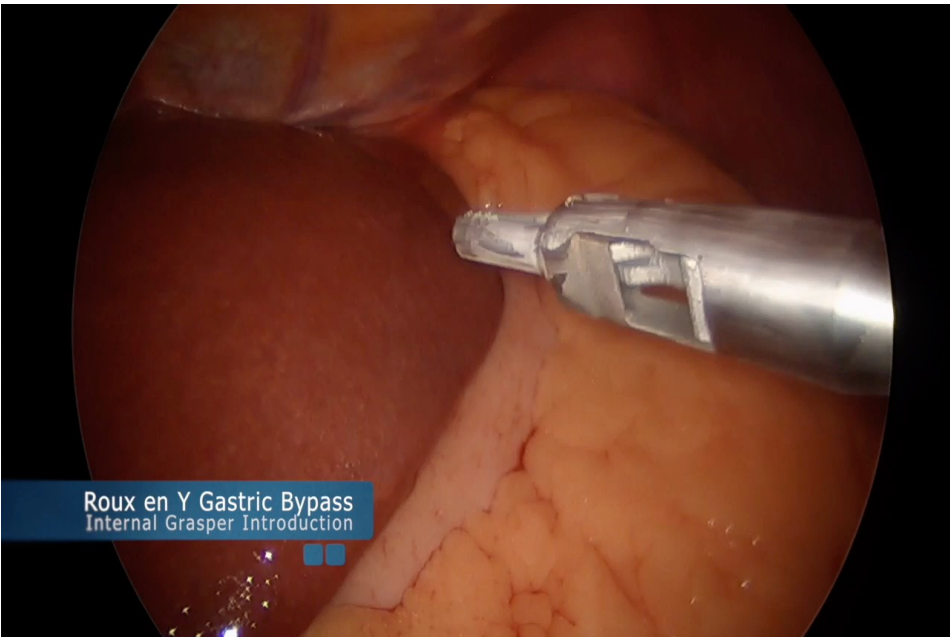
Epub 2020 Aug 26.

First prospective clinical trial of reduced incision bariatric procedures using magnetic liver retraction

[Rafael Luengas](#)¹, [Jose Galindo](#)¹, [Melissa Castro](#)², [Andres Marambio](#)³, [Guillermo Watkins](#)⁴, [Mario Rodriguez Del Rey](#)³, [Cristobal Davanzo](#)³, [Dana Portenier](#)², [Alfredo D Guerron](#)⁵

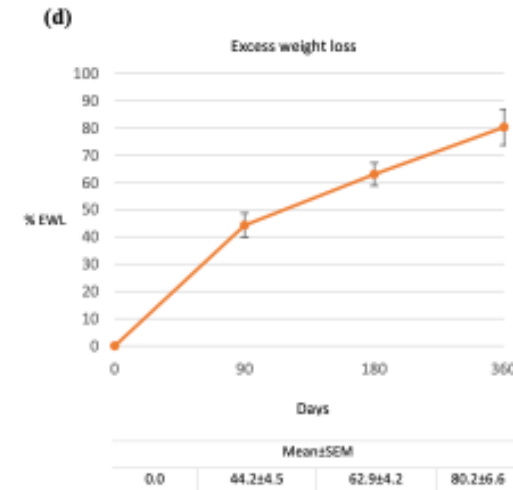
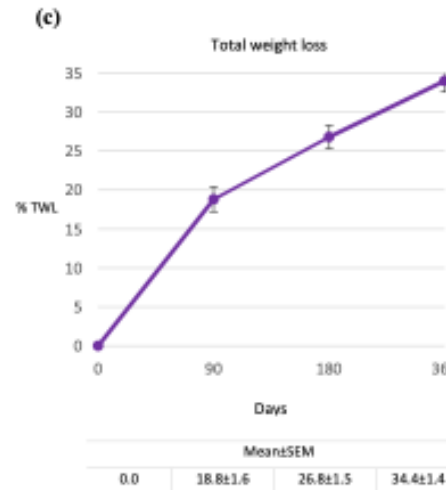
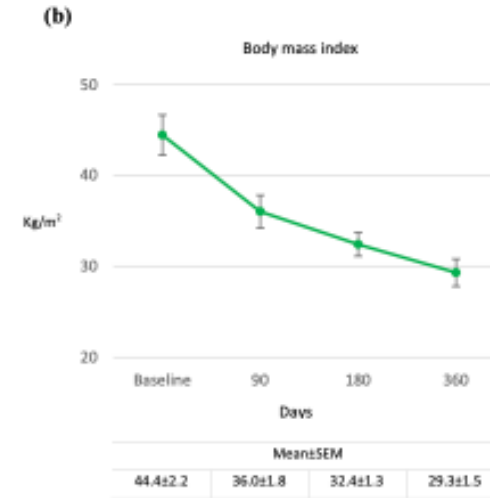
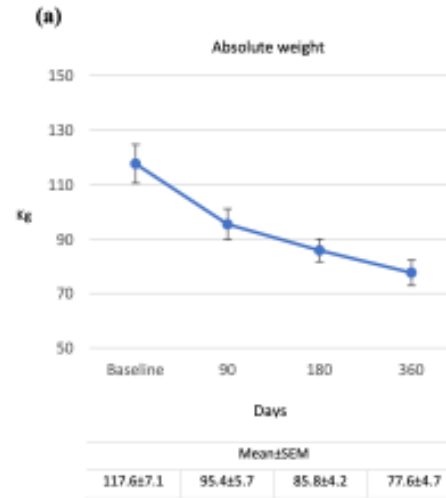
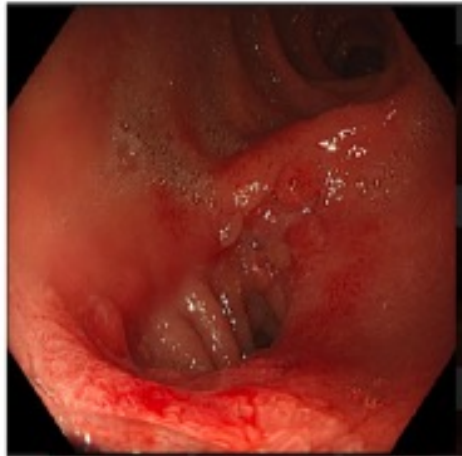
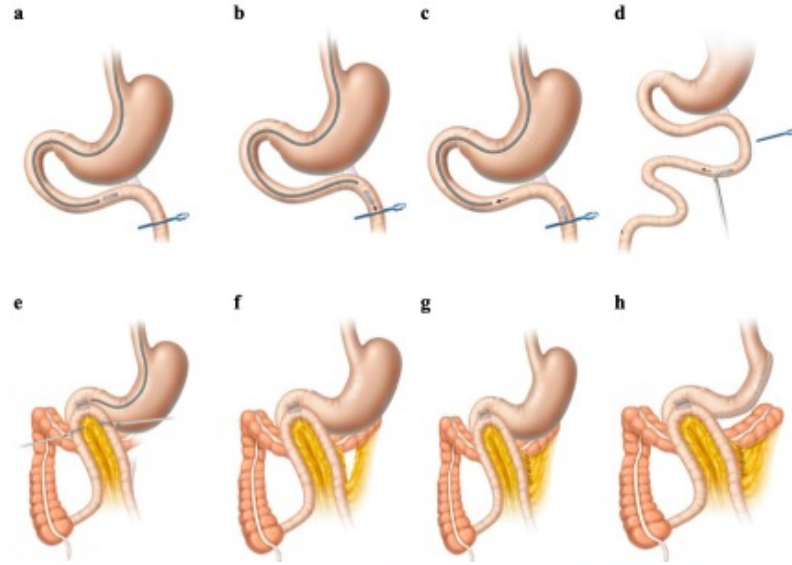
Affiliations + expand

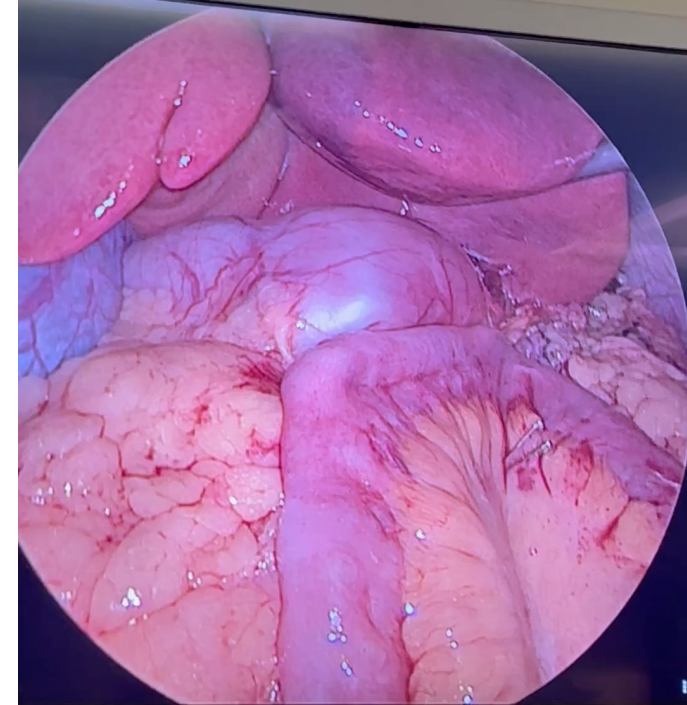
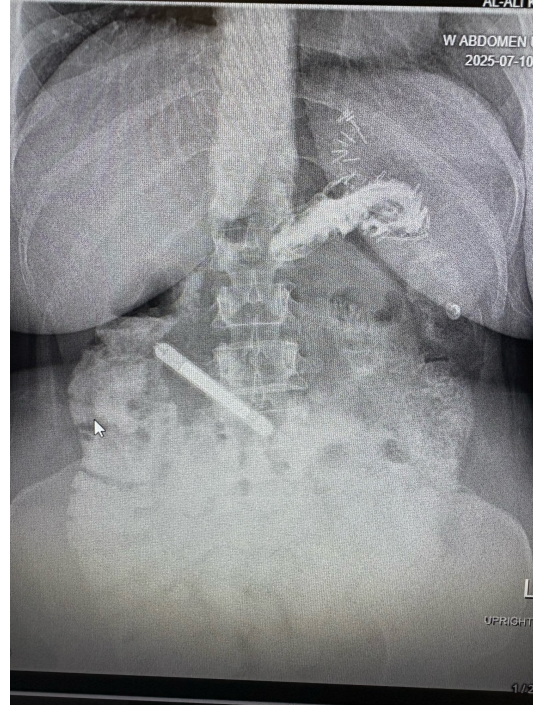
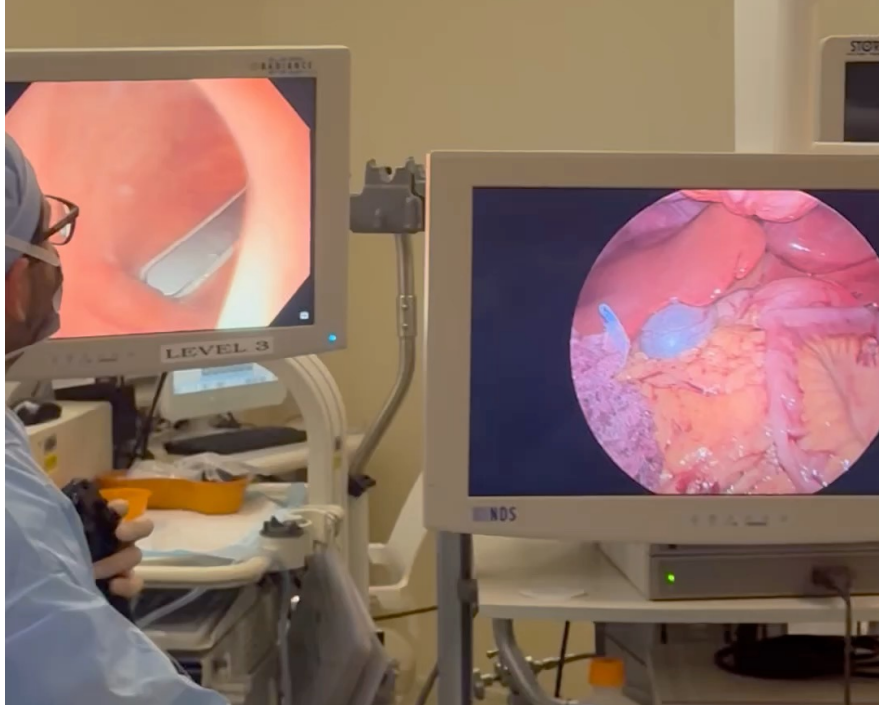
PMID: 33011073 DOI: [10.1016/j.soard.2020.08.017](#)

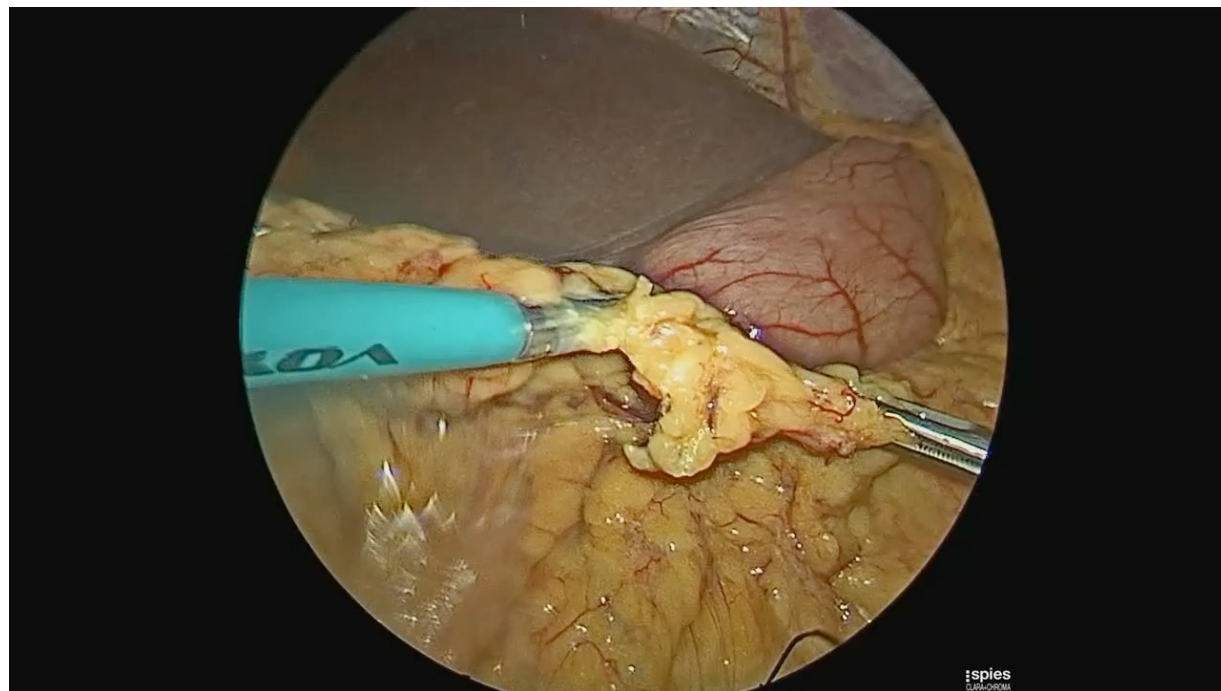


First-in-Human Side-to-Side Magnetic Compression Duodeno-ileostomy with the Magnet Anastomosis System

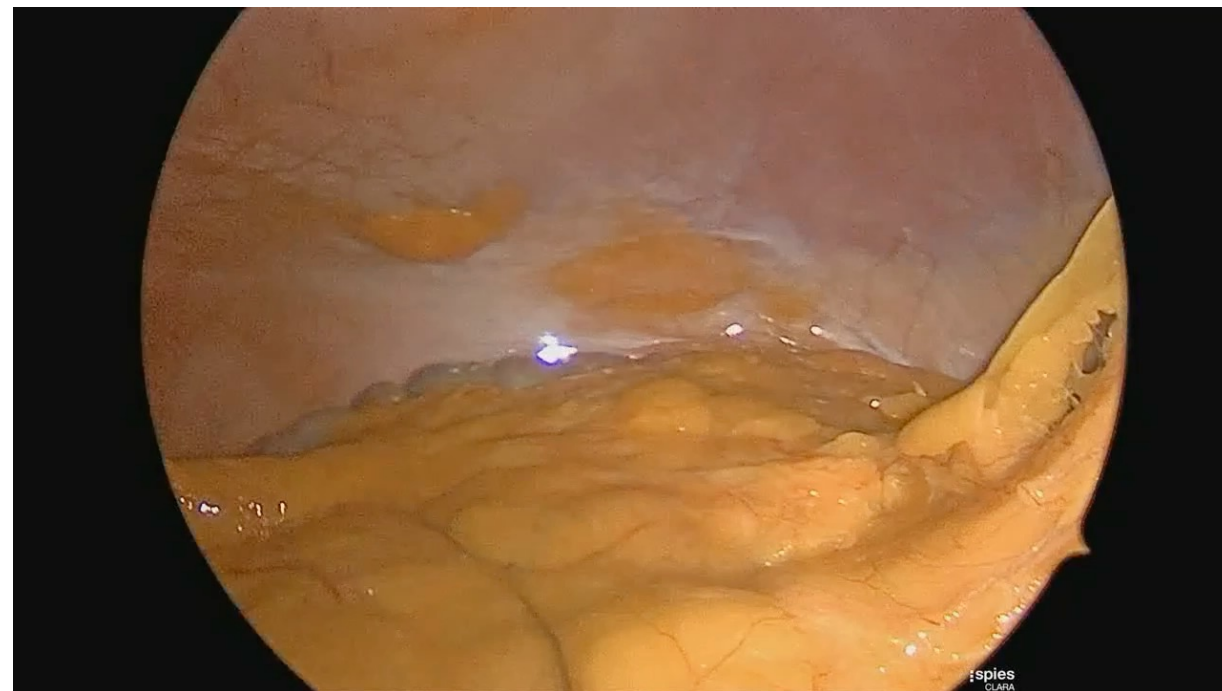
Michel Gagner¹  · David Abuladze² · Levan Koiava² · J. N. Buchwald³ · Nathalie Van Sante⁴ · Todd Krinke⁵





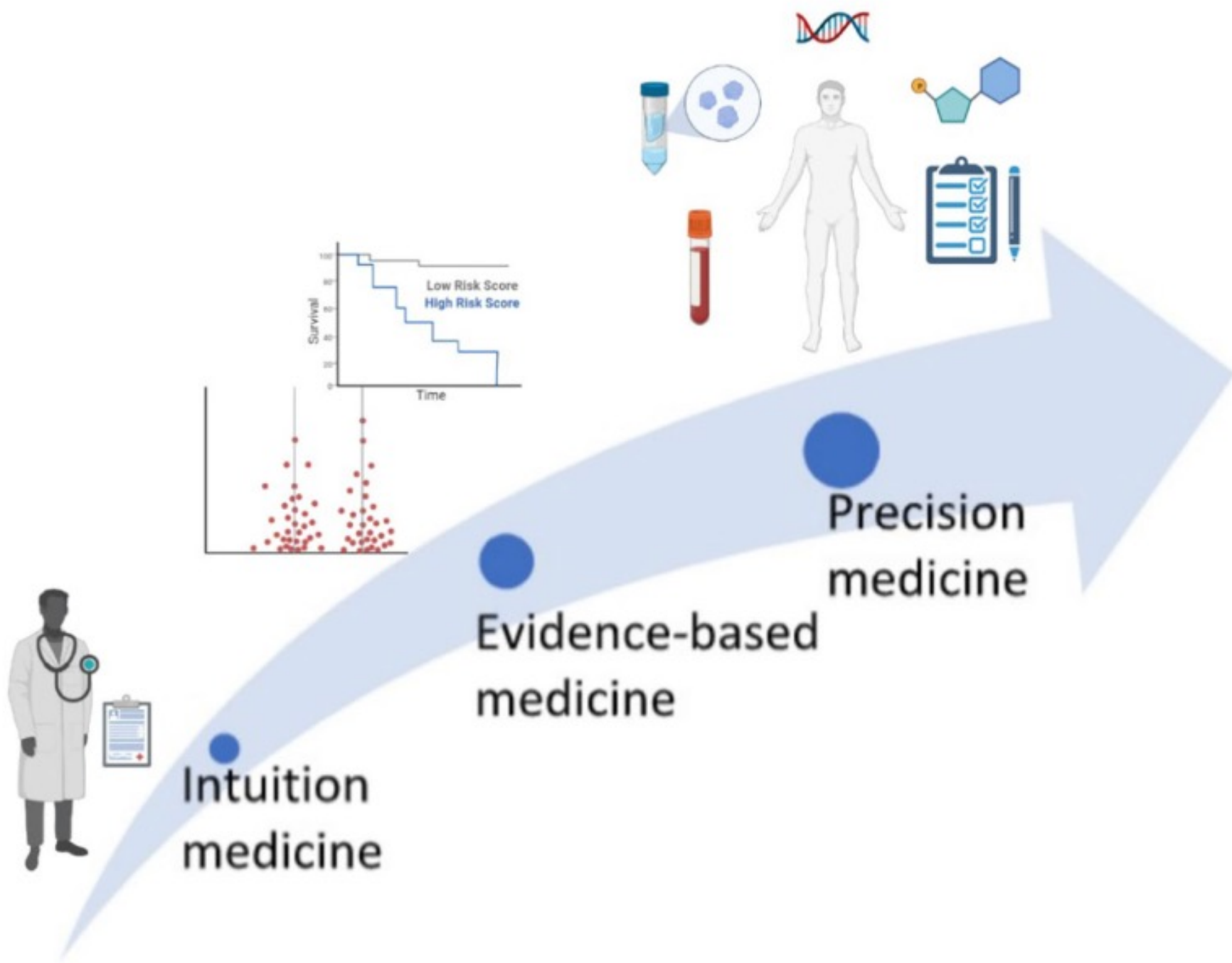


Gastro-ileal
(SASI)



Duodeno-ileal
(SADI)

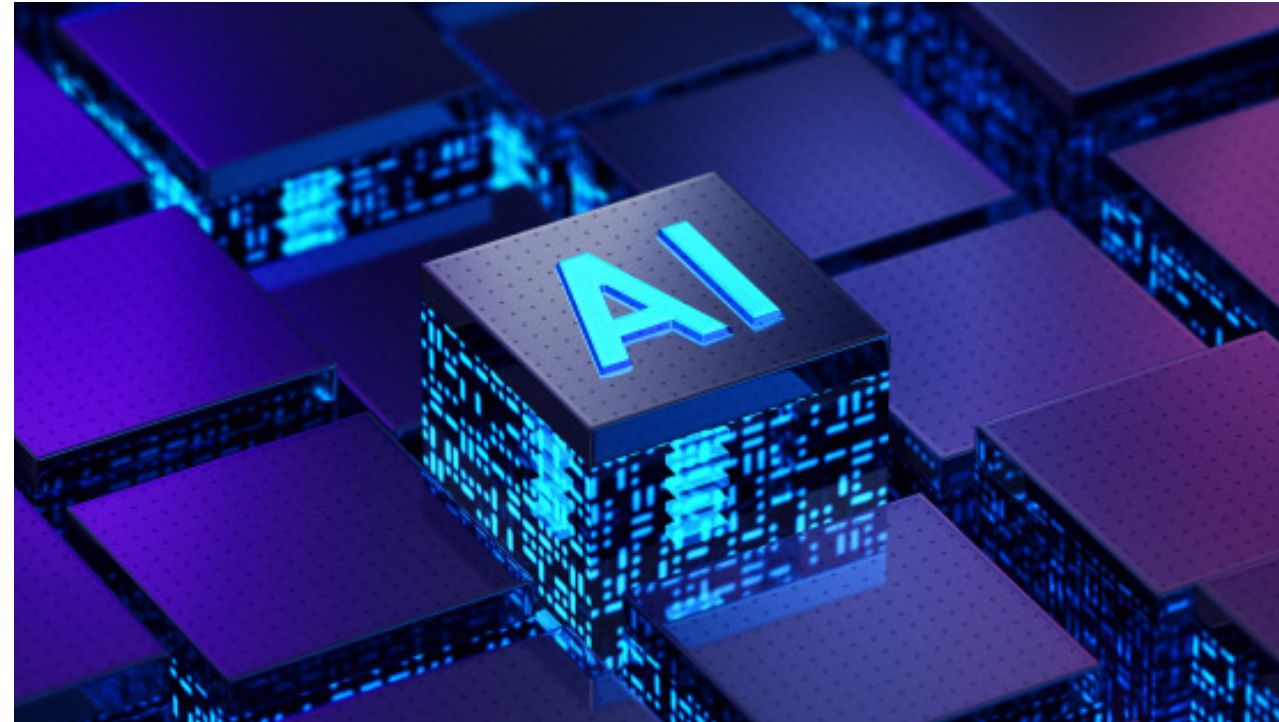




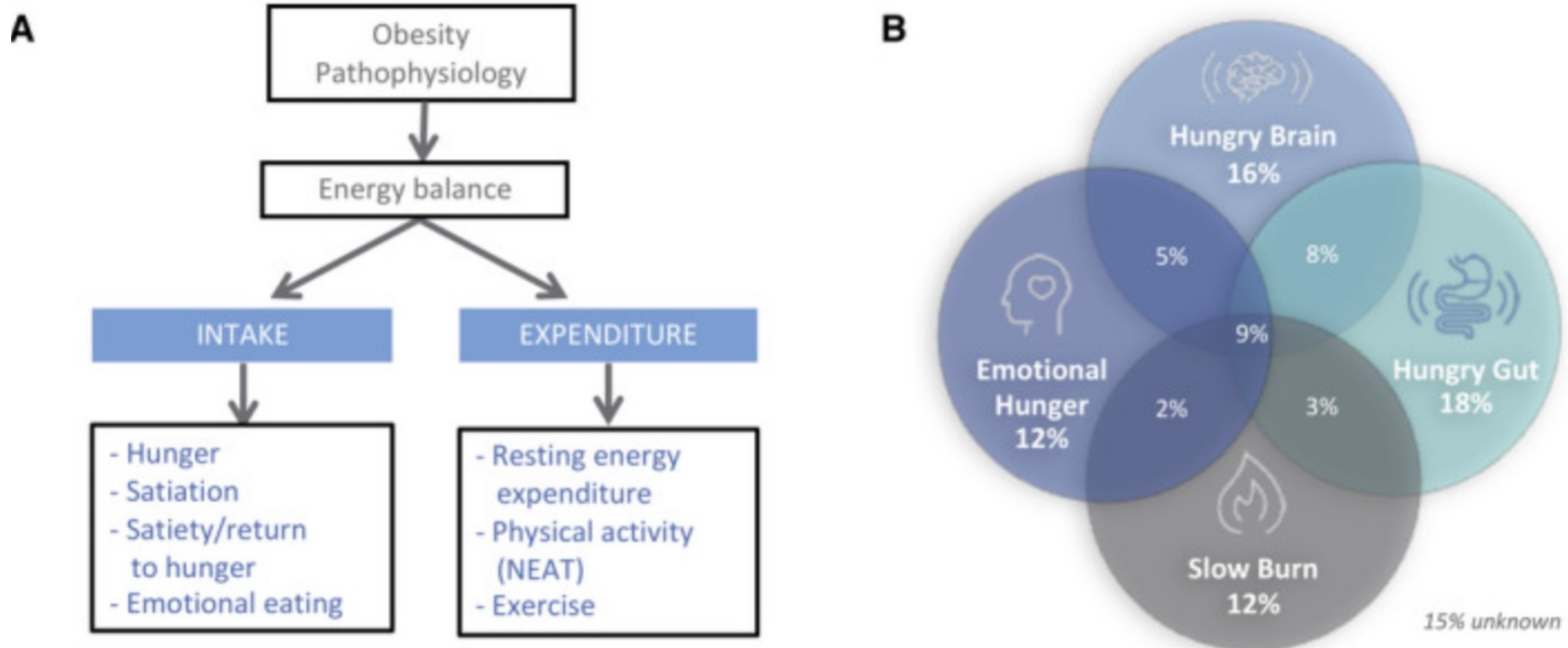
The Next Era in Bariatric Surgery:

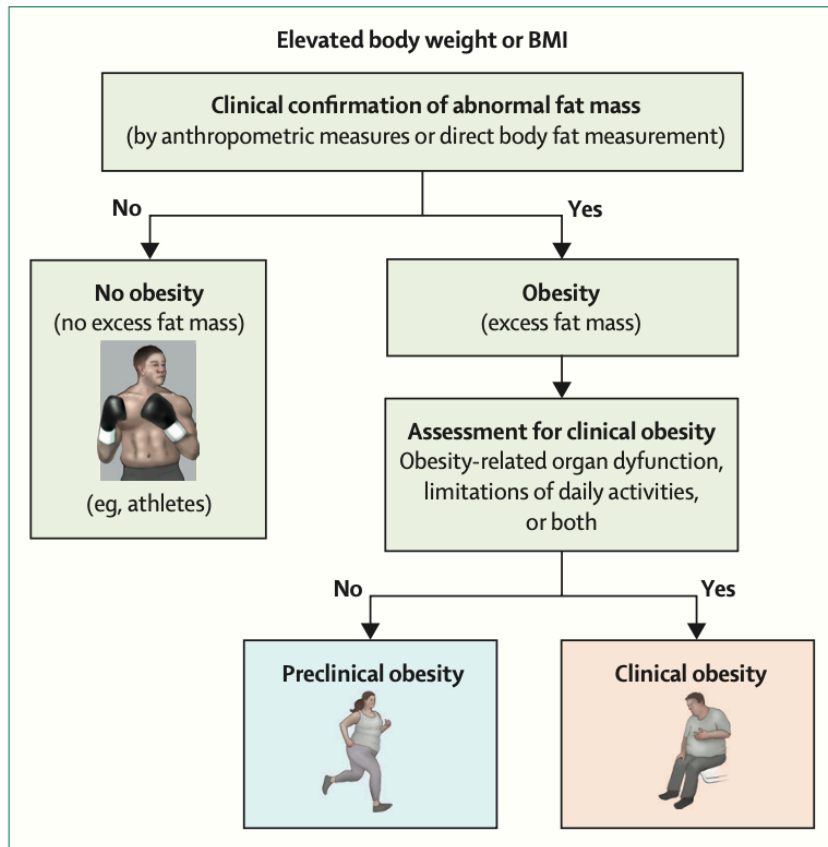
4. Phenotype-driven care

- The term “morbid obesity” will disappear. **We will classify patients not by BMI, but by metabolic subtype, visceral adiposity, insulin resistance, and hepatic phenotype.**
- AI-driven decision support systems will guide procedure selection, not surgeon preference.



Precision Medicine





The diagnostic model of clinical obesity includes an anthropometric component (to confirm excess adiposity or obesity status) and a clinical component to verify presence (clinical obesity) or absence (preclinical obesity) of clinical manifestations of organ dysfunction or limitations of an individual's ability to conduct daily activities.

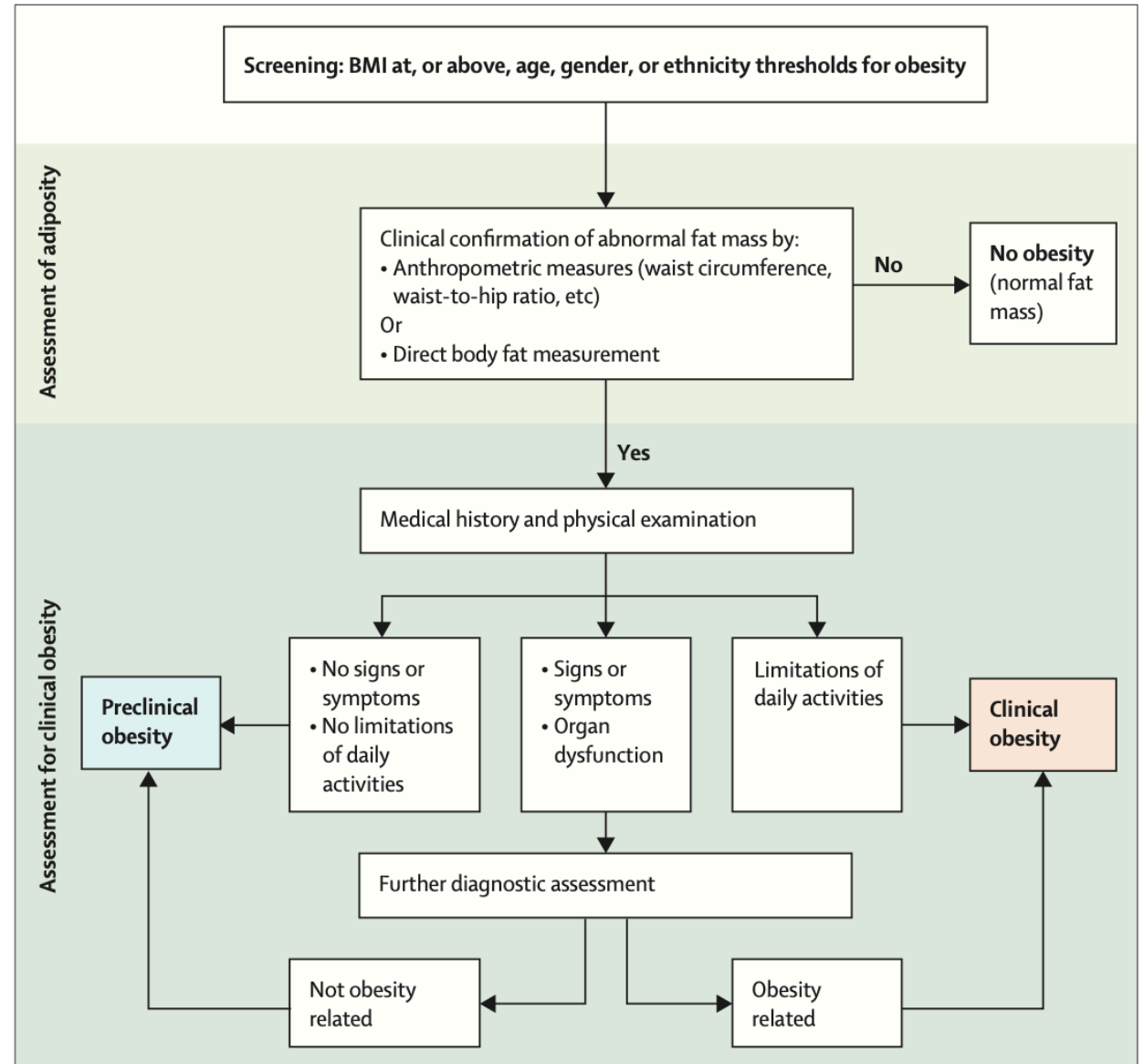


Figure 8: Clinical assessment of obesity

Rubino F et al Lancet 2025
Cohen R et al BJS 2025
Rubino F et al Obes Surg 2025

The Future of the Obesity Epidemic



Not a Reversal, but a Rethinking

- 1. **Obesity will be defined as a chronic neuro-hormonal disease**, not a lifestyle failure. This shift will demand policy changes, reimbursement reform, and widespread de-stigmatization.
- 2. Adolescent and **early intervention surgery will expand**. Waiting will no longer be ethical.
- 3. **Weight loss will no longer be the sole metric of success—**remission durability, cardiovascular outcomes, and quality of life will dominate.



Final Thought

-  “The future of bariatric surgery is not about making the stomach smaller—it’s about making the patient’s metabolic future bigger.”
- **Surgery is no longer just a scalpel. It is a metabolic message.** The tools will change—drugs, scopes, AI—but our mission remains the same: to restore health, dignity, and potential to the hundreds of millions living with obesity worldwide.



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