For ESG Value in the Spectrum of Obesity Care

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Disclosures

Consultant: Boston Scientific, Olympus, Intuitive

Co-inventor (Licensed Mayo Technology): Endogenex

Research Support: MERIT Medical

NEW THERAPEUTIC PARADIGM

THE GUT IS A DISEASE-MODIFYING TARGET

Intervening in gut biology can reshape the systemic drivers of metabolic disease—not simply manage downstream consequences.

NUTRIENT SENSING • ENDOCRINE • IMMUNE • NEURAL

LIVER · PANCREAS · ADIPOSE TISSUE · BRAIN

Scalable

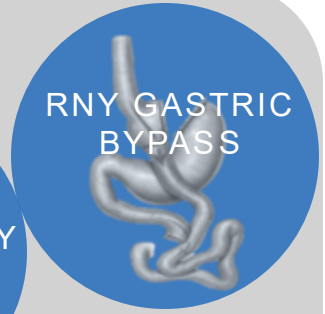
Durable

Value

EFFICACY & DURABILITY

Medications

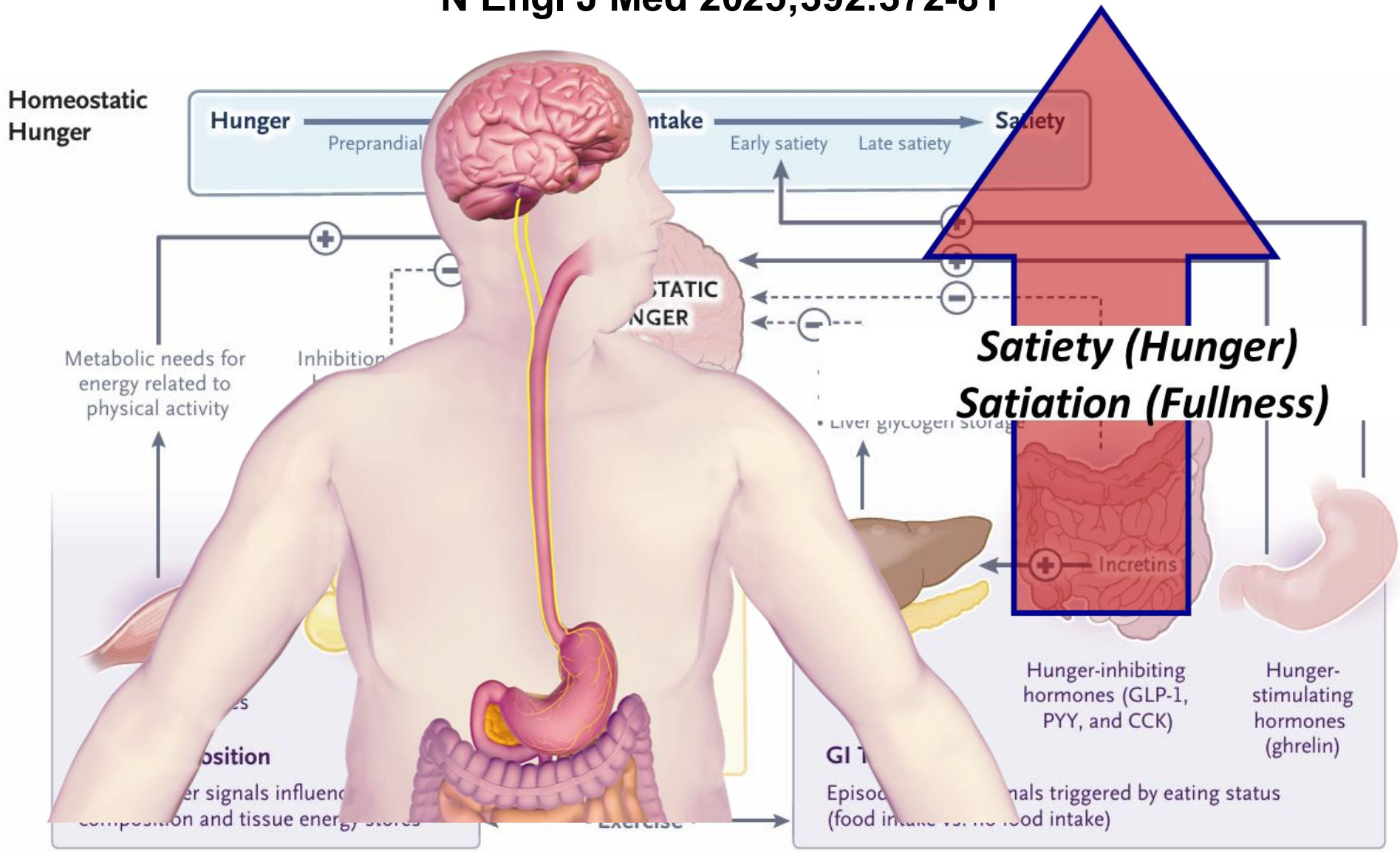
ESG



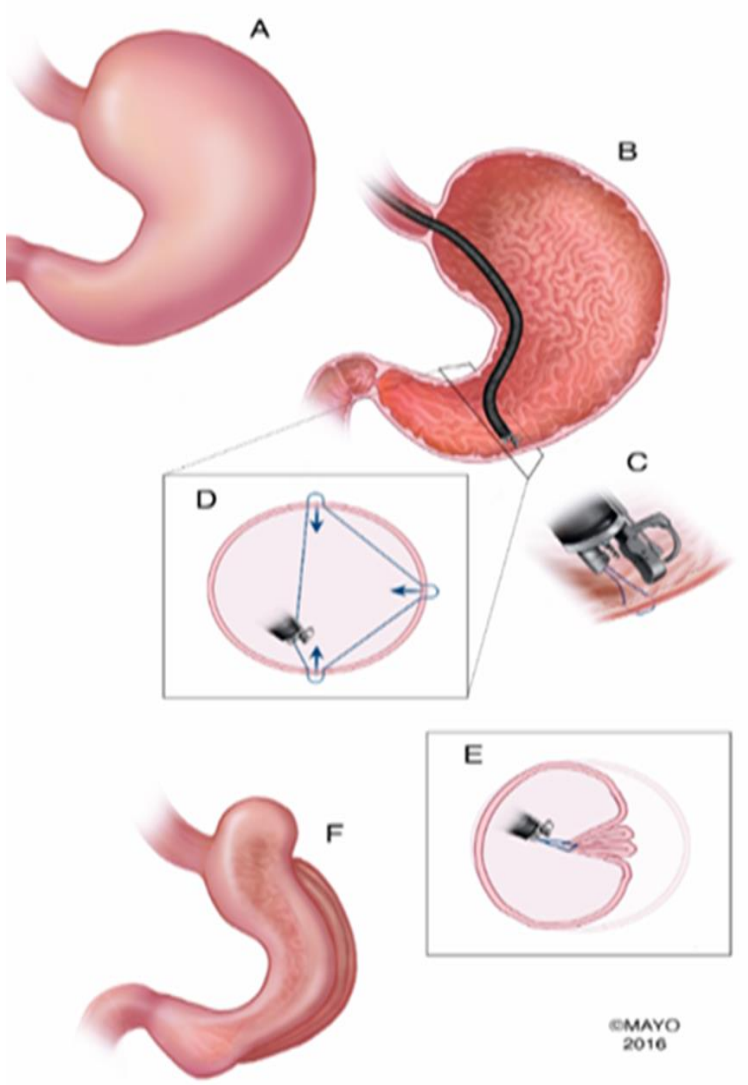
SURGICAL OPTIONS

INVASIVENESS

N Engl J Med 2025;392:372-81

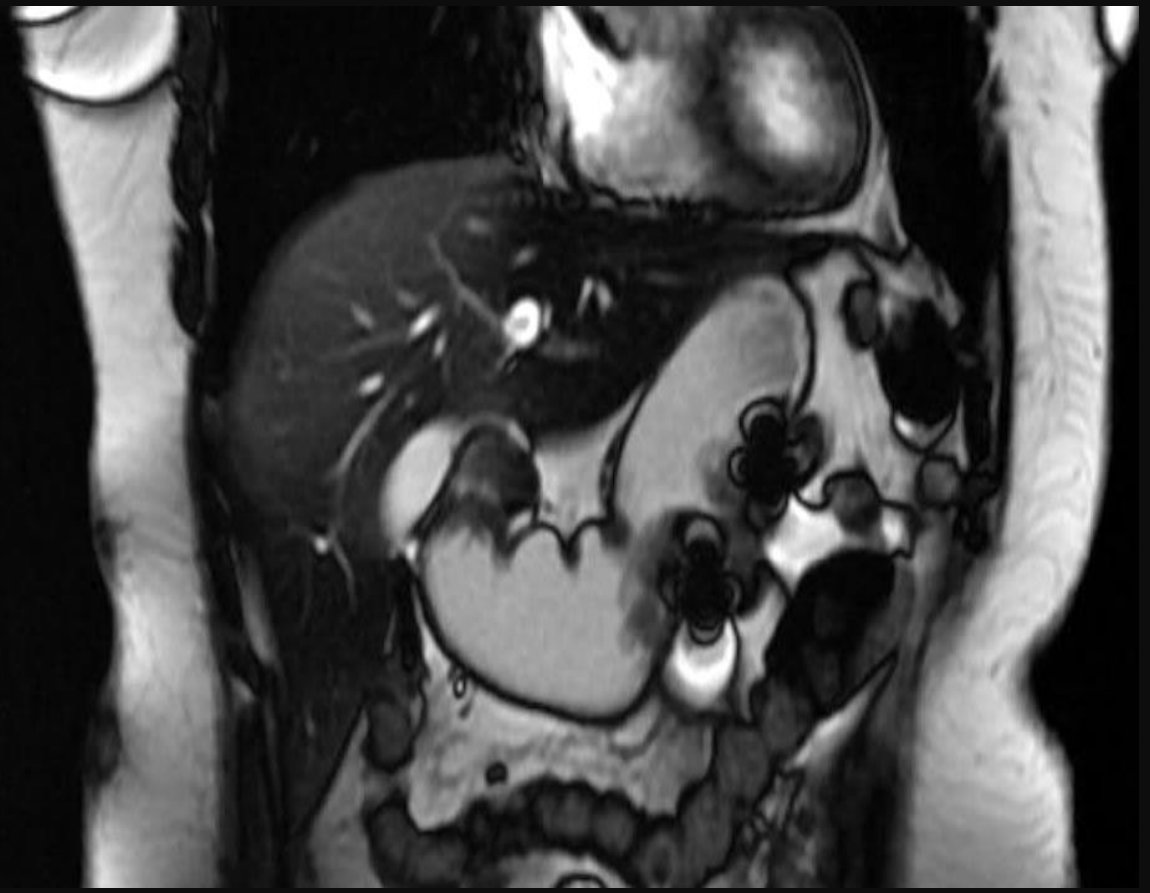


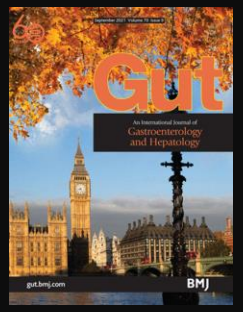
Endoscopic Sleeve Gastroplasty



Abu Dayyeh and Gostout GIE 2013 Sep;78(3):530-5

Abu Dayyeh BK, et al. Clin Gastroenterol Hepatol. 2017 Jan;15(1):37-43





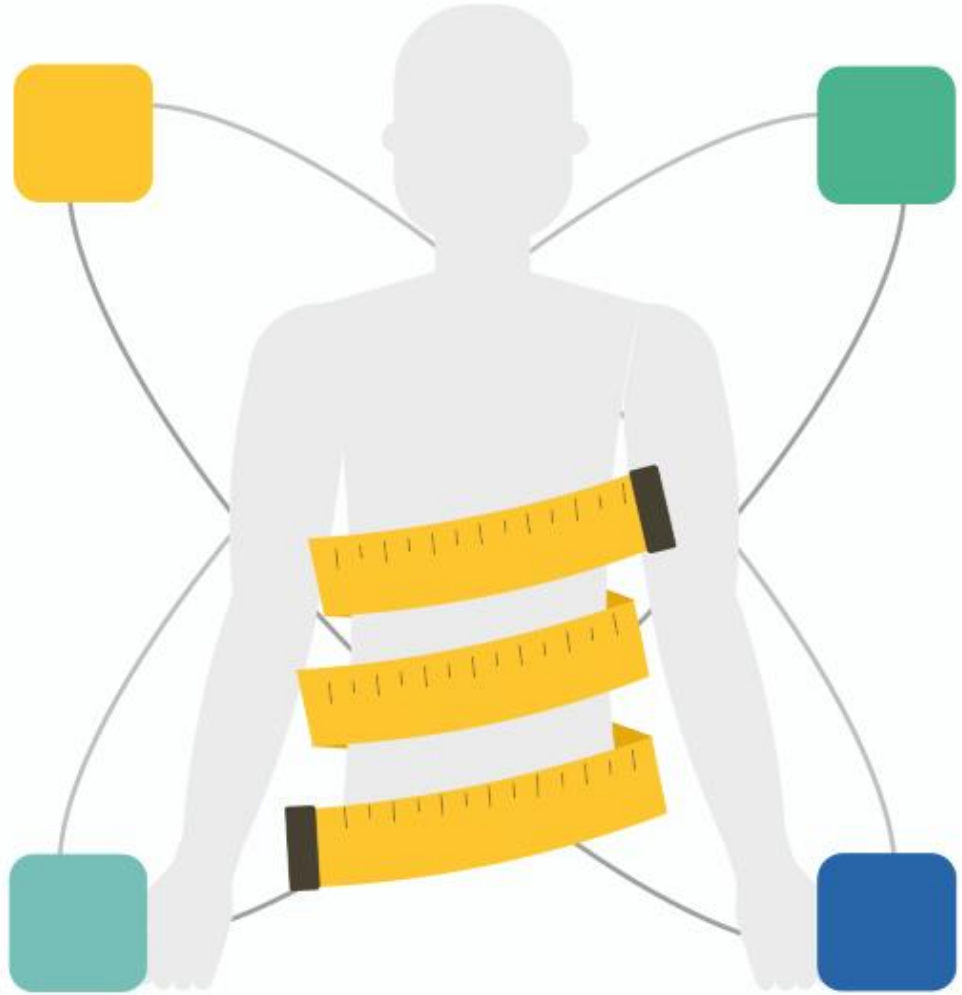
Original research

Effect of endoscopic sleeve gastroplasty on gastric emptying, motility and hormones: a comparative prospective study

Eric J Vargas ,[1] Monika Rizk,[1] Jacky Gomez-Villa,[1] Phillip K Edwards,[2] Veeravich Jaruvongvanich,[1] Andrew C Storm,[1] Andres Acosta ,[1] David Lake,[2] Jeff Fidler,[3] Adil E Bharucha ,[1] Michael Camilleri ,[1] Barham K Abu Dayyeh [1]

Organ Sparing

Safe Effective



No Long-Term Consequences

Minimal Disruption

STATE OF THE EVIDENCE

New Authorizations + Landmark Publication

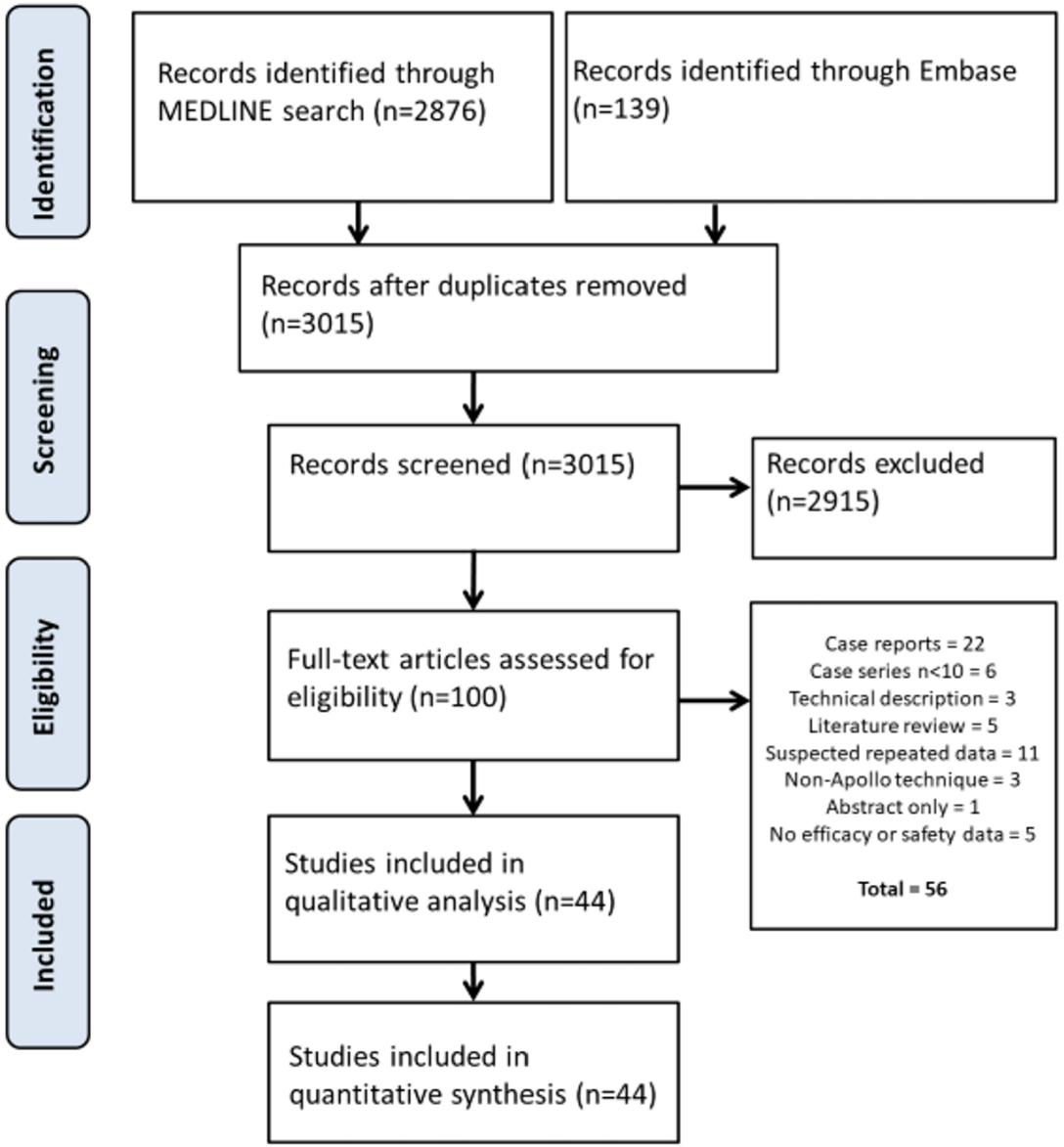
MARKET AUTHORIZATION

The FDA authorized for marketing the Apollo ESG & Revise Systems, the **first FDA-authorized systems for endoscopic sleeve gastroplasty**, a minimally invasive procedure **to facilitate weight loss**. It is intended for adults with obesity **(BMI 30-50 kg/m^2)** who have not been able to lose weight or maintain weight loss through more conservative measures such as diet and exercise.

THE LANCET

Endoscopic sleeve gastroplasty for treatment of class 1 and 2 obesity (MERIT): a prospective, multicentre, randomised trial

Barham K Abu Dayyeh, Fateh Bazerbachi, Eric J Vargas, Reem Z Sharaiha, Christopher C Thompson, Bradley C Thaemert, Andre F Teixeira, Christopher G Chapman, Vivek Kumbhari, Michael B Ujiki, Jeanette Ahrens, Courtney Day, the MERIT Study Group, Manoel Galvao Neto, Natan Zundel, Erik B Wilson



N= 15,714 ESG in Peer-Reviewed Literature

Pooled **SAE** rate of **1.25%**

12 Months: %TBWL: **17.56%** (SE 0.39, 4118 patients)

24 Months: TBWL: **15.2%** (SE 0.93, 2123 patients)

36 Months: %TBWL: **14.07%** (SE 0.39), 922 patients)

EVIDENCE TIMELINE

Evidence base has matured from feasibility to longitudinal outcomes

2013

Concept / feasibility

ESG described as endoscopic alternative to surgical sleeve gastrectomy.

2022

MERIT RCT

Multicenter randomized trial vs lifestyle: 13.6% TBWL at 52 weeks; 104-week maintenance signal.

2023

Meta-analysis

35 studies / 7,525 patients: 15.4% pooled TBWL over 2-5 years.

2024

IFSO review

44 articles / 15,714 ESG patients: endorsed ESG in obesity management.

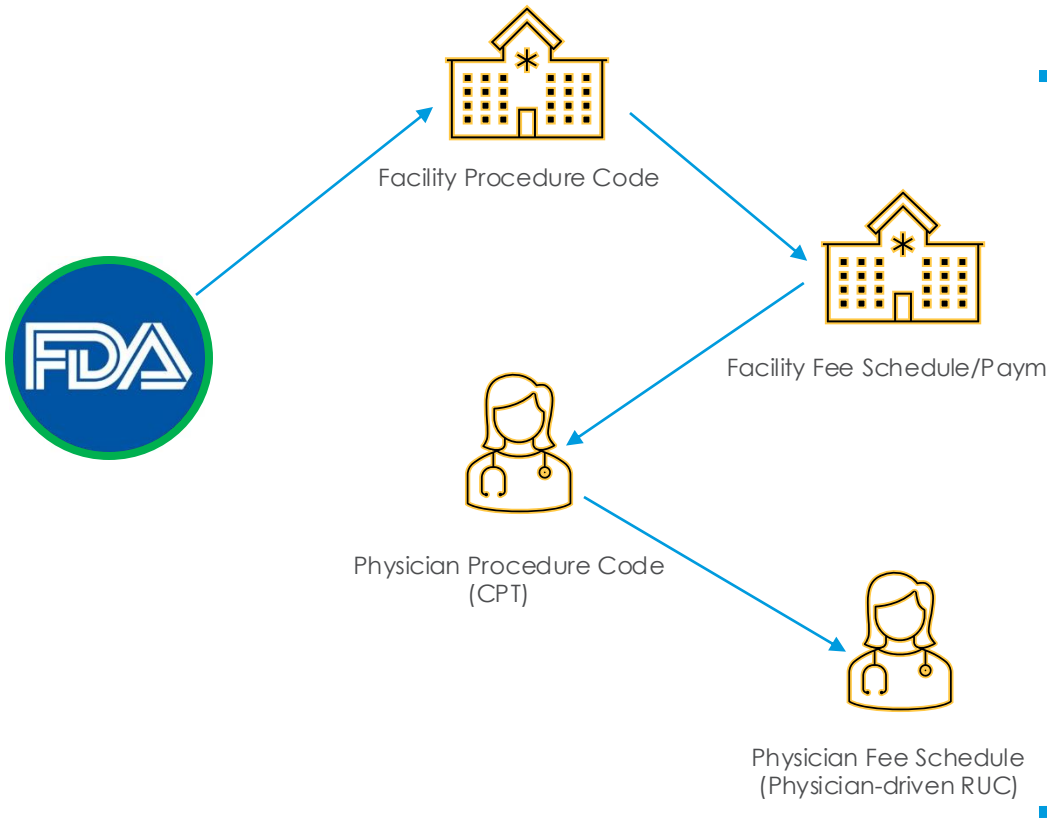
2026

6-year cohort

1,377 patients: 14.4% TBWL at 6 years; low revision/mortality signal.

Sources: IFSO 2024 (PMID: 39482444); The LANCET MERIT 2022 (PMID: 35908555) ; Fehervari 2023 (PMID10602997) ; Neto 2026 (PMID41703242)

REIMBURSEMENT



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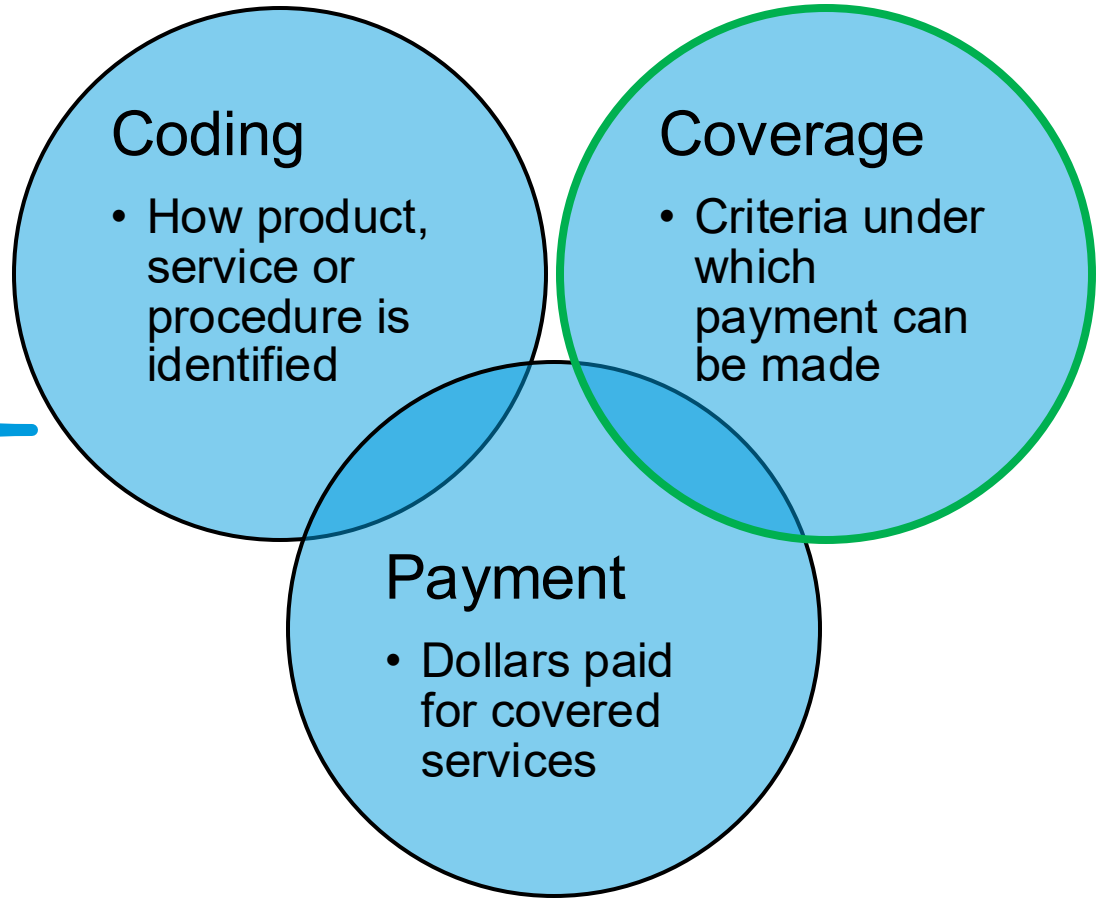


VALUE ADDED TO METABOLIC DISEASE CARE

Scalable

Durable

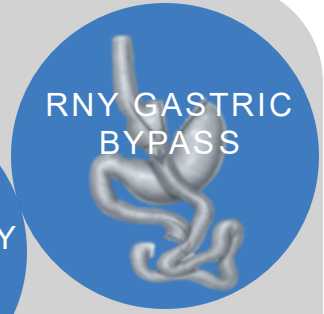
Value

EFFICACY & DURABILITY

ESG +

Medications

ESG



SURGICAL OPTIONS

INVASIVENESS

GLP-1S ADVERSE EVENTS

nature medicine

Article

https://doi.org/10.1038/s41591-024-03412-w

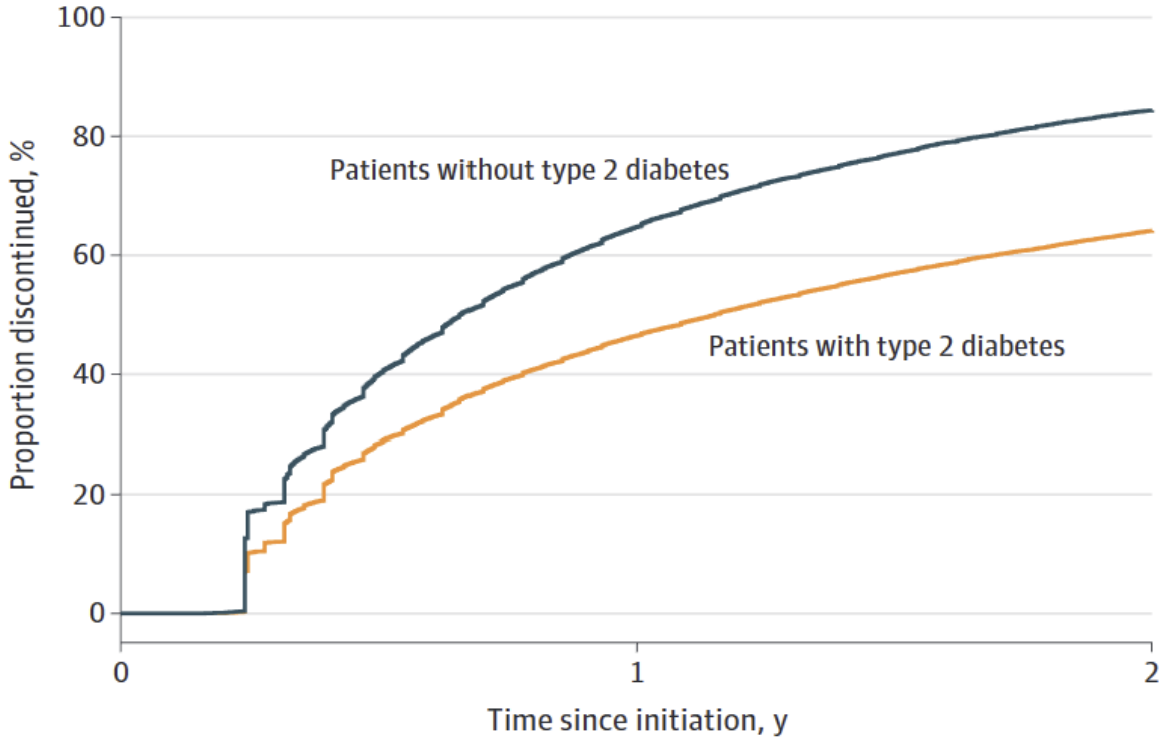
Mapping the effectiveness and risks of GLP-1 receptor agonists

Received: 14 June 2024

Yan Xie[1,2,3,4], Taeyoung Choi[1,2] & Ziyad Al-Aly[1,2,5,6,7]

- **Study Design:** VA databases to compare GLP-1RA (n=215,970) with other diabetes treatments and usual care across 175 health outcomes.
- **Benefits:** GLP-1RA use reduced risks of neurocognitive disorders, cardiometabolic disorders, infectious diseases, and respiratory conditions.
- **Risks:** Increased risks of GI disorders, hypotension, syncope, nephrolithiasis, and pancreatitis.

GLP-1S DISCONTINUATION



No. at risk			
Patients with type 2 diabetes	76 524	36 709	10 774
Patients without type 2 diabetes	48 950	15 696	2750

GLP-1S RESISTANCE

Diabetologia. 2025 May 22. doi: 10.1007/s00125-025-06448-w. Online ahead of print.

Heterogeneity in response to GLP-1 receptor agonists in type 2 diabetes in real-world clinical practice: insights from the DPV register - an IMI-SOPHIA study

Martin Heni [1,2], Lisa Frühwald [3], Wolfram Karges [4], Michael Naudorf [5], Kathrin Niemöller [6], Frank Pagnia [7], Jörg Reindel [8], Jochen Seufert [9], Gisa Ufer [10], Christian Wagner [11], Reinhard W Holl [12,13], Nicole Prinz [12,13]

4,467 adults with type 2 diabetes starting GLP-1 receptor agonist (GLP-1 RA) therapy

Patient Response Groups at 6 Months

Response Group	% of Patients	Median HbA1c Reduction (%)
Both HbA1c & Weight Loss	14%	≥0.5%
HbA1c Reduction Only	36%	≥0.5%
Weight Loss Only	7%	<0.5%
Neither	43%	<0.5%

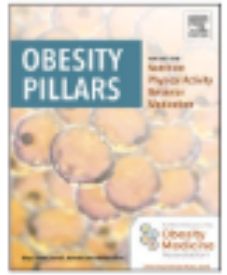
COMBINATION WITH MEDS

Obesity Pillars 11 (2024) 100112

Contents lists available at ScienceDirect

Obesity Pillars

journal homepage: www.journals.elsevier.com/obesity-pillars



Outcomes of concomitant antiobesity medication use with endoscopic sleeve gastroplasty in clinical US settings

Khushboo Gala [a], Wissam Ghusn [a], Vitor Brunaldi [a], Christopher McGowan [b], Reem Z. Sharaiha [c], Daniel Maselli [b], Brandon Vanderwel [d], Prashant Kedia [e], Michael Ujiki [f], Eric Wilson [g], Eric J. Vargas [a], Andrew C. Storm [a], Barham K. Abu Dayyeh [a,*]

OUTCOMES OF CONCOMITANT ANTIOBESITY MEDICATION USE WITH ENDOSCOPIC SLEEVE GASTROPLASTY IN CLINICAL US SETTINGS

Retrospective cohort study

Total n: 1506

AOM use:147
No AOM use: 1359

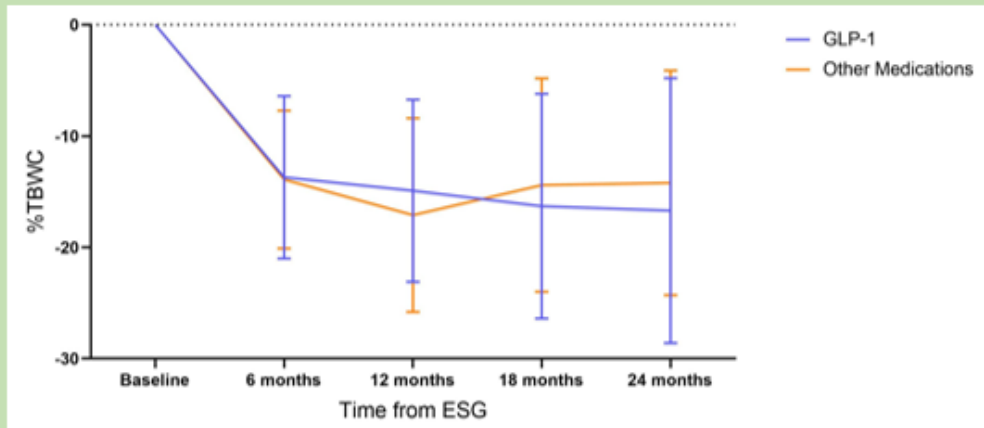
7 centers in the US

Follow up: 2 years

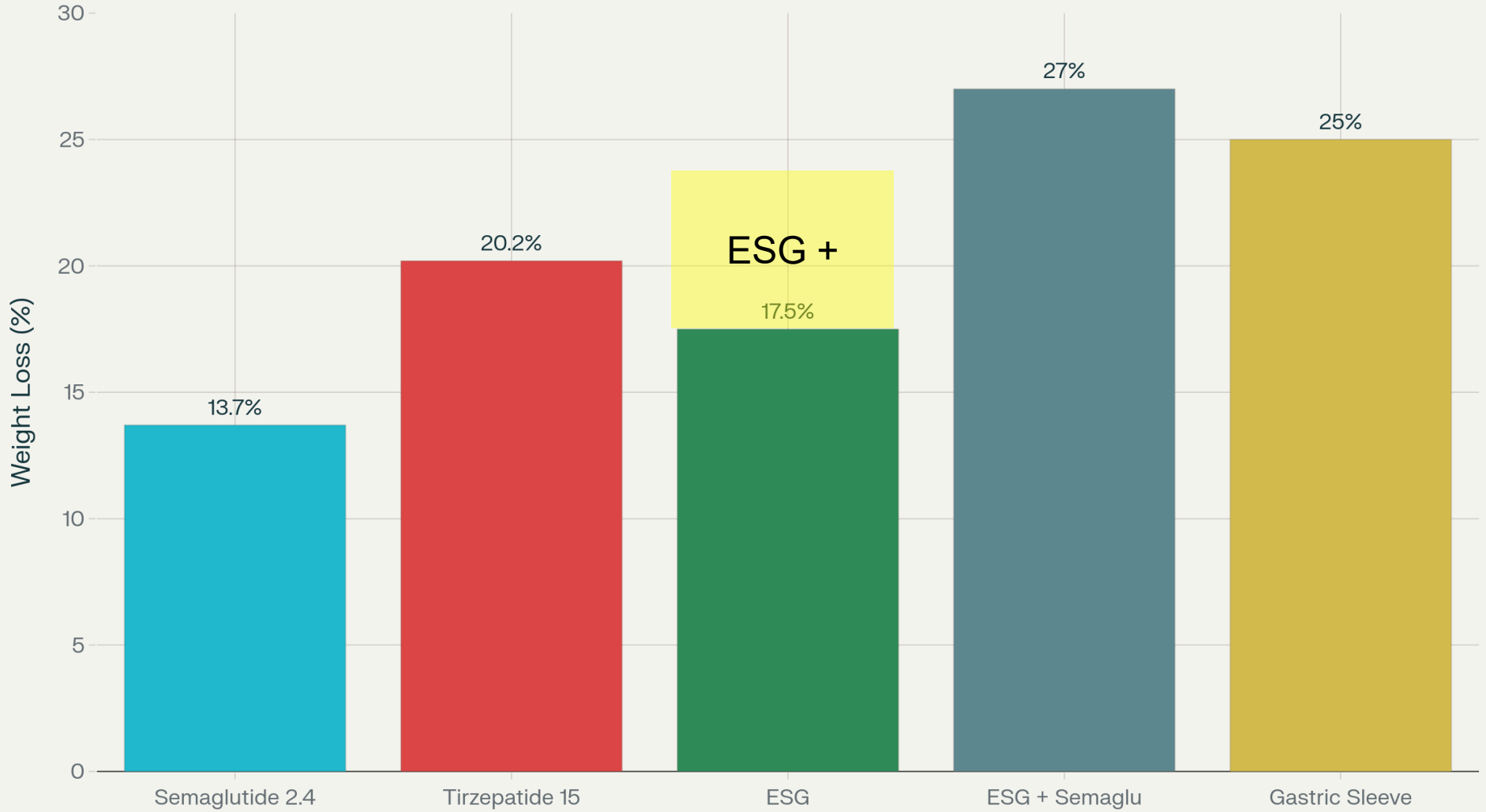
%TBWL at 24 mo

No AOM: 15.4% ± 9.6
AOM <6 mo from ESG: 10.4 ± 10.8
AOM 6-12 mo from ESG: 14.8 ± 10.1
AOM >12 mo from ESG: 21.1 ± 10.0*

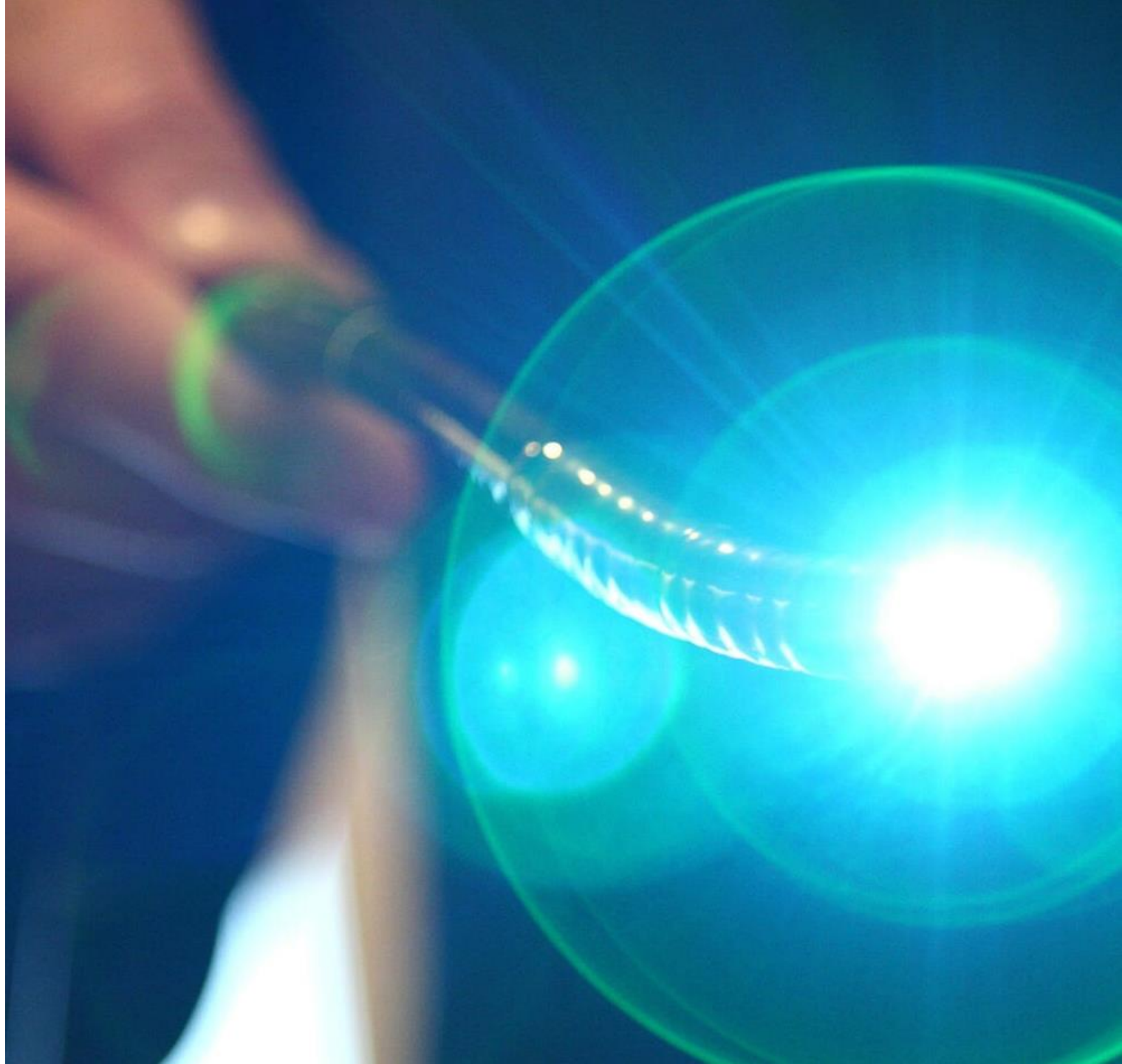
%TBWL by AOM class

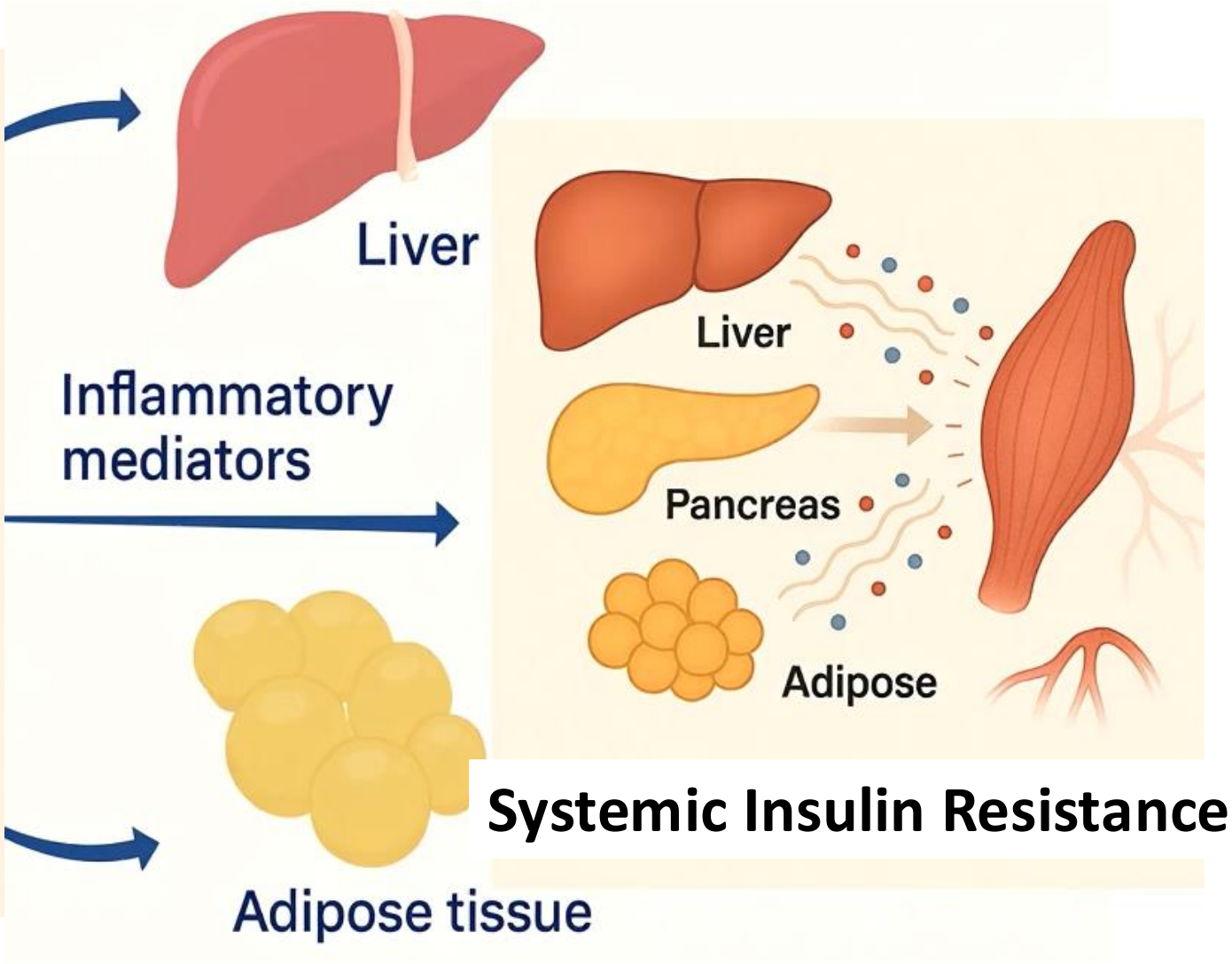


12-Month Weight Loss Outcomes



INNOVATION & NEW BOUNDARIES

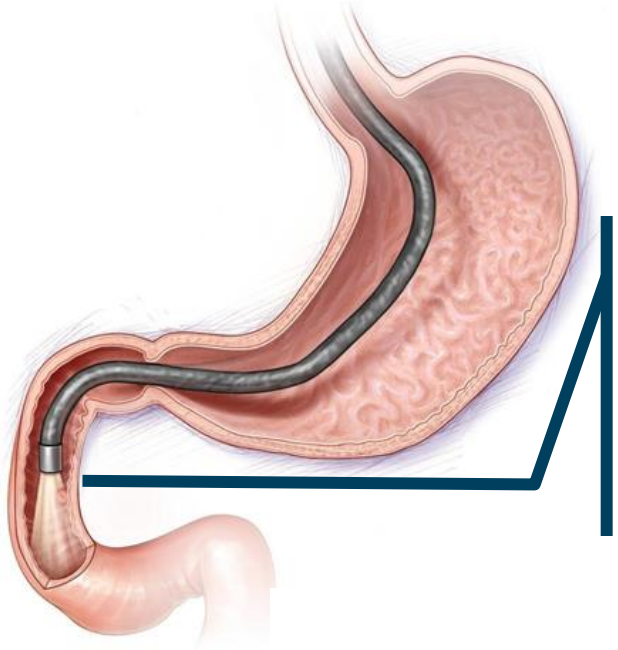




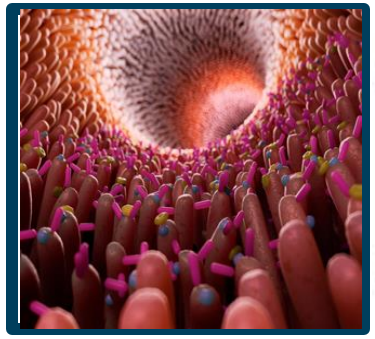
Systemic Insulin Resistance

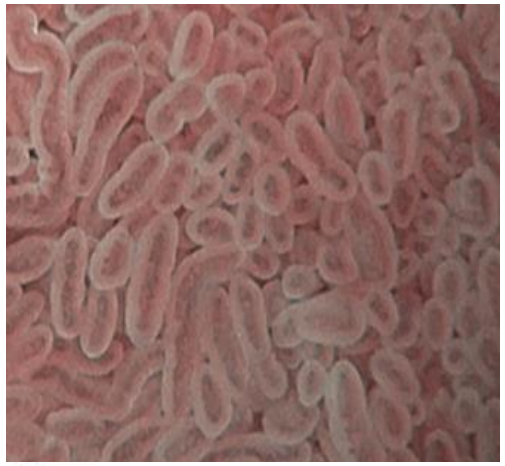
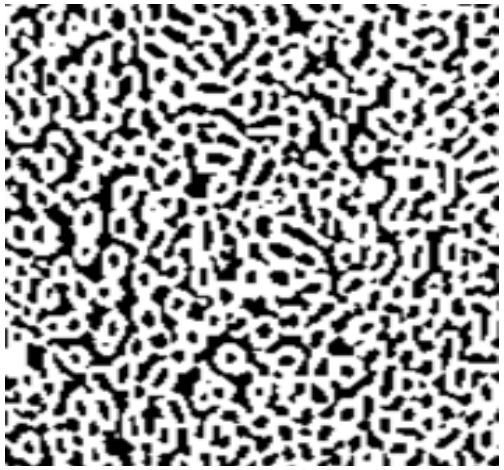
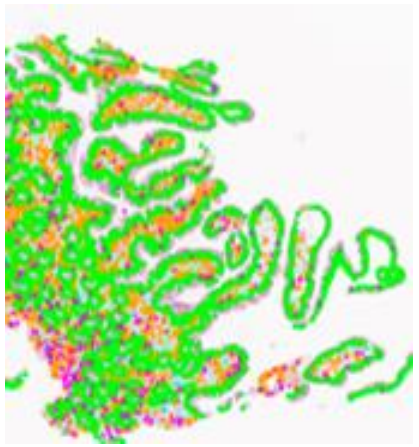
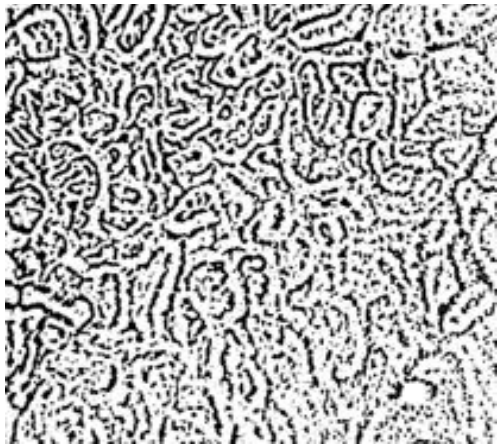
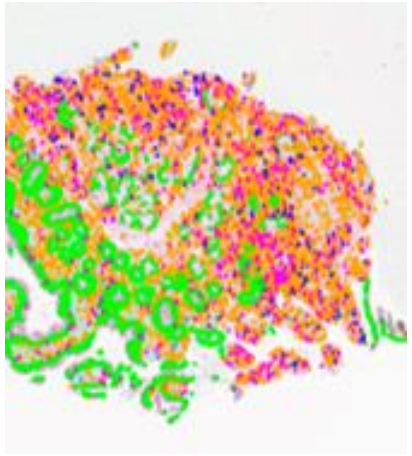
Metabolic Duodenopathy

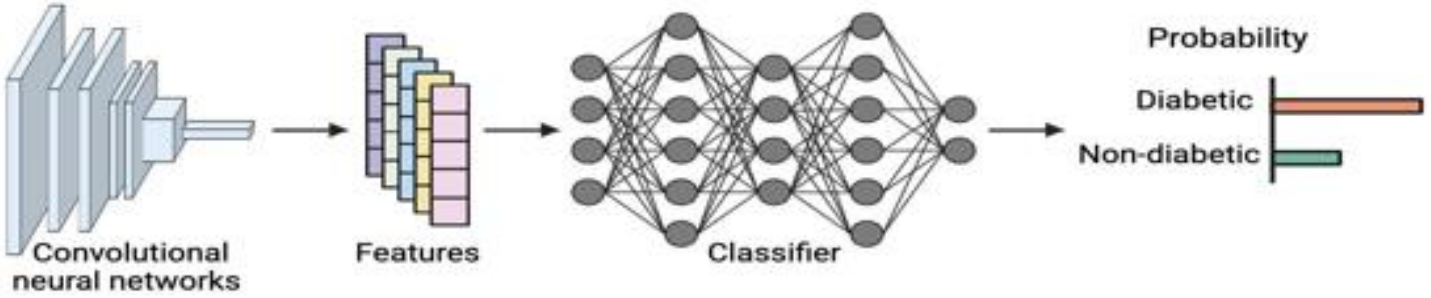
MAYO CLINIC



Duodenum

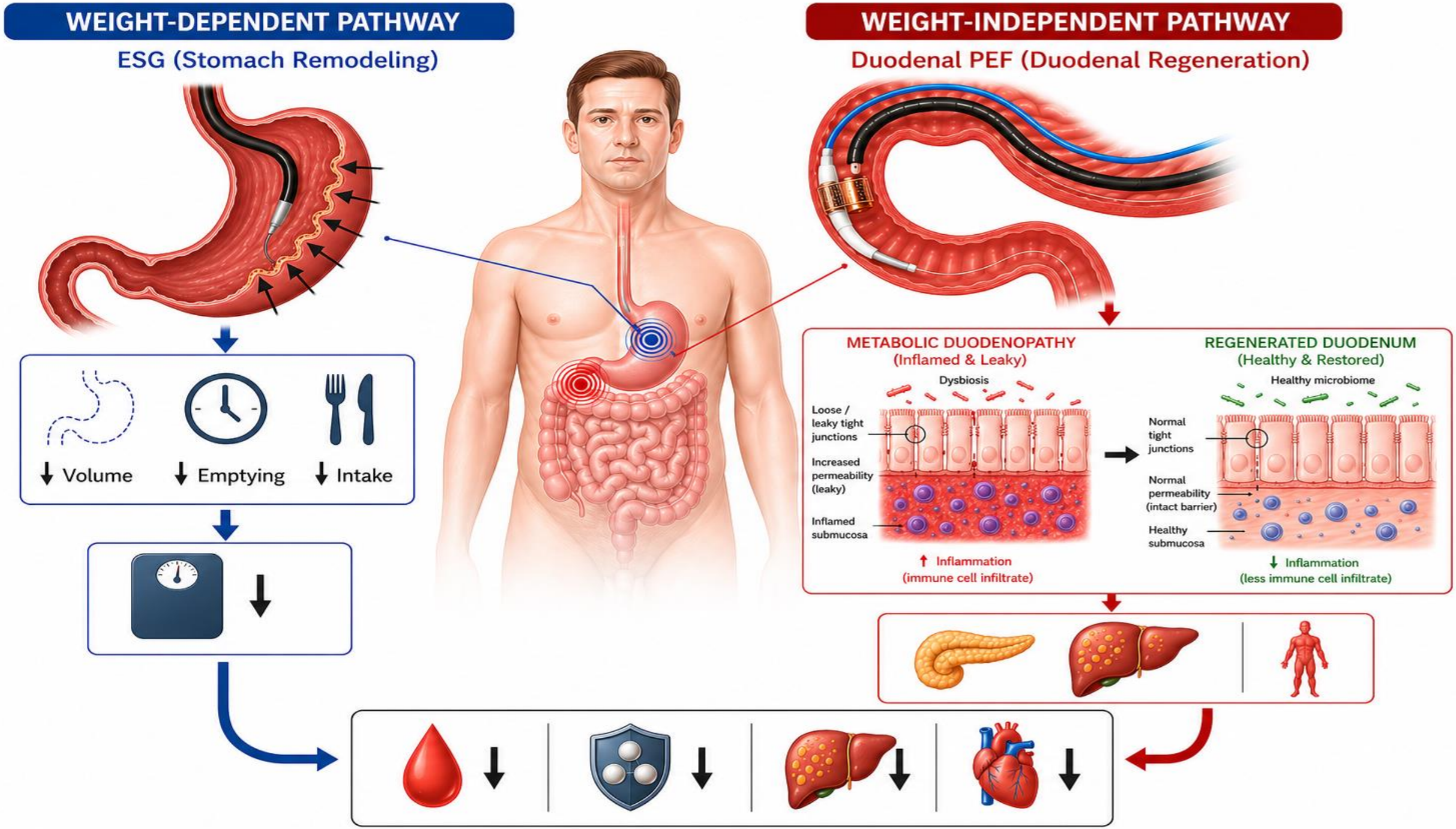


	Endoscopy	AI Fingerprinting Analysis	AI Cellular / Molecular
Non-Diabatic			
Type II Diabetes			



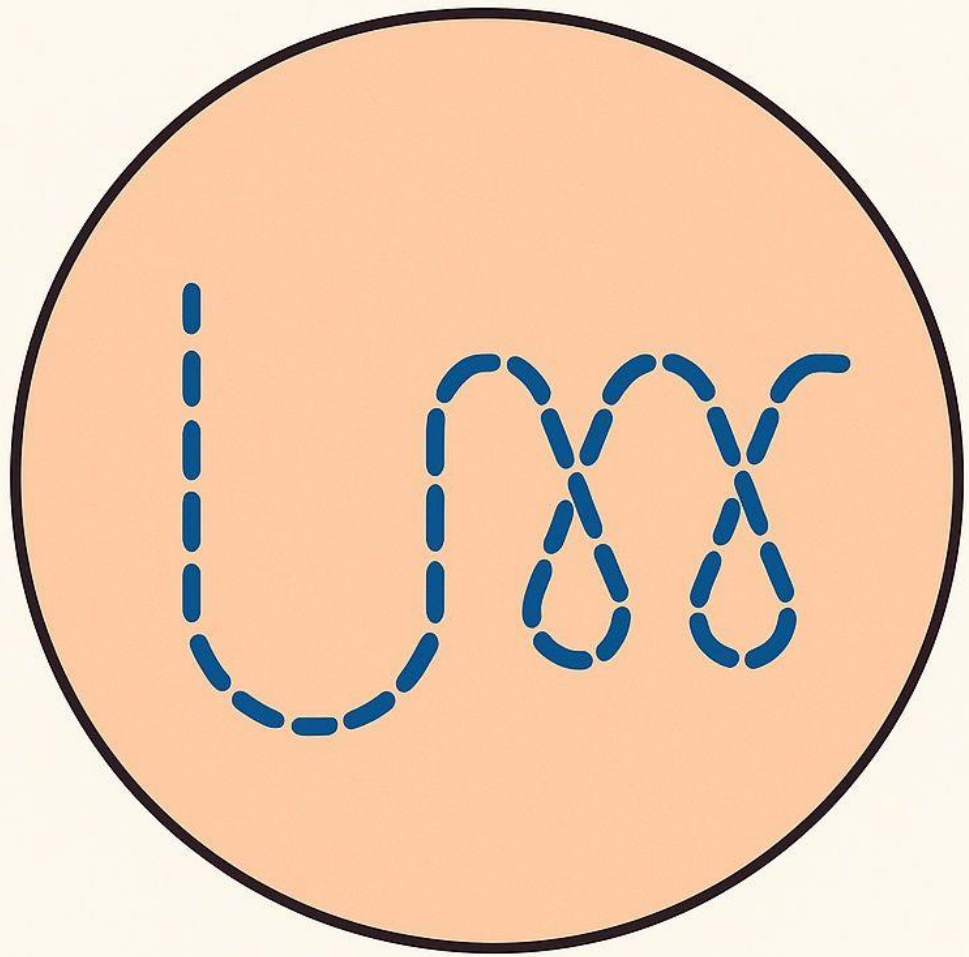
The pulsENDO System

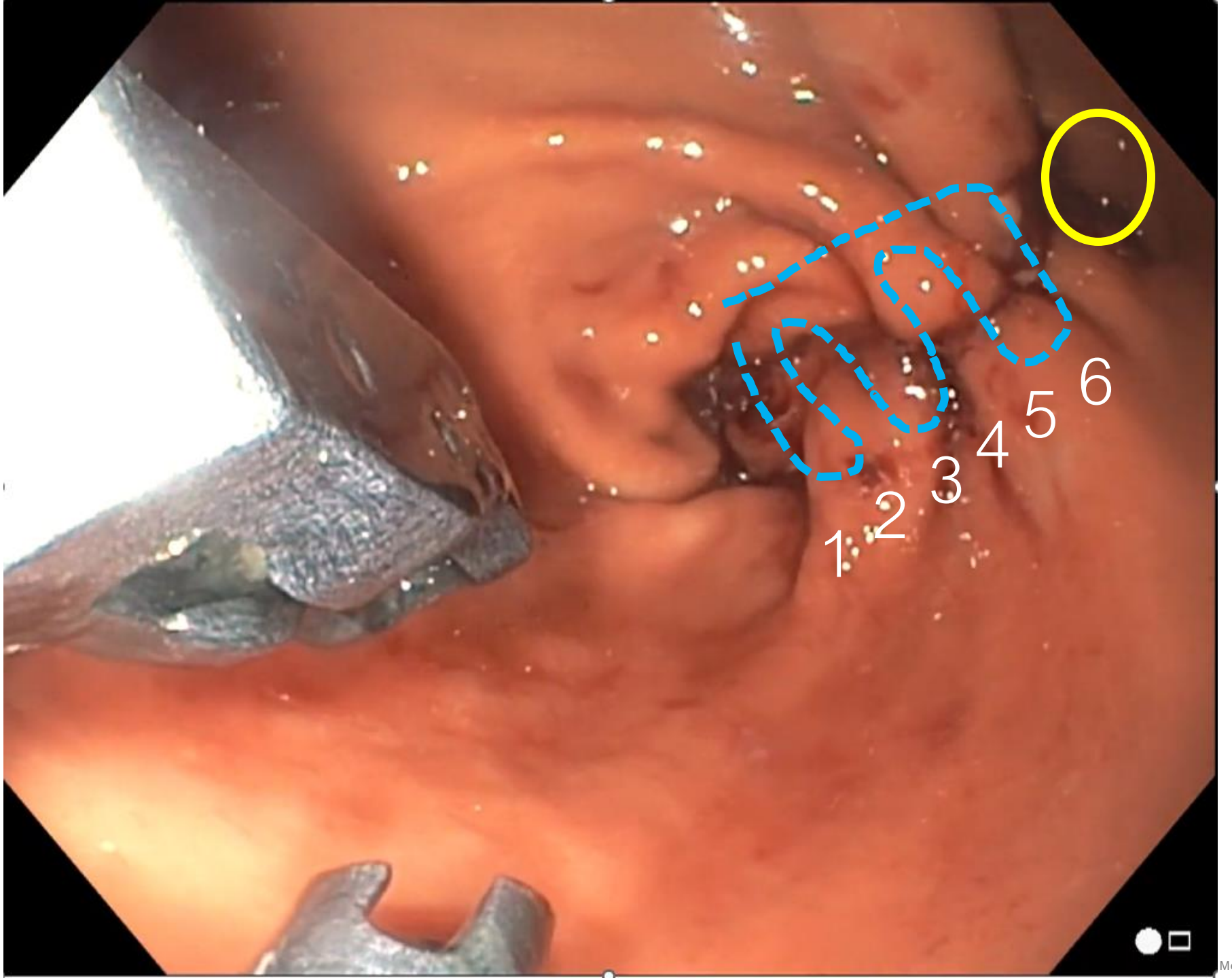
by Endogenex


WEIGHT-DEPENDENT PATHWAY
ESG (Stomach Remodeling)
WEIGHT-INDEPENDENT PATHWAY
Duodenal PEF (Duodenal Regeneration)
↓ Volume
↓ Emptying
↓ Intake
METABOLIC DUODENOPATHY
(Inflamed & Leaky)
Dysbiosis
Loose / leaky tight junctions
Increased permeability (leaky)
Inflamed submucosa
↑ Inflammation
(immune cell infiltrate)
REGENERATED DUODENUM
(Healthy & Restored)
Healthy microbiome
Normal tight junctions
Normal permeability (intact barrier)
Healthy submucosa
↓ Inflammation
(less immune cell infiltrate)

Advancement in Technique

Interlocking ESG (iESG)

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2
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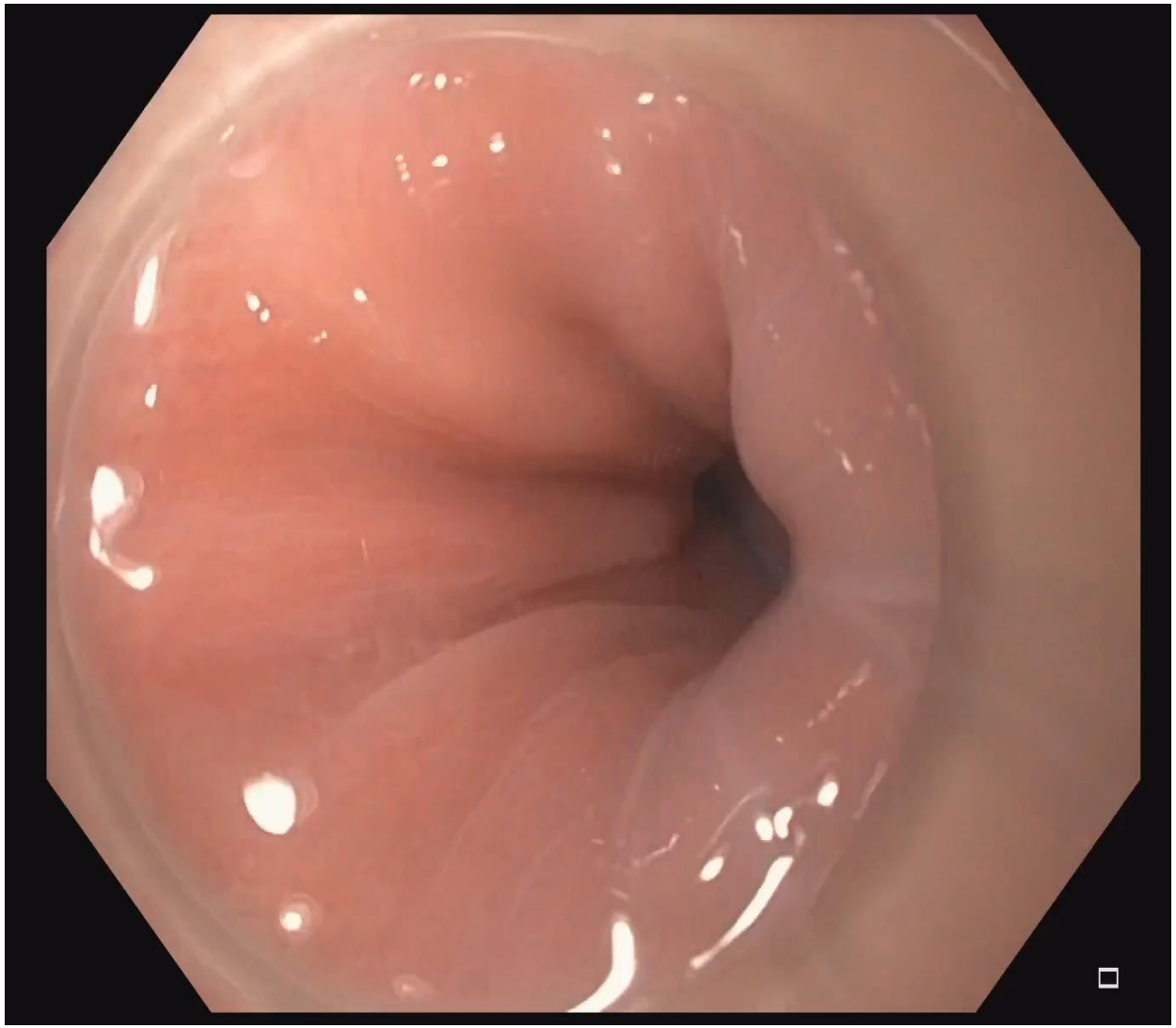
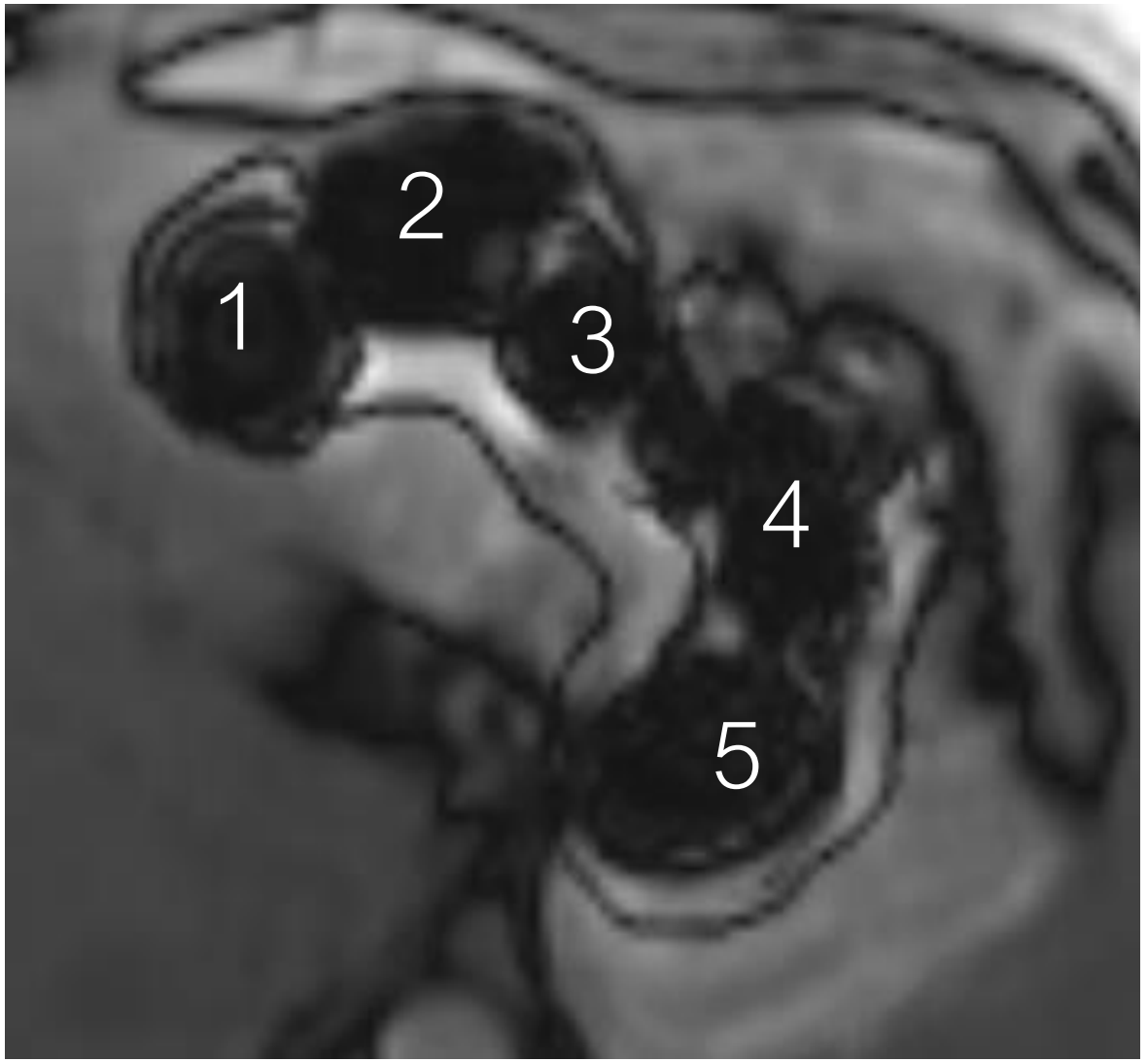
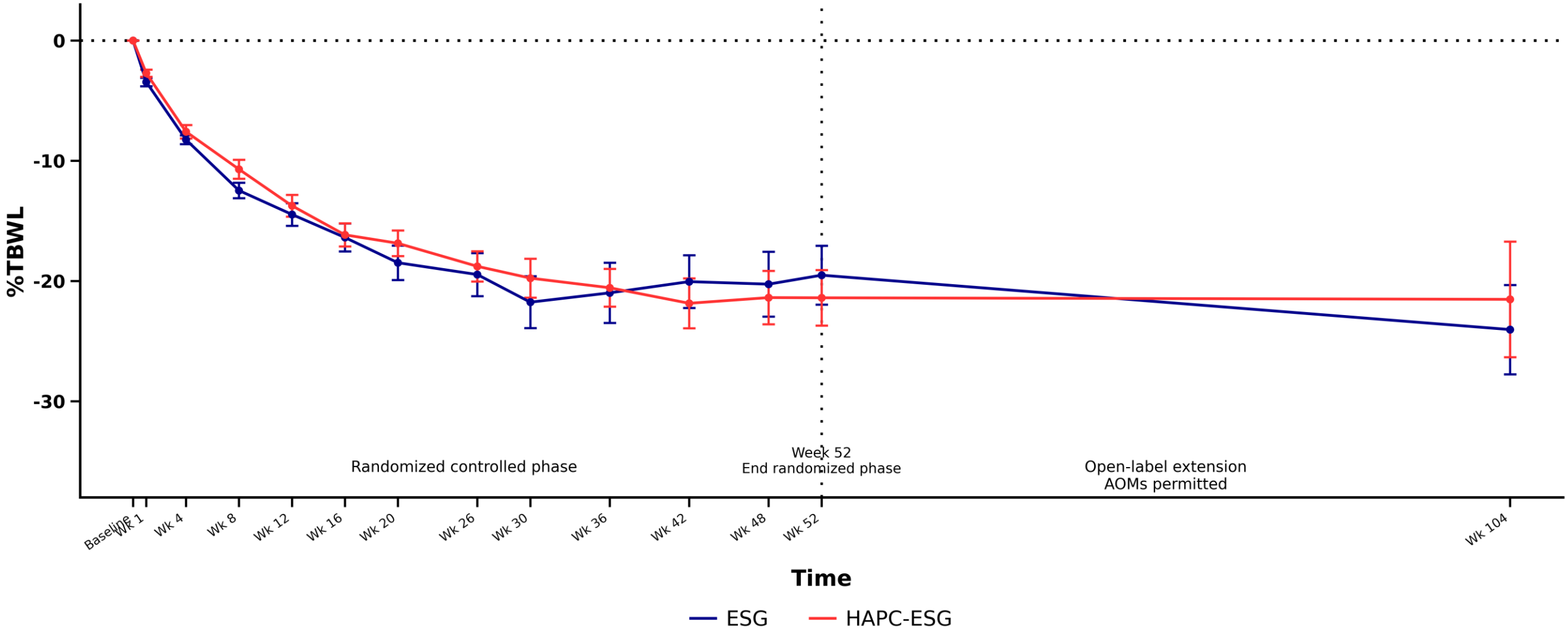




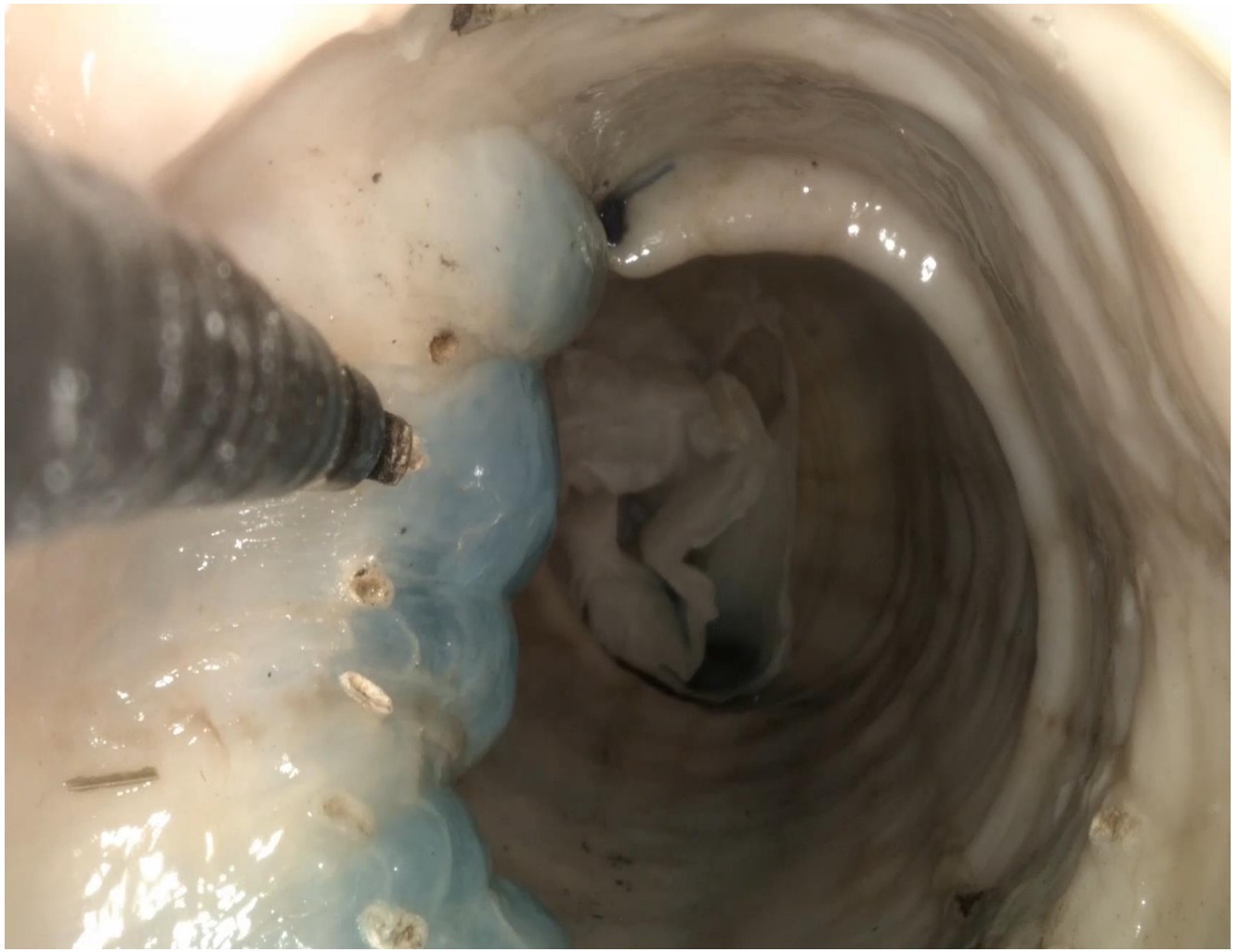
TBWL **23%** at 6 months



	0	1	4	8	12	16	20	26	30	36	42	48	52	104
ESG	0.0% (n=12)	3.5% (n=12)	8.3% (n=12)	12.5% (n=12)	14.5% (n=12)	16.4% (n=12)	18.5% (n=12)	19.5% (n=12)	21.8% (n=9)	21.0% (n=9)	20.1% (n=11)	20.3% (n=9)	19.5% (n=11)	24.0% (n=9)
HAPC-ESG	0.0% (n=12)	2.7% (n=12)	7.6% (n=12)	10.7% (n=11)	13.7% (n=12)	16.2% (n=11)	16.9% (n=12)	18.8% (n=12)	19.8% (n=11)	20.6% (n=12)	21.9% (n=12)	21.4% (n=12)	21.4% (n=12)	21.5% (n=7)

Table values show mean %TBWL and number evaluated at each time point. Error bars show standard error.

Robotic ESG



Questions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OFFICIAL PROVIDER
LA 28
CEDARS-SINAI
CEDARS-SINAI MEDICAL CENTER