OLTRE LO STILE DI VITA: QUALI OPZIONI CHIRURGICHE?

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Dipartimento di Scienze e Biotecnologie Medico-Chirurgiche

Sapienza Polo Pontino

“Surgery represents the only effective therapeutic modality for morbid obesity”

L'EVOLUZIONE DELLA CHIRURGIA BARIATRICA

Doctor Hasdai Ibn Shaprut

X secolo
Cucì le labbra del re di Leon Sancho che per la sua obesità rischiava di perdere il trono e lo nutrì con teriaca.

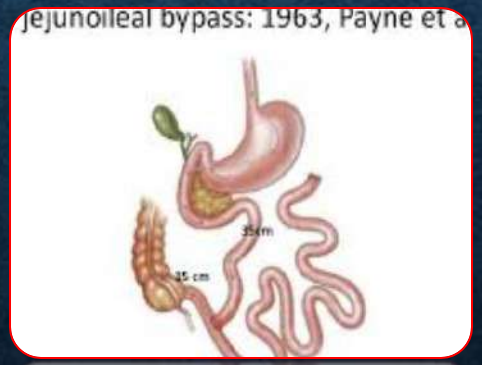
Dalla leggenda..

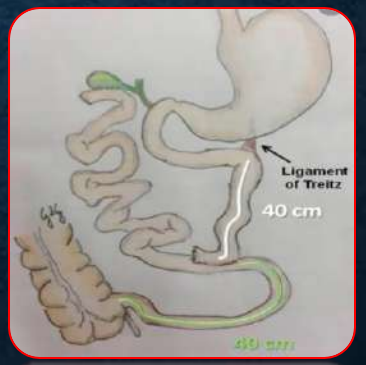
..AL BISTURI

Publ Kremen AJ, Linner JH, Nelson CH. An experimental evaluation of the nutritional importance of proximal and distal small intestine. Ann Surg. 1954;140:439–48.6.

60/70's...

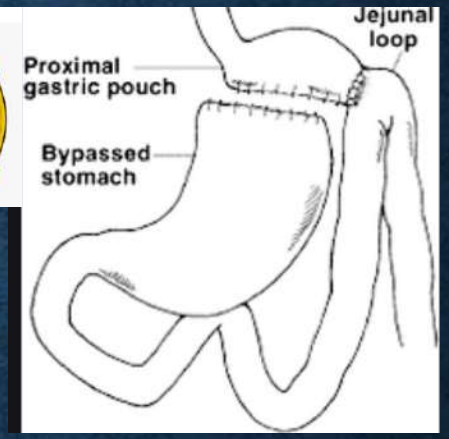
Several modifications (none of them gained widespread acceptance)





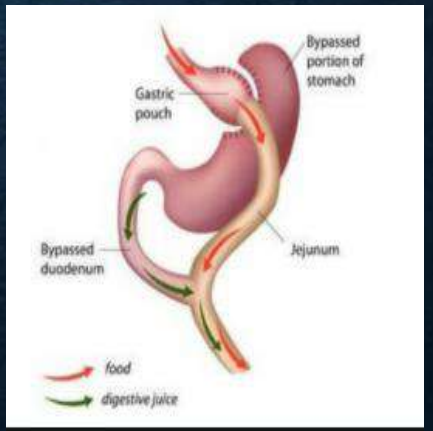
60’S

Bypass ERA

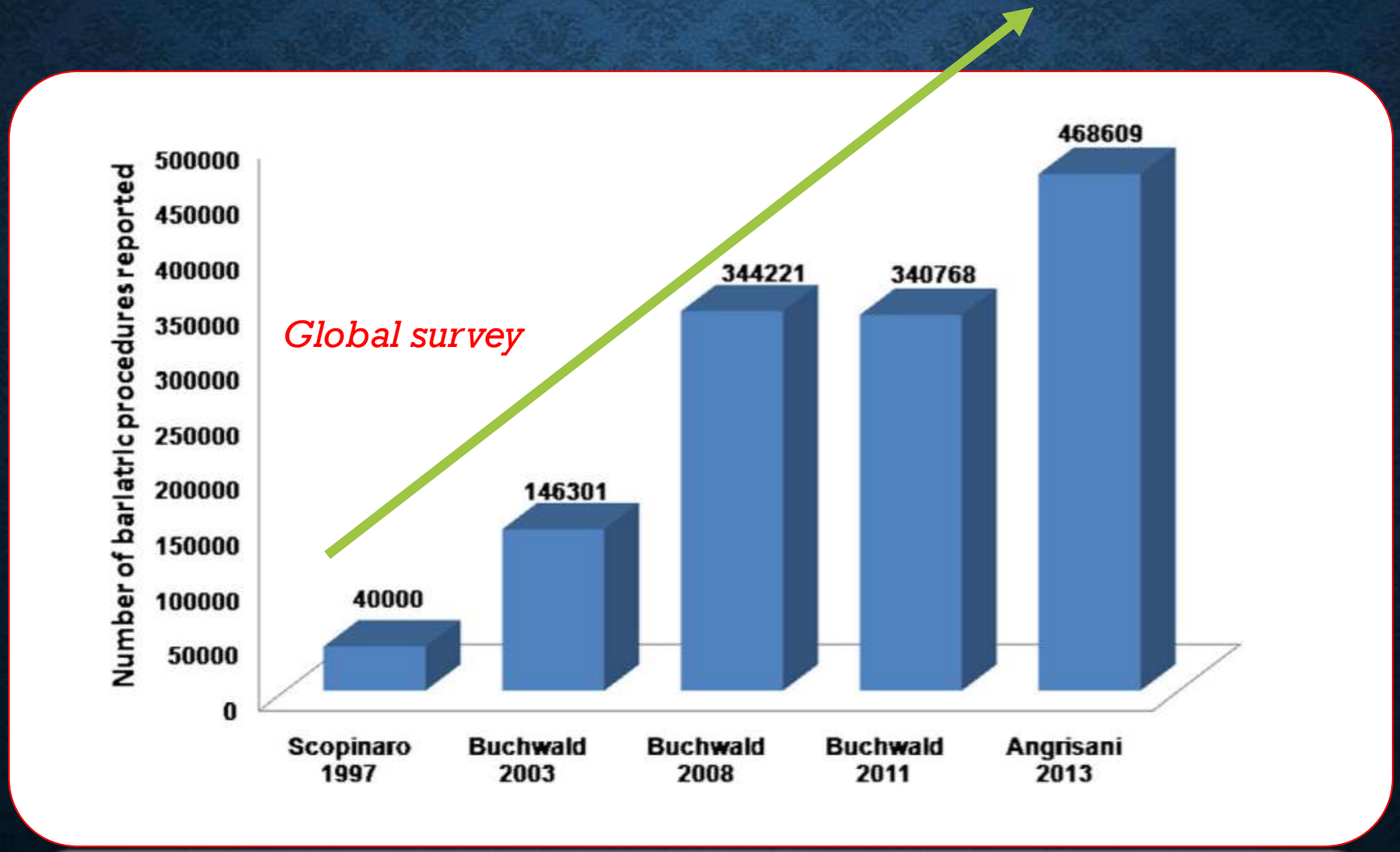


Mason EE, Ito C. Gastric bypass in obesity. Surg Clin North Am. 1967;47:1345–51.9.

Mason EE, Printen KJ, Hartford CE, Boyd WC. Optimizing results of gastric bypass.Ann Surg. 1975;182:405–14.10



90’S..A BIG NEWS..LAPAROSCOPY!


Number of barlatric procedures reported
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Global survey
40000
146301
344221
340768
468609
Scopinaro 1997
Buchwald 2003
Buchwald 2008
Buchwald 2011
Angrisani 2013

Obesity Surgery (2024) 34:1075–1085
https://doi.org/10.1007/s11695-024-07118-3

ORIGINAL CONTRIBUTIONS

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

Luigi Angrisani[1] · Antonella Santonicola[2] · Paola Iovino[2] · Rossella Palma[3] · Lilian Kow[4] · Gerhard Prager[5] · Almino Ramos[6] · Scott Shikora[7] · the Collaborative Study Group for the IFSO Worldwide Survey

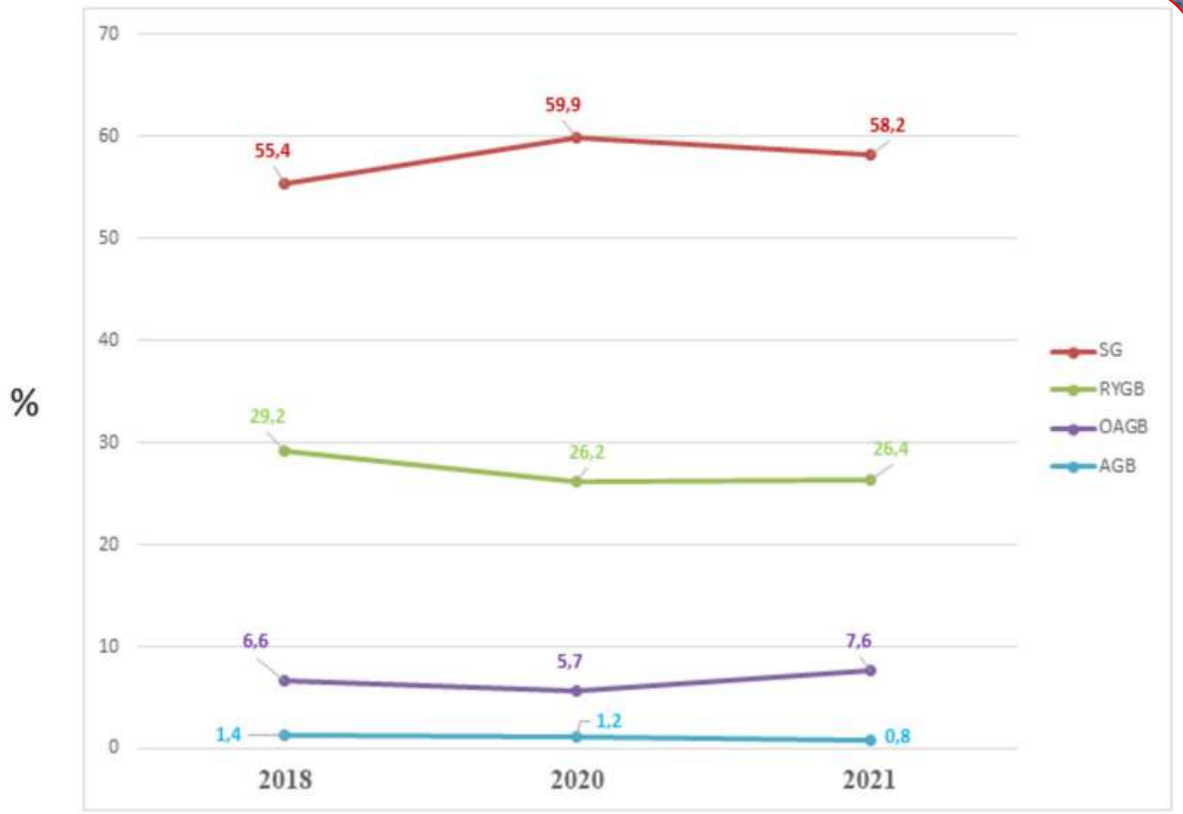
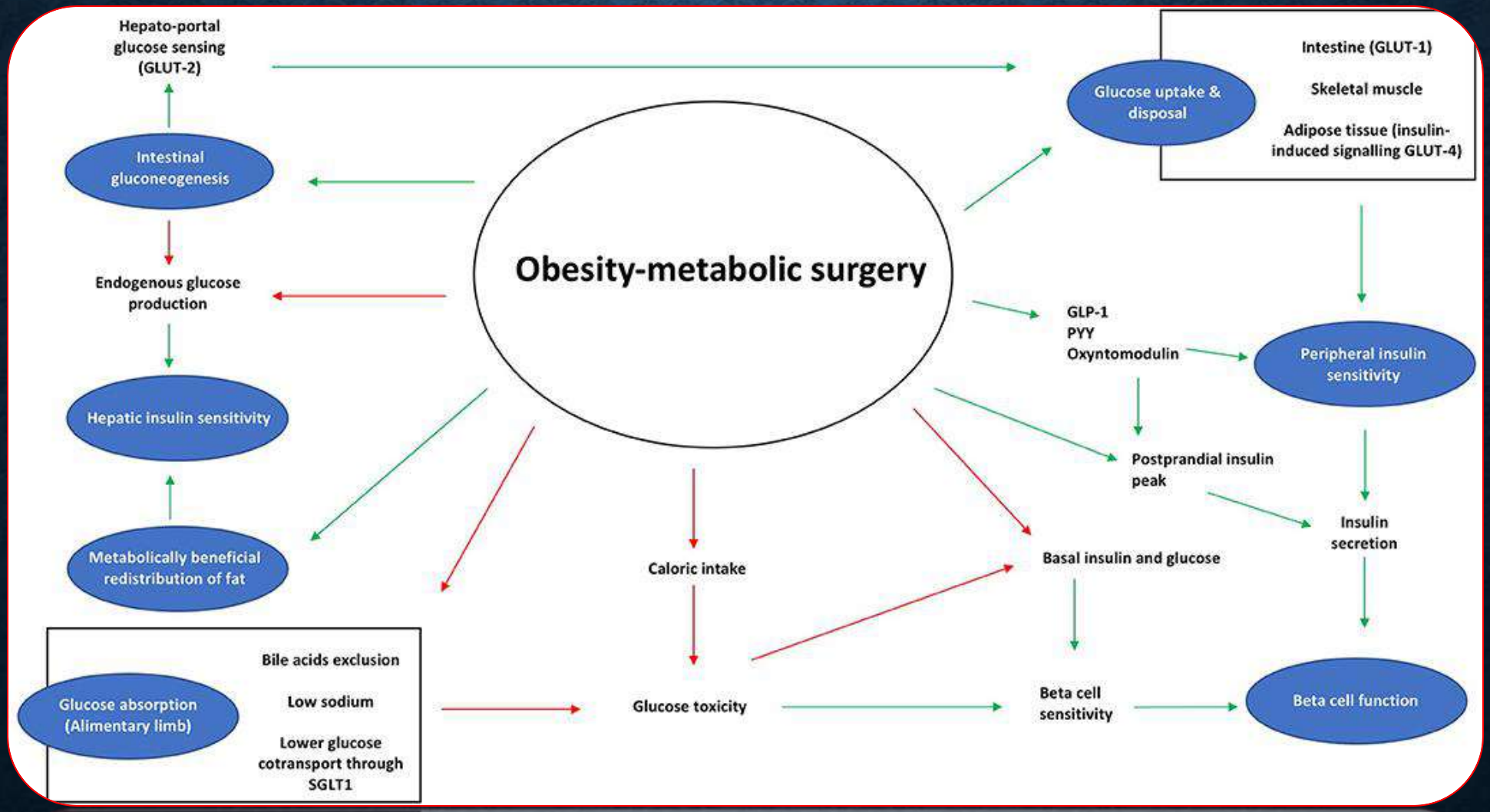


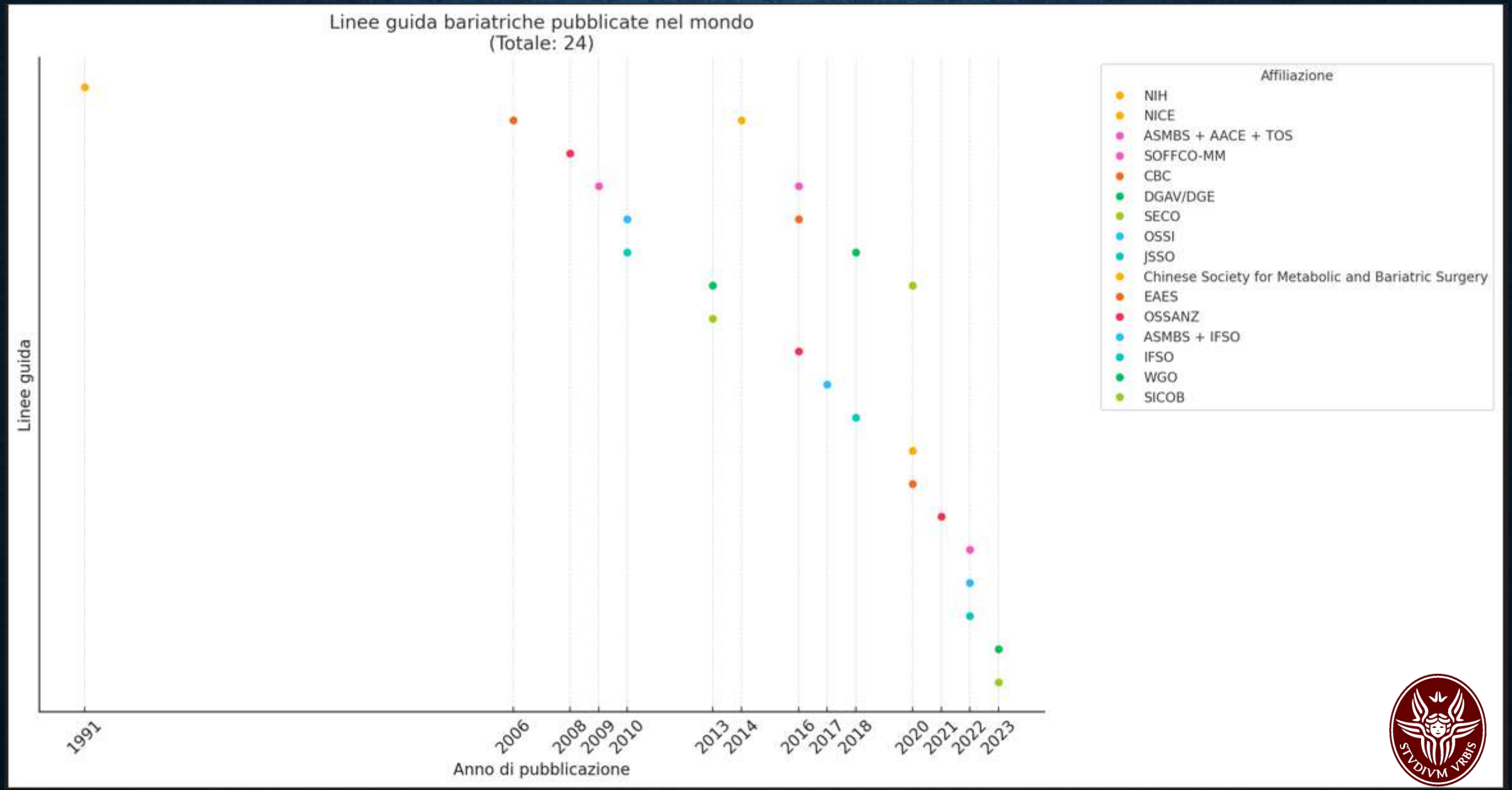
Fig. 2 The worldwide trend from 2018 to 2021 of the main bariatric/metabolic procedures

2020 507,806
2021 598,834

BARIATRIC AND METABOLIC



INDICATIONS


Linee guida bariatriche pubblicate nel mondo
(Totale: 24)
Linee guida
Anno di pubblicazione
1991
2006
2008
2009
2010
2013
2014
2016
2017
2018
2020
2021
2022
2023
Affiliazione
NIH
NICE
ASMBS + AACE + TOS
SOFFCO-MM
CBC
DGAV/DGE
SECO
OSSI
JSSO
Chinese Society for Metabolic and Bariatric Surgery
EAES
OSSANZ
ASMBS + IFSO
IFSO
WGO
SICOB

Surgical Endoscopy
https://doi.org/10.1007/s00464-020-07555-y

2020

GUIDELINES

Clinical practice guidelines of the European Association for Endoscopic Surgery (EAES) on bariatric surgery: update 2020 endorsed by IFSO-EC, EASO and ESPCOP

Nicola Di Lorenzo[1] · Stavros A. Antoniou[2,3] · Rachel L. Batterham[4,5] · Luca Busetto[6] · Daniela Godoroja[7] · Angelo Iossa[8] · Francesco M. Carrano[9] · Ferdinando Agresta[10] · Isaias Alarçon[11] · Carmil Azran[12] · Nicole Bouvy[13] · Carmen Balaguè Ponz[14] · Maura Buza[15] · Catalin Copaescu[15] · Maurizio De Luca[16] · Dror Dicker[17] · Angelo Di Vincenzo[6] · Daniel M. Felsenreich[18] · Nader K. Francis[19] · Martin Fried[20] · Berta Gonzalo Prats[14] · David Goitein[21] · Jason C. G. Halford[22,23] · Jitka Herlesova[20] · Marina Kalogridaki[24] · Hans Ket[25] · Salvador Morales-Conde[11] · Giacomo Piatto[16] · Gerhard Prager[18] · Suzanne Pruijssers[13] · Andrea Pucci[4,5] · Shlomi Rayman[21] · Eugenia Romano[22,23] · Sergi Sanchez-Cordero[26] · Ramon Vilallonga[27] · Gianfranco Silecchia[8]

Received: 24 February 2020 / Accepted: 7 April 2020

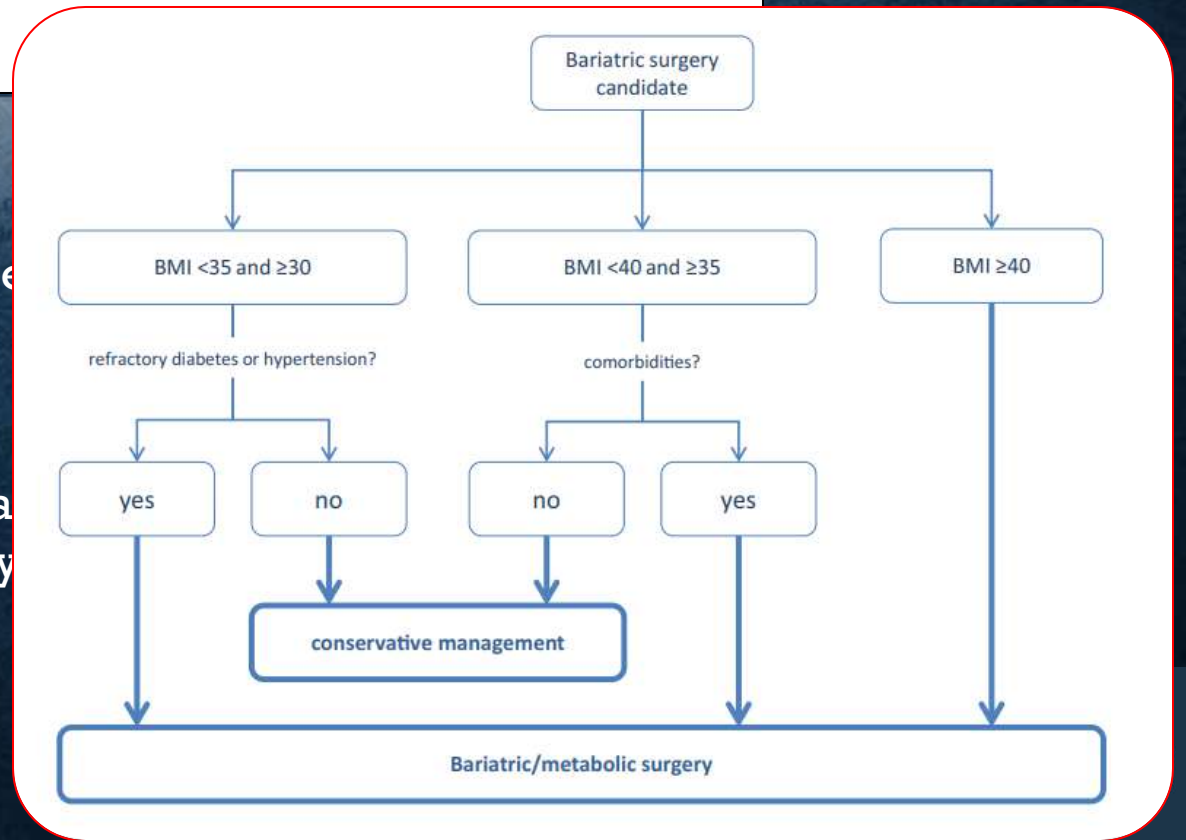
BMI≥40 kg/m2

BMI≥35–40 kg/m2 with associate
weight loss

Strong recommendation

BMI 30–35 kg/m2 and type 2 dia
despite optimal medical therapy

Strong recommendation



ELSEVIER

2022

SURGERY FOR OBESITY AND RELATED DISEASES

Surgery for Obesity and Related Diseases 18 (2022) 1345–1356

Original article

2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery

Dan Eisenberg, M.D.[a,*], Scott A. Shikora, M.D.[b], Edo Aarts, M.D., Ph.D.[c], Ali Aminian, M.D.[d], Luigi Angrisani, M.D.[e], Ricardo V. Cohen, M.D., Ph.D.[f], Maurizio De Luca, M.D.[g], Silvia L. Faria, Ph.D.[h], Kasey P. S. Goodpaster, Ph.D.[d], Ashraf Haddad, M.D.[i], Jacques M. Himpens, M.D., Ph.D.[j], Lilian Kow, B.M.B.S., Ph.D.[k], Marina Kurian, M.D.[l], Ken Loi, M.B.B.S., B.Sc. (Med)[m], Kamal Mahawar, M.B.B.S., M.Sc.[n], Abdelrahman Nimeri, M.D., M.B.B.Ch.[o], Mary O'Kane, M.Sc., R.D.[p], Pavlos K. Papasavas, M.D.[q], Jaime Ponce, M.D.[r], Janey S. A. Pratt, M.D.[a,s], Ann M. Rogers, M.D.[t], Kimberley E. Steele, M.D., Ph.D.[u], Michel Suter, M.D.[v,w], Shanu N. Kothari, M.D.[x]

Major updates to 1991 National Institutes of Health guidelines for bariatric surgery

- Metabolic and bariatric surgery (MBS) is recommended for individuals with a body mass index (BMI) $\geq$35 kg/m^2, regardless of presence, absence, or severity of co-morbidities.
- MBS should be considered for individuals with metabolic disease and BMI of 30-34.9 kg/m^2.
- BMI thresholds should be adjusted in the Asian population such that a BMI $\geq$25 kg/m^2 suggests clinical obesity, and individuals with BMI $\geq$27.5 kg/m^2 should be offered MBS.
- Long-term results of MBS consistently demonstrate safety and efficacy.
- Appropriately selected children and adolescents should be considered for MBS.

(Surg Obes Relat Dis 2022;18:1345–1356.)

Keywords: Obesity; Metabolic and bariatric surgery; IFSO; ASMBS; Criteria; Indications

Methods

NIH National Institutes of Health

1991 consensus guidelines

Literature review & update

Procedure type

Age limit

Indications

Results

Indications expanded

BMI 30-34.9 + Related medical problems

BMI ≥ 35 ± Related medical problems

Results

Indications expanded

Asians threshold ↓ BMI 25-27.5

Results

Special population

Bridge to joint replacement > 2 yrs prior

Bridge to abdominal wall hernia

Bridge to organ transplant

Results

Age limits expanded

Age ≥ 70 → Frailty; Risk Vs Benefit

Children/ Adolescents → BMI >120% 95th Pc + Related medical problems; BMI >140% 95th Pc

S.I.C.OB. Società Italiana di Chirurgia dell'OBesità e delle malattie metaboliche

2016

- *BMI >40 kg/m2,* in assenza di ogni altra comorbilità;
- *BMI >35 kg/m2* in presenza di comorbilità tra cui il diabete mellito di tipo 2 (T2DM) resistente al trattamento medico
- *BMI >30 <35 kg/m2* qualora abbiano condotto senza risultato una terapia medica e comportamentale adeguata (grado di raccomandazione: a)
- *BMI <30 kg/m2* solo nel contesto di studi scientifici prospettici e controllati
- Efficace in pazienti obesi di età <18 anni (livello di evidenza: 2; grado di raccomandazione: b) e >60 anni (livello di evidenza: 2; grado di raccomandazione: a)

Controindicazioni assolute

- La schizofrenia e la psicosi non in compenso (livello di evidenza: 2; grado di raccomandazione: b).
- La Dipendenza da alcol (livello di evidenza: 3; grado di raccomandazione: b).

UPDATE...

S.I.C.OB. Società Italiana di Chirurgia dell'OBesità e delle malattie metaboliche

LINEE GUIDA DELLA SICOB SOCIETÀ ITALIANA DI CHIRURGIA DELL'OBESITÀ E DELLE MALATTIE METABOLICHE

La terapia chirurgica dell'obesità e delle complicanze associate

S.I.C.OB.

LINEE GUIDA

La seguente linea guida è stata sviluppata da **SICOB** in collaborazione con:

ACOI: Associazione Chirurghi Ospedalieri Italiani
ADI: Associazione Italiana di dietetica e nutrizione clinica
AME: Associazione Medici Endocrinologi
ANSISA: Associazione Nazionale Specialisti in Scienze dell'Alimentazione
ASAND: Associazione Scientifica Alimentazione Nutrizione e Dietetica
SIC: Società Italiana di Chirurgia
SICE: Società Italiana di Chirurgia Endoscopica e nuove tecnologie
SID: Società Italliana di Diabetologia
SIO: Società Italiana dell'Obesità
SIEC Società Italiana Endocrinologia
SIMG Società Italiana di Medicina Generale e delle Cure Primarie
SIP: Società Italiana di Pediatria
SIUEC: Società Italiana Unitaria di Endocrinochirurgia

Update 2023

INDICAZIONI ALLA CHIRURGIA

- *BMI >40 kg/m2,* in assenza di ogni altra comorbilità (debole a favore);
- *BMI 30-35 kg/m2* in presenza di comorbilità tra cui il diabete mellito di tipo 2, ipertensione arteriosa, dislipdemia, OSAS non controllate da terapia medica o malattia osteoarticolare degli arti inferiori (raccomandazioni deboli e forti a favore)
- *Age limit*
- Efficace in pazienti obesi di età 14-18 anni e >65enni (debole a favore)

Non chiare indicazioni per

- Bridge a trapianti di organo
- Prevenzione di malattie tumorali

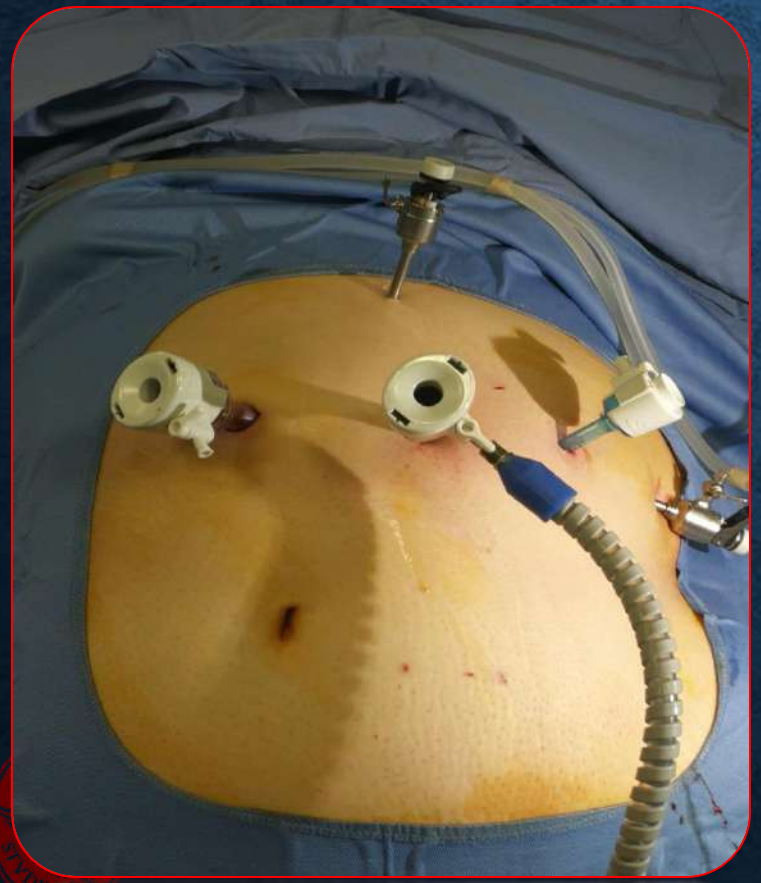
BARIATRIC SURGERY GOALS

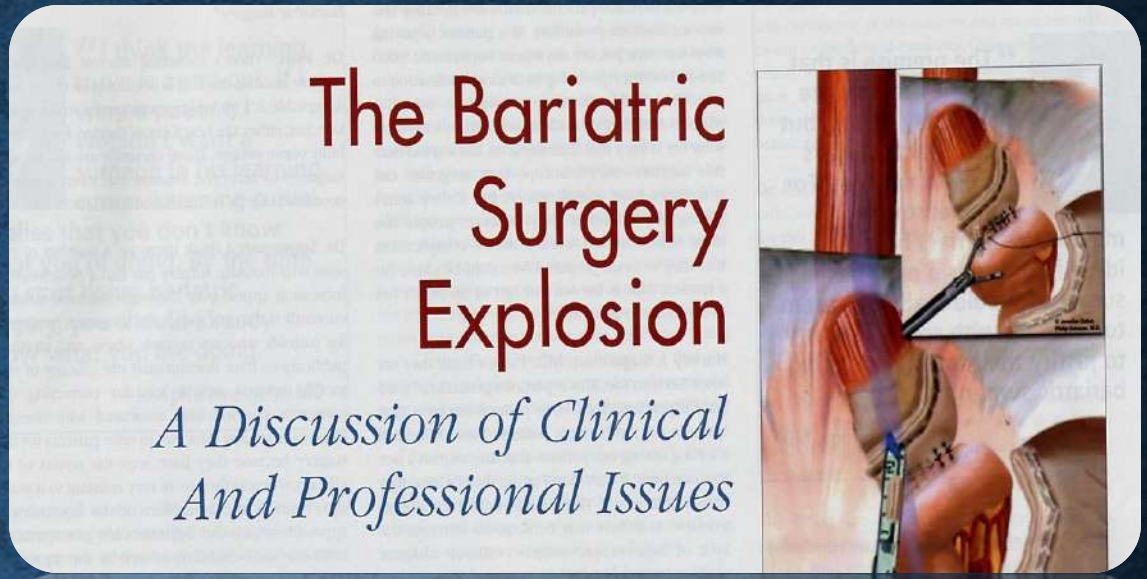
- 1. Weight loss
- IMC < 30 ideale, < 35
- EWL > 50 %

- 2. Long-term results

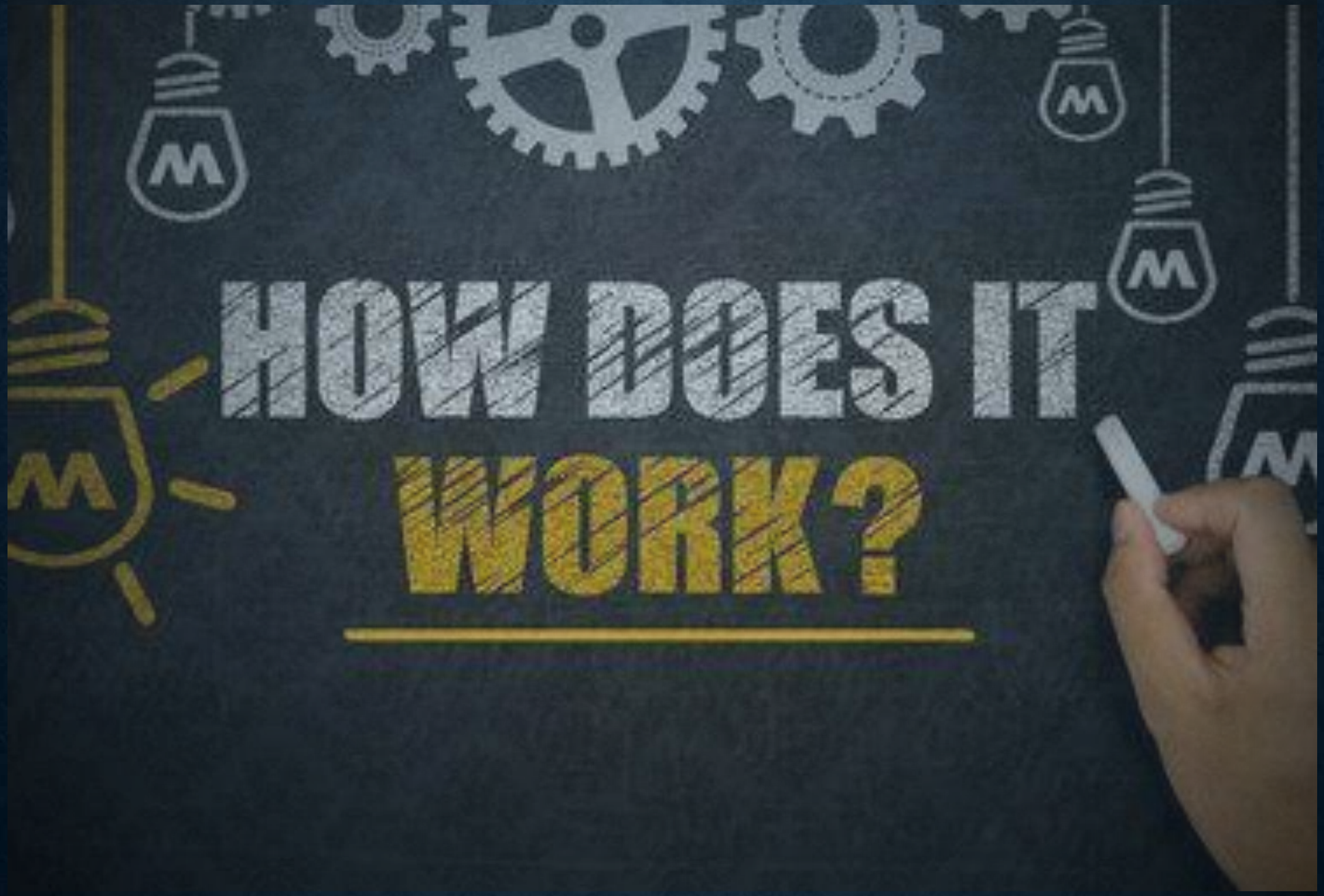
- 3. Comorbidities amelioration/cure!!!

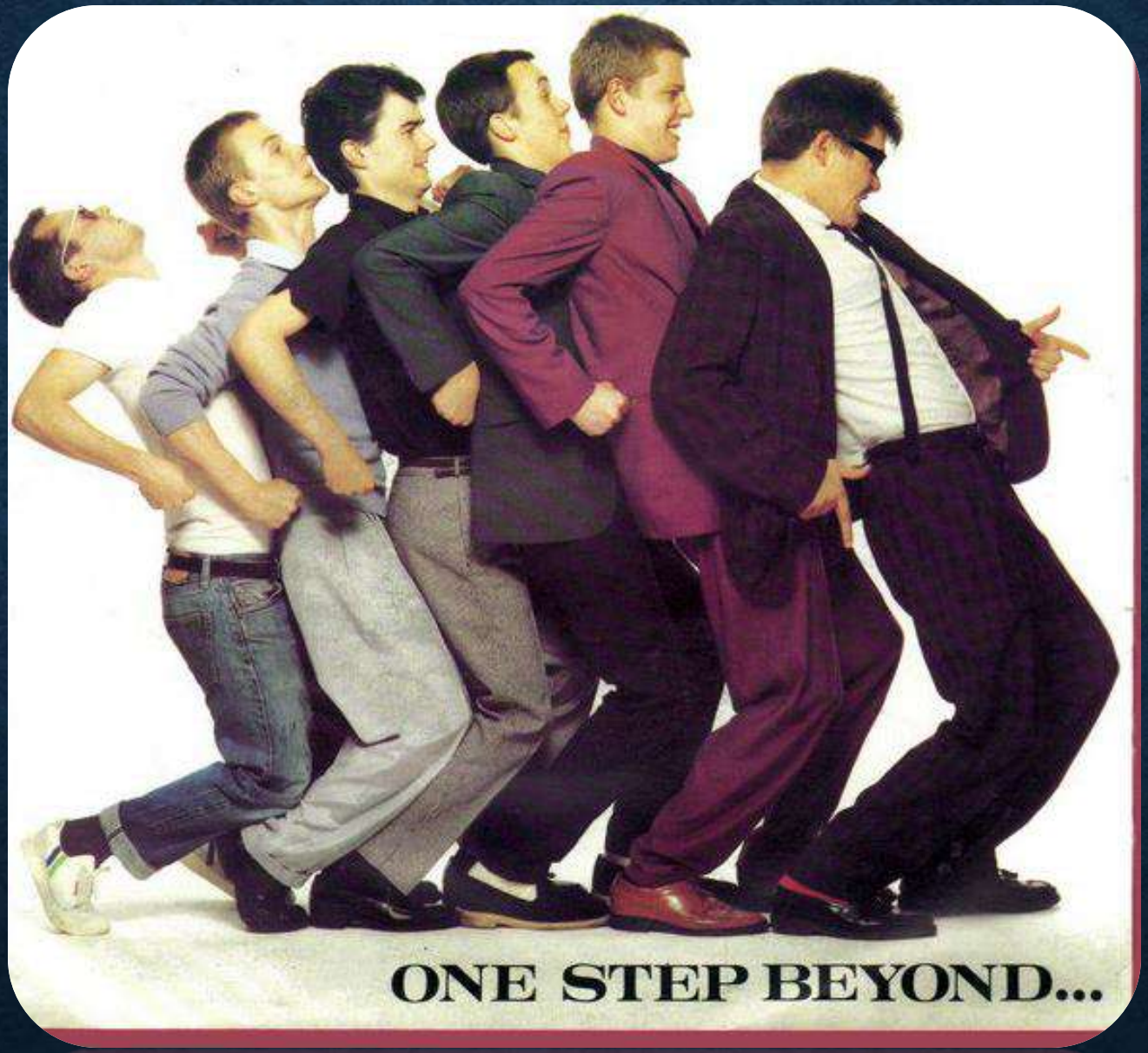
HOW?



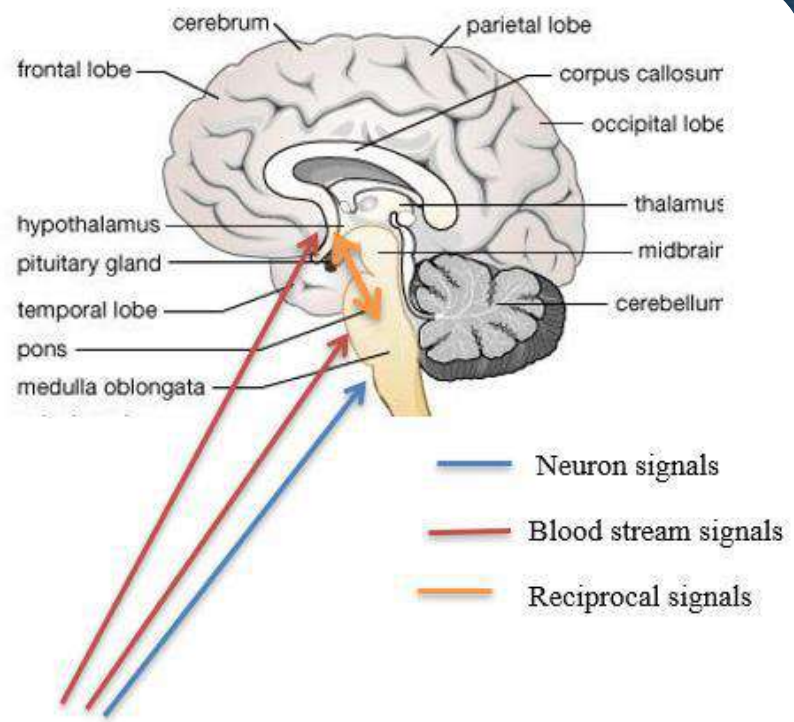


MIS represents the GOLD standard


HOW DOES IT
WORK?


ONE STEP BEYOND...

Appetite control



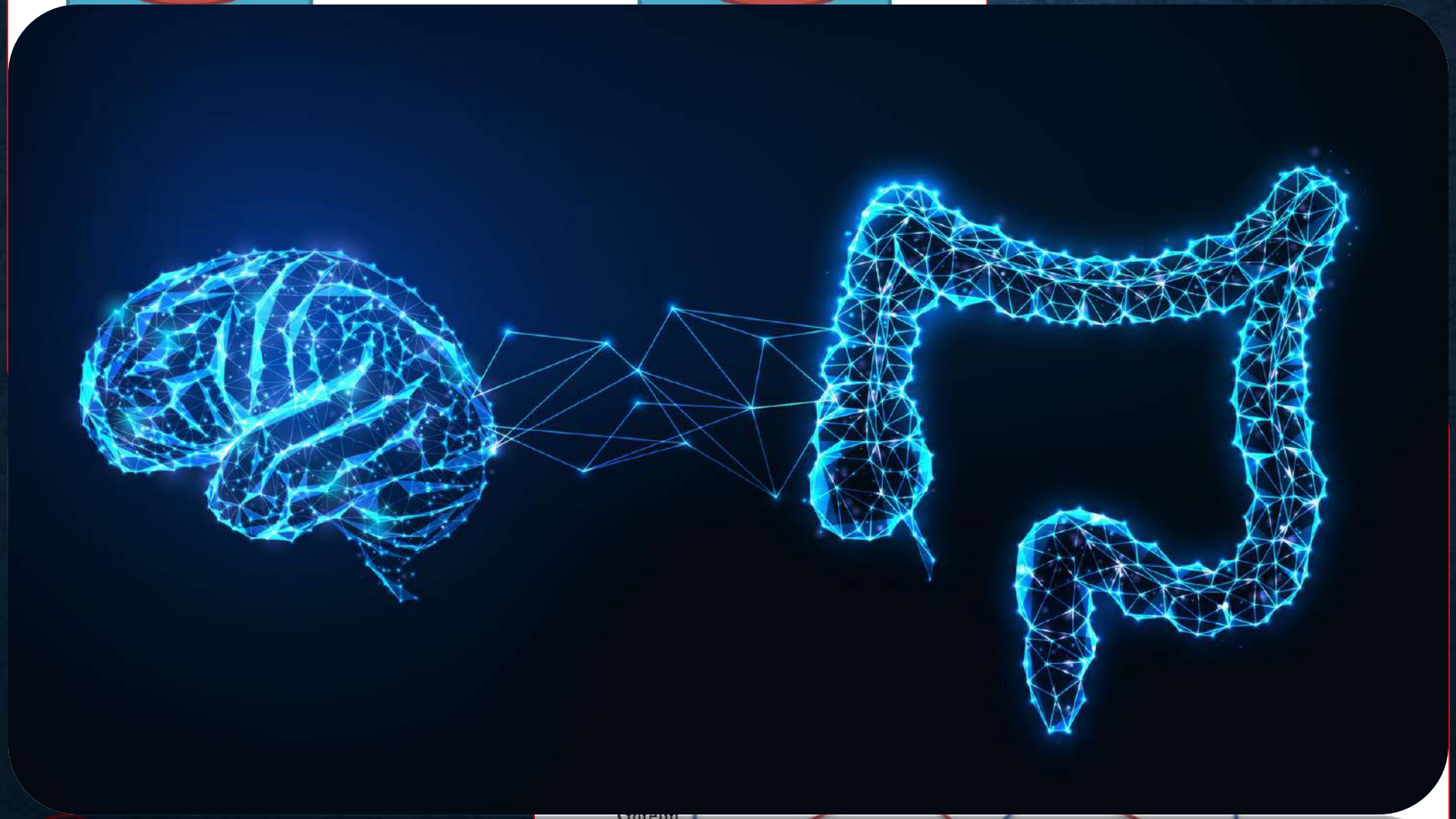
Integration of satiety and hunger signals involve several brain areas. Gut brain communication is through circulation reaching the median eminence of the hypothalamus and area postrema of the brainstem as well as the vagus nerve afferents that project to the nucleus tractus solitaries in the brain stem

In the arcuate nucleus of the hypothalamus (ARH)

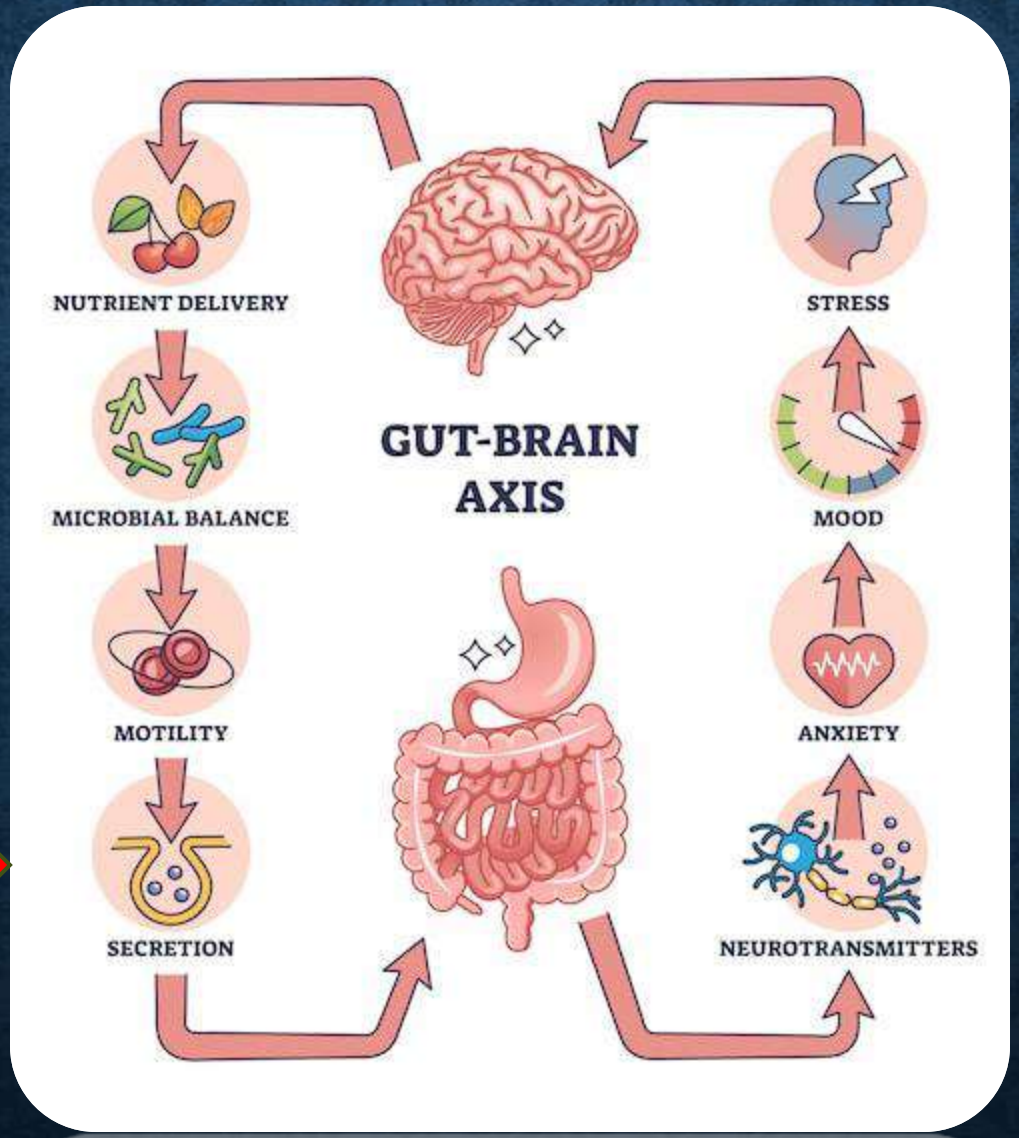
Anorexigenic (appetite suppressing) proopiomelanocortin (POMC) neurons

vs

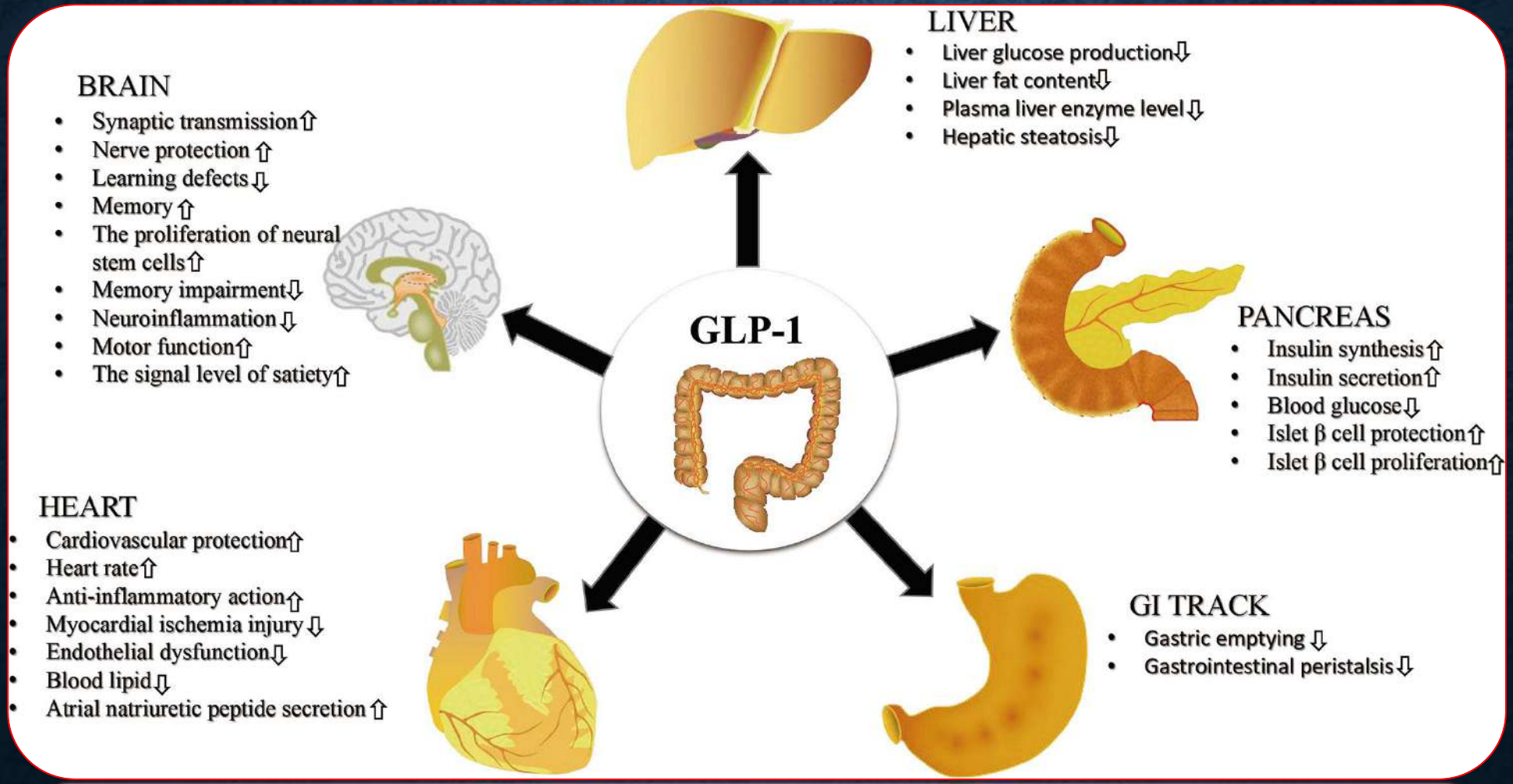
Orexigenic (appetite-increasing) neuropeptide Y (NPY)/agouti-related peptide (AgRP)


Paravenricular nucleus
MC4R
Paraventricular nucleus
MC4R
Leptin
Insulin
Stomach
Adipose Tissue
Pancreas

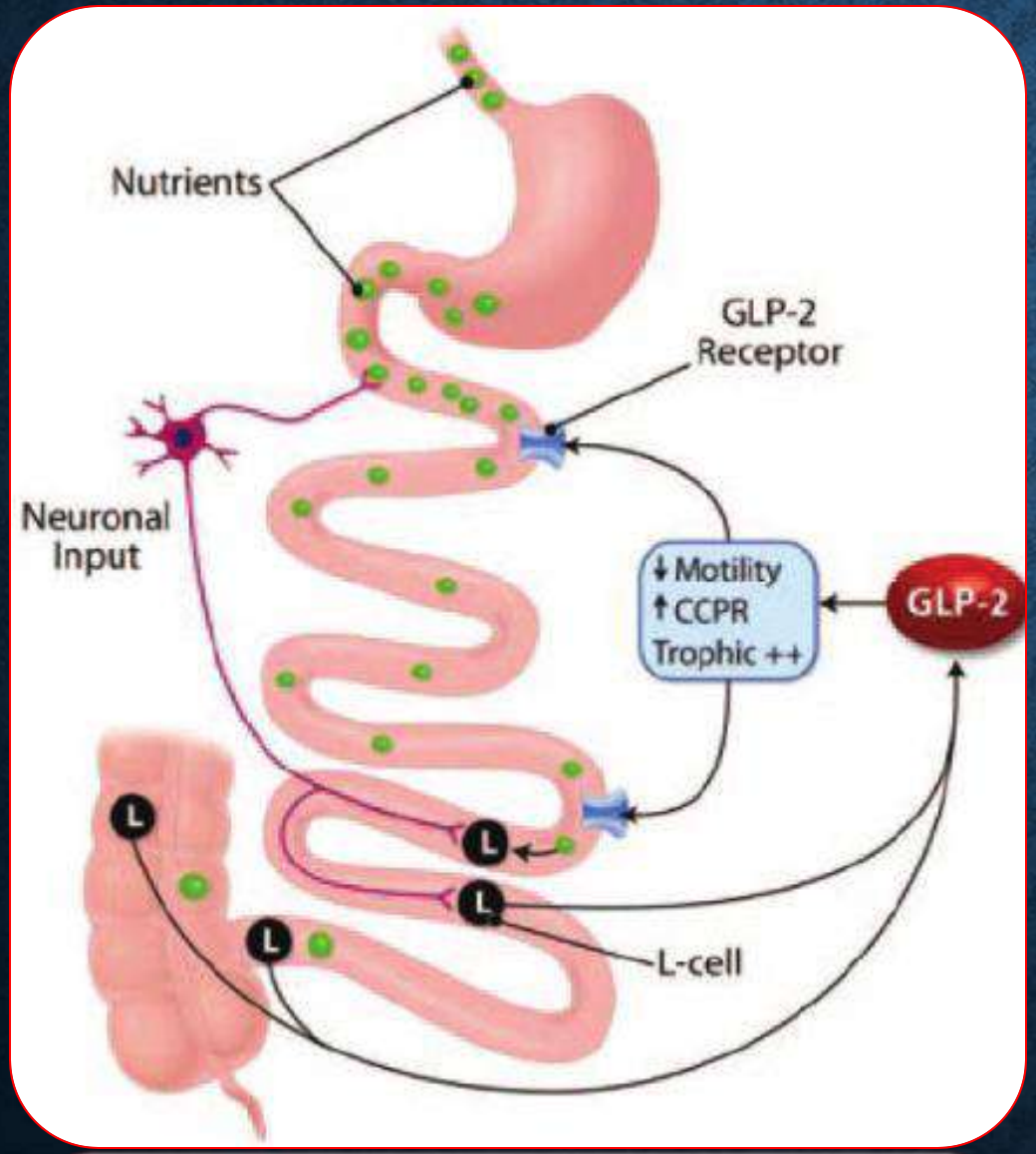
The Endocrine System of the Gut and the Control of Appetite



INCRETIN HORMONES

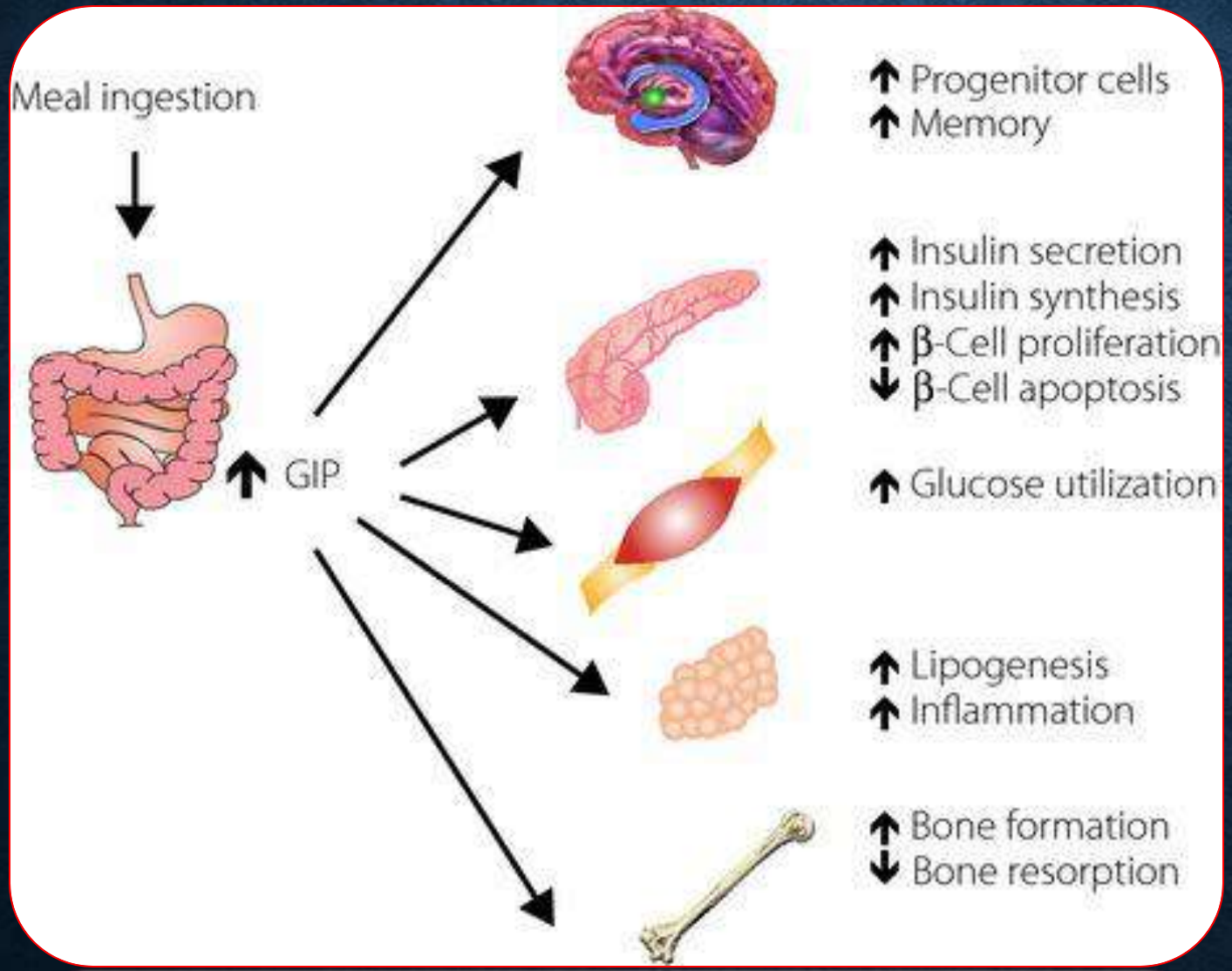


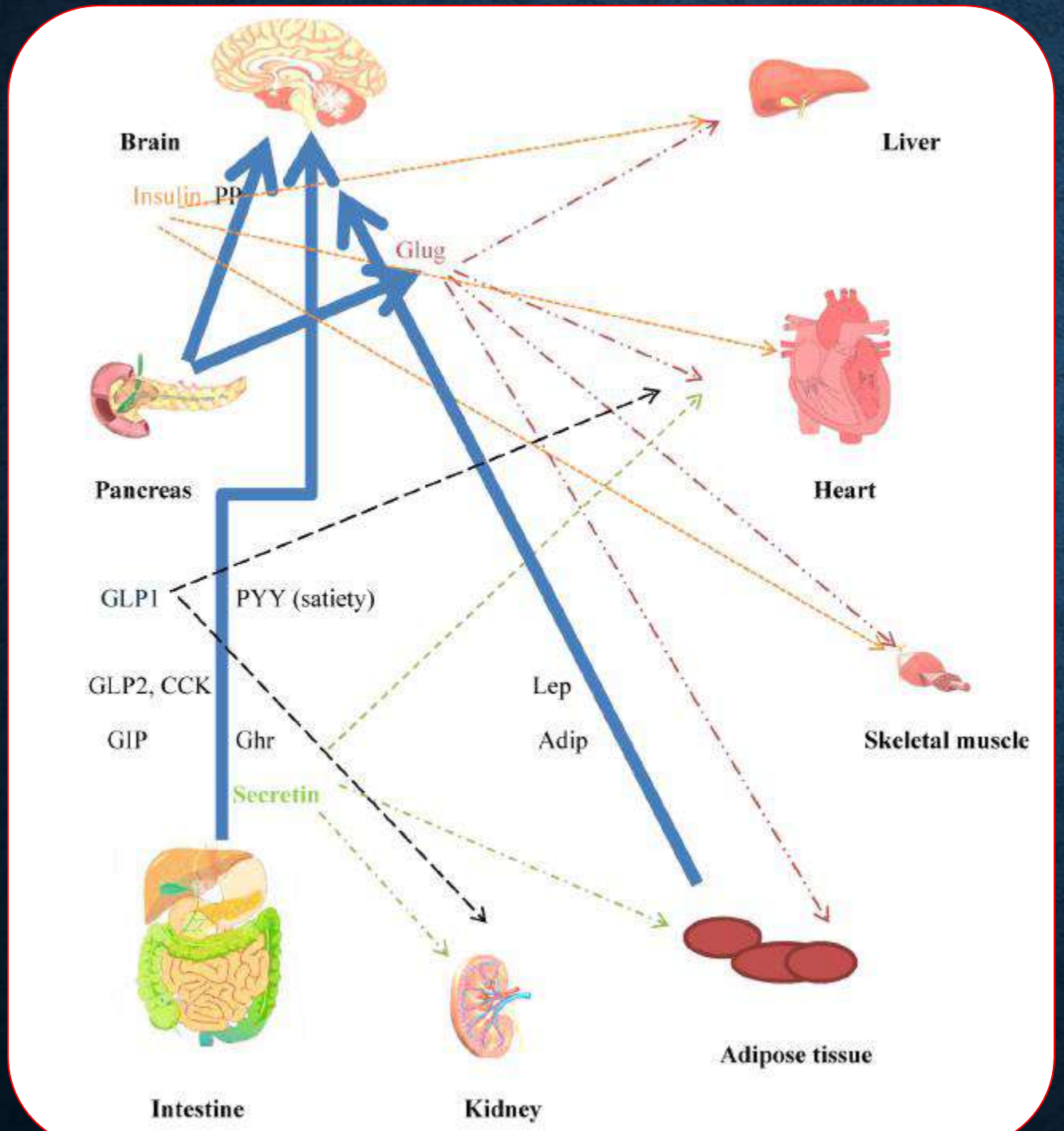
INCRETIN HORMONES



crypt cell proliferation rates

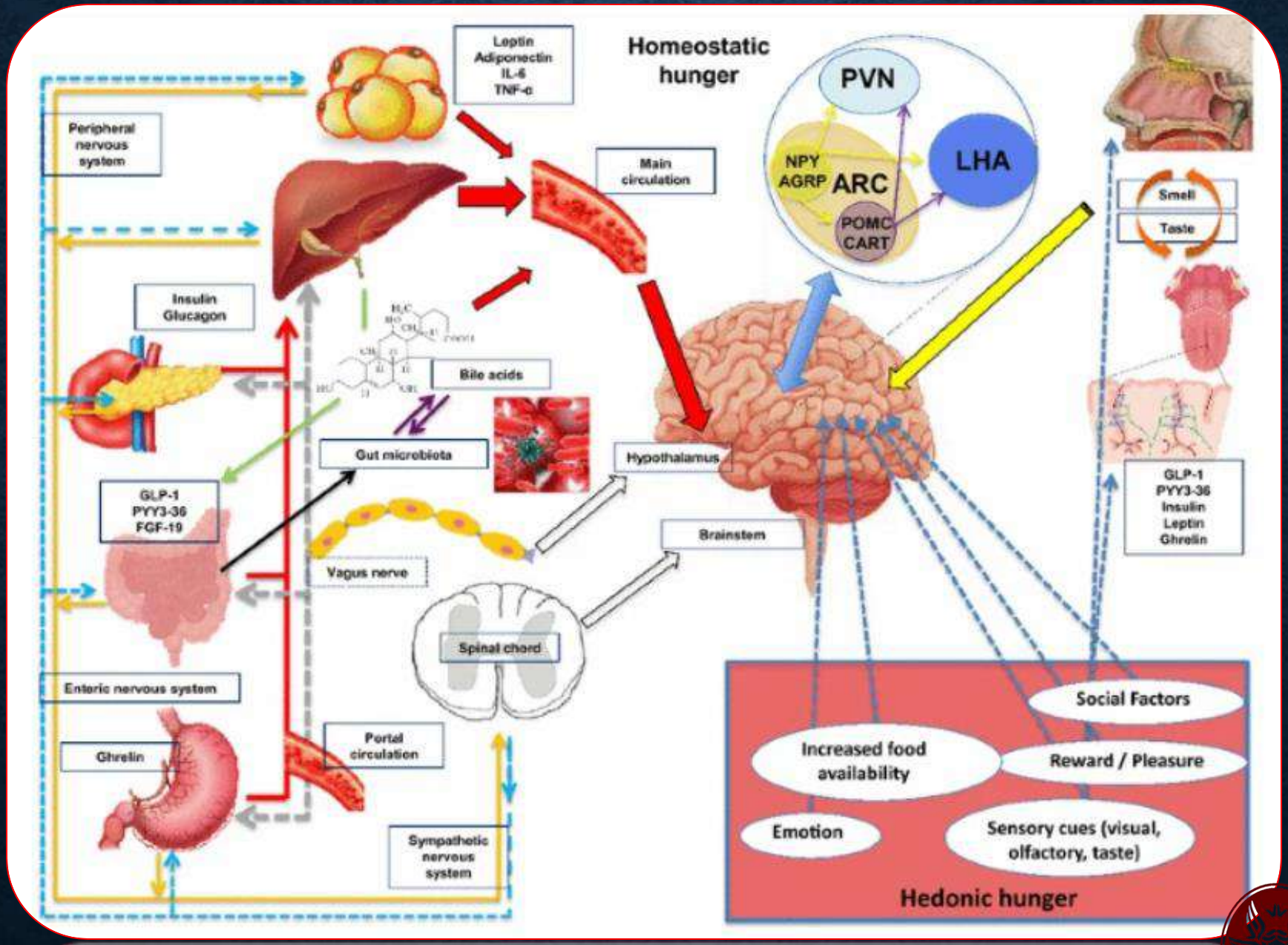
INCRETIN HORMONES

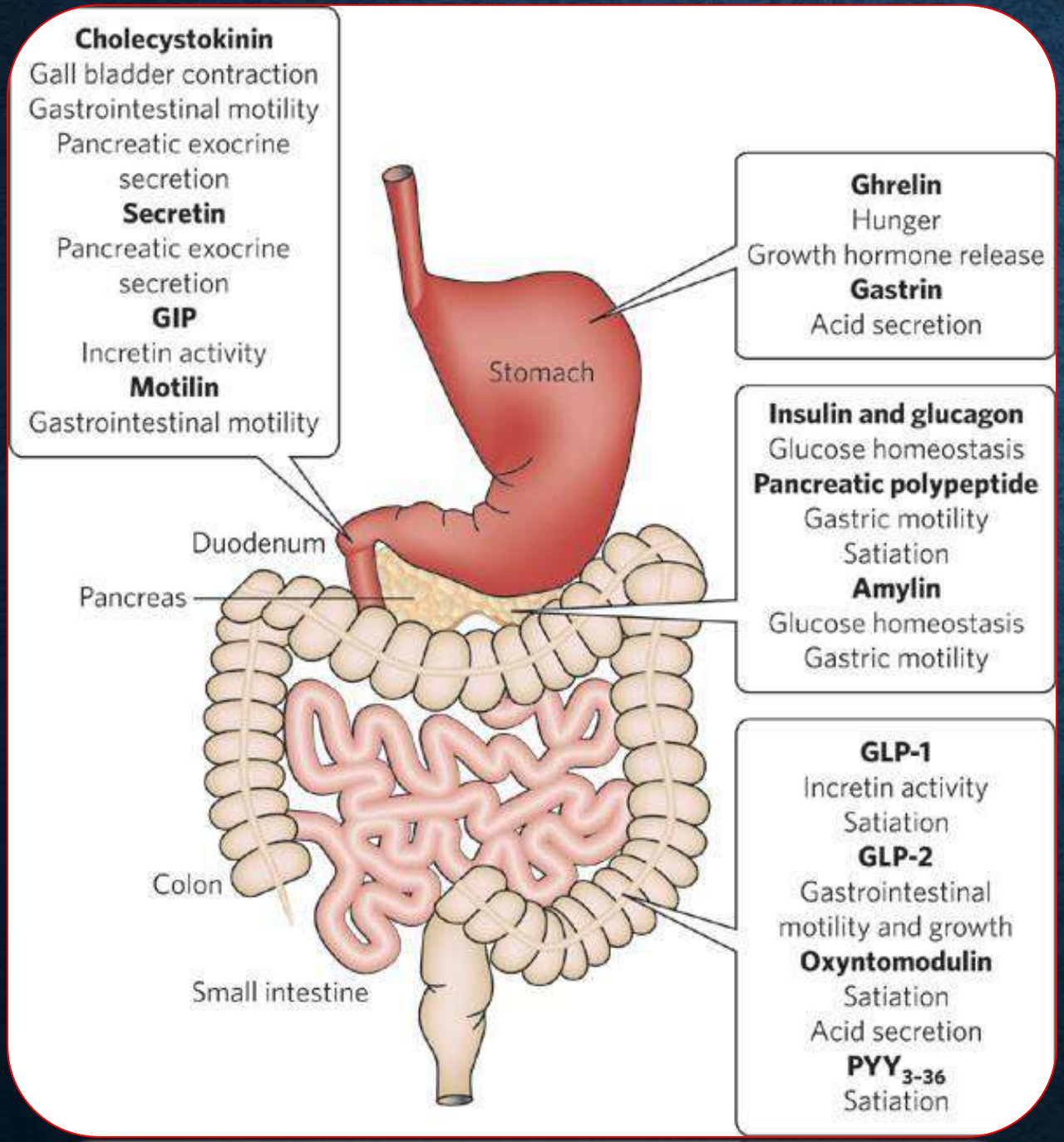




CCK (decreases food intake),
Lep: (anorexigenic),
Adip: adiponectin (orexigenic),
Ghr: ghrelin (orexigenic),
Sec: secretin (satiety hormone),

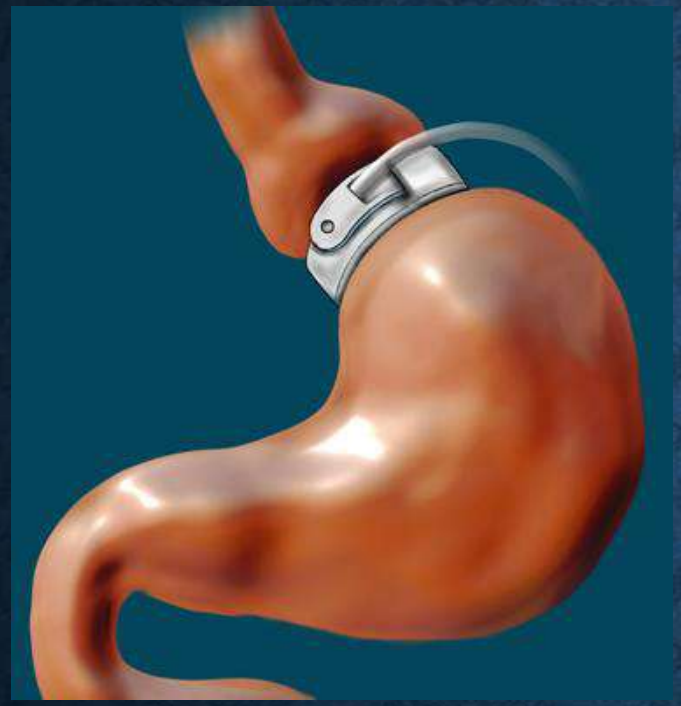
BARIATRIC SURGERY SECRET


Homeostatic hunger
Leptin
Adiponectin
IL-6
TNF-α
Peripheral nervous system
Main circulation
PVN
NPY
AGRP
ARC
LHA
POMC
CART
Smell
Taste
Insulin
Glucagon
Bile acids
Gut microbiota
Hypothalamus
GLP-1
PYY3-36
FGF-19
Vagus nerve
Brainstem
GLP-1
PYY3-36
Insulin
Leptin
Ghrelin
Spinal chord
Enteric nervous system
Portal circulation
Ghrelin
Sympathetic nervous system
Social Factors
Increased food availability
Reward / Pleasure
Emotion
Sensory cues (visual, olfactory, taste)
Hedonic hunger



HORMONAL ROUTE

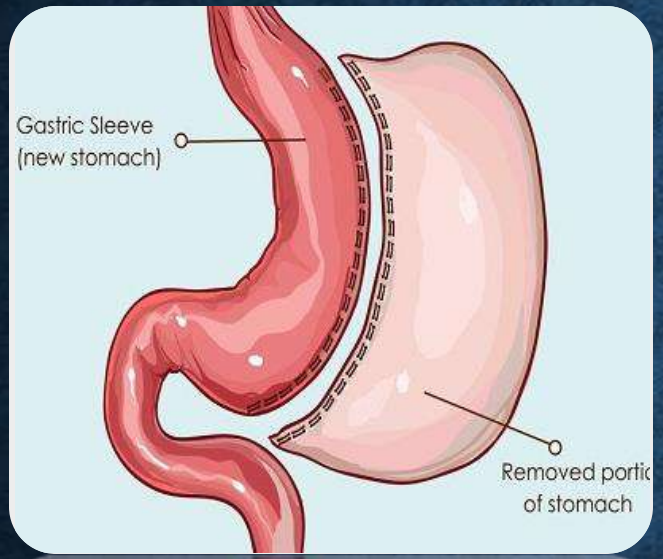
LAGB



↓ Hunger,
meal frequency and
caloric intake

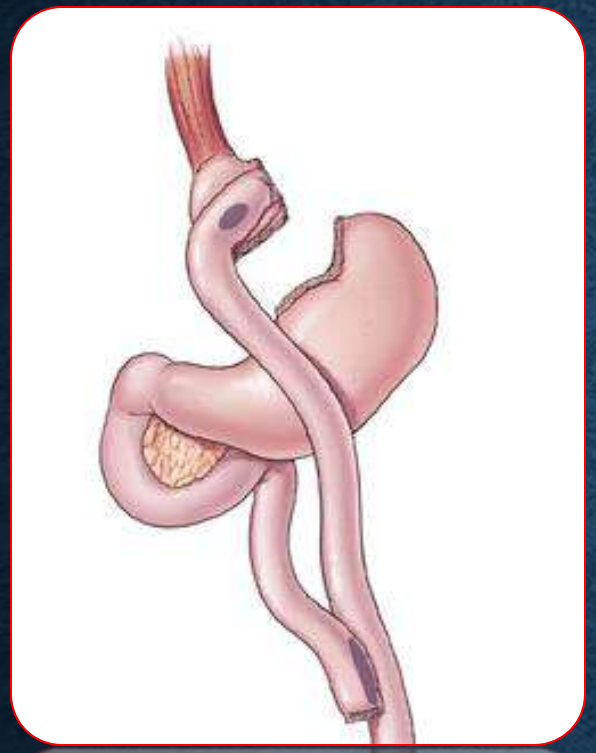
Metabolic effects weight loss mediated

LSG



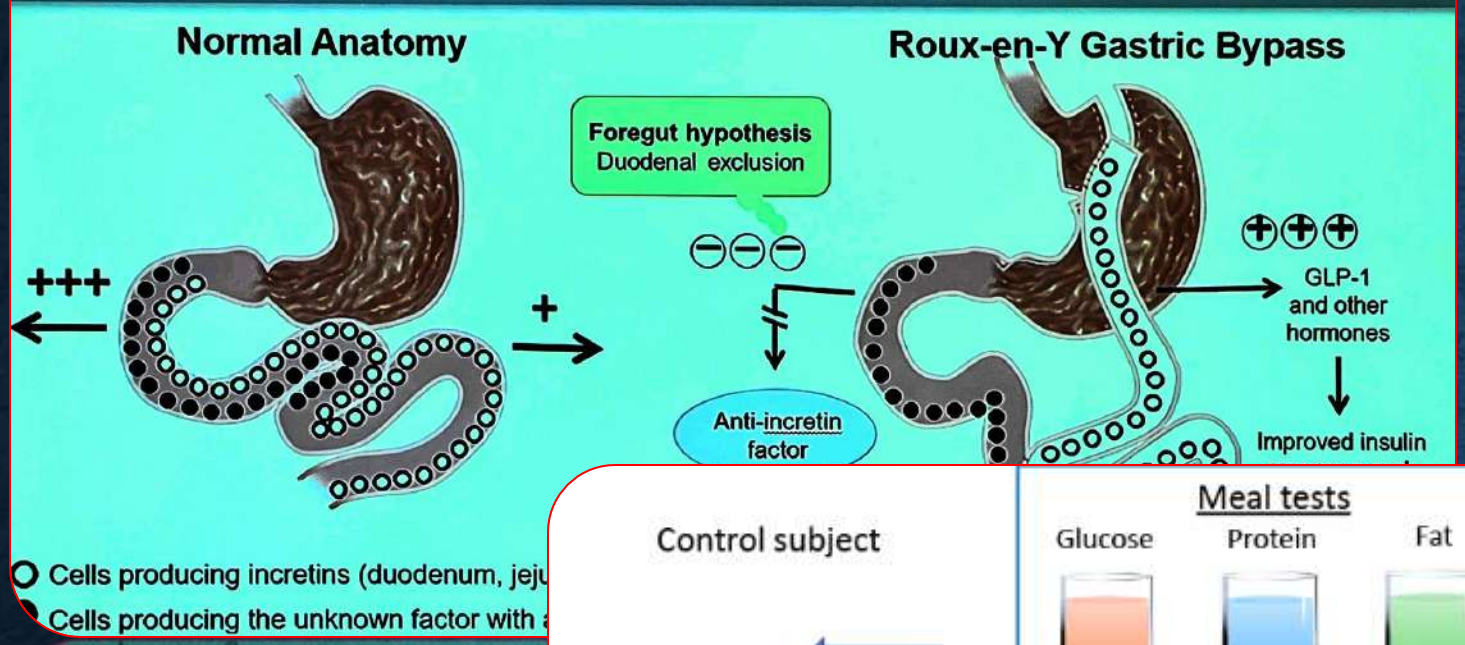
Calorie restriction	+
Vagal nerve signaling	↑
Taste and smell changes	+
Food aversions	+
Ghrelin	↓↓
Bile acid secretion	↑
Intestinal glucose uptake	
Fat malabsorption	
GLP-1	↑
PYY3-36	↑
GIP	
Oxyntomodulin	
FGF-19	↑
CCK	↑
Gastrin	↑
Neurotensin	

RYGB

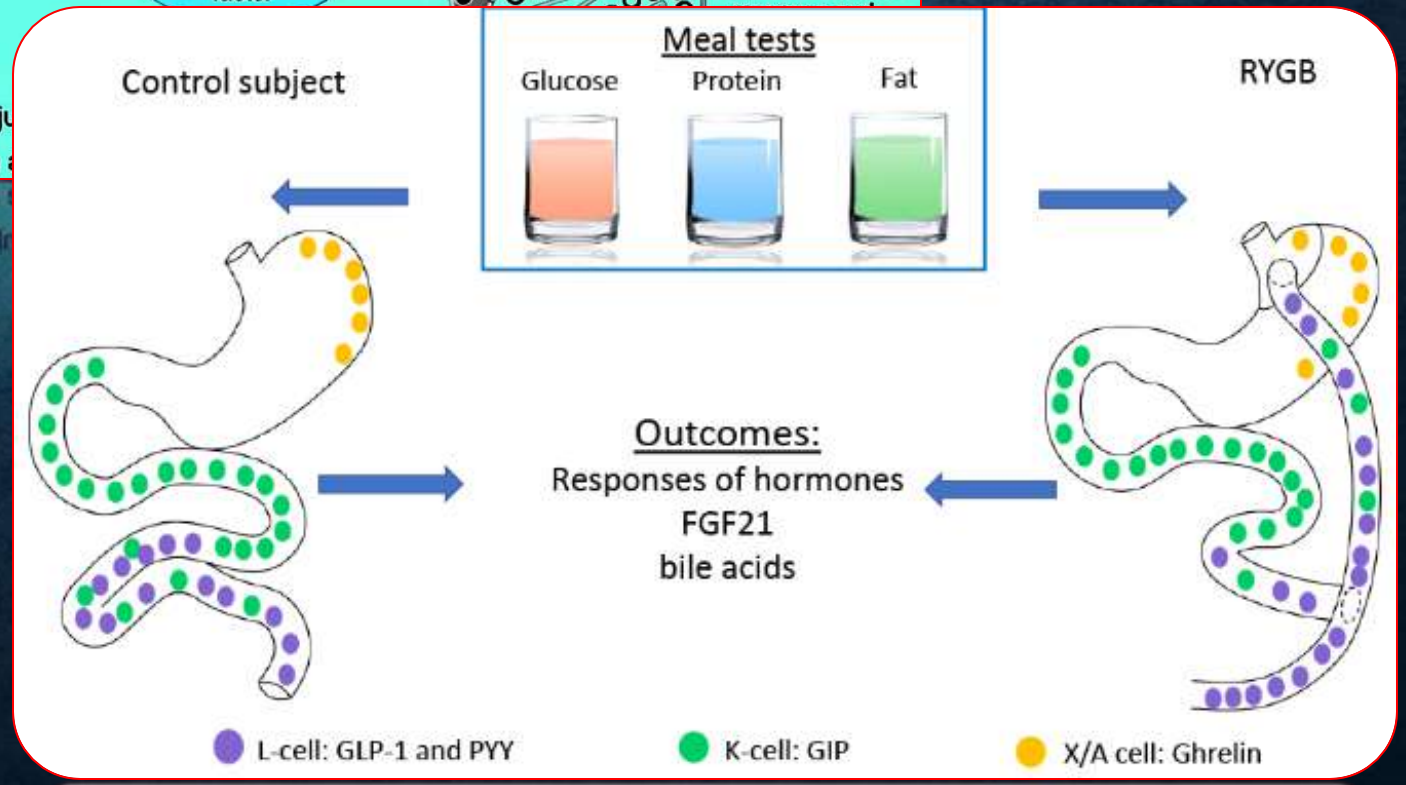


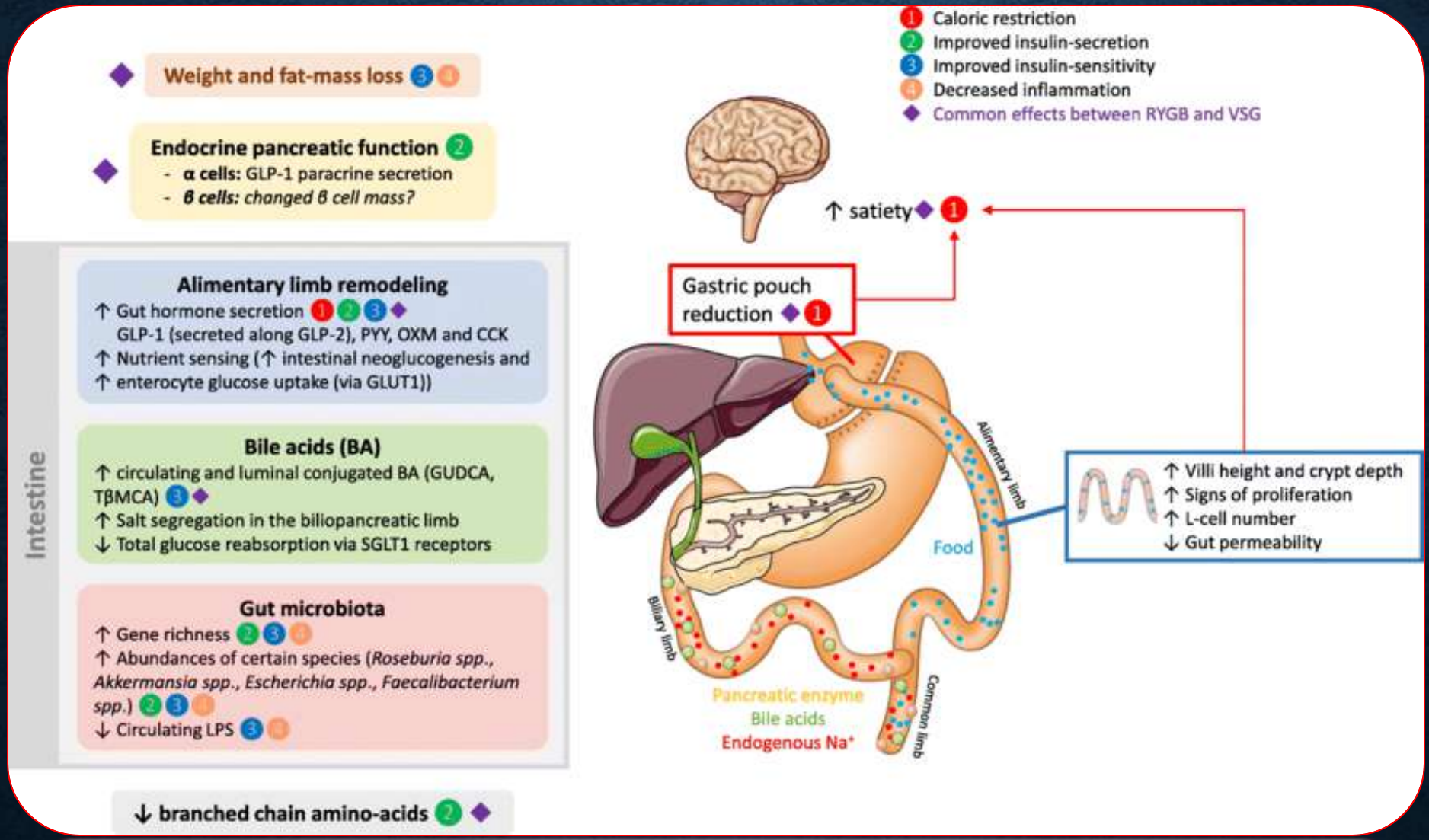
+	Calorie restriction
↑	Vagal nerve signaling
+	Taste and smell changes
+	Food aversions
↓	Ghrelin
↑	Bile acid secretion
↑	Intestinal glucose uptake
+	Fat malabsorption
↑↑	GLP-1
↑↑	PYY3-36
↓	GIP
↑	Oxyntomodulin
↑↑	FGF-19
↑	CCK
↓	Gastrin
↑	Neurotensin

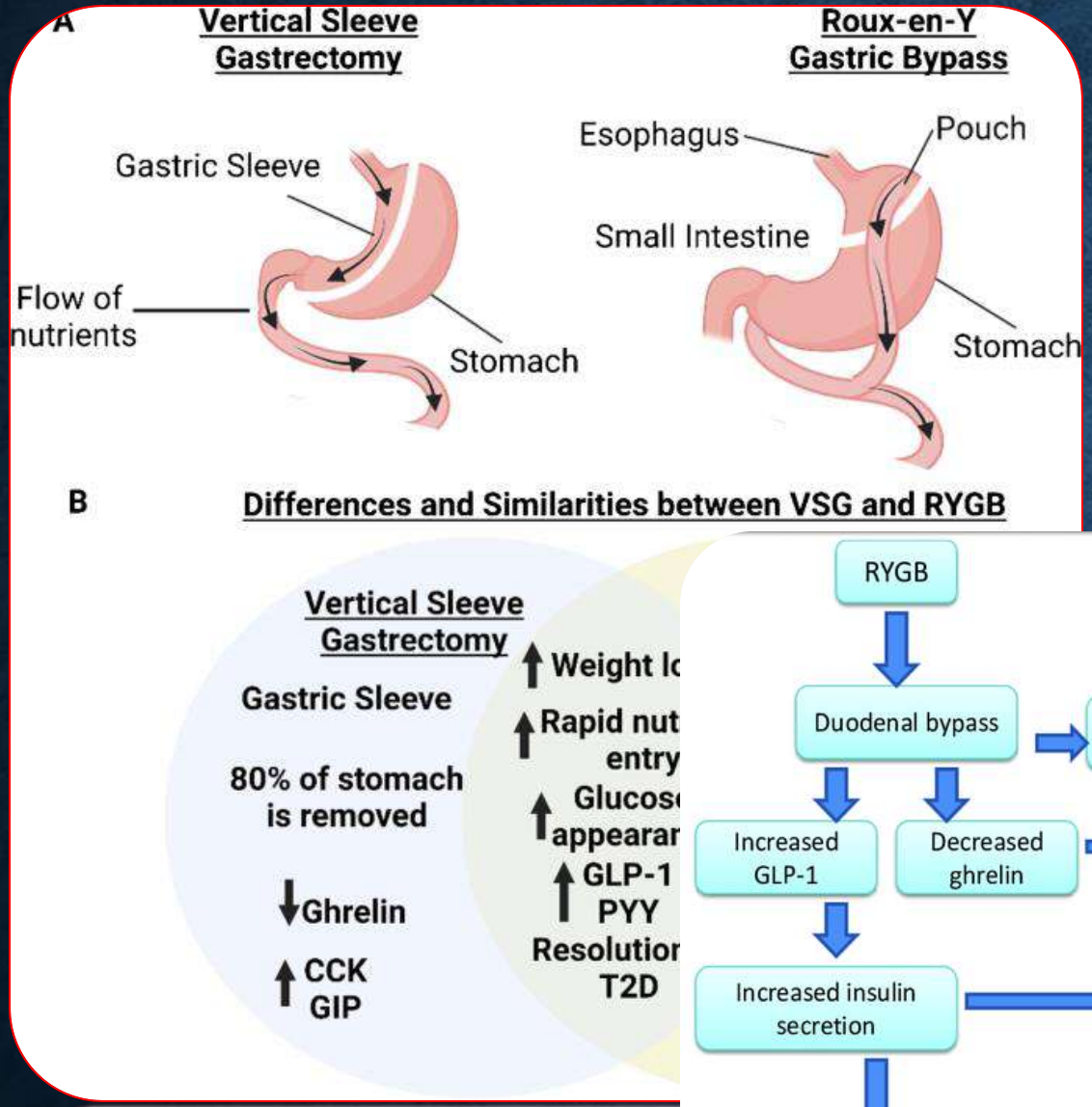
Foregut & Hindgut Hypothesis

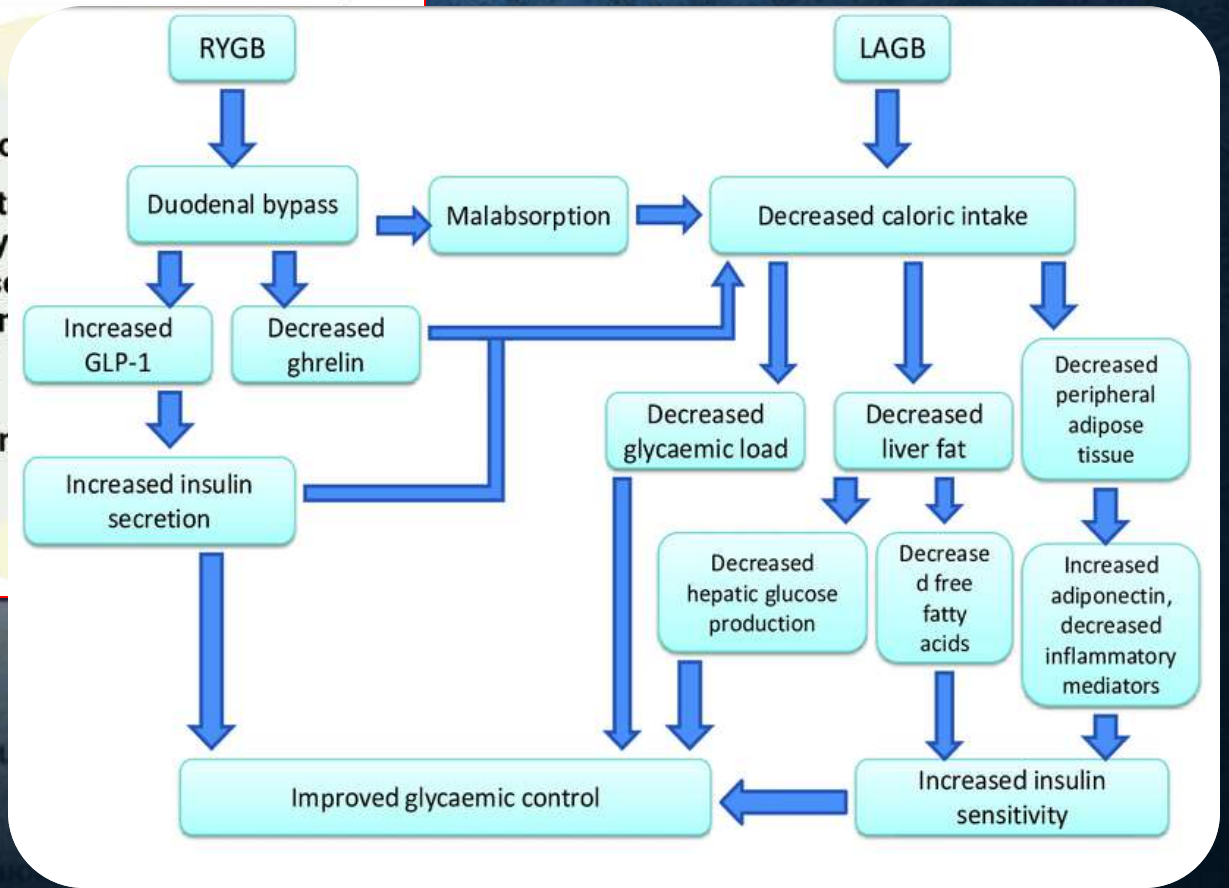


- Cells producing incretins (duodenum, jeju
- Cells producing the unknown factor with

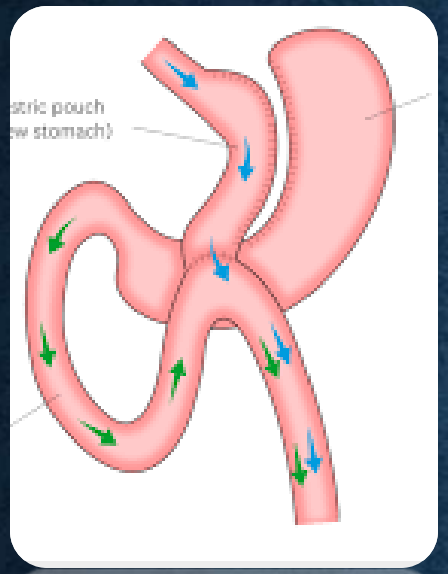



1 Caloric restriction
2 Improved insulin-secretion
3 Improved insulin-sensitivity
4 Decreased inflammation
◆ Common effects between RYGB and VSG
◆ Weight and fat-mass loss 3 4
◆ Endocrine pancreatic function 2
- α cells: GLP-1 paracrine secretion
- β cells: changed β cell mass?
Intestine
Alimentary limb remodeling
↑ Gut hormone secretion 1 2 3 ◆
GLP-1 (secreted along GLP-2), PYY, OXM and CCK
↑ Nutrient sensing (↑ intestinal neoglucogenesis and
↑ enterocyte glucose uptake (via GLUT1))
Bile acids (BA)
↑ circulating and luminal conjugated BA (GUDCA, TβMCA) 3 ◆
↑ Salt segregation in the biliopancreatic limb
↓ Total glucose reabsorption via SGLT1 receptors
Gut microbiota
↑ Gene richness 2 3 4
↑ Abundances of certain species (Roseburia spp., Akkermansia spp., Escherichia spp., Faecalibacterium spp.) 2 3 4
↓ Circulating LPS 3 4
↓ branched chain amino-acids 2 ◆
↑ satiety ◆ 1
Gastric pouch reduction ◆ 1
Alimentary limb
Food
Biliary limb
Pancreatic enzyme
Bile acids
Endogenous Na+
Common limb
↑ Villi height and crypt depth
↑ Signs of proliferation
↑ L-cell number
↓ Gut permeability


A
Vertical Sleeve Gastrectomy
Roux-en-Y Gastric Bypass
Gastric Sleeve
Flow of nutrients
Stomach
Esophagus
Pouch
Small Intestine
Stomach
B
Differences and Similarities between VSG and RYGB
Vertical Sleeve Gastrectomy
Gastric Sleeve
80% of stomach is removed
Ghrelin
CCK
GIP
Weight lo
Rapid nut entry
Glucose appearar
GLP-1
PYY
Resolution
T2D


RYGB
LAGB
Duodenal bypass
Malabsorption
Decreased caloric intake
Increased GLP-1
Decreased ghrelin
Increased insulin secretion
Decreased glycaemic load
Decreased liver fat
Decreased peripheral adipose tissue
Decreased hepatic glucose production
Decrease d free fatty acids
Increased adiponectin, decreased inflammatory mediators
Improved glycaemic control
Increased insulin sensitivity

OAGB



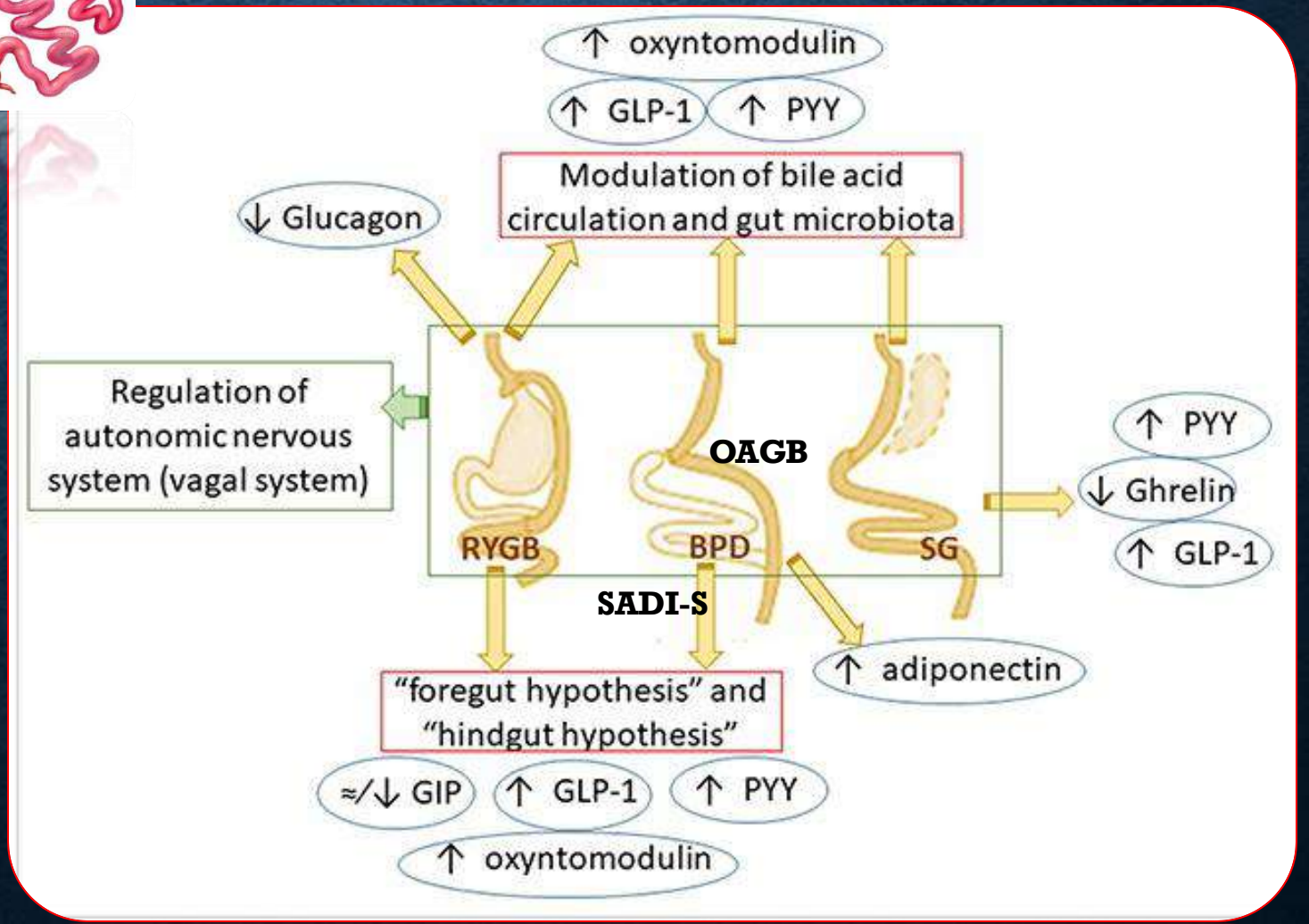
Kular-Rutledge hypothesis:
Functional restriction

- **Long gastric pouch**
- **Anastomoses size (no restrictive)**
- **Energy intake reduction (> 25-30%)**
- **Hormonal stimulation/modification**

(PYY-3-36, NPY, Glucagon, GLP1)

BPD-SADI

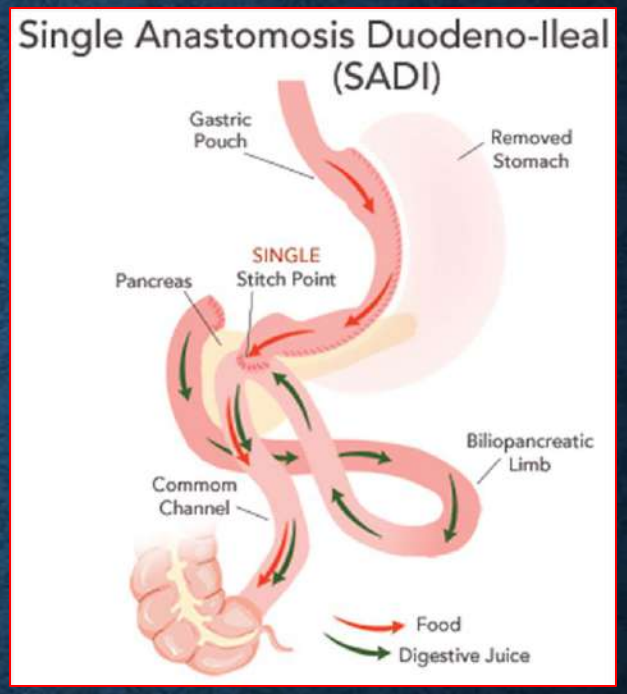

Biliopancreatic diversion
bypass surgery


↑ oxyntomodulin
↑ GLP-1
↑ PYY
Modulation of bile acid circulation and gut microbiota
↓ Glucagon
Regulation of autonomic nervous system (vagal system)
OAGB
RYGB
BPD
SG
SADI-S
↑ PYY
↓ Ghrelin
↑ GLP-1
↑ adiponectin
"foregut hypothesis" and "hindgut hypothesis"
≈/↓ GIP
↑ GLP-1
↑ PYY
↑ oxyntomodulin

- Ideata da Sanchez- Pernaute nel 2007

- Semplificazione della diversione biliopancreatica con duodenal switch (BPD-DS)

- Affronta alcuni limiti di interventi bariatrici standard. (Weight regain/Inadeguate weight loss, Relapse delle comorbidità, difficoltà tecniche, ernie interne).



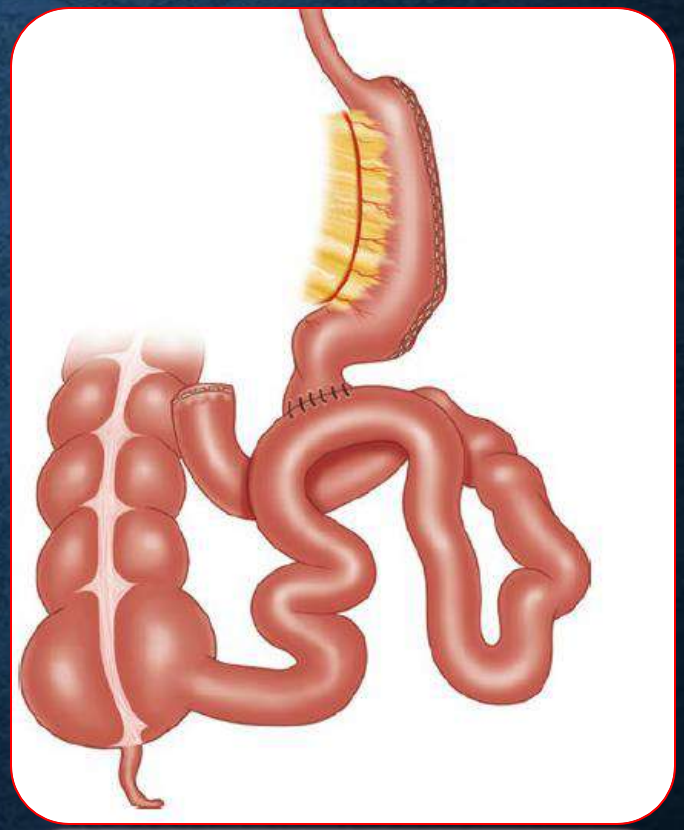
- Prevede l’esecuzione di una Sleeve Gastrectomy seguita da una singola anastomosi termino-laterale tra la prima sezione duodenale prossimalmente il piloro ed ileo

- L’anastomosi singola prende ispirazione dal OAGB

- Preservazione del piloro (Limitazione del reflusso alcalino?)

- Il tratto comune varia dai 250 ai 300 cm

- Un tratto comune < 250 cm aumenta il rischio di riconversione per malnutrizione (fino all’8%)



2020

ASMBS Guidelines/Statements

American Society for Metabolic and Bariatric Surgery updated statement on single-anastomosis duodenal switch

Kara Kallies, M.S.*, Ann M. Rogers, M.D., F.A.C.S., F.A.S.M.B.S., for the American Society for Metabolic and Bariatric Surgery Clinical Issues Committee

Endorsement

"The SADI-S procedure, as a variant of classic DS therefore merits consideration for ASMBS endorsement as a modification of an already-endorsed metabolic/bariatric procedure".

Surgical Endoscopy (2020) 34:2332–2358
https://doi.org/10.1007/s00464-020-07555-y

2020

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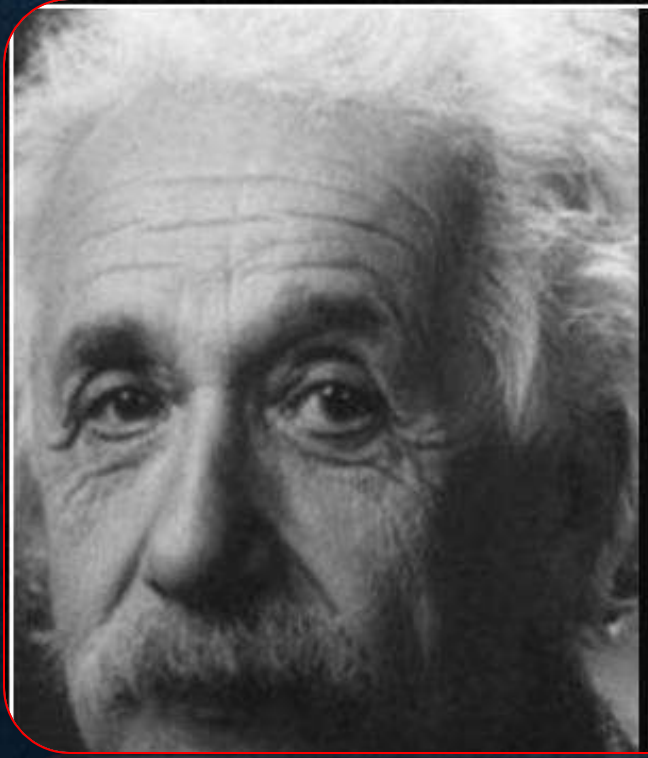
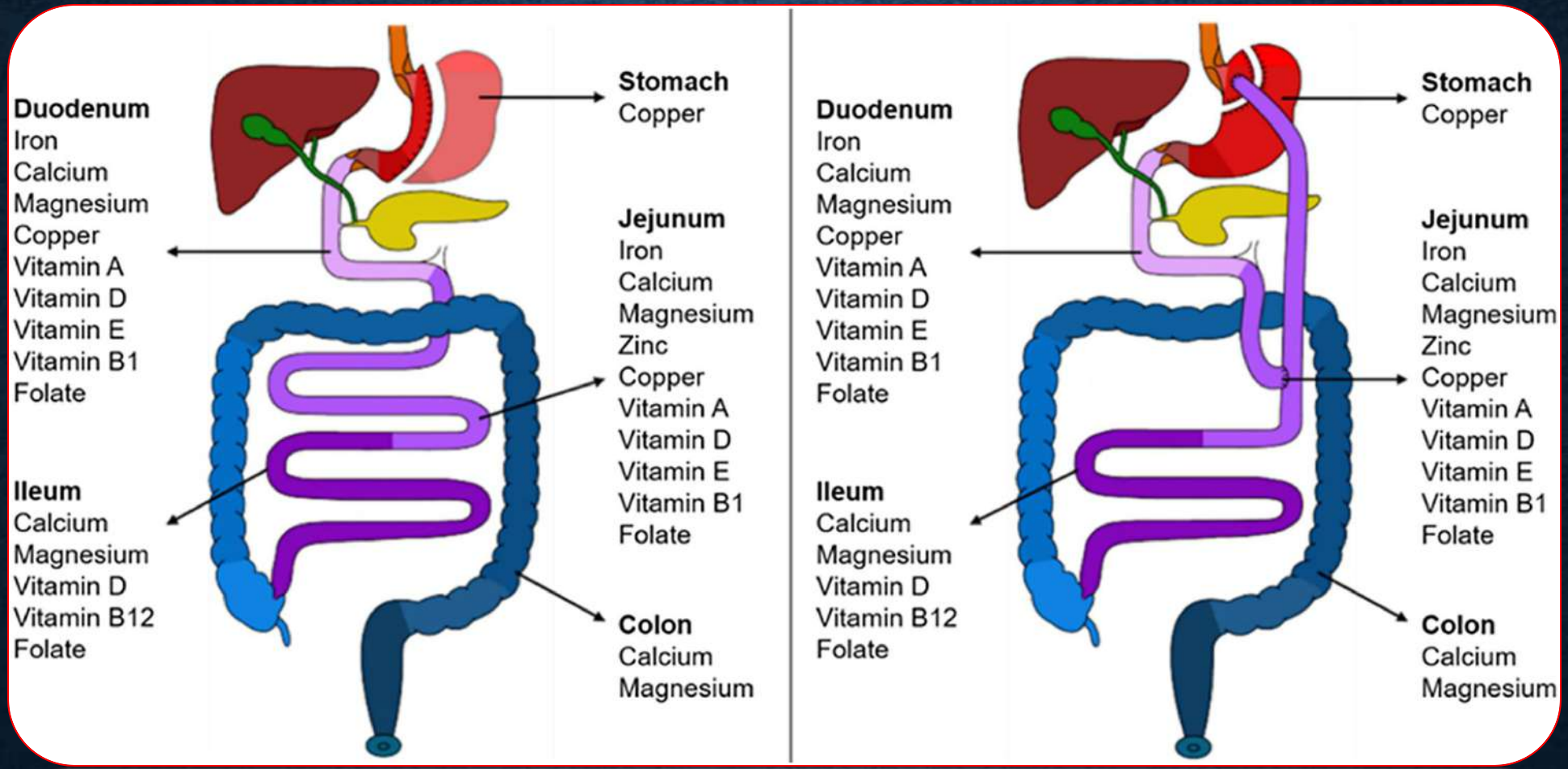
Nicola Di Lorenzo[1] · Stavros A. Antoniou[2,3] · Rachel L. Batterham[4,5] · Luca Busetto[6] · Daniela Godoroja[7] · Angelo Iossa[8] · Francesco M. Carrano[9] · Ferdinando Agresta[10] · Isaias Alarçon[11] · Carmil Azran[12] · Nicole Bouvy[13] · Carmen Balaguè Ponz[14] · Maura Buza[15] · Catalin Copaescu[15] · Maurizio De Luca[16] · Dror Dicker[17] · Angelo Di Vincenzo[6] · Daniel M. Felsenreich[18] · Nader K. Francis[19] · Martin Fried[20] · Berta Gonzalo Prats[14] · David Goitein[21,22] · Jason C. G. Halford[23] · Jitka Herlesova[20] · Marina Kalogridaki[24] · Hans Ket[25] · Salvador Morales-Conde[11] · Giacomo Piatto[16] · Gerhard Prager[18] · Suzanne Pruijssers[13] · Andrea Pucci[4,5] · Shlomi Rayman[21,22] · Eugenia Romano[23] · Sergi Sanchez-Cordero[26] · Ramon Vilallonga[27] · Gianfranco Silecchia[8]

No recommendation on SADI-S compared with OAGB, BPD/DS, RYGB or sleeve gastrectomy can be made on the basis of available evidence



If there is no price to be paid, it is also not of value.

— Albert Einstein —


Duodenum
Iron
Calcium
Magnesium
Copper
Vitamin A
Vitamin D
Vitamin E
Vitamin B1
Folate
Ileum
Calcium
Magnesium
Vitamin D
Vitamin B12
Folate
Stomach
Copper
Jejunum
Iron
Calcium
Magnesium
Zinc
Copper
Vitamin A
Vitamin D
Vitamin E
Vitamin B1
Folate
Colon
Calcium
Magnesium
Duodenum
Iron
Calcium
Magnesium
Copper
Vitamin A
Vitamin D
Vitamin E
Vitamin B1
Folate
Ileum
Calcium
Magnesium
Vitamin D
Vitamin B12
Folate
Stomach
Copper
Jejunum
Iron
Calcium
Magnesium
Zinc
Copper
Vitamin A
Vitamin D
Vitamin E
Vitamin B1
Folate
Colon
Calcium
Magnesium

CONDITION	VITAMIN B_1	VITAMIN B_{12}	VITAMIN B_2	VITAMIN B_6	FOLATE	VITAMIN D	VITAMIN A	VITAMIN E	COPPER	PROTEIN
Wernicke's encephalopathy, Korsakoff syndrome, Beriberi	X									
Gait abnormalities	X	X		X					X	
Polyradiculoneuropathy	X									
Night blindness							X			
Optic neuropathy	X	X		X	X		X		X	
Myelopathy		X		X					X	
Neuropathy	X	X								
Peripheral neuropathy		X		X	X			X	X	
Polyneuropathy				X						
Myopathy						X		X	X	X
Restless leg syndrome					X					
Burning feet syndrome			X							
Dementia and depression		X								
Sensory ataxia									X	
Decreased immunity						X	X			
Fatigue		X			X					

FOLLOW-UP..CRUCIAL

DECISION MAKING PROCESS

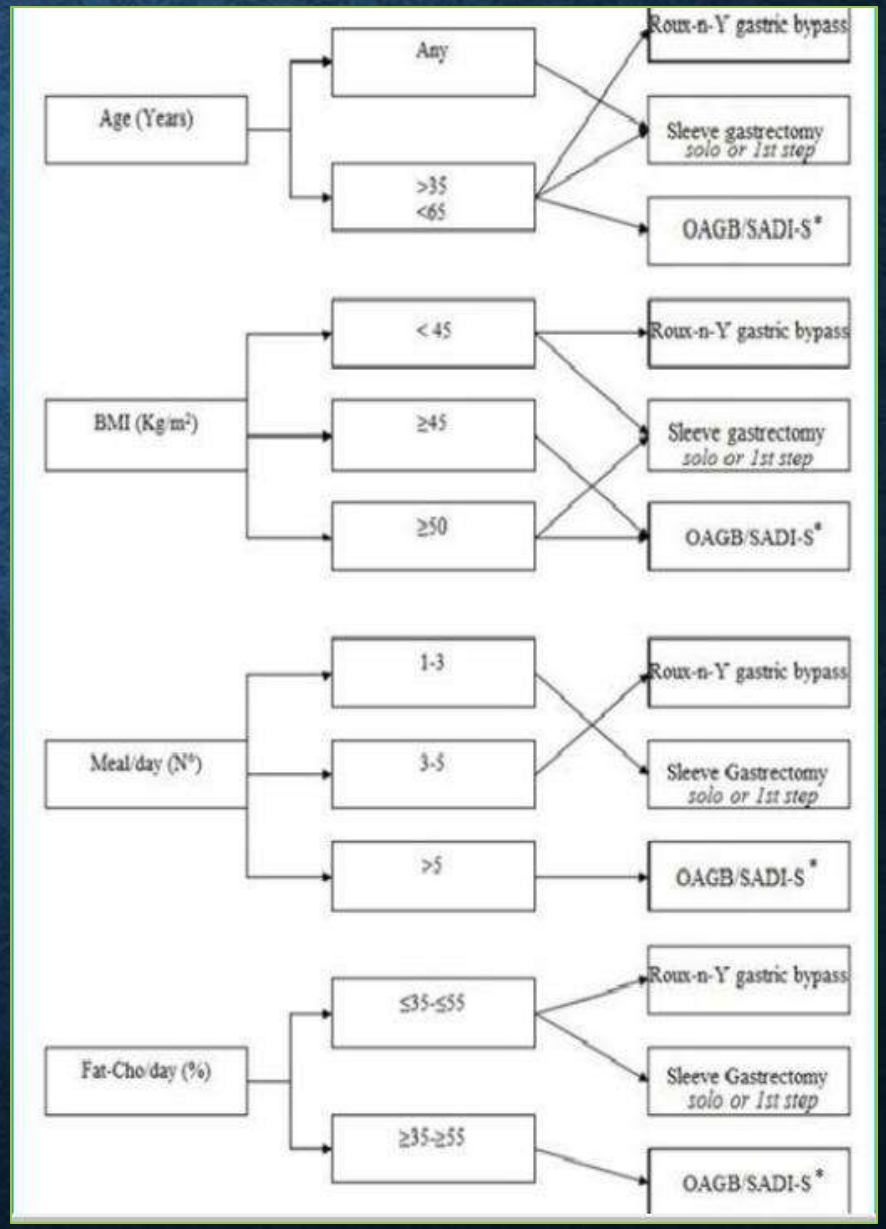
Identification and Association of Obese Patients Seeking Bariatric Surgery with Lifestyle and Eating Patterns: One-Year Observational Study in Italy and Proposal of Eating-Pattern Based Decision-Making Process

Angelo Iossa*, Alberto Di Biasio, Ilenia Coluzzi, Maria Chiara Ciccioriccio and Gianfranco Silecchia

Department of Medical-Surgical Science and Biotechnology, University of Rome, Italy

*Corresponding author: Angelo Iossa, Department of Medical-Surgical Science and Biotechnology, Sapienza University of Rome, Italy

Received: September 15, 2020, Accepted: October 05, 2020, Published: October 12, 2020



NOVITA' TECNICHE..L'ENDOSCOPIA IN BARIATRICA

OBES SURG (2017) 27:2279–2289
DOI 10.1007/s11695-017-2666-x

ORIGINAL CONTRIBUTIONS

Bariatric Surgery and Endoluminal Procedures: IFSO Worldwide Survey 2014

L. Angrisani[1] · A. Santonicola[2] · P. Iovino[2] · A. Vitiello[1] · N. Zundel[3] · H. Buchwald[4] · N. Scopinaro[5]

14,725 (2.4%) endoluminal procedures

Table 3 Total number and percentage of endoluminal procedures performed worldwide in 2014

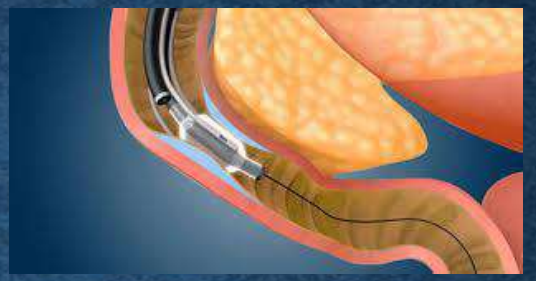
Procedures	Number	Percentage
Orbera/BIB	1664	11.6
Obalon	741	5.2
Spatz adjustable balloon system	62	0.4
Heliosphere bag	7	0.05
POSE	25	0.2
Apollo	6	0.04
Endobarrier	112	0.8
Not specified	11,658	81.6
Total	14,275	100

Table 1. Summary of different areas of bariatric endoscopy innovation

Primary procedures		Management of complications		Management of concomitant conditions	
Intragastric balloons	Orbera	Leaks	Septotomy	Achalasia	POEM
	Reshape		Double-pigtail stent		
	Obalon		Endoscopic vacuum therapy		
Aspiration therapy	AspireAssist system	Weight regain	TORe	Gastroparesis	POP
			ROSE		
Endoluminal bypass liners	Duodeno-jejunal bypass sleeve			Cholelithiasis	EDGE procedure
	Gastro-duodenal bypass liner				
Transpyloric shuttle					
Magnetic compression gastrojejunostomy	Incisionless magnetic anastomosis system				
Mucosal resurfacing for diabetes					
Endoscopic sleeve gastroplasty	OverStitch				

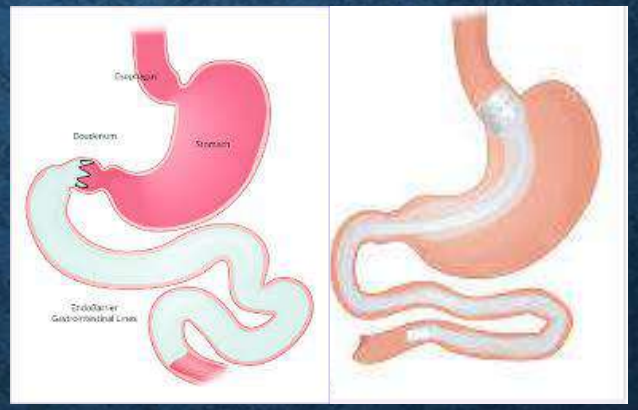
!

FDA approval
EWL 17.2% 1 y

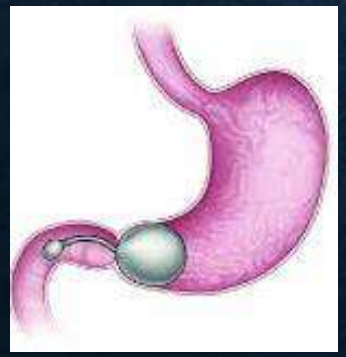


NO FDA approval
Sustained HbA1c improvement in 37 pts..12 M FU

FDA approval
EWL 37.2% 1 y
PATHWAY trial
Complications..?

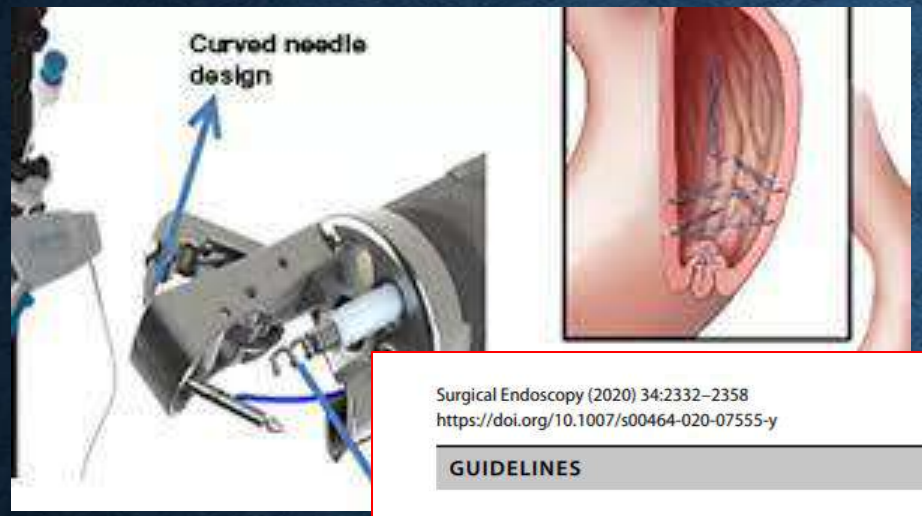


NO FDA approval
EWL 23.2-47% 1 y
Complications..?



FDA approval
EWL 30-50% 1 y

NO FDA approval
1 human study
EWL 40% 1 y



FDA approval
154 pts 85% EWL 25%
3 leaks

Surgical Endoscopy (2020) 34:2332–2358
https://doi.org/10.1007/s00464-020-07555-y

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Position statement

For duodenal-jejunal bypass sleeves, aspiration devices and duodenal mucosal resurfacing, the quality of evidence was too low to provide any recommendations

Surgical Endoscopy (2020) 34:2332–2358
https://doi.org/10.1007/s00464-020-07555-y

2020

GUIDELINES

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Band today

Position statement

Adjustable gastric banding surgeries are associated with a high rate of reoperations for complications or conversion to another bariatric procedure for insufficient weight loss in the long term

"American Society for Metabolic and Bariatric Surgery 2018 estimate of metabolic and bariatric procedures performed in the United States"

2018

Short Title: "2018 bariatric surgery numbers estimate"

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	2011	2012	2013	2014				
Sleeve	17.8%	33.0%	42.1%	51.7%				
RYGBP	36.7%	37.5%	34.2%	26.8%				
Band	35.4%	20.2%	14.0%	9.5%				
BPD-DS	0.9%	1.0%	1.0%	0.4%				
Revision	6.00%	6.00%	6.00%	11.50%	13.55%	13.95%	14.14%	15.4%
Other	3.20%	2.30%	2.70%	0.10%	3.19%	2.63%	2.46%	2.3%
Balloons					0.36%	2.66%	2.75%	2.0%

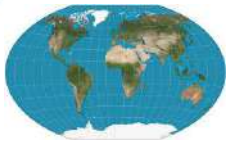
Table 1. Percentage breakdown of all metabolic and bariatric procedures, 2011-2018.

OBES SURG (2018) 28:313–322
DOI 10.1007/s11695-017-2845-9

2018

ORIGINAL CONTRIBUTIONS

Bariatric Surgery Worldwide: Baseline Demographic Description and One-Year Outcomes from the Second IFSO Global Registry Report 2013–2015



Richard Welbourn[1] · Dimitri J. Pournaras[1] · John Dixon[2] · Kelvin Higa[3] · Robin Kinsman[4] · Johan Ottosson[5] · Almino Ramos[6] · Bart van Wagensveld[7] · Peter Walton[4] · Rudolf Weiner[8] · Natan Zundel[9]

BPD-DS today

21/51.820

0.04%

Table 1—Operations developed for the management of obesity

JIB-related procedures

1953: R.L. Varco (unpublished observations)—end-to-end jejunoileostomy
1954: Kremen et al. (11)—end-to-end jejunoileostomy with ileocecostomy
1963: Payne and DeWind—end-to-side jejuno (transverse colon) colostomy
1965: Sherman et al.—end-to-side jejunoileostomy
1966: Lewis et al.—end-to-side jejunocecostomy
1969: Payne and DeWind—14 in × 4 in end-to-side jejunoileostomy
1971: Scott et al.—end-to-end jejunoileostomy with ileo (transverse colon or sigmoid colon) colostomy
1971: Salmon—end-to-end jejunoileostomy with ileo (transverse colon) colostomy
1971: Buchwald and Varco—40 cm and 4 cm end-to-end jejunoileostomy with ileocecostomy
1977: Forestieri et al.—end-to-side jejunoileostomy with proximal jejunal valve construction
1978: Starkloff et al.—end-to-side jejunoileostomy with proximal jejunal valve construction
1980: Palmer and Marliss—end-to-side jejunoileostomy with proximal jejunal valve construction
1988: Cleator and Gourlay—ileogastrostomy to drain bypassed intestine
1989: Dorton and Kral—duodenoileal bypass

BPD/DS-related procedures

1979: Scopinaro et al. (19)—subtotal horizontal gastrectomy, 250 cm Roux gastrojejunostomy, 50 cm common channel
1993: Marceau et al. (20)—SG, pylorus preservation, cross-stapling of duodenum, duodenoileostomy, ~100 cm common channel
1994: Hess and Hess (21)—SG, pylorus preservation, duodenoileostomy, ~100 cm common channel

Other innovative procedures

1974: Quaade et al.—hypothalamic stimulation and ablation
1996: Cigaina et al.—paced gastric electrode stimulation
1999: Mason—ileal transposition
2008: Camilleri et al.—paced vagal nerve blockade
2008: Rodriguez-Grunert et al.—duodenojejunal exclusion
2008: Rodriguez-Grunert—endoluminal sleeve

RYGB-related procedures

1966: Mason and Ito (12)—horizontal gastric division with loop gastrojejunostomy
1977: Alden (13)—horizontal gastric cross-stapling with loop gastrojejunostomy
1977: Griffen et al. (14)—horizontal gastric cross-stapling with Roux-en-Y gastrojejunostomy
1983: Torres et al.—vertical gastric cross-stapling with Roux-en-Y gastrojejunostomy
1986: Linner and Drew—reinforced gastrojejunostomy with fascial band
1987: Torres and Oca—long-limb RYGB
1988: Salmon—combined RYGB and VBG
1989: Fobi et al. (33)—Silastic ring VBG proximal to RYGB
1994: Wittgrove et al.—first laparoscopic RYGB with end-to-end endoscopic stapling
1999: de la Torre and Scott—all intra-abdominal laparoscopic stapling
1999: Higa et al.—hand-sewn laparoscopic gastrojejunostomy

AGB-related procedures

1978: Wilkinson et al.—nonadjustable gastric band
1983: Molina and Oria—nonadjustable gastric band
1985: Bashour and Hill—gastro-clip
1986: Kuzmak (24)—AGB
1993: Broadbent et al.—nonadjustable gastric band laparoscopically
1993: Catona et al.—nonadjustable gastric band laparoscopically
1993: Belachew et al.—AGB laparoscopically
1993: Forsell et al.—AGB laparoscopically
1999: Cardiere et al.—AGB robotically

VBG-related procedures

1973: Printen and Mason (16)—partial horizontal gastric division with greater curvature conduit
1979: Gomez—partial horizontal gastric stapling with suture reinforcement of gastric outlet
1979: Pace et al.—stapled gastric partitioning
1979: LaFave and Alden—total gastric cross-stapling and gastrogastrostomy
1981: Fabito—vertical gastric stapling with suture reinforcement of outlet
1981: Laws and Piatadosi (17)—vertical gastric stapling, Silastic ring outlet restrictor
1982: Mason (18)—vertical gastric stapling, Marlex mesh band through a gastric window outlet restrictor
1983: Molina and Oria—gastric segmentation
1986: Eckhout et al.—vertical gastric stapling using a notched stapler, Silastic ring outlet restrictor
1994: Hess and Hess (21)—first laparoscopic VBG

SG-related procedures

1976: Tretbar et al.—fundoplication
1980: Wilkinson—gastric wrapping with mesh
2003: Regan et al. (26)—free-standing SG as outgrowth of two-stage DS
2007: Talebpour and Amoli—first greater curvation gastric plication
2017: Dolezalova-Kormanova et al.—greater curvature gastric plication

Boldface type denotes historical landmark contributions.

2019

Metabolic (Bariatric and Nonbariatric) Surgery for Type 2 Diabetes: A Personal Perspective Review

Henry Buchwald[1,2] and Jane N. Buchwald[3]

Diabetes Care 2019;42:331–340 | https://doi.org/10.2337/dc17-2654

From 1953 over 50 operations have been suggested and tried..

..more than 40 has been abandoned

IL RAZIONALE DELLA NOVITA' IN CHIRURGIA BARIATRICA

- La chirurgia ha guadagnato lo scettro di trattamento maggiormente efficace nel lungo termine
- Non esistono interventi perfetti
- Bisogna continuare ad imparare dal passato e a saper essere critici verso i propri risultati
- La ricerca in questo ambito rimane uno dei temi piu' dinamici e stimolanti

THANKS FOR YOUR ATTENTION

- ANGELO.IOSSA@UNIROMA1.IT

@ANGELOIOSSMD