Transit Bipartition

Concept and Physiology

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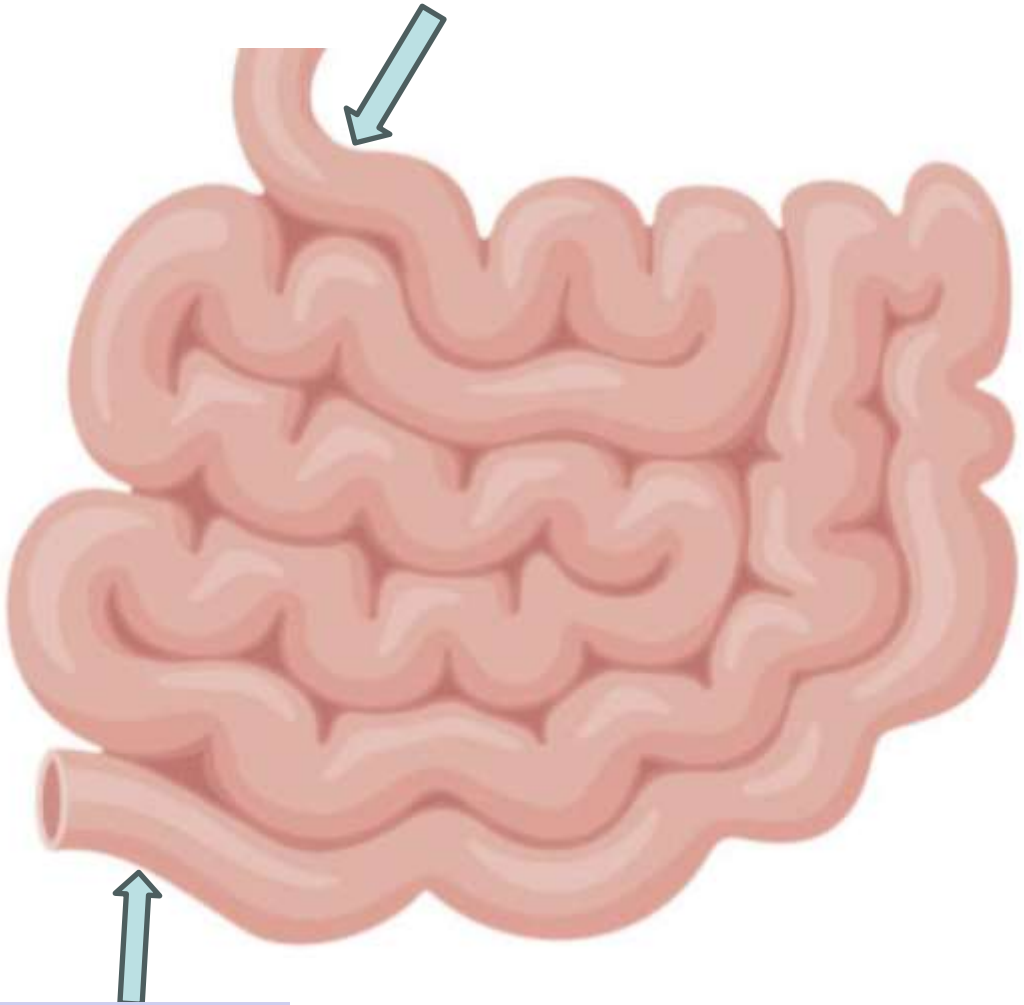
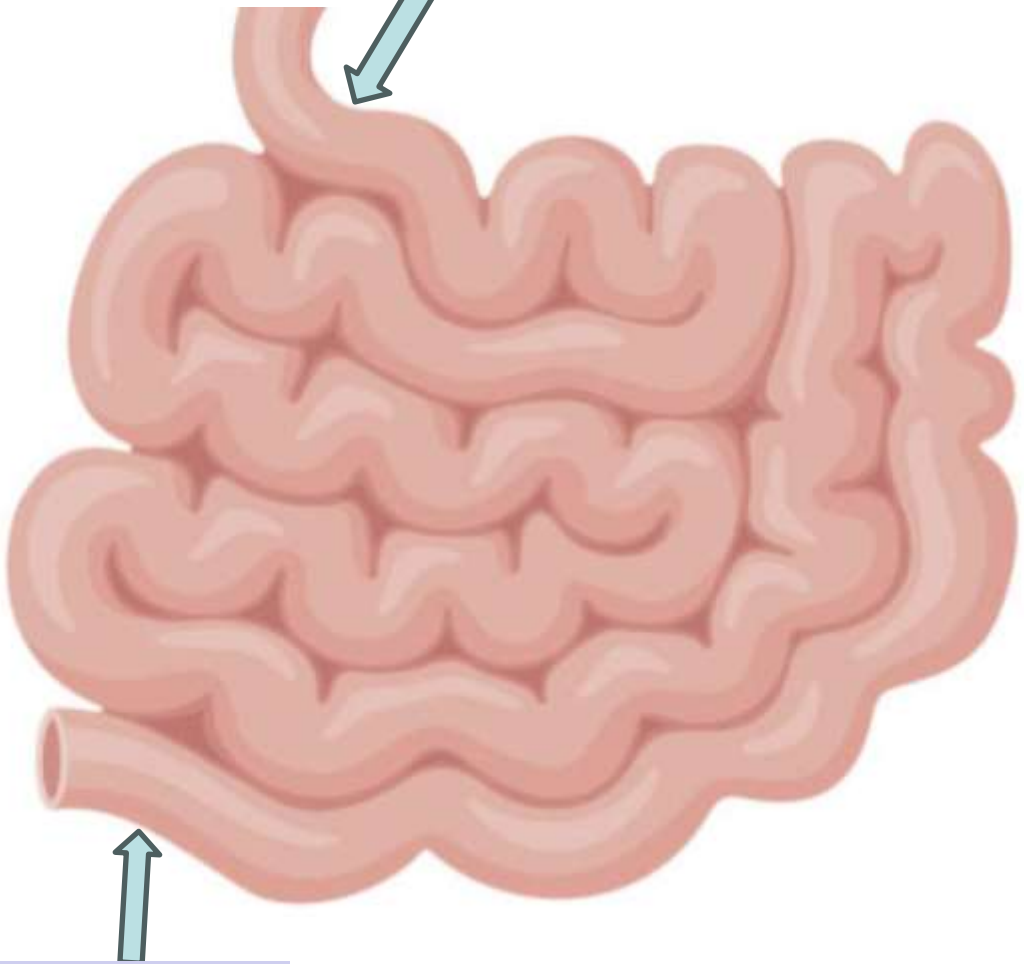
Still hungry



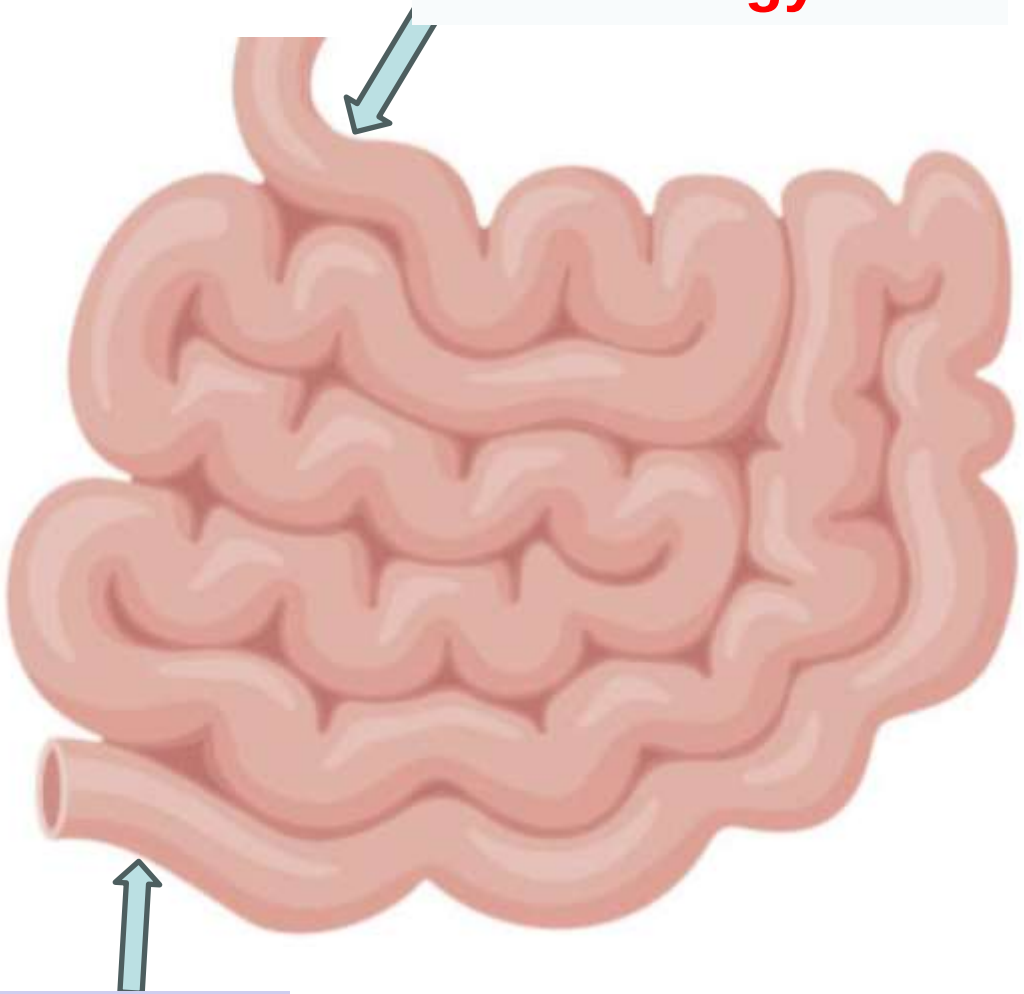
Satiety

Absorption of Fat



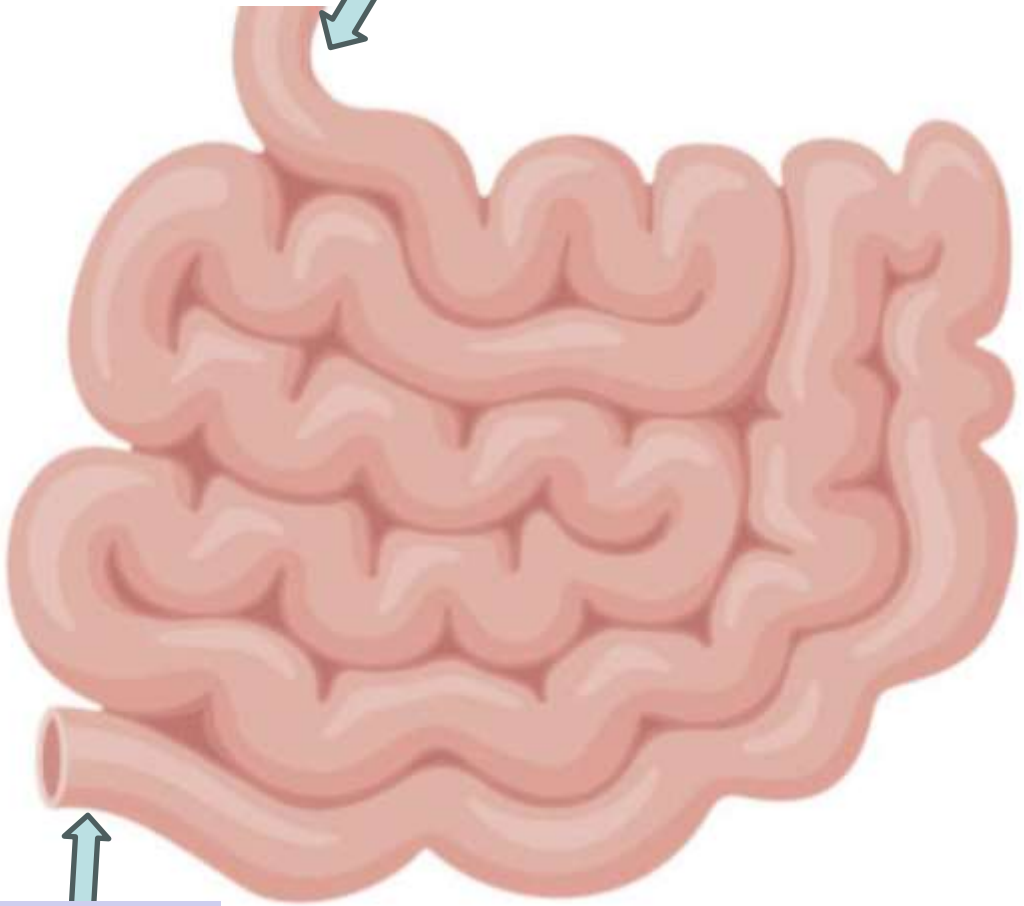
Blood Clearence of Triglycerides

Still saving Energy



Energy Expenditure

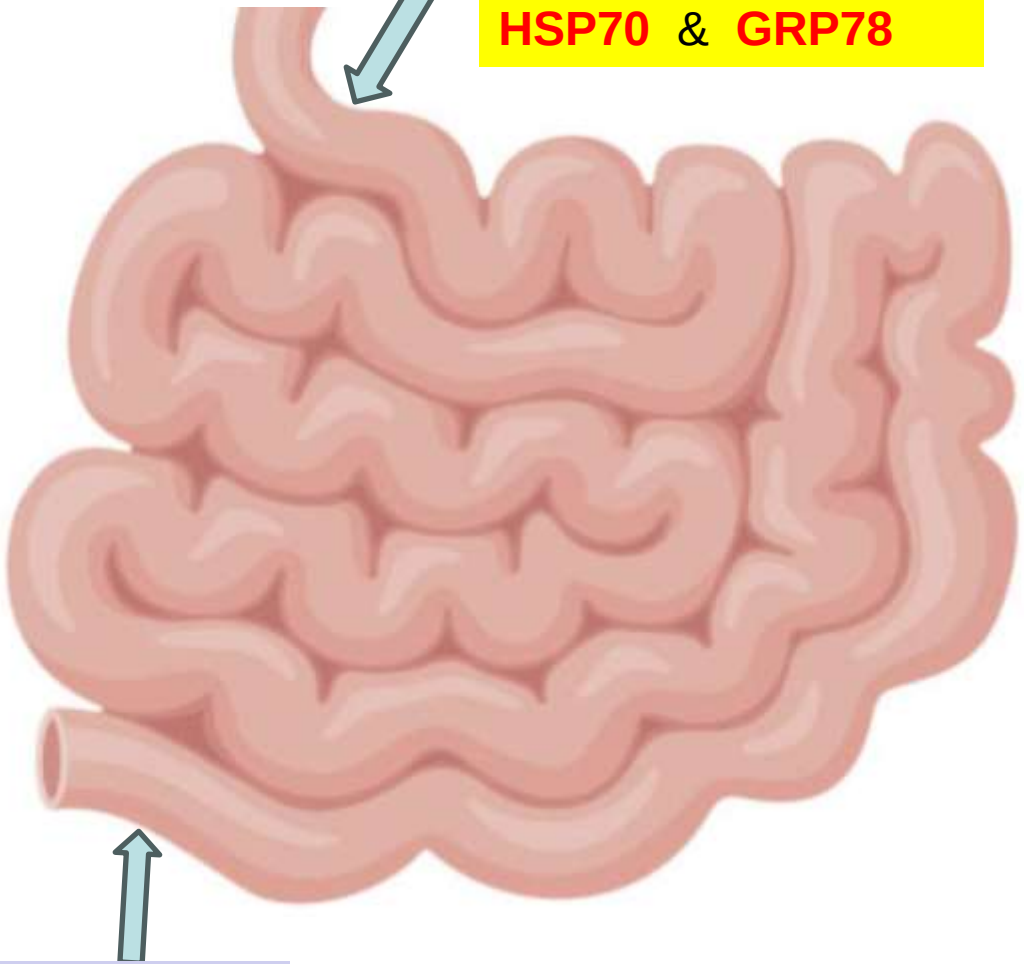
Intense gluconeogenesis



Blockage of Gluconeogenesisis

Insulinic Resistance

HSP70 & **GRP78**



Insulinic Sensitivity

FGF19 & **GLP1**

Metabolic States

Fasting

- Hunger
- Low Insulin
- Rapid gastric emptying
- Avoid hypoglycemia

of Glucose

- Input of fat acids into the blood
- **Low energy expenditure**

Early phase of eating

- Still hungry
- some Insulin
- Controlled gastric emptying

of Glucose

- Clearance of fat acids from the blood
- some energy expenditure

Late phase of eating

- Satiety
- High Insulin
- Slow gastric emptying
- Avoid hyperglyc ia

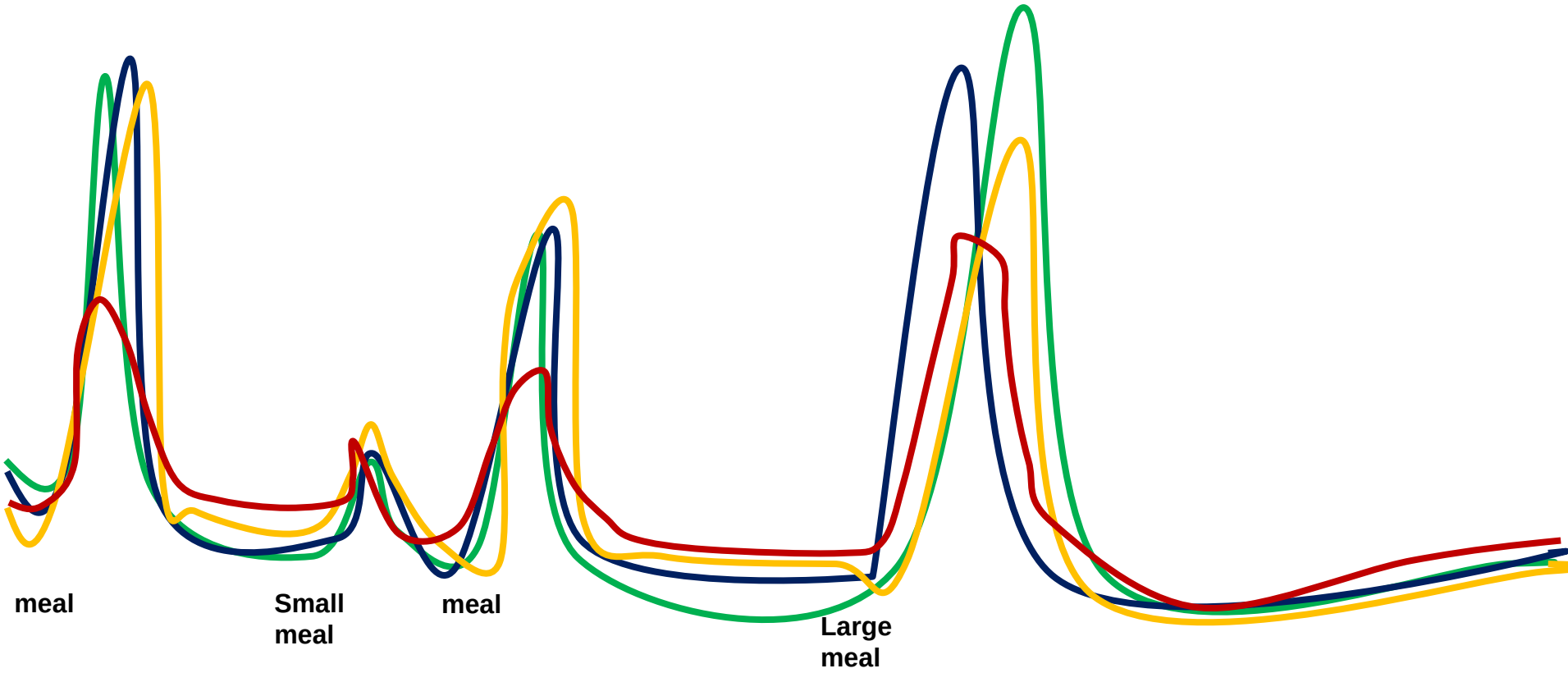
Glucose

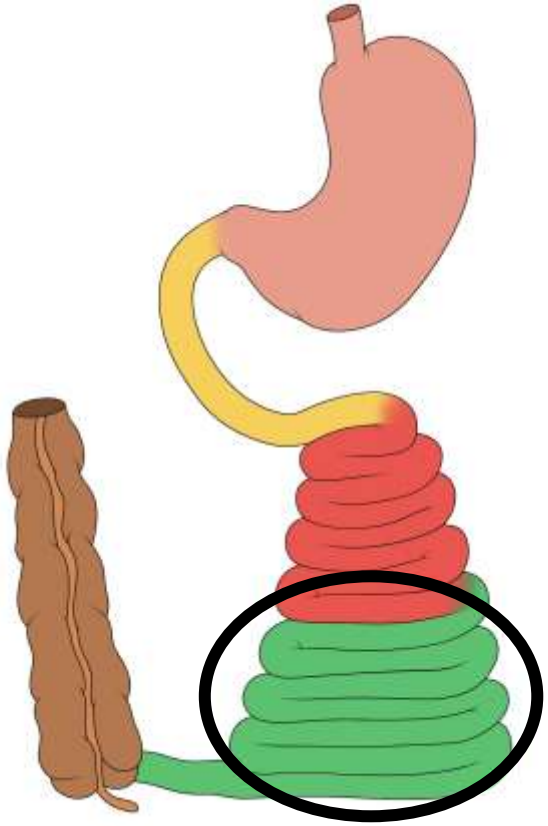
- Clearance of fat acids from the blood
- **Higher energy expenditure**

Profound metabolic transition

Duodenum - jejunum --------- ileum

Physiological secretion of Gut hormones





Absorption

NOT JUST THE PRESENCE

of nutrients in the ileum

L cells

GLP-1

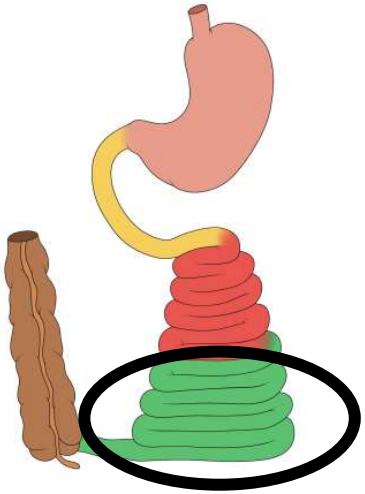
PYY

OXM

Reabsorption of bile in the ileum

FXR

FGF-19



Absorption of nutrients in the ileum

Reabsorption of bile in the ileum

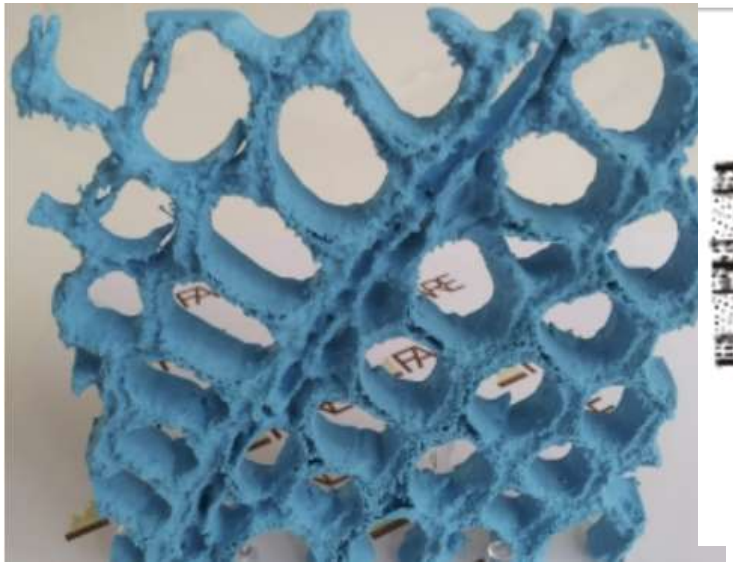
GLP-1
PYY
OXM
FGF-19

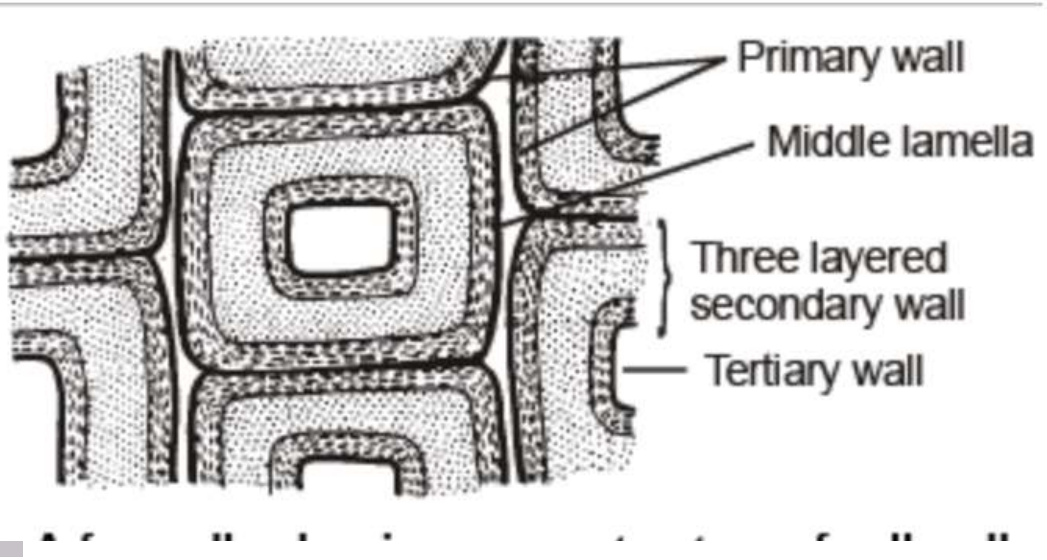
- Estimulate insulin secretion
- May block gluconeogenesis
- Insulin sensitivity
- Maintain Beta Cell Trophism
- Clearence of Triglycerides
- Reduce Inflammation
- Block gastric Emptying

- Increase Brown Fat tissues
- Enhance Energy Expenditure
- Modify food preferences
- Reduce Hepatic Steatosis
- Satiety
- Reduce Food intake
- Weight loss

Very **little free sugar** in our **primitive the diet** …

Cellulose - The vegetal cell **wall**





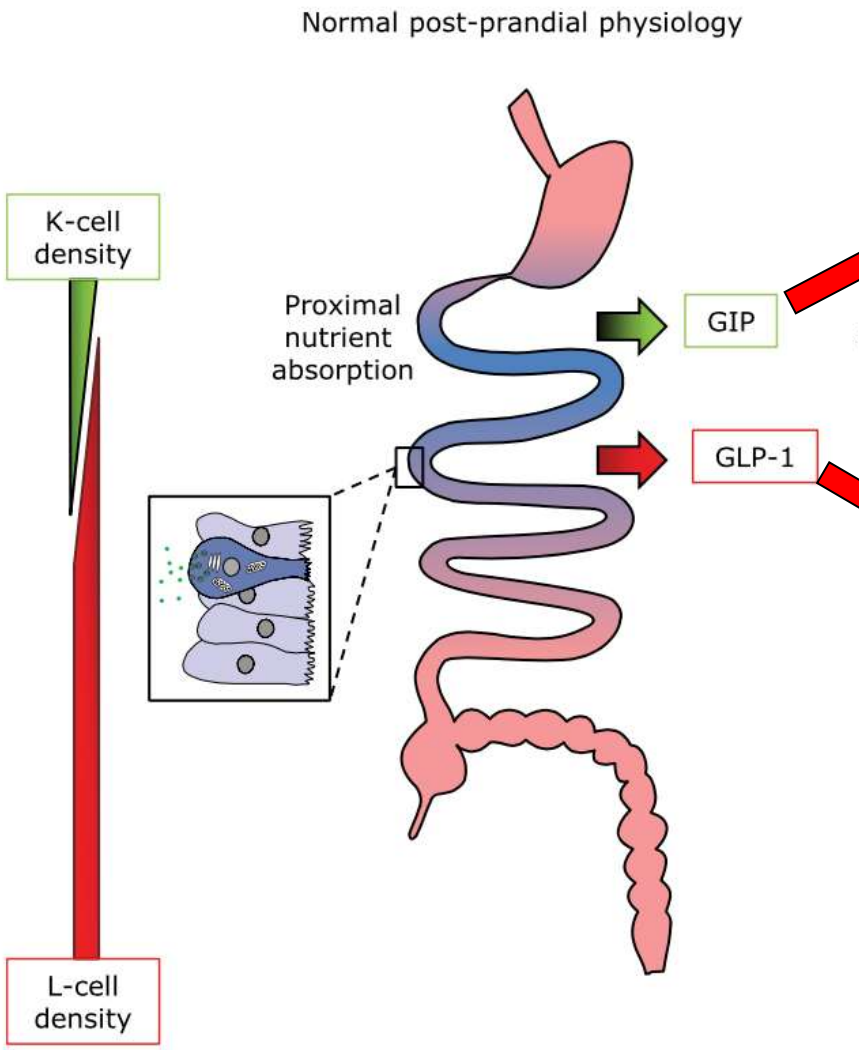


Figure 1. Incretin hormone secretion from K and L cells.

Production of insulin, maintain glucagon and gluconeogenesis. No satiety!

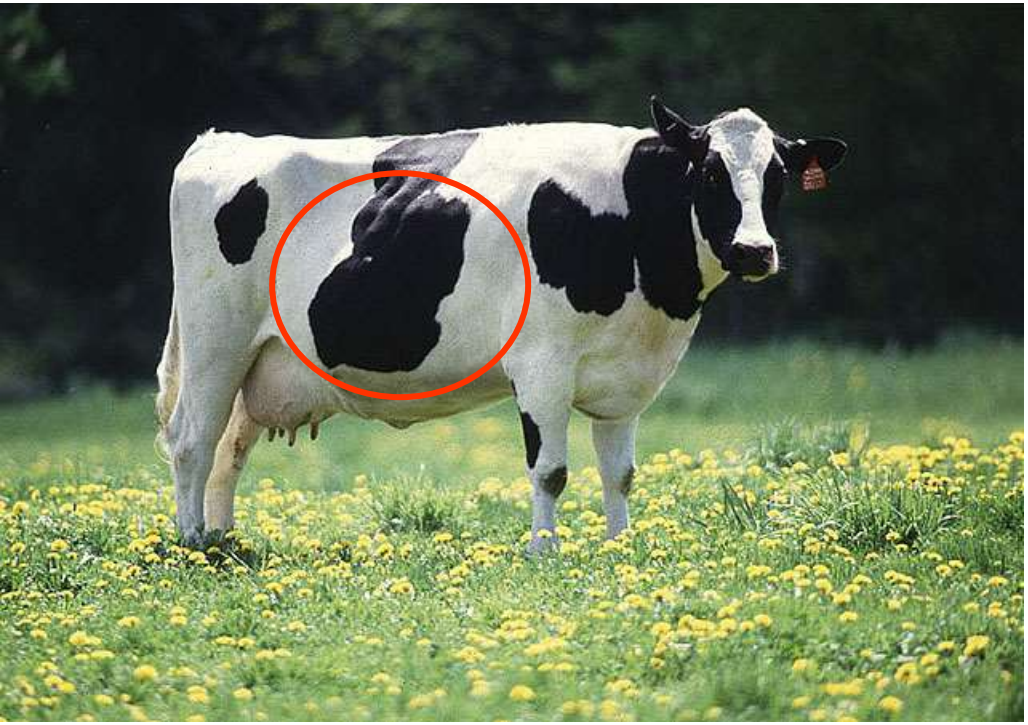
Production of **insulin** and responsibly **blocking glucagon** **And stopping gluconeogenesis** **Yes, satiety!**

OTHER ILEAL PRODUCTS ARE ALSO INVOLVED

How long is the way to the ileum?

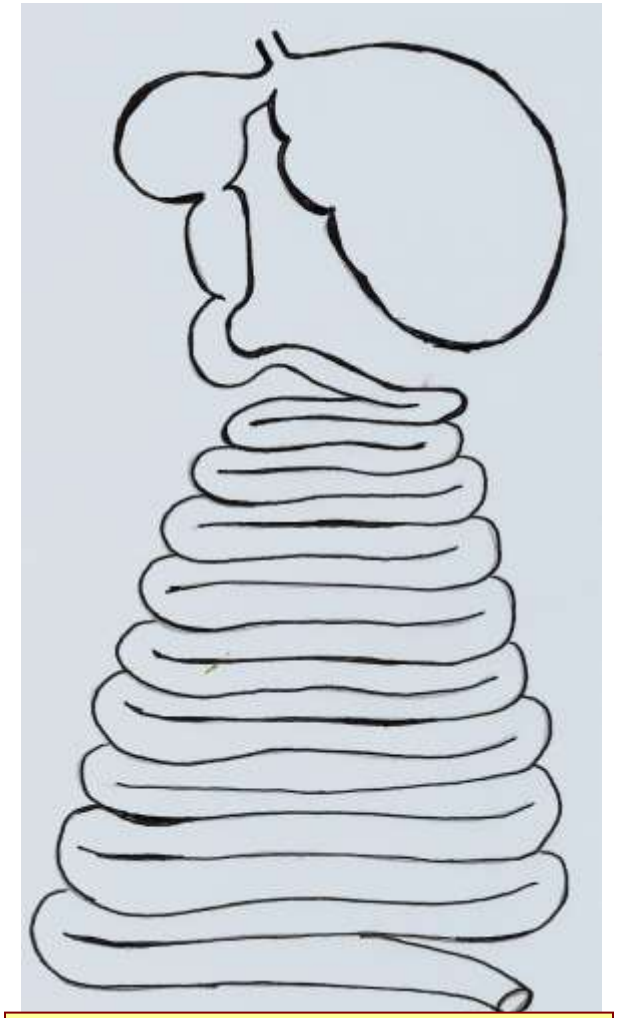
It depends on the diet !

Poor diet full of cellulose



Rich diet, not much cellulose

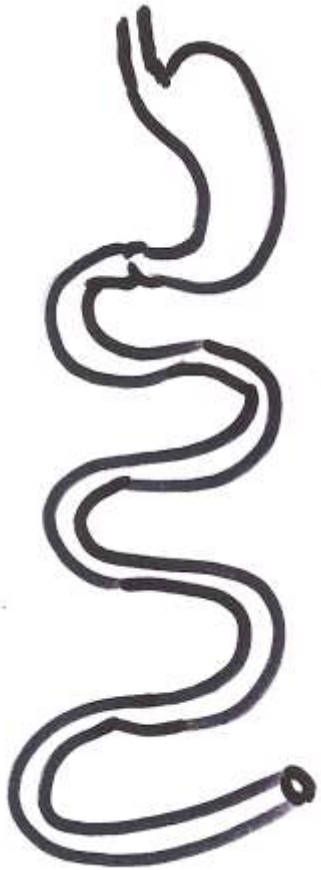
Gastrointestinal adaptation among different species



Herbivore

Fiber-rich and

calorie-poor diet

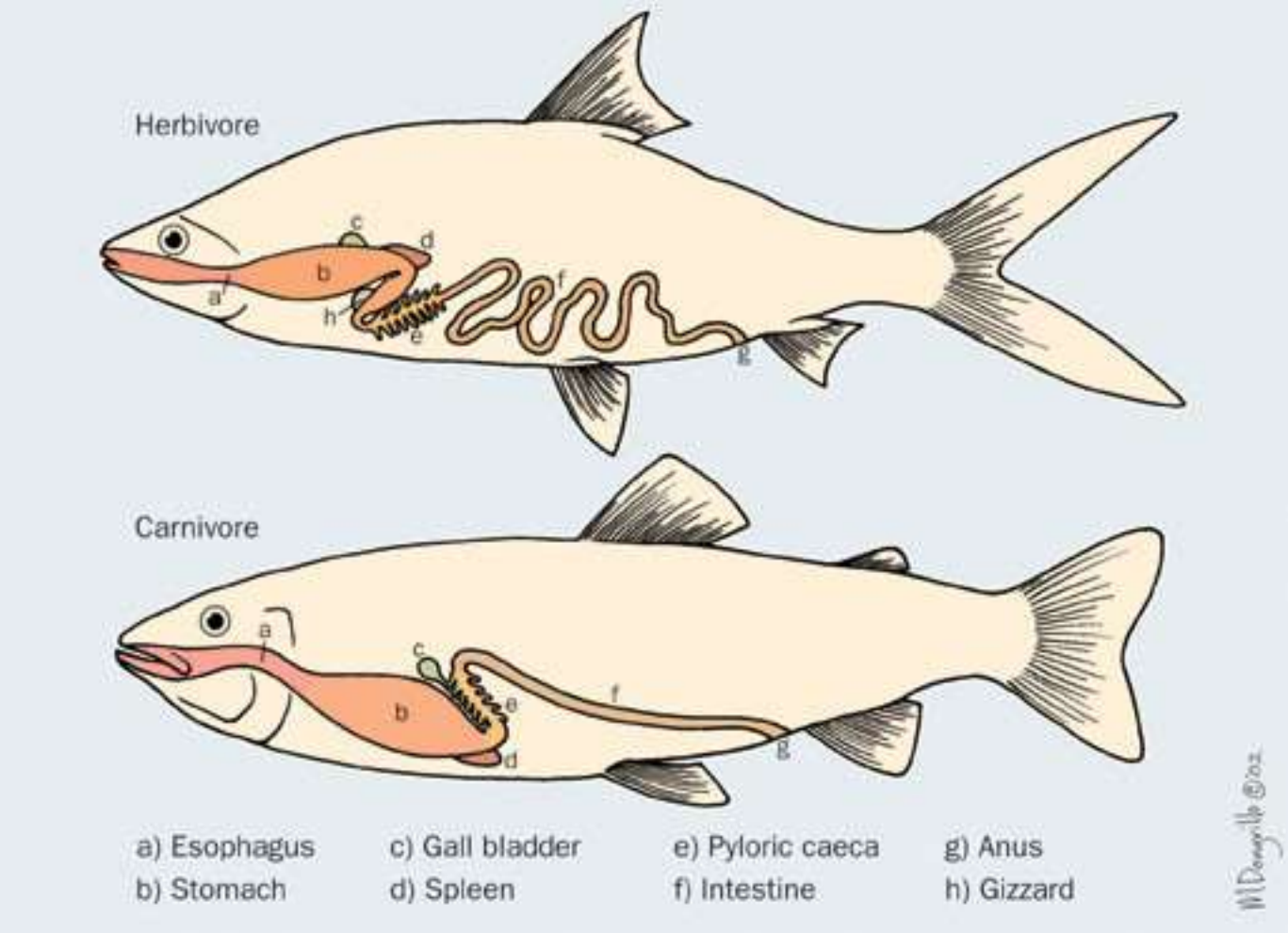


Carnivore

Fiber-poor and

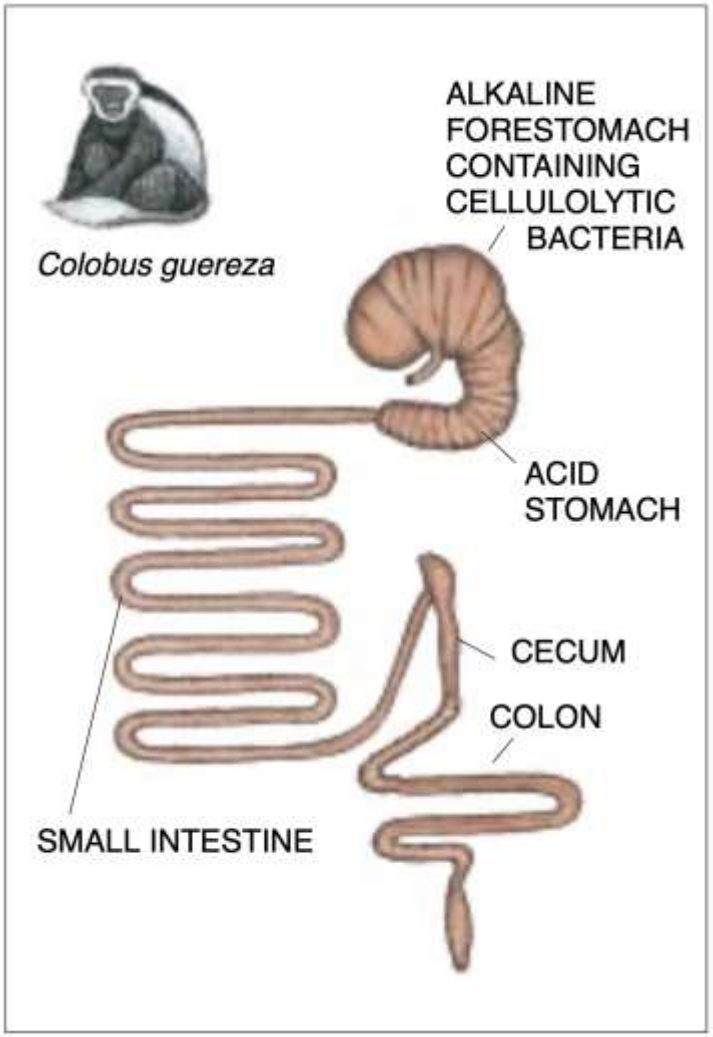
Calorie-rich diet

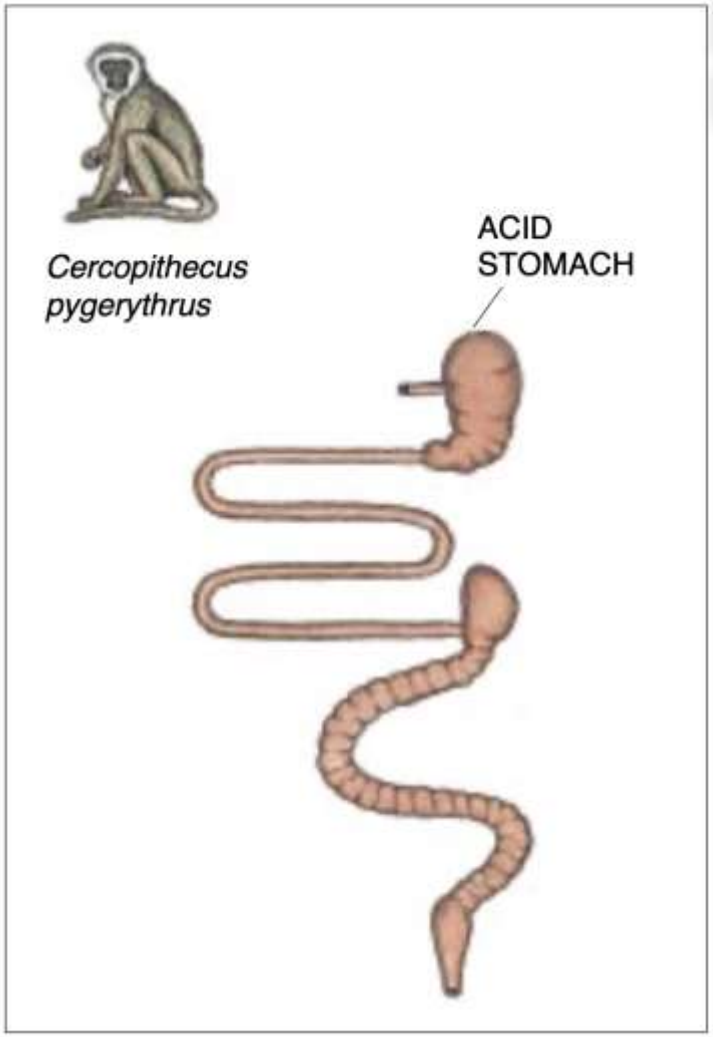
It is valid for Fish!!!



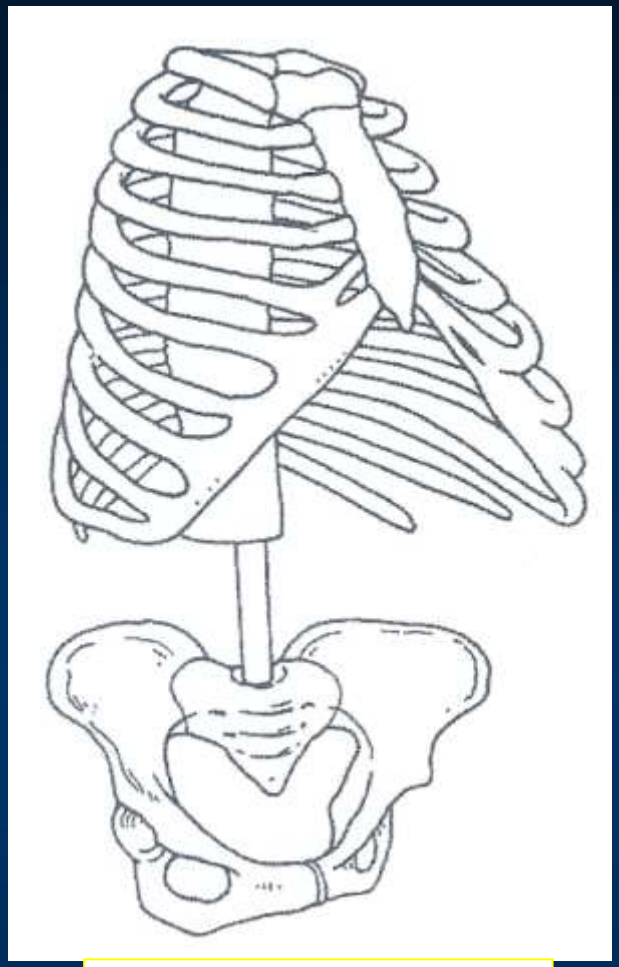
Diet: mostly leaves poor in calories and with a lot of cellulose

Diet: younger leaves and fruits; more calories and less cellulose



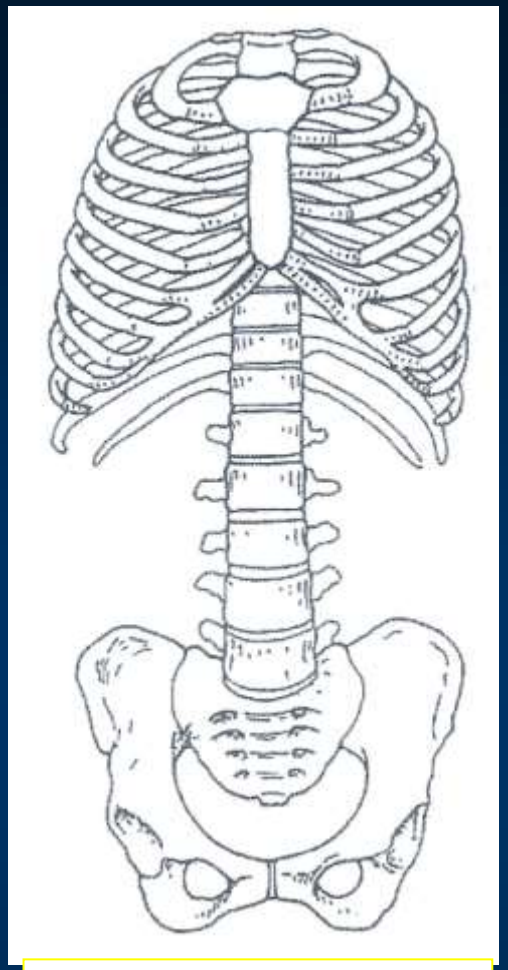


SCIENTIFIC AMERICAN *August 1993*



Australopitecus

Diet enrichment



Human

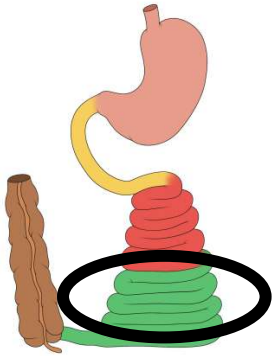
The human abdominal cavity became smaller,
when compared to primitive
Australopithecus afarensis (a herbivore)

From: Aiello & Wheeler. Current Anthropology 36(2), 1995.

Nature simplifies the digestive system if

food is richer and with less cellulose

And it brings the ileum closer !



Absorption of nutrients in the ileum

Reabsorption of bile in the ileum

GLP-1

PY

- Block gluc
- Estimu
- In
- rophism
- nglycerides
- Adiponectin
- k gastric Emptying

- Increase Brown Fat tissues
- Enhance Energy Expenditure
- Modify food preferences
- Reduce Hepatic Steatosis
- Satiety
- Reduce Food intake
- Weight loss

These metabolic responses are not occurring properly !

The primitive diet

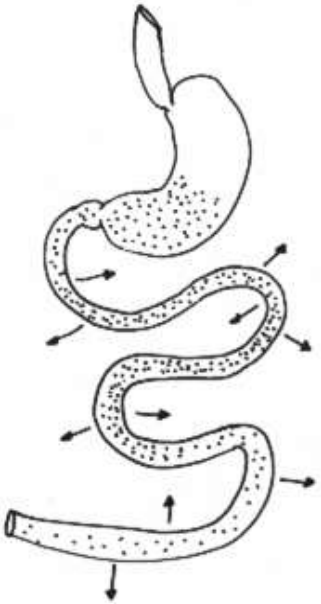
a little of this:

Imense Change

A **LOT** of this

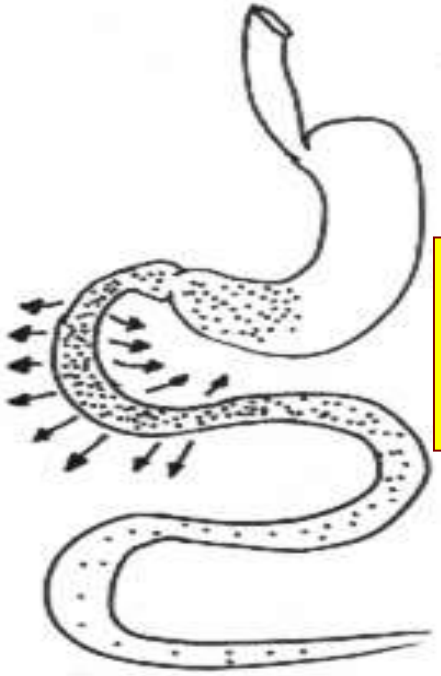
Obesity and Metabolic Syndrome

The Proximal-Distal Imbalance Theory



Refined

modern diet



Duodenojejunal hyperactivity

Ileal hypoactivity

Santoro S. Einstein 2003, 1:44

Metabolic States

Fasting

- Low Insulin
- Avoid hypoglycemia
- Insulinic resistance
- High Glucagon

the blood

- Low energy expenditure
- Hunger
- Rapid gastric emptying

Early phase of eating

- some Insulin
- Avoid hypoglycemia
- Higher Glucagon
- Endogenous Production

- some energy expenditure
- Still hungry
- Controlled gastric emptying

Late phase of eating

- High Insulin
- Avoid hyperglycemia
- Insulinic sensitivity
- Low Glucagon

from the blood

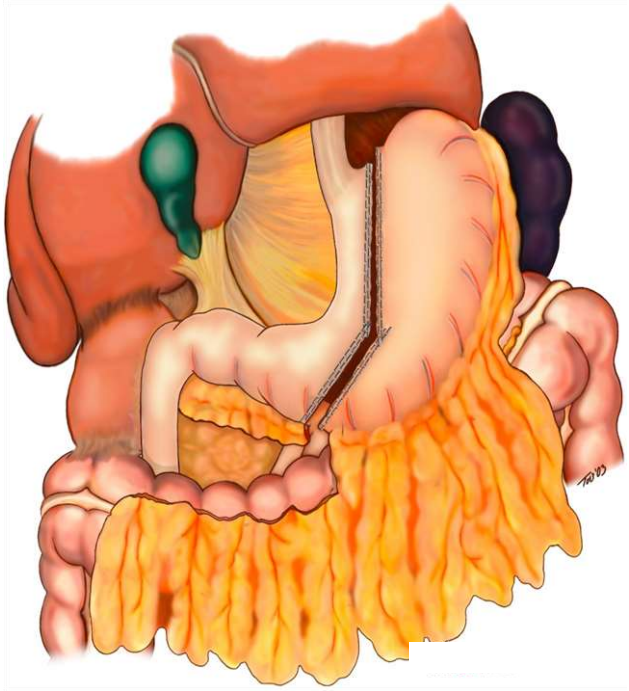
- high energy expenditure
- Satiety
- Blocked gastric emptying

A faster metabolic transition

Duodenum - jejunum --------- ileum

The Sleeve

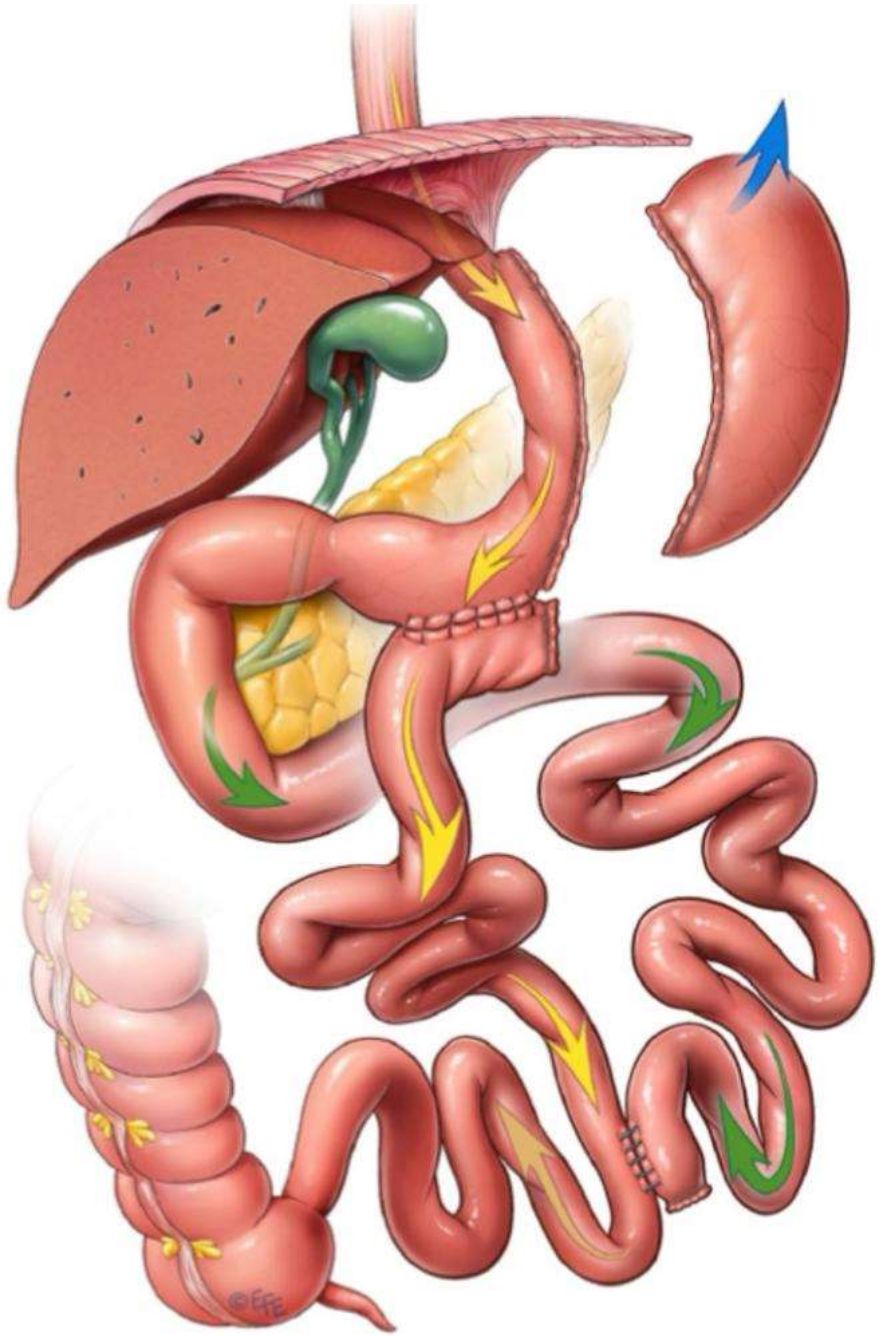
The Sleeve



BUT...

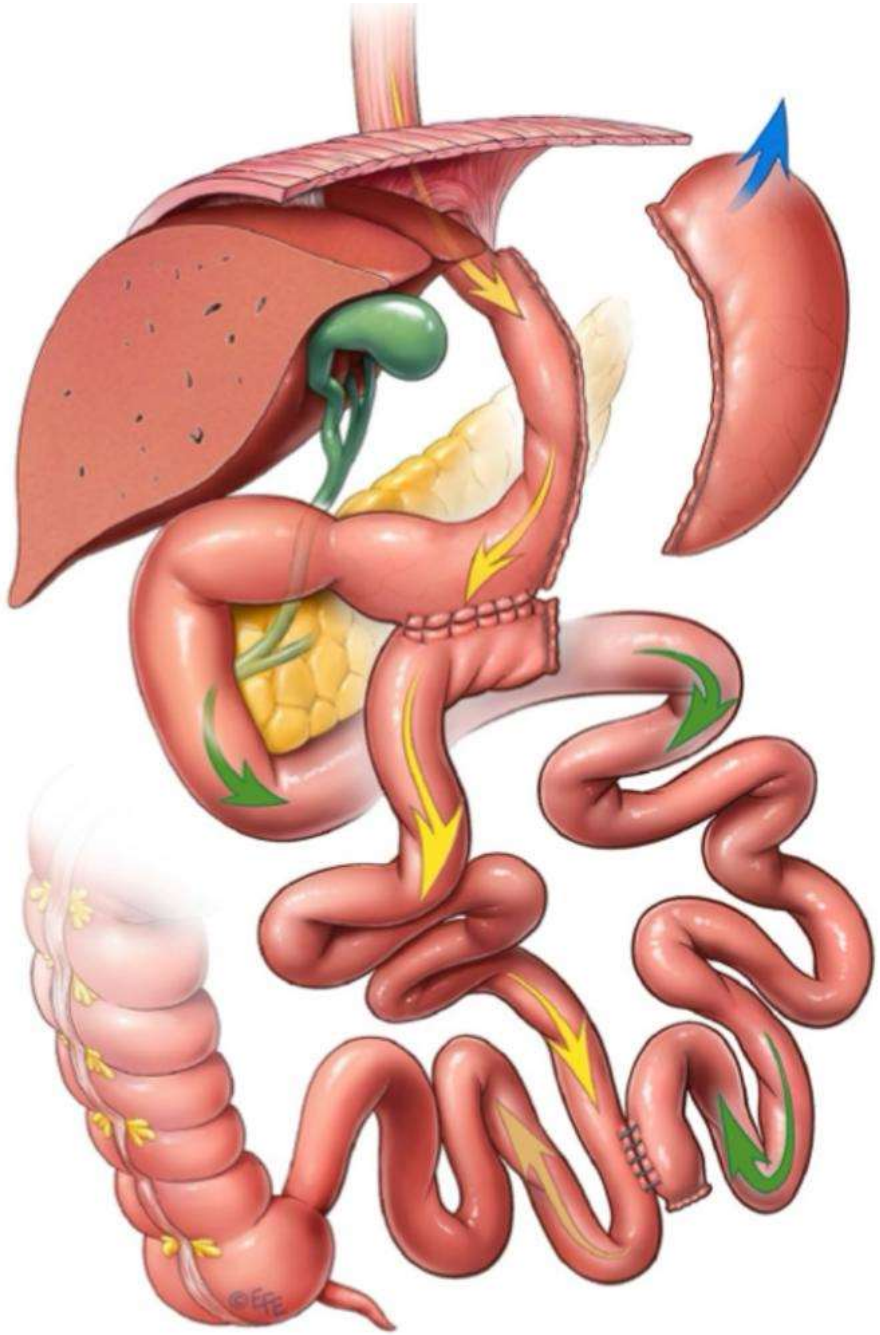
1- It may not be potent enough

2- It may worsen GERD



The Bipartition

It adds potency
by
immediate ileal
stimulation



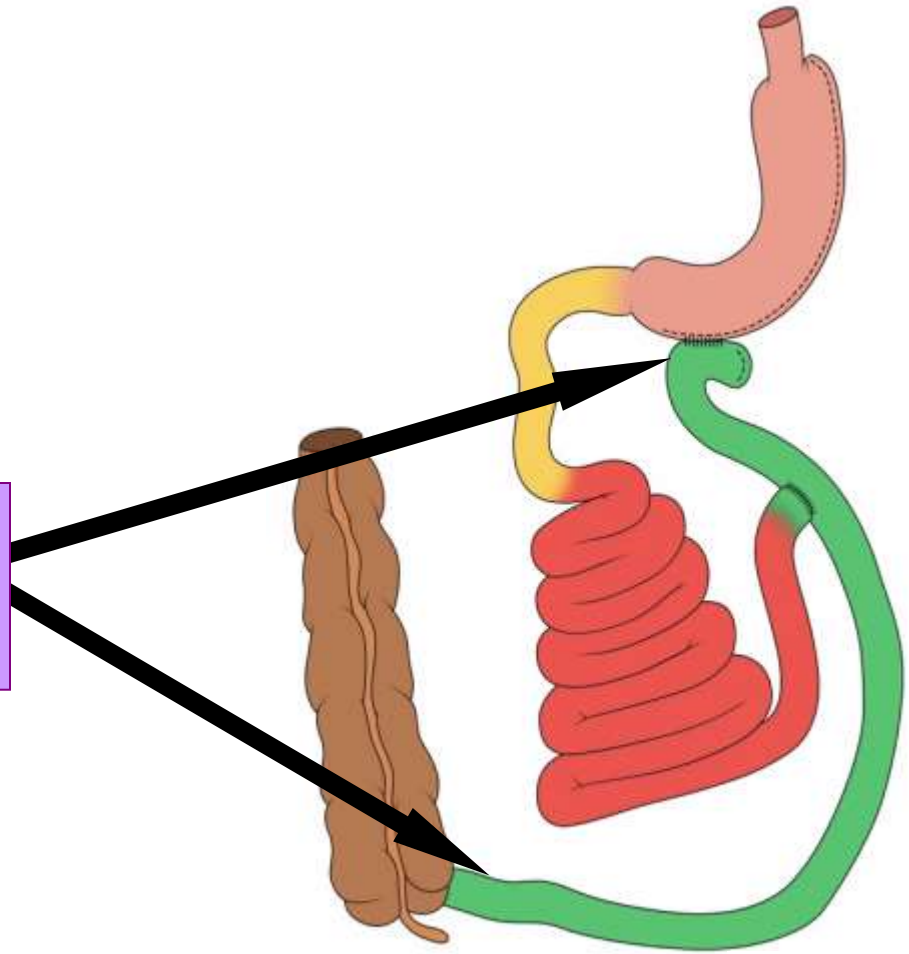
The Bipartition

It was
NOT the malabsorption
that does the magic!

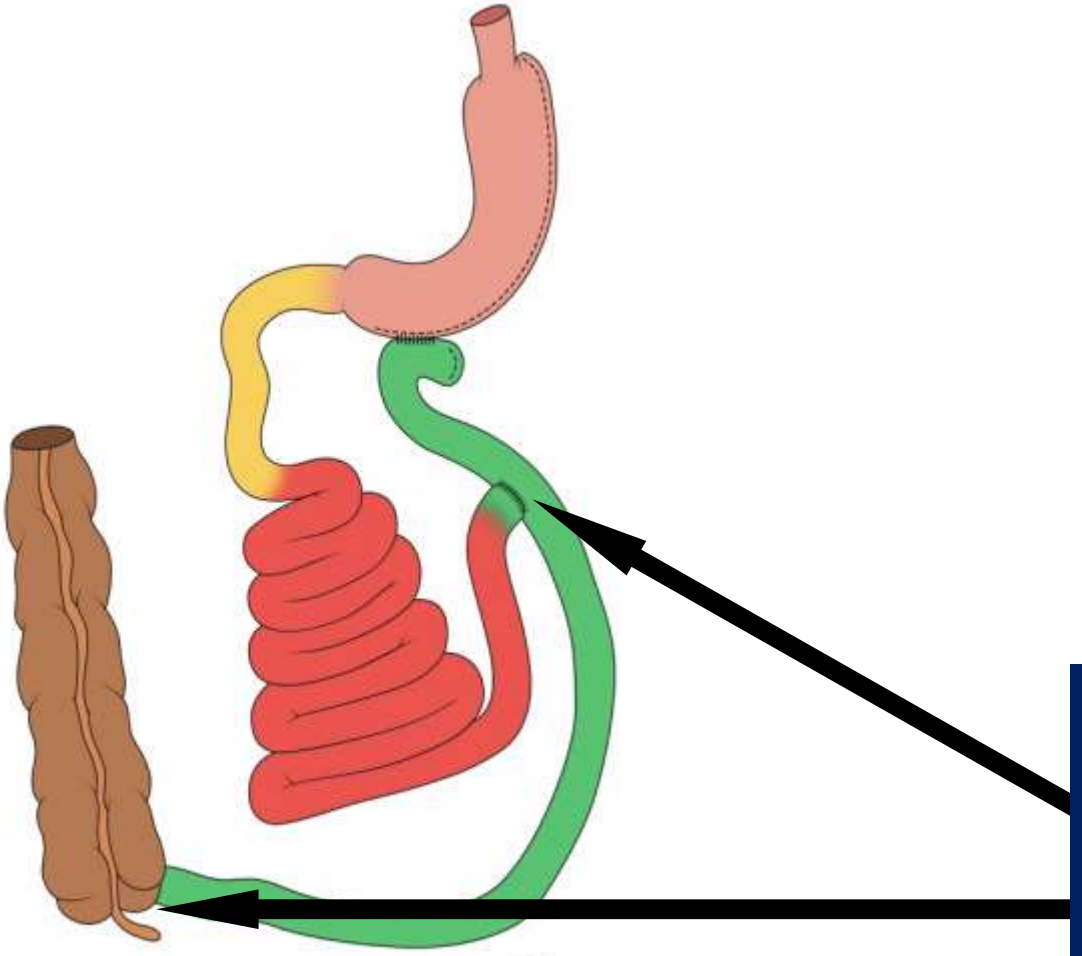
It is
a less proximal and
a more
DISTAL ABSORPTION

Bipartition

Gastroileoanastomosis
280 - 300 cm
from the cecum



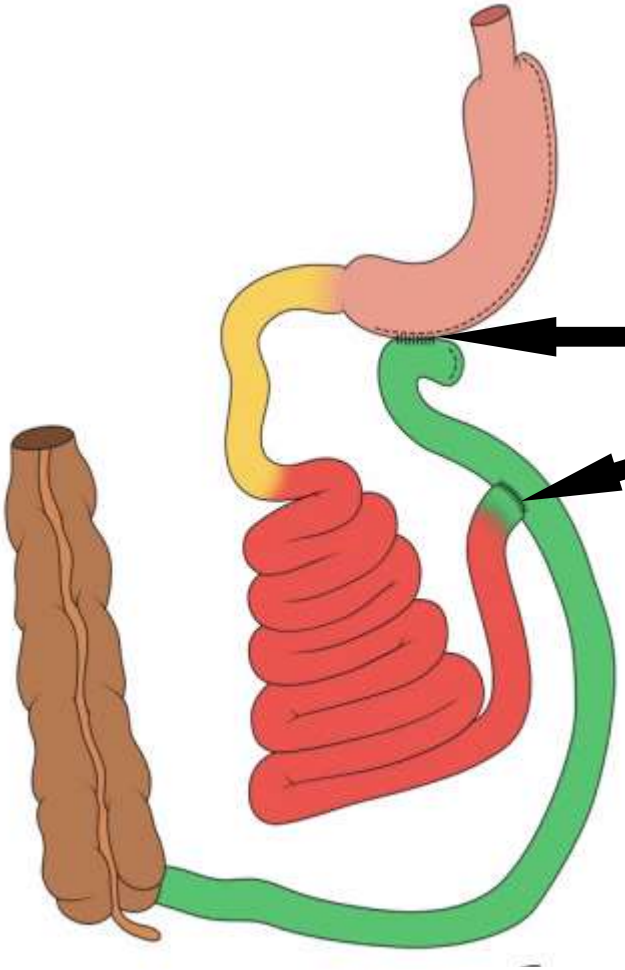
Bipartition



Extra-long Common Channel

250 cm

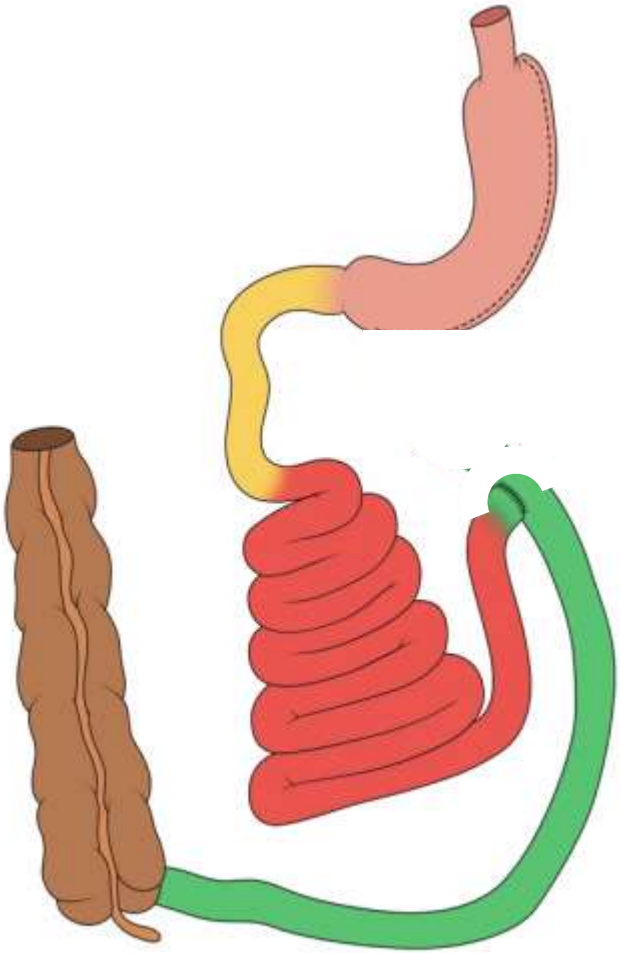
Bipartition



Protection against enterogastric reflux

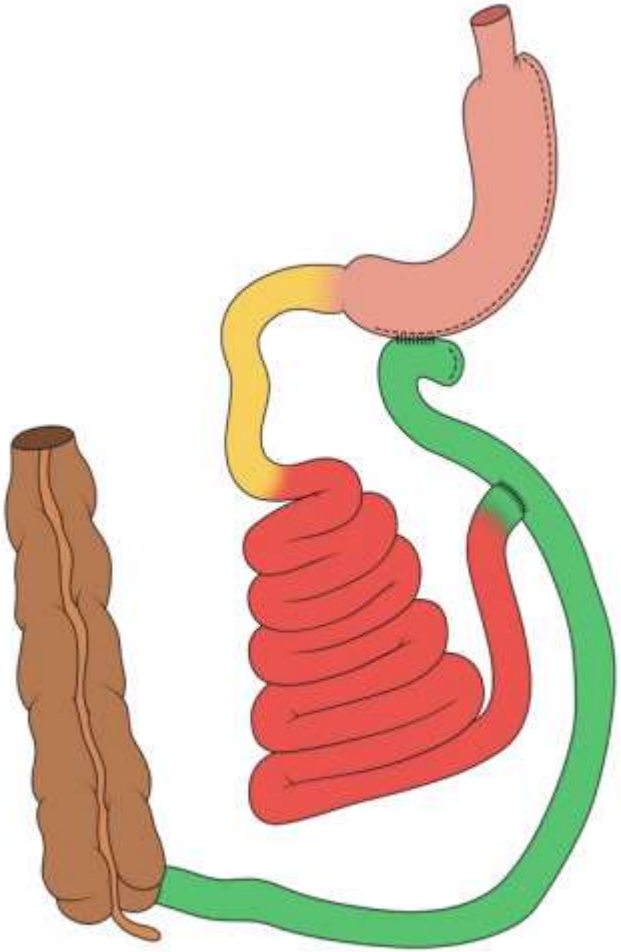
30-50 cm

Bipartition



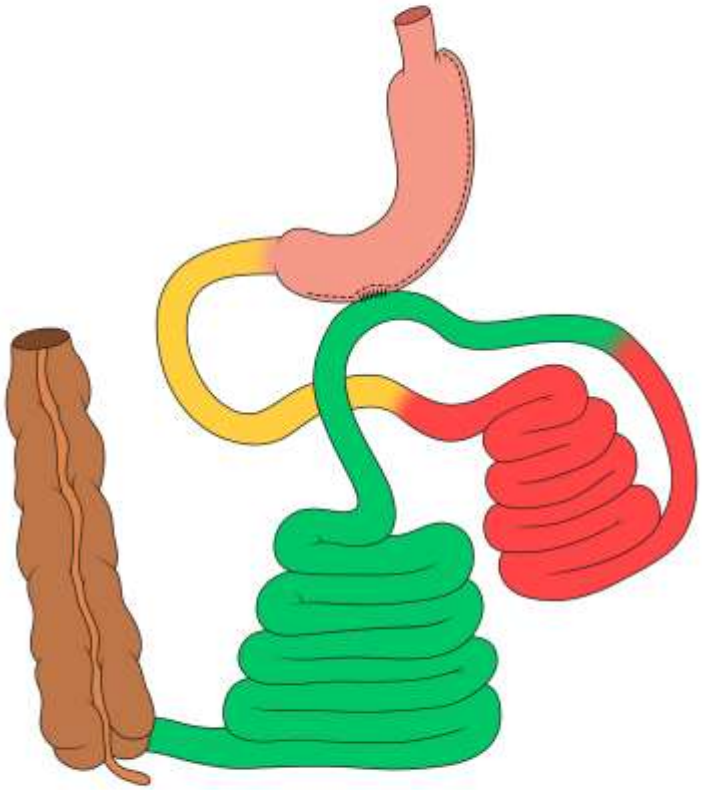
A Sleeve

Bipartition

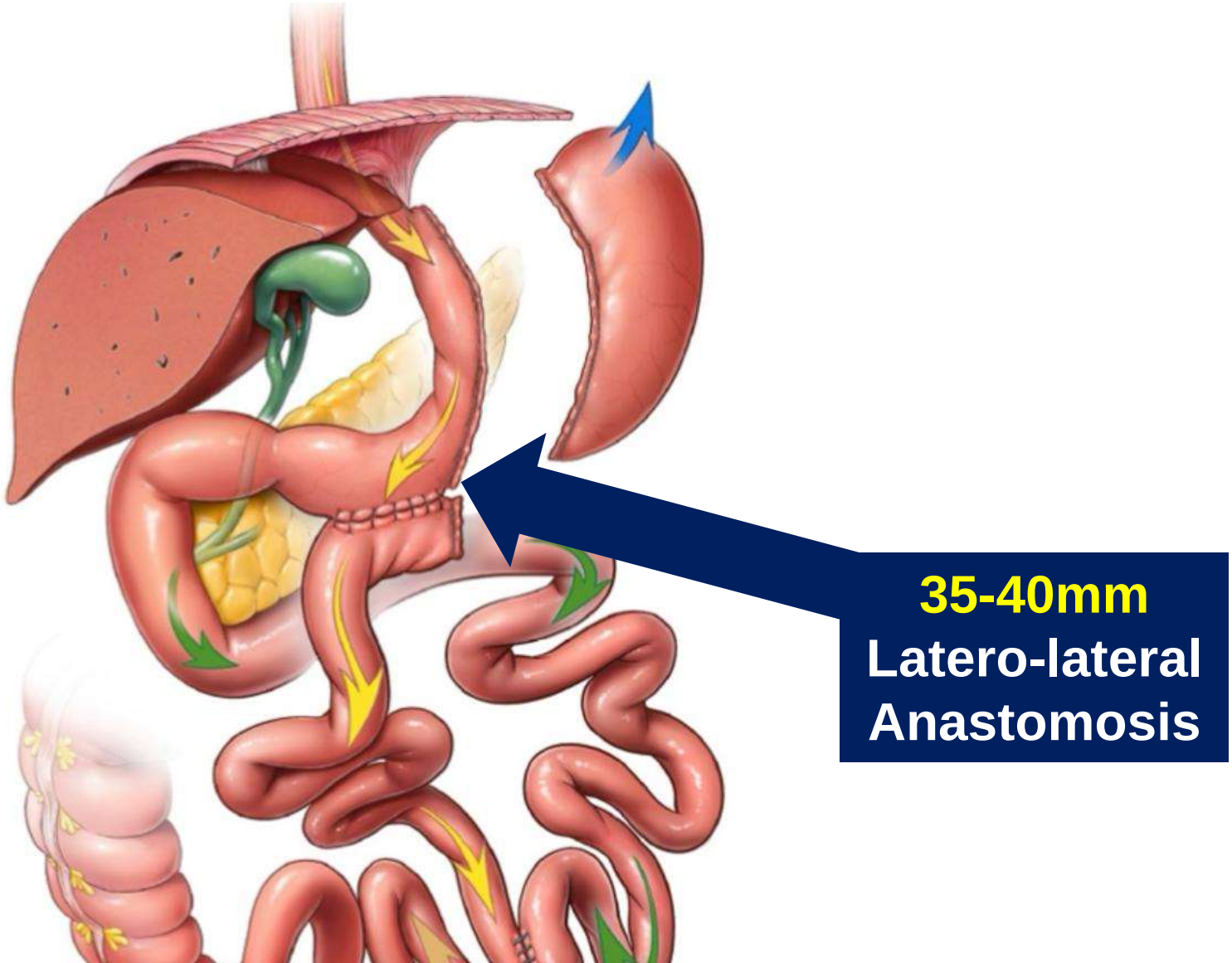


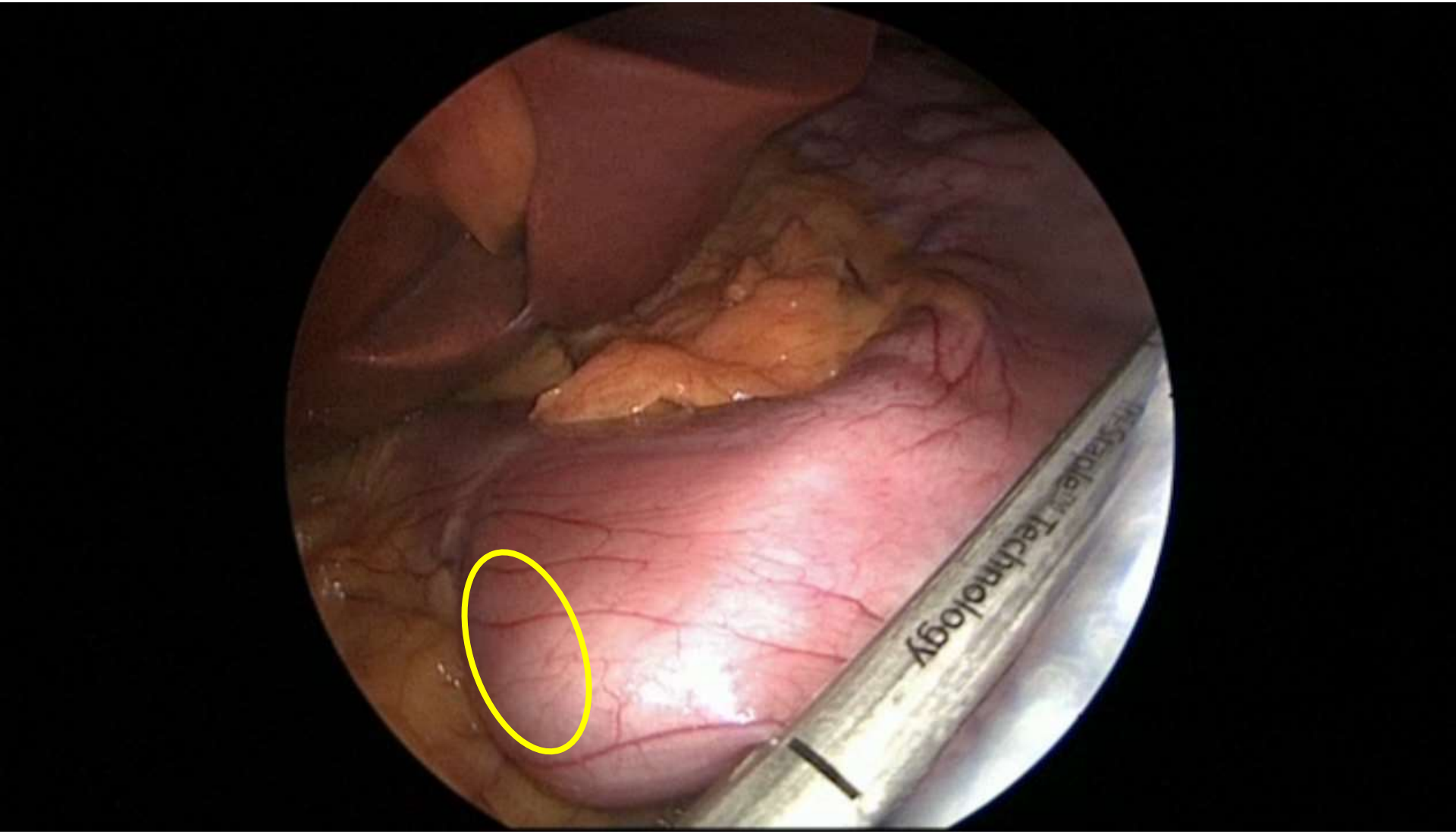
A Sleeve with
an ileal bridge
to your normal ileum
to provide you
more of your
ileal hormones

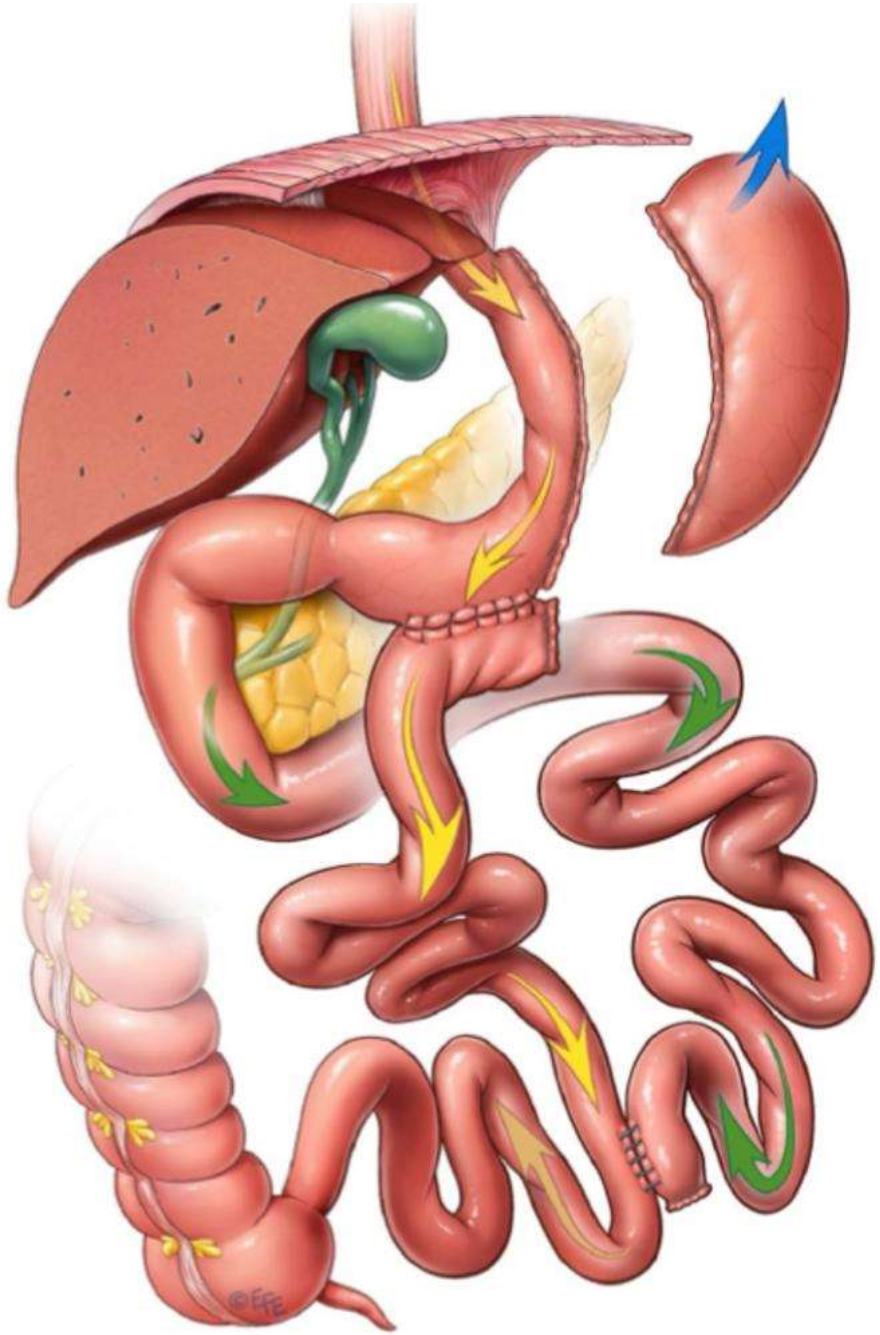
One-Anastomosis Transit Bipartition
(OATB, SASI, Loop Bipartition)



Bipartition



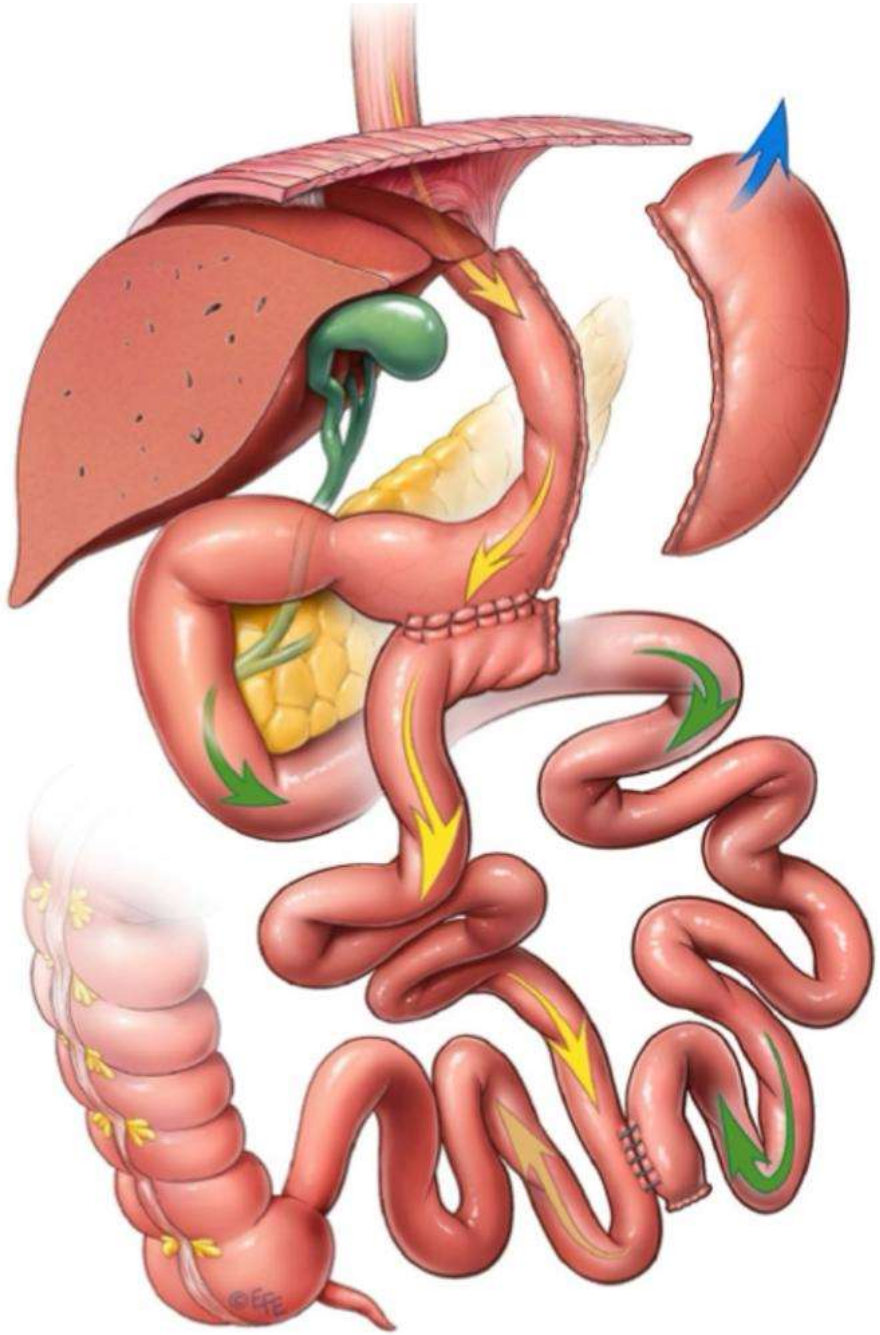

Technology



The Bipartition

Weight Loss
and
comorbidities remissions
are similar to a DS

T2 Diabetes remission
ranges from 80 to 95%



The Bipartition

GERD is improved by 3 mechanisms

1

The Bipartition

It Keeps the stomach

in the right position

NO coiling!

2

The Bipartition

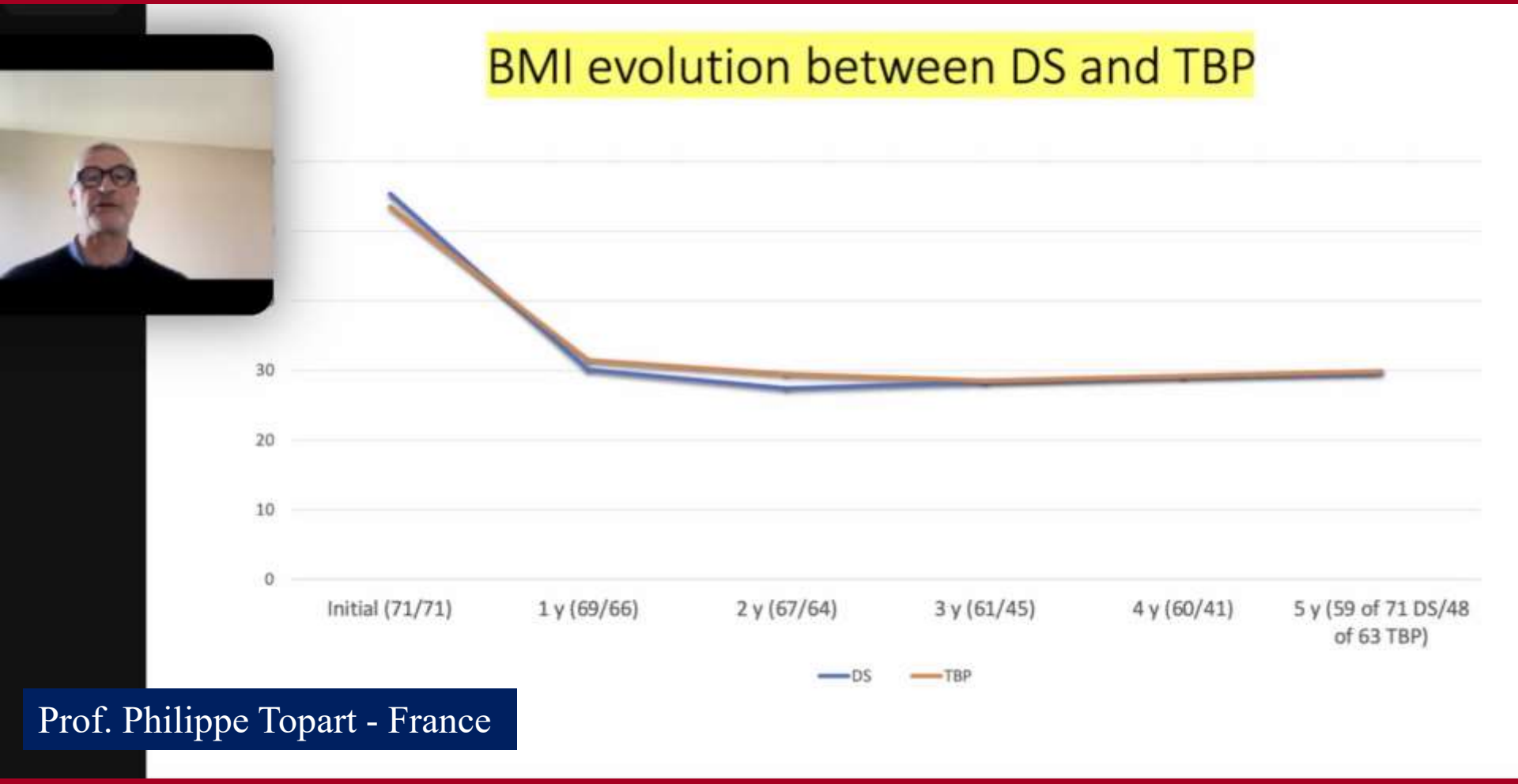
The bipartition is a <u>Gastric Drainage</u>

3

The Bipartition

Substancial weight loss is important to relieve GERD

BMI



Prof. Philippe Topart - France

Obesity Surgery
https://doi.org/10.1007/s11695-023-06477-7

ORIGINAL CONTRIBUTIONS

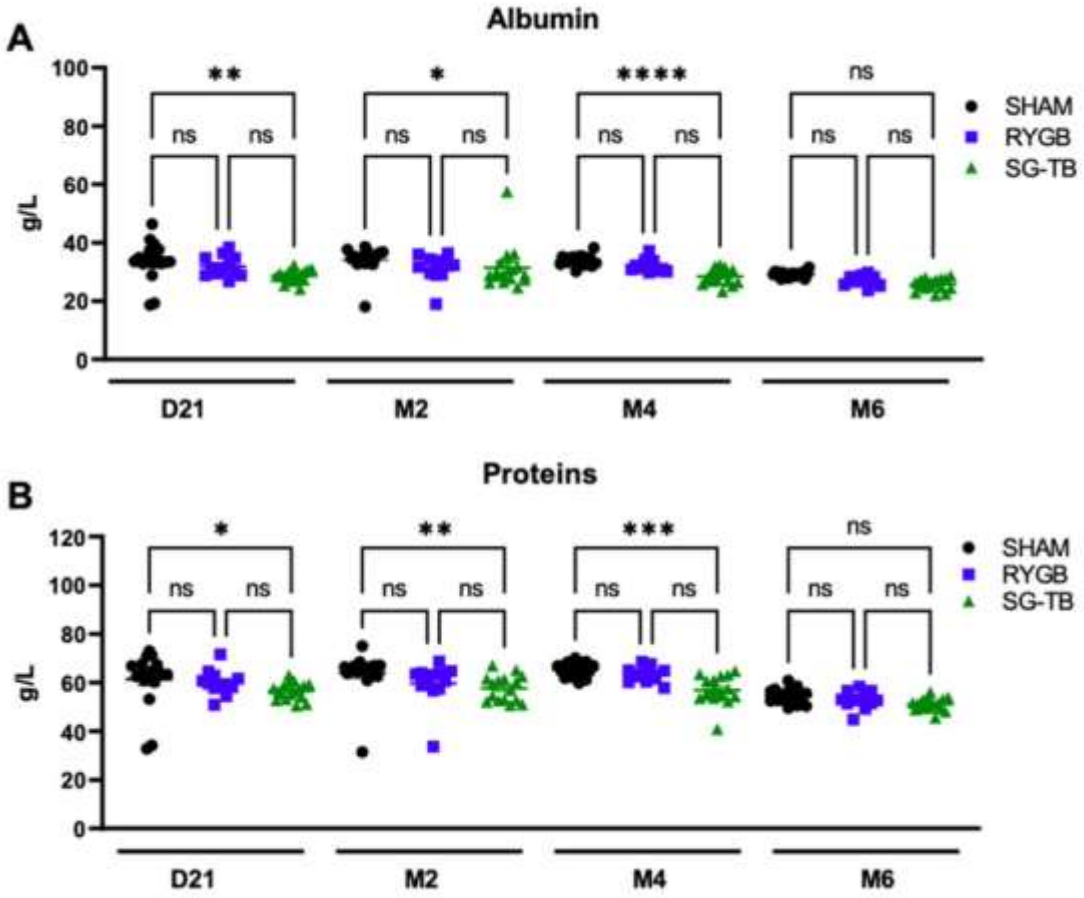
Analysis of the Efficacy and the Long-term Metabolic and Nutritional Status of Sleeve Gastrectomy with Transit Bipartition Compared to Roux-en-Y Gastric Bypass in Obese Rats

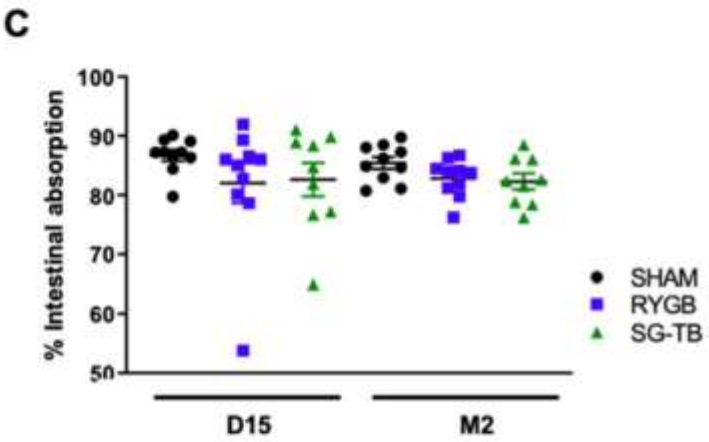
Clement Baratte[1,2,3] · Alexandra Willemetz[1,2] · Lara Ribeiro-Parenti[1,2,3] · Claire Carette[1,4] · Simon Msika[1,2,3] · Andre Bado[1,2] · Sebastien Czernichow[1,4,5] · Maude Le Gall[1,2] · Tigran Poghosyan[1,2,3]

Received: 18 June 2022 / Revised: 12 January 2023 / Accepted: 19 January 2023

SGTB x RYGB
Obese rats
6 months in a rat = 15 years in a man

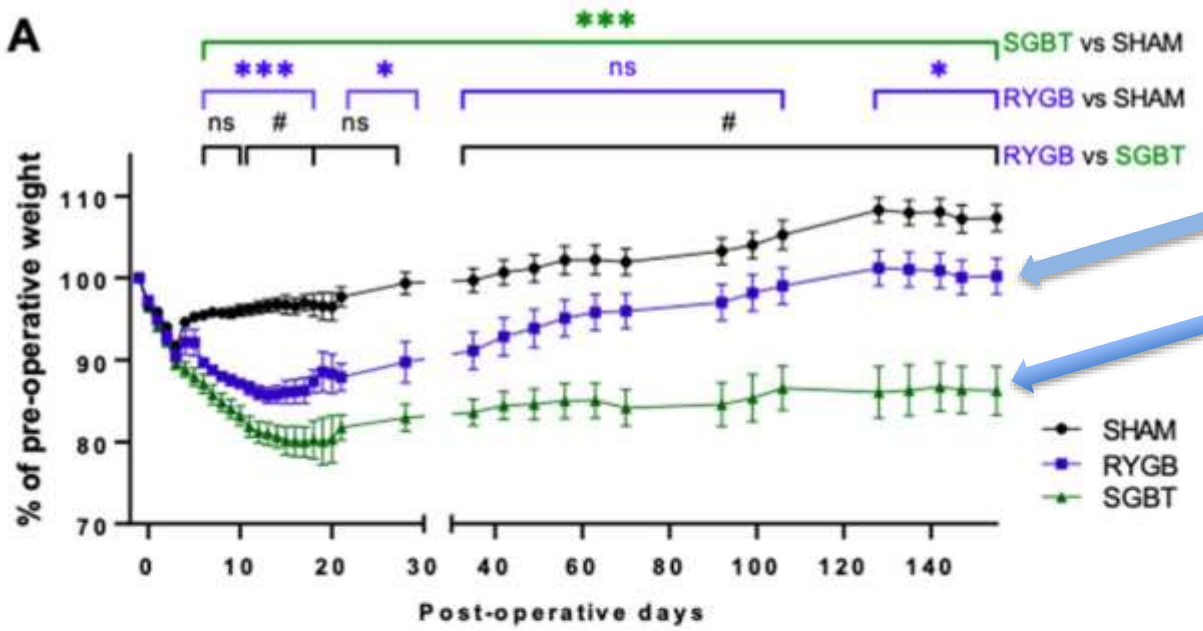
Published online in February 2023



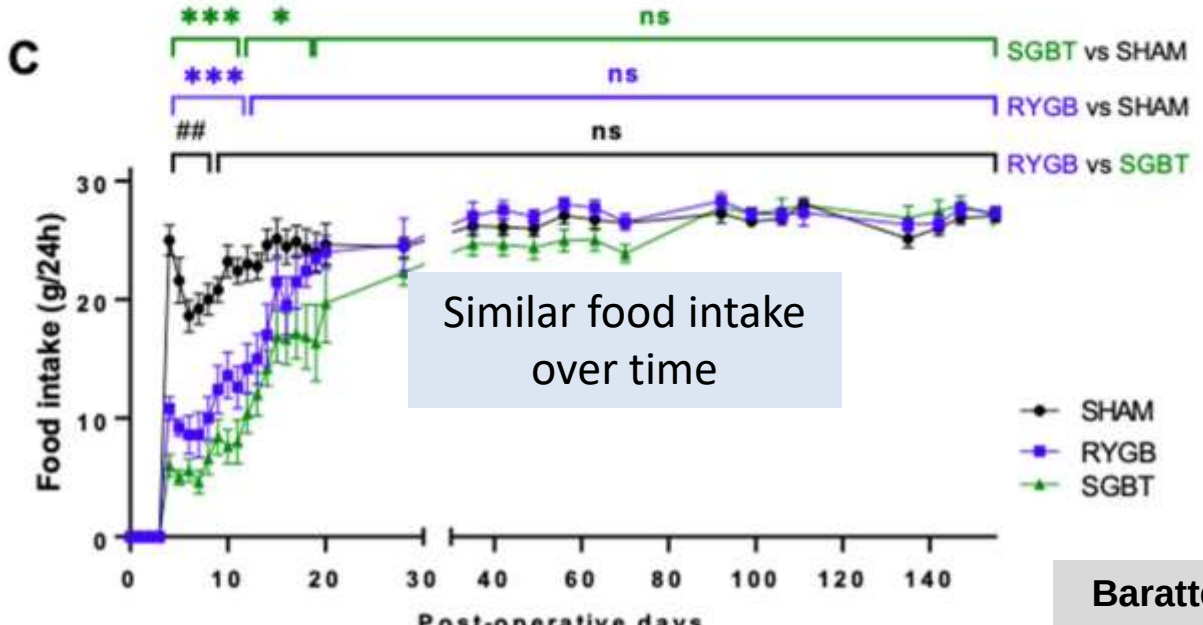


No significant diferences in nutritional parameters

Baratte C et al. Obes Surg 2023



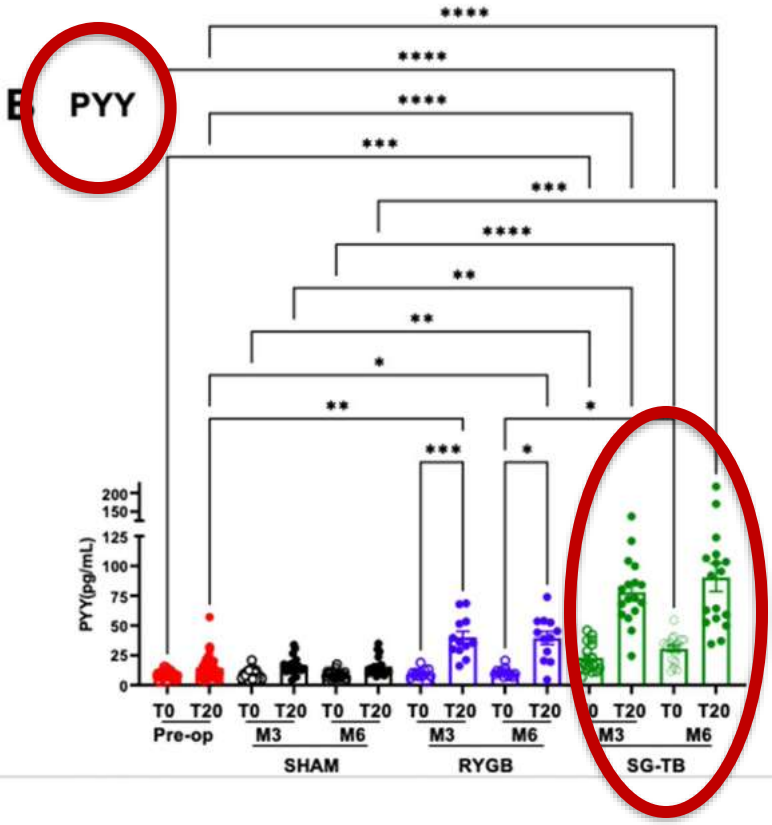
More potent and more durable weight loss than RYGB

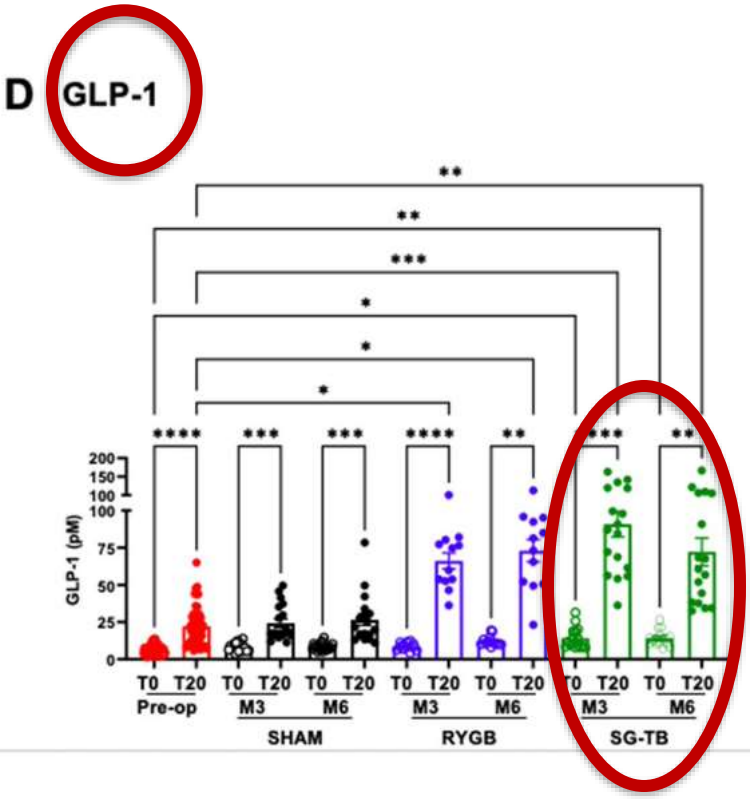


Similar food intake over time

Baratte C et al. Obes Surg 2023

Baratte C et al. Obes Surg 2023





IN WEIGHT REGAIN AFTER RYGB, WHAT FAILED?

ORIGINAL ARTICLES

Gut Hormones as Mediators of Appetite and Weight Loss After Roux-en-Y Gastric Bypass

Carel W. le Roux, MRCP, PhD, Richard Welbourn, MD, FRCS,† Malin Werling, MD,‡ Alan Osborne, MRCS,† Alexander Kokkinos, MD,* Anna Laurenius, RD,‡ Hans Lönroth, MD, PhD,‡ Lars Fändriks, MD, PhD,‡ Mohammad A. Ghatei, PhD,* Stephen R. Bloom, FRCP, DSc,* and Torsten Olbers, MD, PhD‡*

(*Ann Surg* 2007;246: 780–785)

Weight Loss **PYY** **GLP-1**

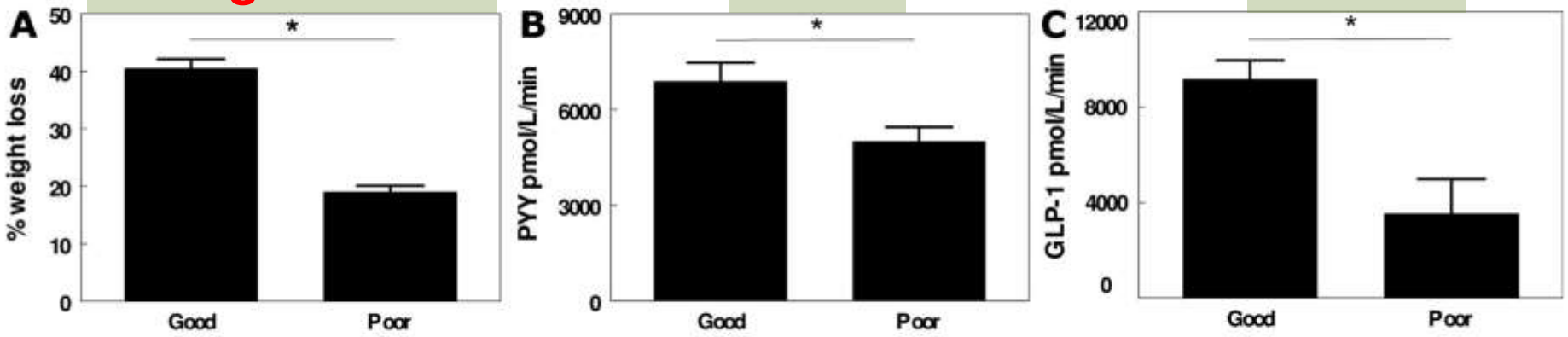


FIGURE 2. A, The total body weight loss after gastric bypass surgery in the good and poor weight loss groups. B and C, The PYY and GLP-1 responses after a standard meal of 400 kcal in the good and poor weight loss groups. *$P < 0.05$.

Good weight loss = BMI ~ 25.1 Kg/m^2

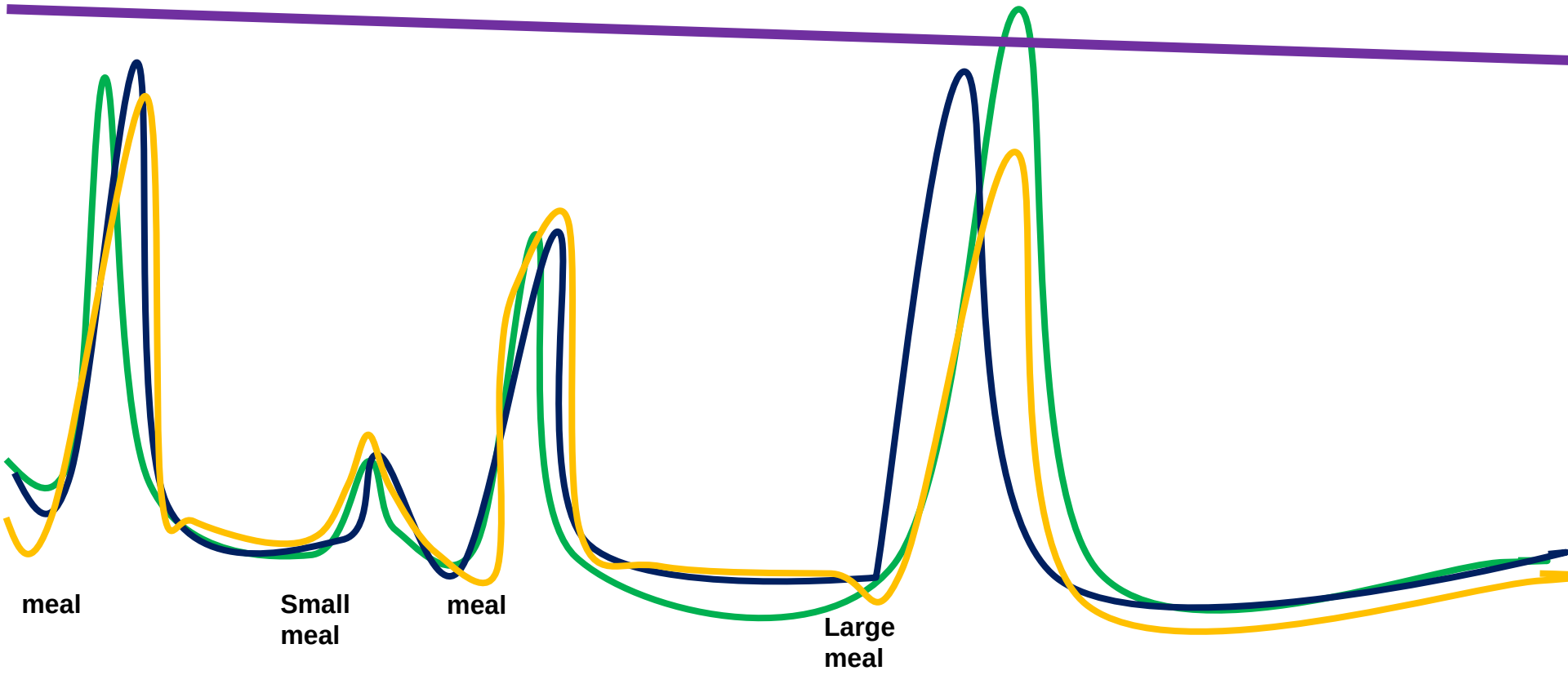
Poor weight loss = BMI ~ 37.8 Kg/m^2

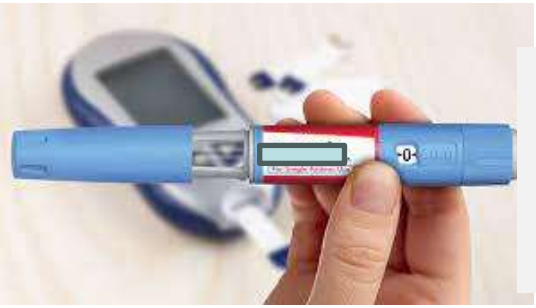
After the failure of a **jejunal surgery**

The Plan is to administer

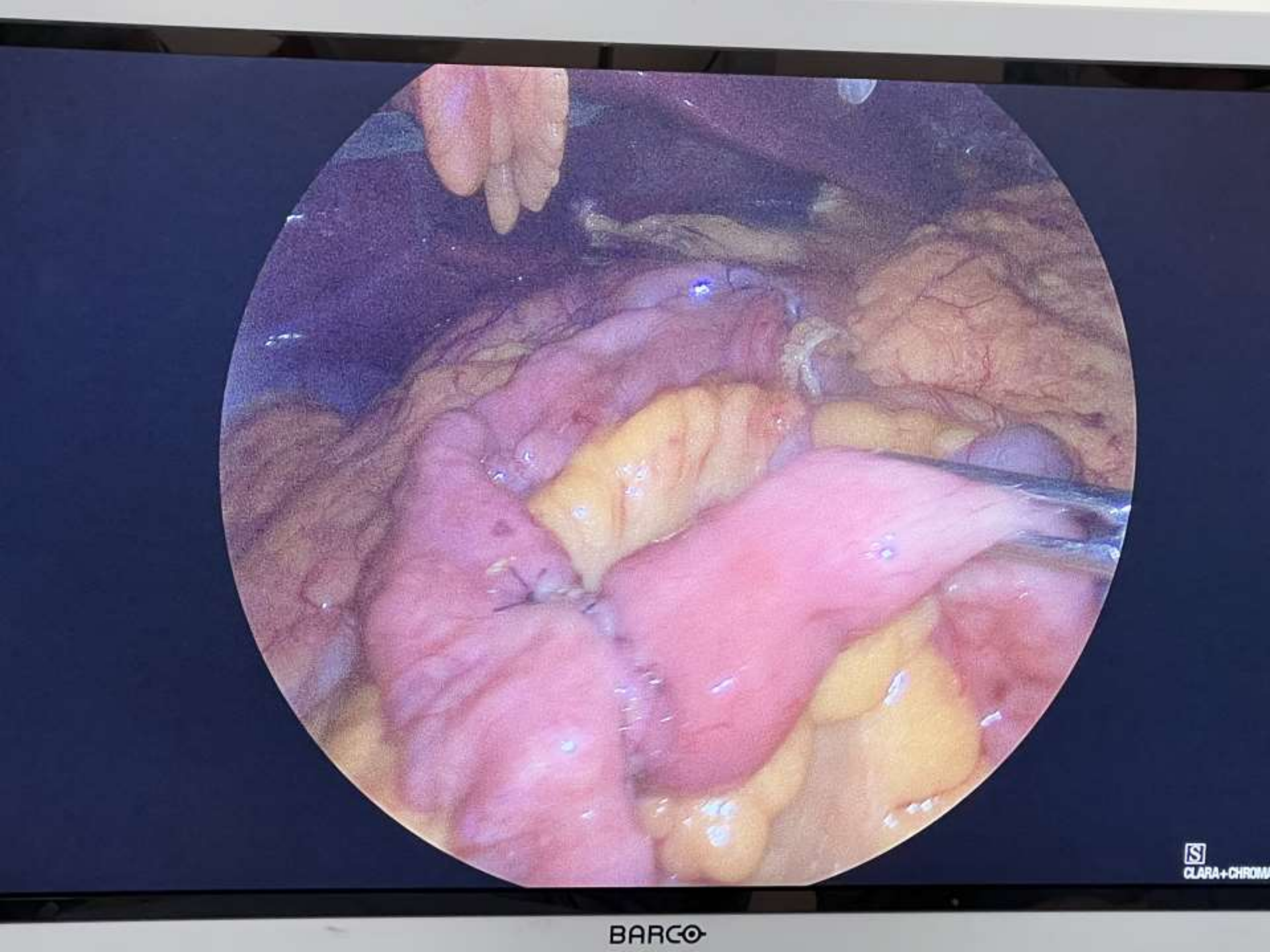
ileal hormones analogs ??

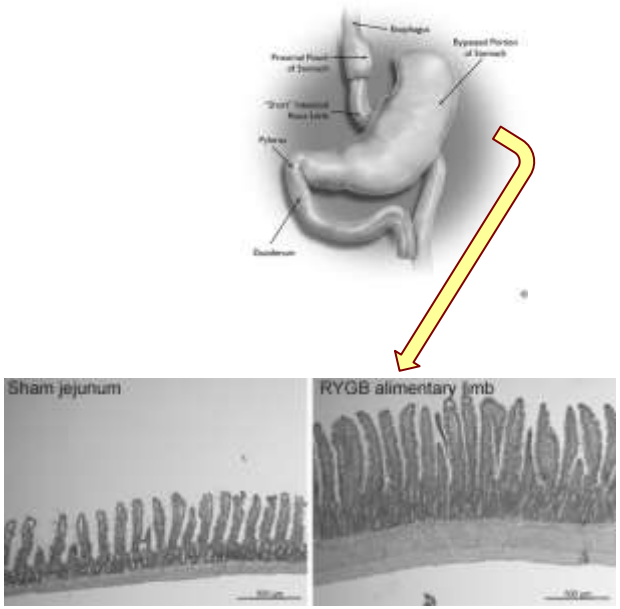
Levels of Gut hormones



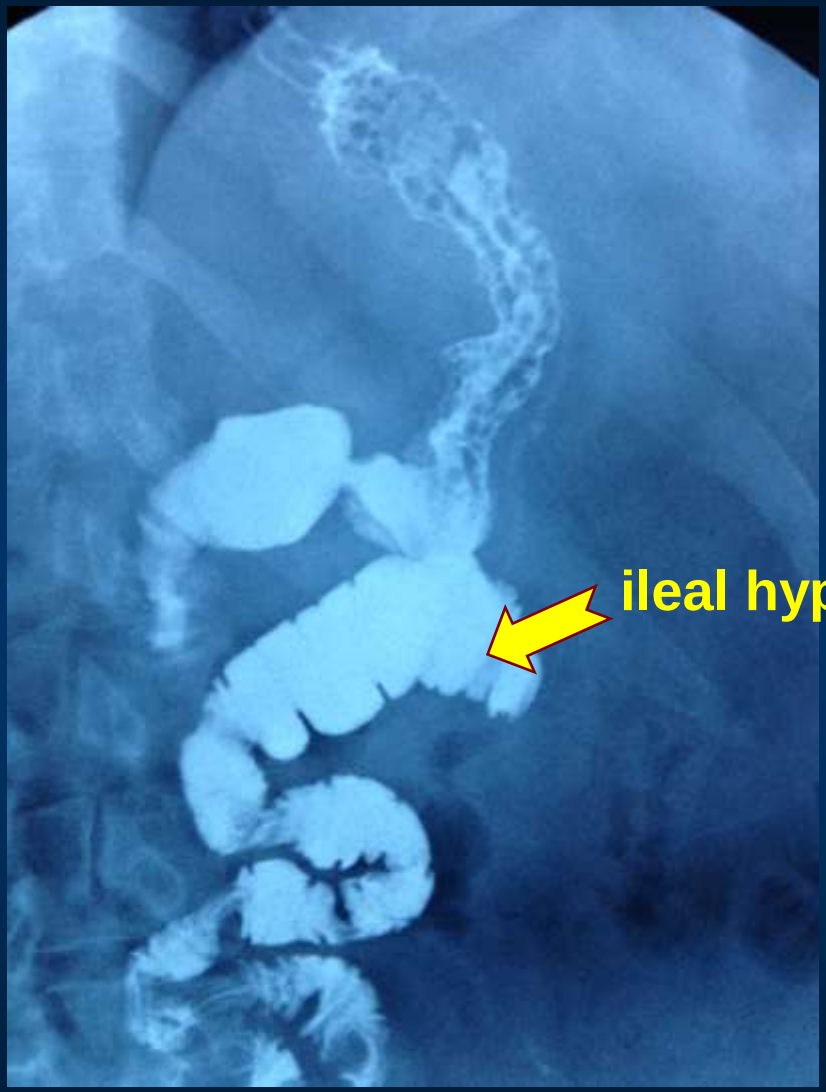


Plasmatic levels of an administered gut hormones analog


CLARA+CHROMA
BARCO



Mucosal hypertrophy in a RYGB is mostly JEJUNAL


ileal hypertrophy

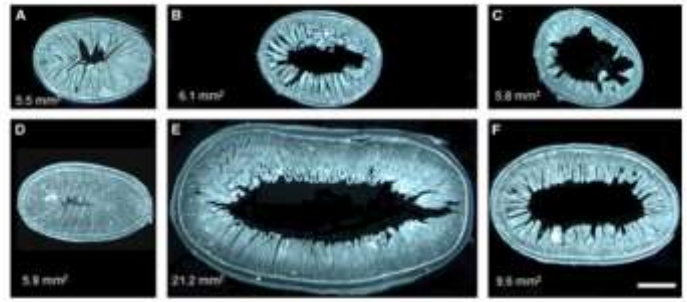


Figure 1.
Representative dark field images of cross-sections of the biliopancreatic (A, D), Roux (B, E), and common (C, F) limbs or their corresponding gut segments of rats at 10–11 months after sham (A–C) or RYGB surgery (D–F), showing hypertrophy of the Roux and common limbs but not the biliopancreatic limb. Surface areas in mm2 of the representative cross-sectioned segments are shown in the left bottom corner of each panel. Scale bar in F, 1.0 mm.

Distal gut Hypertrophy

Hypertrophy mainly of

L cells

and

Ileal mucosa hypertrophy

that produces

FGF-19

International Codes of Diseases – ICD-10

K.90 – Intestinal Malabsorption

It is a bad disease that causes weight loss

It is not a therapeutical tool !

Bariatric Surgery → M[illegible]ption

Disease

Metabolic Surgery → Dista[illegible]ption

Treatment

Distal absorption

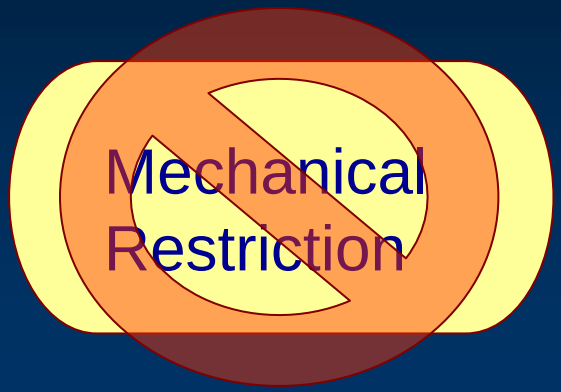
and

Ileal hypertrophy

are new objectives

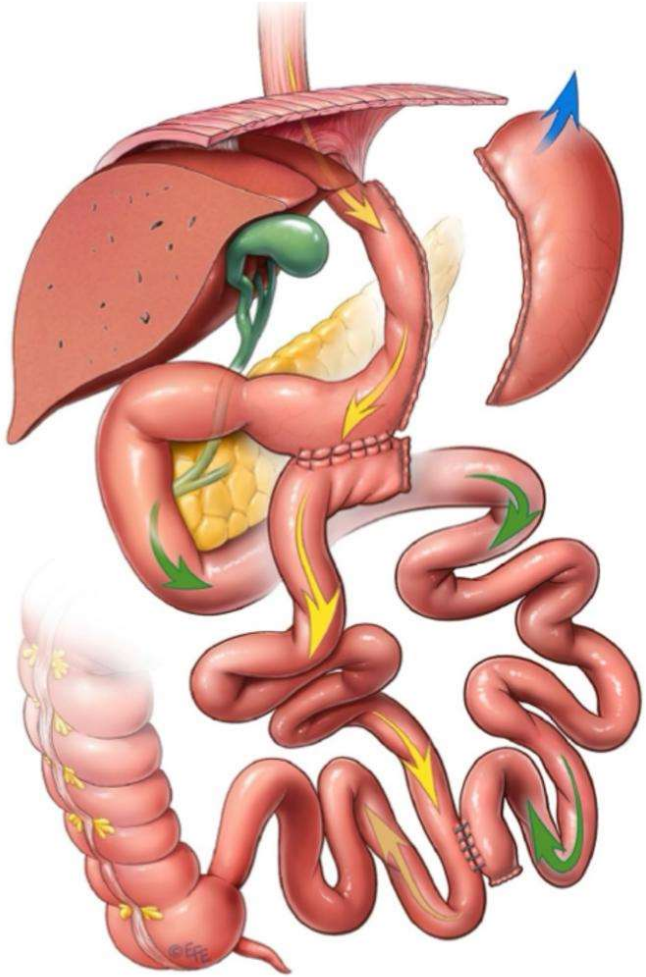
in Metabolic Surgery

Pure Metabolic Surgery



Functional Restriction ✔

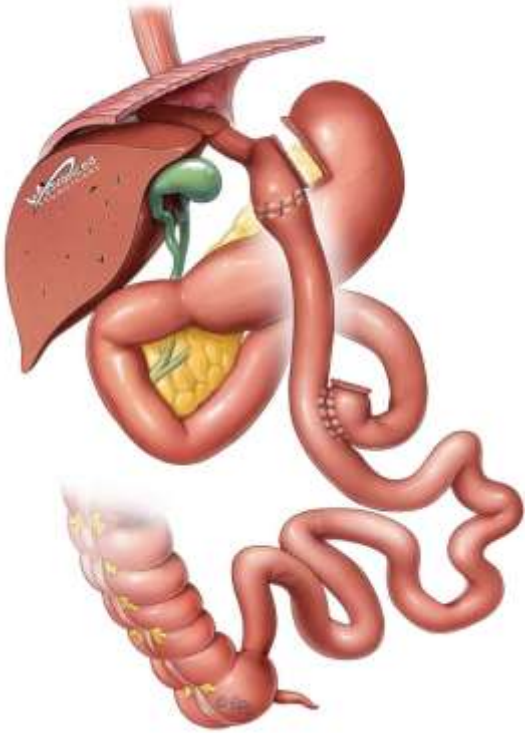
Distal absorption ✔



The Bipartition

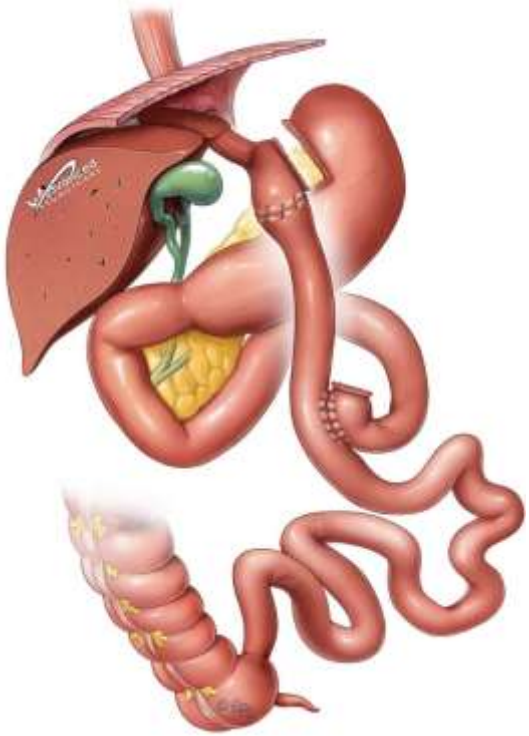
- Weight loss similar to DS
- But a lot simpler and safer
- Very high resolution of T2DM
- No excluded segments
- All limbs are alimentary
- No significant malabsorption
- Functional Restriction (instead of mechanical)
- Immediate ileal nutritive stimulus
- Full endoscopic access
- Keeps the stomach in position
- Lowers intra-gastric pressure
- Endoscopic adjustments

Bariatric Surgery

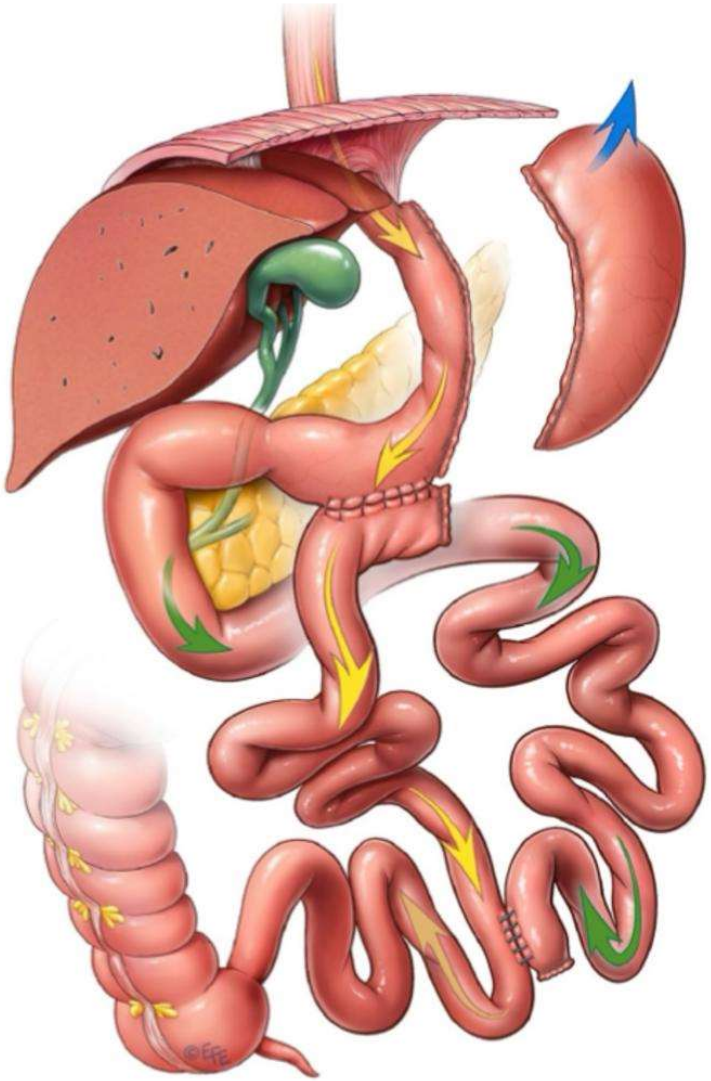


The Gold Standard

All goals change Bariatric into Metabolic Surgery



And this is still Gold Standard ???



The Bipartition

The best complement
to a Sleeve Gastrectomy

Probably,
the Next Gold Standard

Thank You!

IFSO
NAPOLI
2023