
الله





انجمن گوارش ایران برگزار میکند:

INDICATIONS OF BARIATRIC SURGERY



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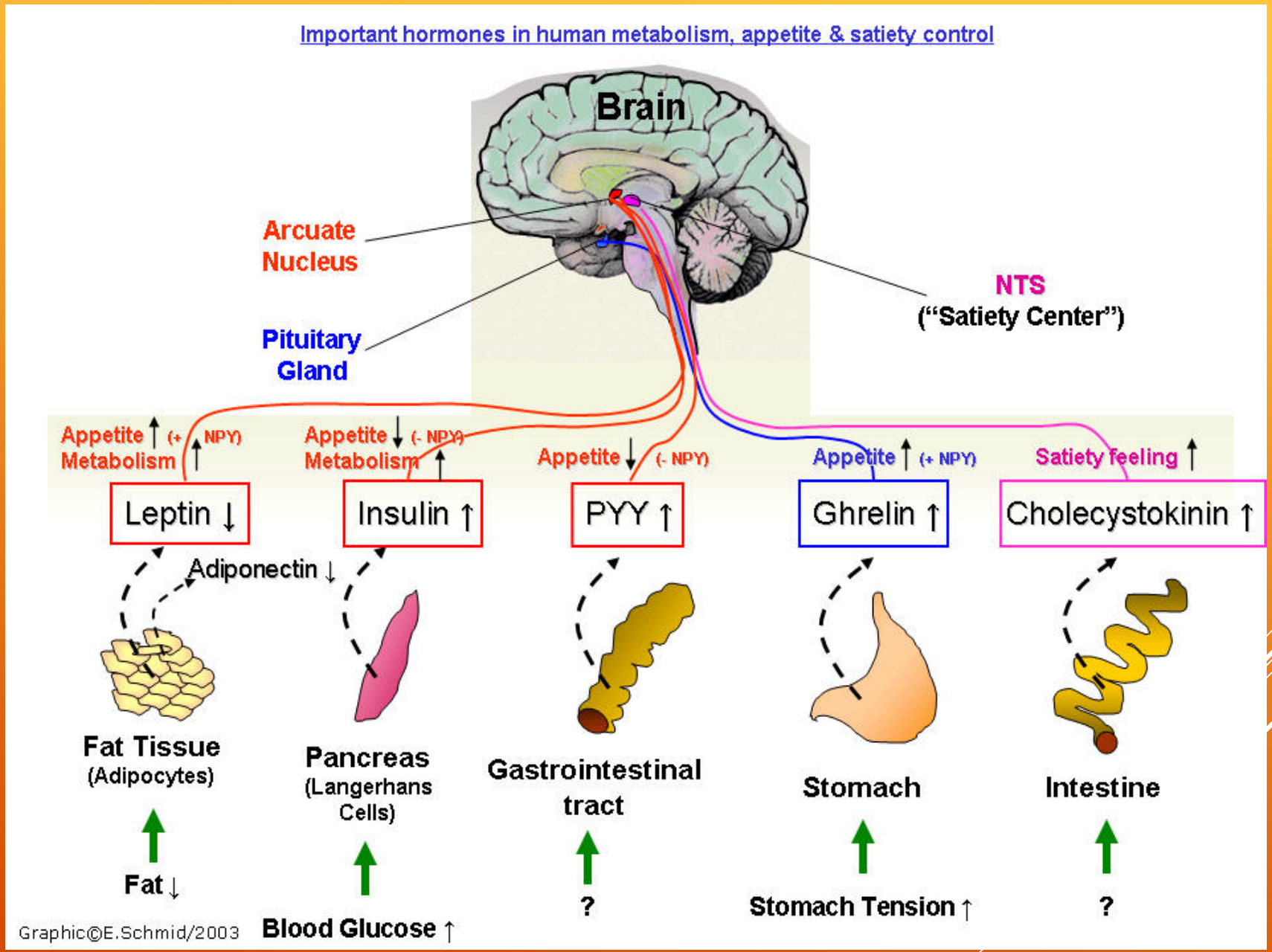
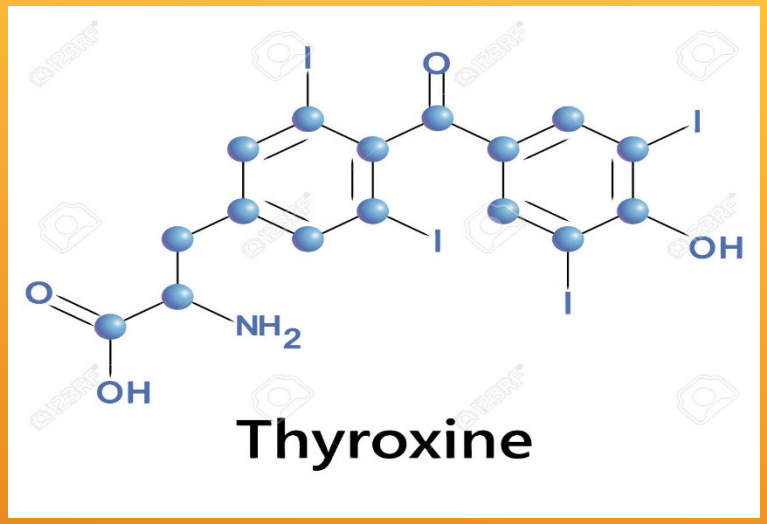
LAPAROSCOPIC FELLOWSHIP

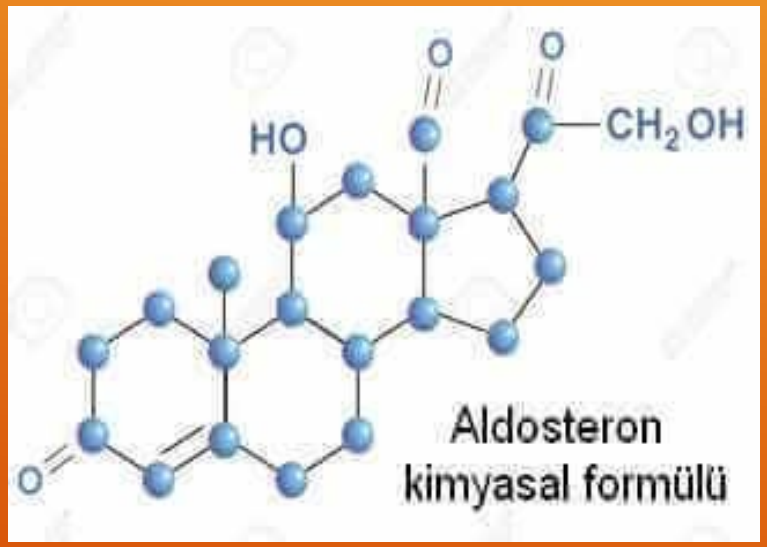
TEHRAN UNIVERSITY OF MEDICAL SCIENCE (TUMS)

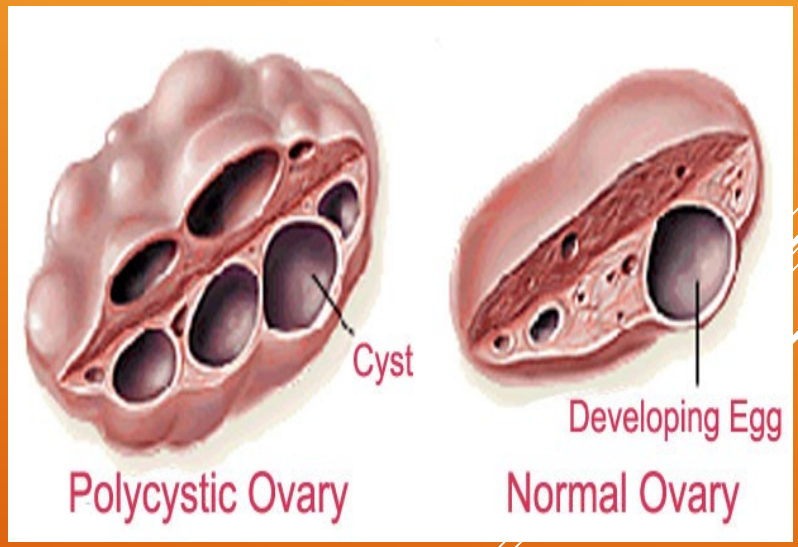
HEAD OF MIRSC, SINA HOSPITAL, TEHRAN


Important hormones in human metabolism, appetite & satiety control
Brain
Arcuate Nucleus
Pituitary Gland
NTS
("Satiety Center")
Appetite ↑ (+ NPY)
Metabolism ↑
Appetite ↓ (- NPY)
Metabolism ↓
Appetite ↓ (- NPY)
Appetite ↑ (+ NPY)
Satiety feeling ↑
Leptin ↓
Insulin ↑
PYY ↑
Ghrelin ↑
Cholecystokinin ↑
Adiponectin ↓
Fat Tissue
(Adipocytes)
Pancreas
(Langerhans Cells)
Gastrointestinal tract
Stomach
Intestine
Fat ↓
Blood Glucose ↑
?
Stomach Tension ↑
?
Graphic©E.Schmid/2003









HORMONAL OBESITY: 10% OVERWEIGHT

MORBID OBESITY

- **DISEASE**

  R/O hormonal Dis: Hypothyroidism, Cushing,

- **MEANING ($BMI=W_{(KG)}/H.H_{(M)}$)**

  Skin thickness



- **THE BEST OPTION OF TREATMENT:**

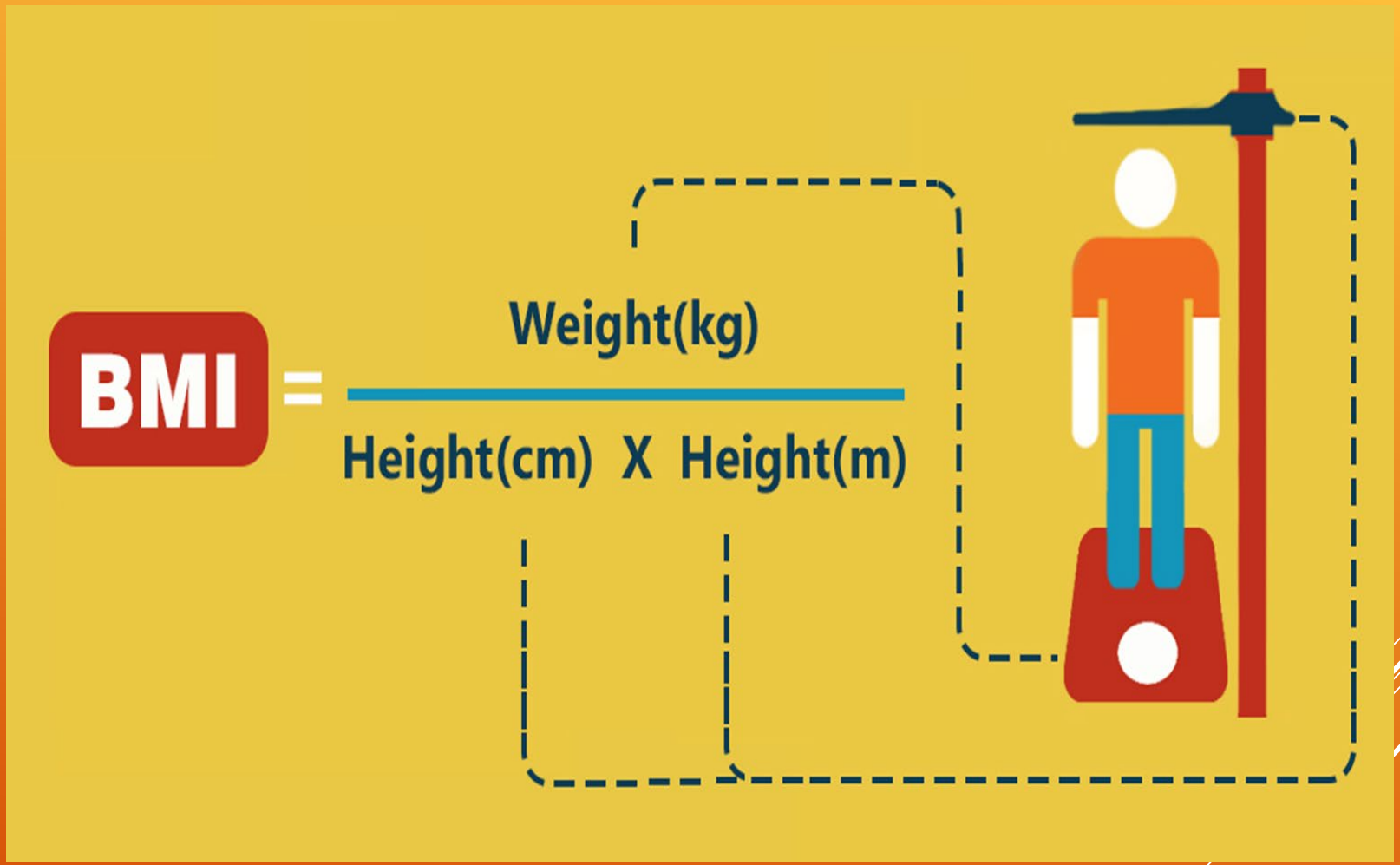
  DIET

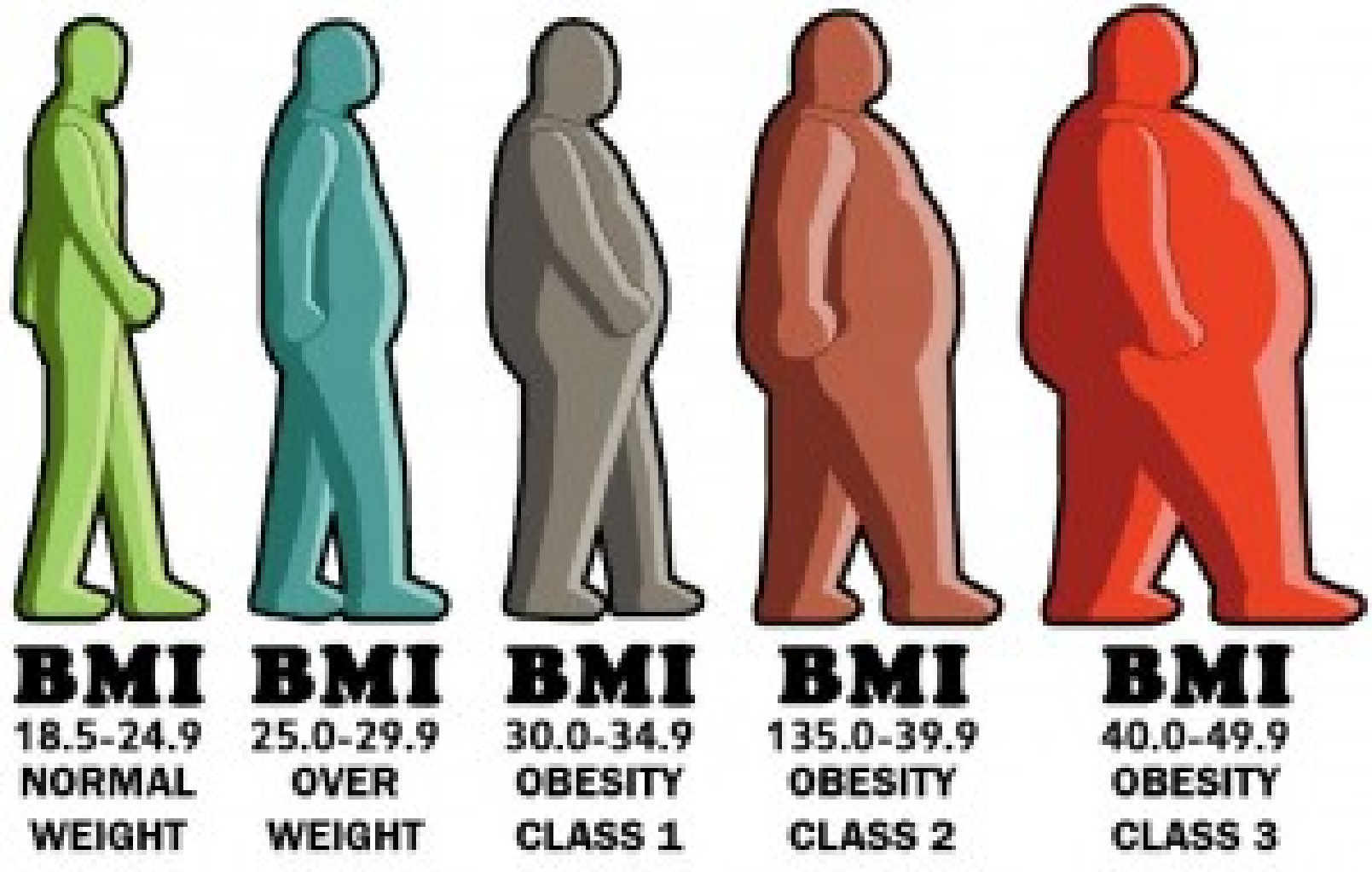
  EXERCISE

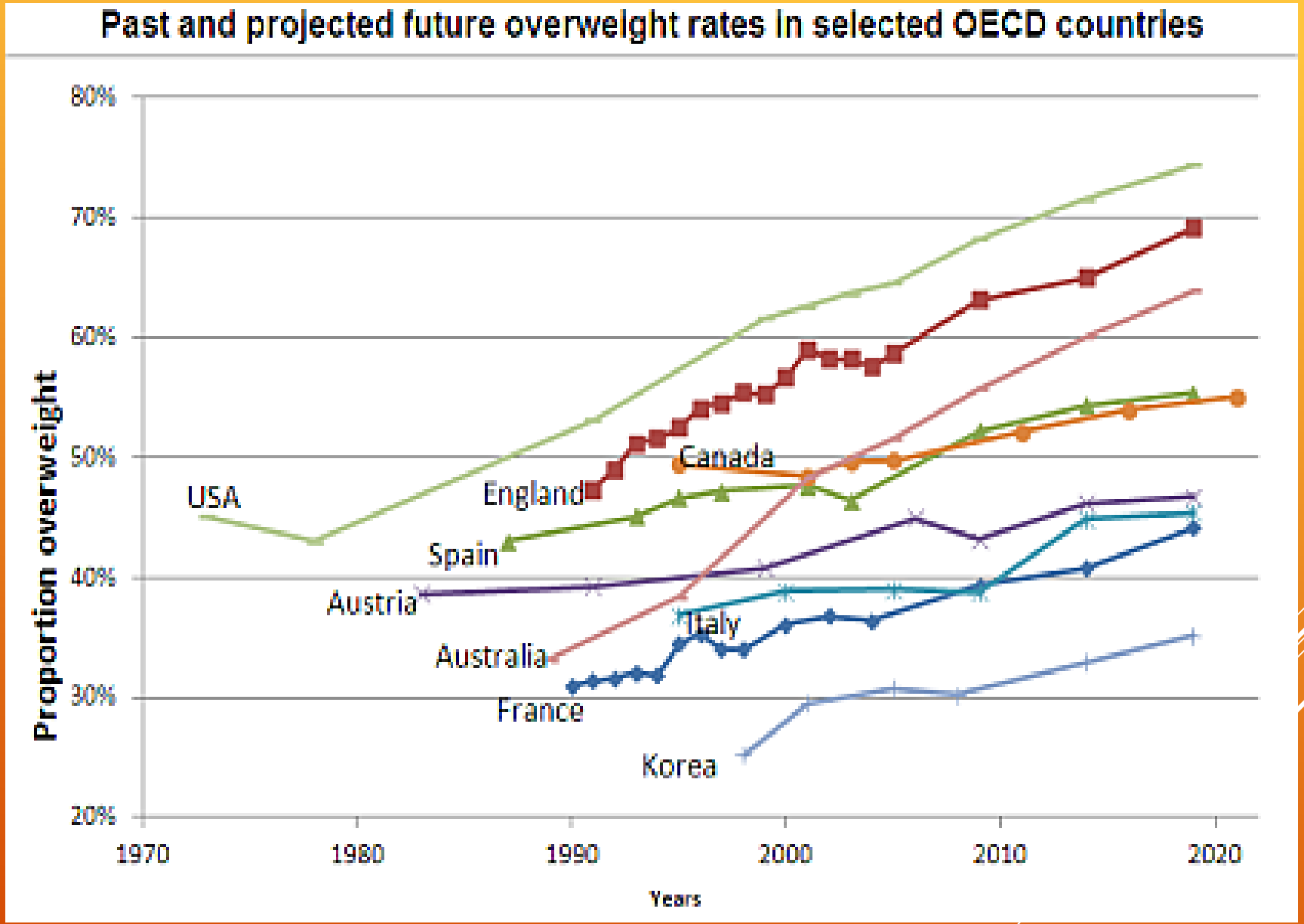
  DRUG???



- **SURGERY**
  - R/O unknown underlying Dis


BMI
=
Weight(kg)
Height(cm) X Height(m)

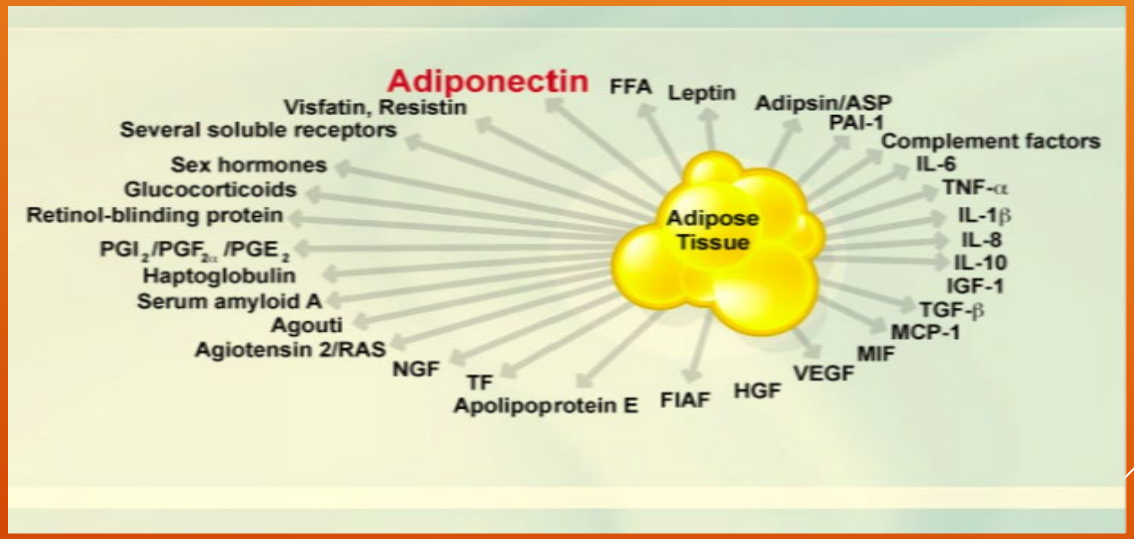

BMI
18.5-24.9
NORMAL
WEIGHT
BMI
25.0-29.9
OVER
WEIGHT
BMI
30.0-34.9
OBESITY
CLASS 1
BMI
135.0-39.9
OBESITY
CLASS 2
BMI
40.0-49.9
OBESITY
CLASS 3


Past and projected future overweight rates in selected OECD countries
Proportion overweight
80%
70%
60%
50%
40%
30%
20%
1970
1980
1990
2000
2010
2020
Years
USA
England
Canada
Spain
Austria
Italy
Australia
France
Korea

FATTY CELLS: HORMONAL RELEASE



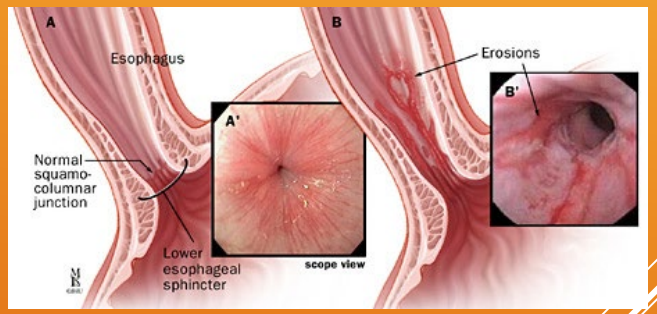


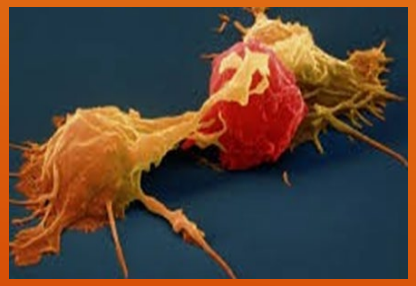


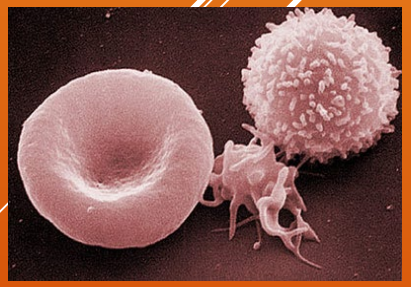
COMORBIDITY



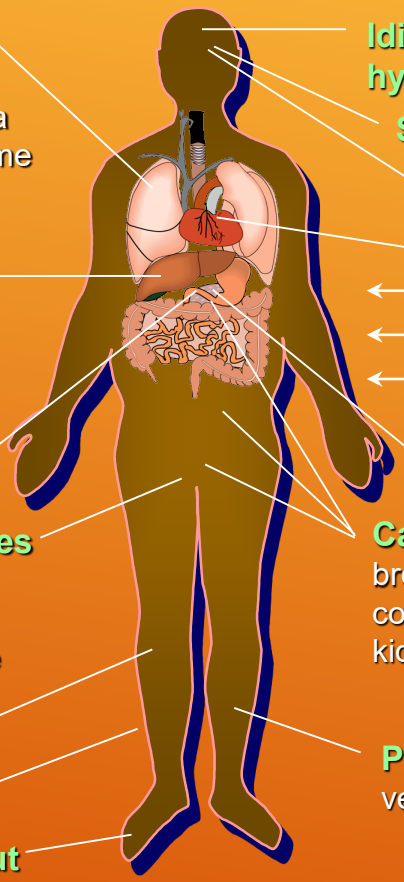
- VASCULAR DISEASE
- METABOTIC DISEASE
- MECHANICAL DISEASE
- IMMUNE SYSTEM
- CANCER
- REFLUX
- SLEEP APNEA







MEDICAL COMPLICATIONS OF OBESITY



Pulmonary disease
abnormal function
obstructive sleep apnea
hypoventilation syndrome

Nonalcoholic fatty liver disease
steatosis
steatohepatitis
cirrhosis

Gall bladder disease

Gynecologic abnormalities
abnormal menses
infertility
polycystic ovarian syndrome

Osteoarthritis

Skin

Gout

Idiopathic intracranial hypertension

Stroke

Cataracts

Coronary heart disease

Diabetes

Dyslipidemia

Hypertension

Severe pancreatitis

Cancer
breast, uterus, cervix
colon, esophagus, pancreas
kidney, prostate

Phlebitis
venous stasis

MAJOR COMORBIDITY

- DIABETUS
- HYPERTENSION
- HYPERTRIGLYCERIDEMIA
- SLEEP APNEA









WHY SURGERY? 1) SOCIAL RELATION





2) BEAUTY

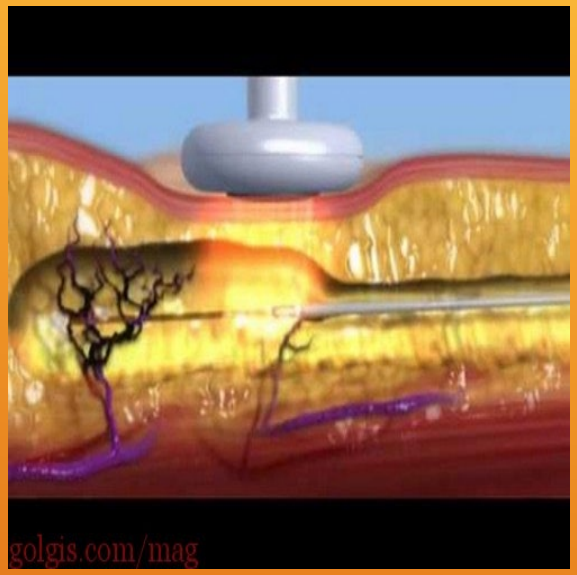


3) HEALTH CARE

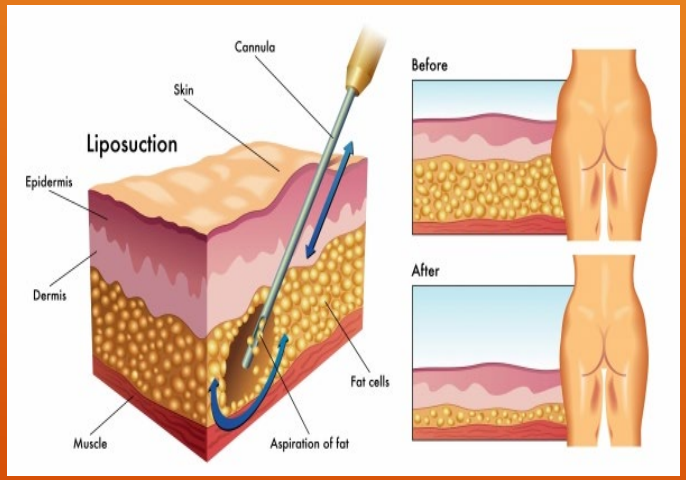




COSMETIC SURGERY: BMI<35







SURGERY AND MORBID OBESITY

- METHODS

  RESTRICTIVE

  MALABSORPTIVE



- INDICATIONS

  BMI>35, COMORBIDITY



  BMI>40, RESTRICTIVE

  BMI>55, RESTRICTIVE+MALABSORPTION



  FDA: BMI>30, CONSERVATIVE +COMORBIDITY

WHAT IS THE BEST TECHNIQUE

POTENTIAL OF USING TWO METHODS

TWO STAGE

REVERSIBLE



CONSERVATIVE

PLAN FOR REGAIN

PRACTICAL



LAPAROSCOPIC

COMPLICATIONS

PROMINANT EWL

METHODS

RESTRICTIVE:

- GASTRIC BANDING
- VERTICAL BANDED GASTROPLASTY
- SLEEVE GASTRECTOMY
- GASTRIC PLICATION

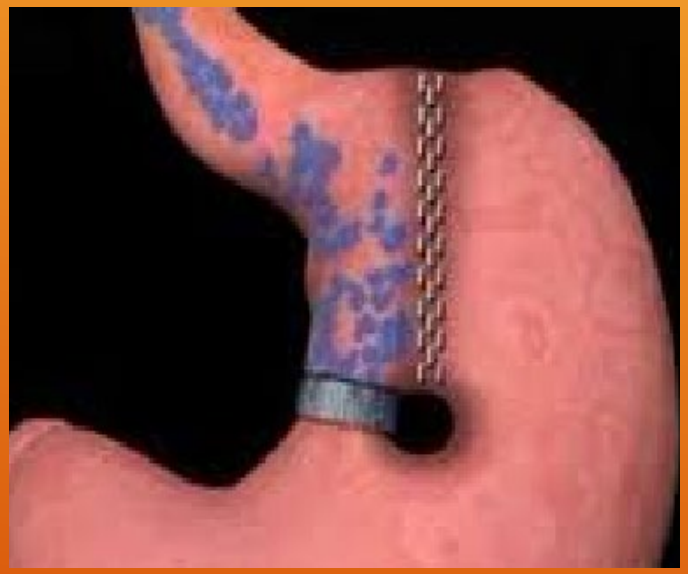
MALABSORPTIVE:

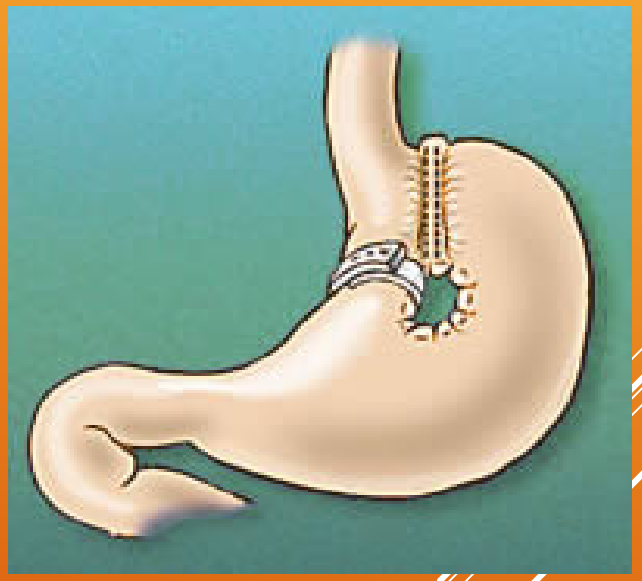
- BILIOPANCREATIC DIVERSION
- JEJUNOILEAL BYPASS

MIXED:

- GASTRIC BYPASS
- DUODENAL SWITCHING (OBLIGATORY WEIGHT LOSS)

VERTICAL BANDED GASTROPLASTY





RESTRICTIVE: BANDING

60% EWL AFTER 1 YEAR

20% EMERGENCY REMOVAL

80% BAND HAS REMOVED AFTER 10Y

REGAIN: 50%/10Y

DECREASING RATE





RESTRICTIVE: SLEEVE





70% EWL AFTER 1Y

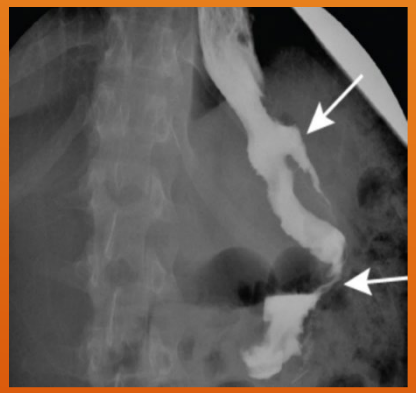
REGAIN: 20%/5Y

REGAIN: 50%/10Y

THE MOST COMMON RESTRICTIVE METHOD

LEAKAGE: 0.2%

INSTRUMENTAL METHOD



RESTRICTIVE: GASTRIC PLICATION

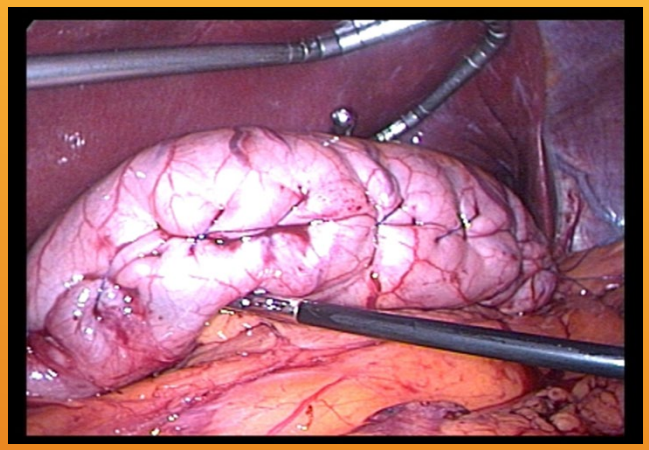
THE MOST PHYSIOLOGIC METHOD

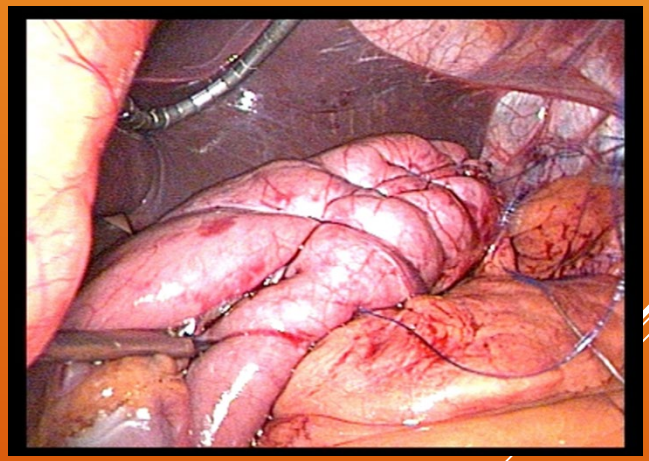
65% EWL/1Y

REGAIN: 15%/4Y, 50%/10Y

LEAKAGE: 0.1%

Technical method





DISADVANTAGES OF RESTRICTIVE METHODS

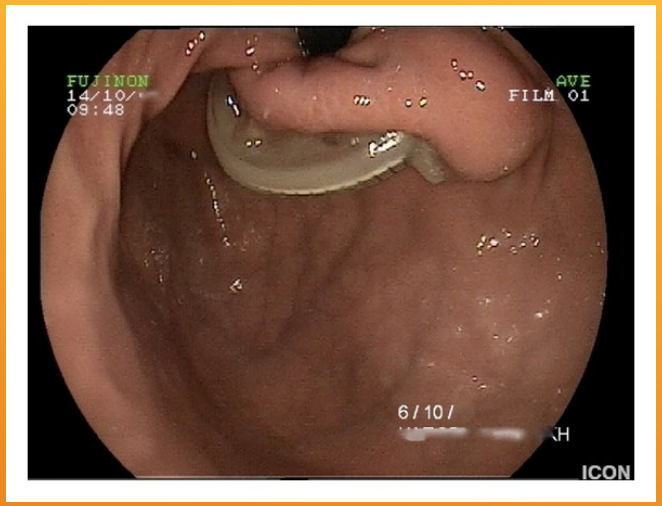
TRANSIENT

DILATION OF STOMACH

FOREIGHN BODY

RESECTION: MALABSORPTION OF Ca AND Fe

COOPERATION OF PATIENT: CHANGE OF LIFE STYLE



MIXED: RESTRICTIVE AND MALABSORPTIVE: R-Y GASTRIC BYPASS

THE MOST TRADITIONAL METHOD

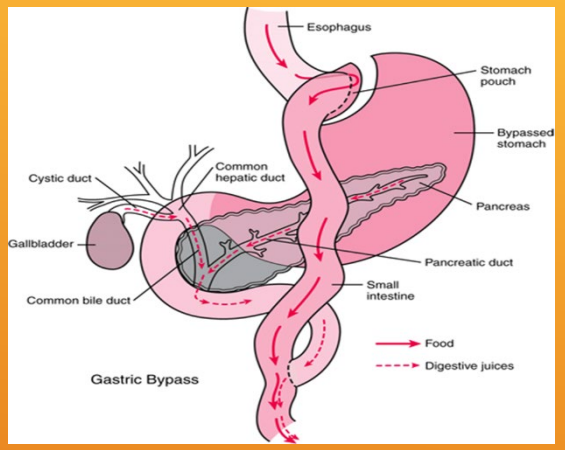
THE MOST COMMON METHOD OVERALL

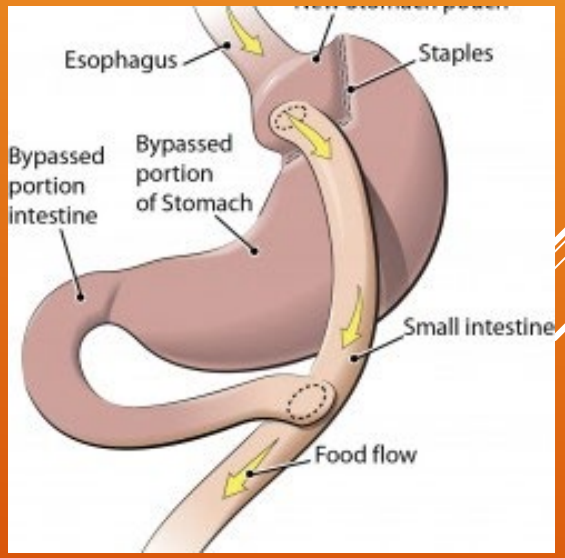
75% EWL/1Y

REGAIN: 15%/7Y

ANTIREFLUX METHOD

METABOLIC SURGERY





MIXED: RESTRICTIVE AND MALABSORPTIVE: MINI GASTRIC BYPASS

NEW ALTERNATIVE

RAPID PROPAGATION

EASIER

SAFER

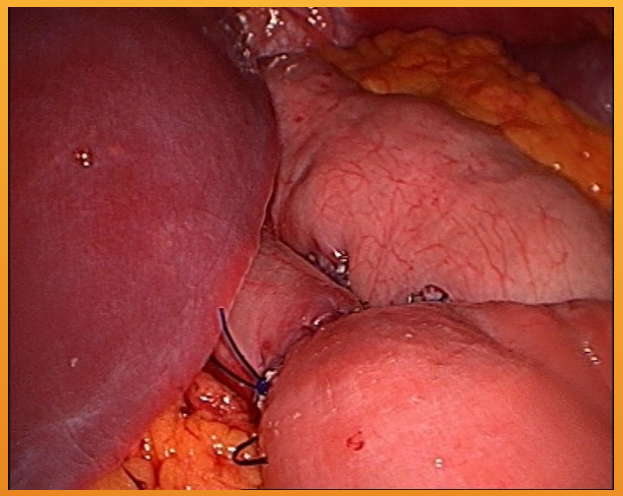
MORE POWERFUL

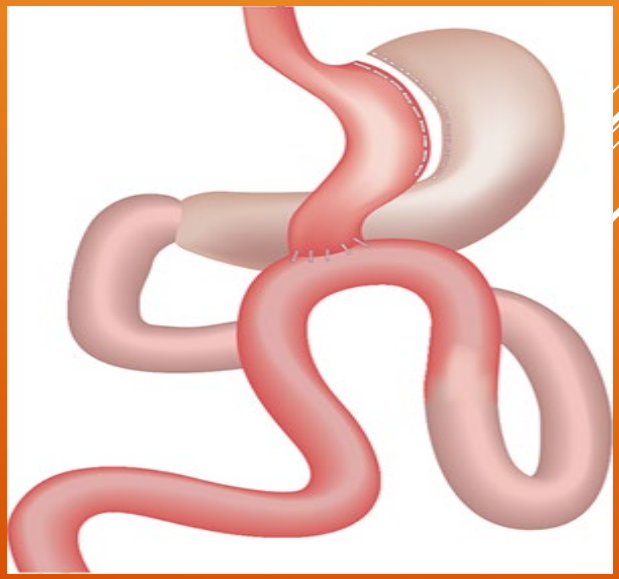
75% EWL/1Y

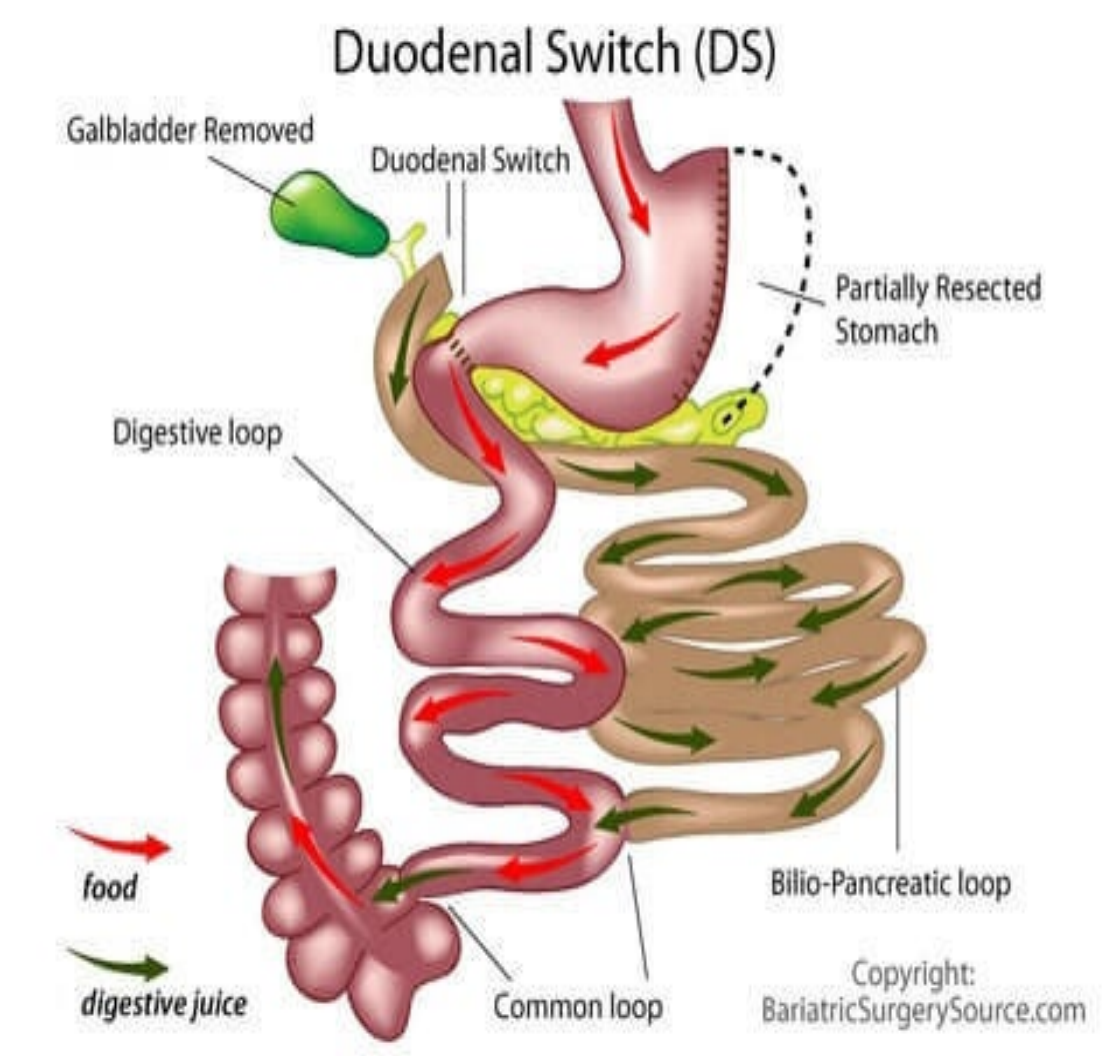
REGAIN: 7%/10Y

BLEEDING

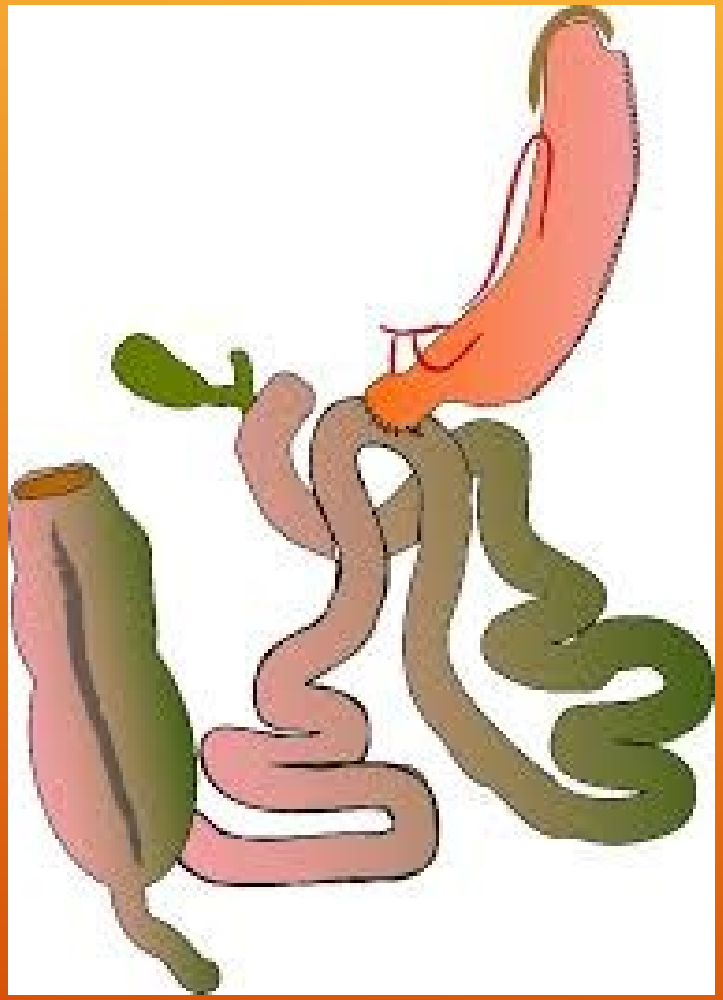
BILE REFLUX






Duodenal Switch (DS)
Galbladder Removed
Duodenal Switch
Partially Resected Stomach
Digestive loop
food
digestive juice
Common loop
Bilio-Pancreatic loop
Copyright: BariatricSurgerySource.com

SADI

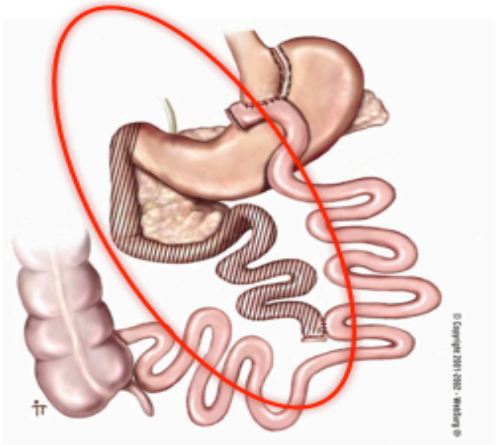


SASI



Foregut Theory

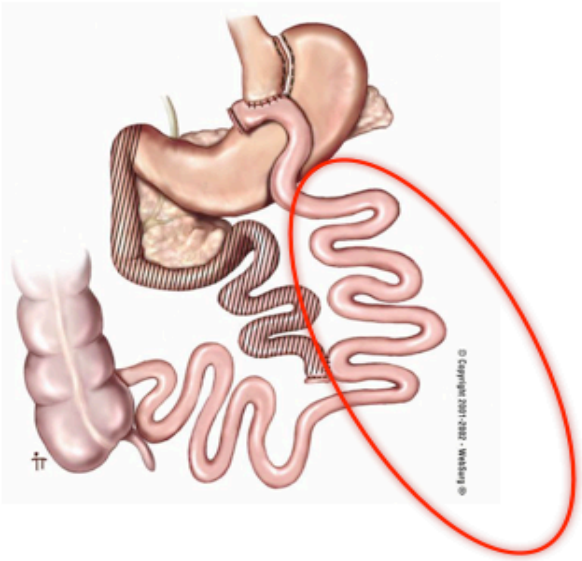
- Exclusion of the duodenum results in inhibition of a "putative"signal that is responsible for insulin resistance and/or abnormal glycemic control (T2DM)



Rubino et.al, Ann Surg, 2006

The Hindgut Theory

– **The more rapid delivery of undigested nutrients to the distal bowel upregulates the production of L-cell derivatives like GLP-1**



Mason E. Obes Surg 2005 15, 459-461

Rubino et.al, Ann Surg, 2006

COMORBIDITY



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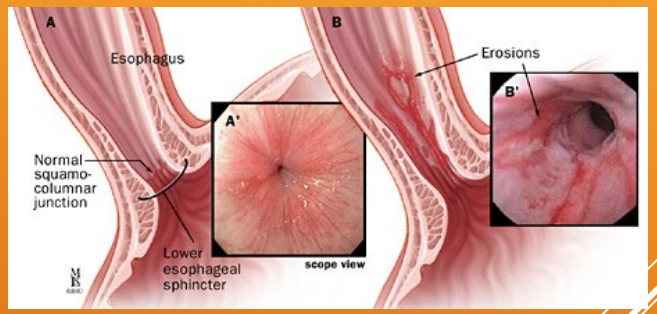
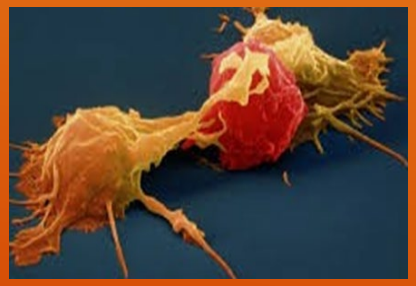
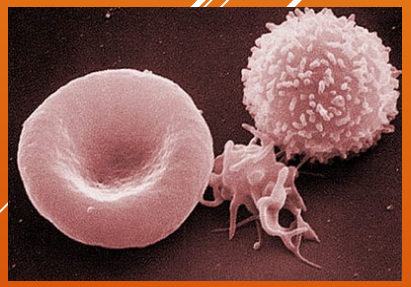
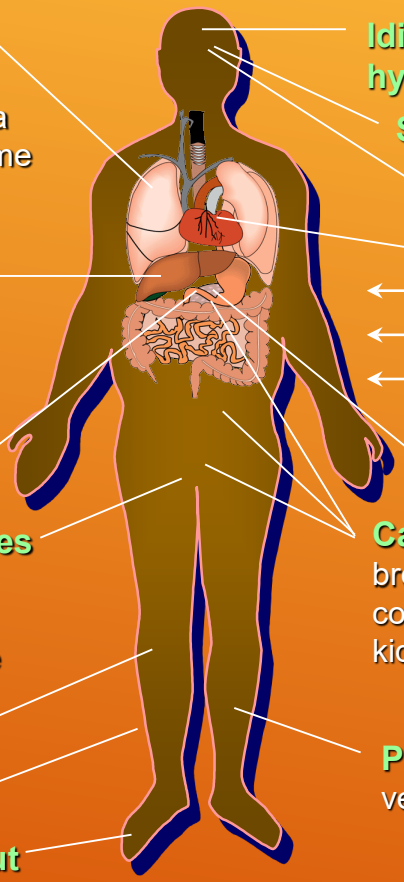






MEDICAL COMPLICATIONS OF OBESITY



Pulmonary disease
abnormal function
obstructive sleep apnea
hypoventilation syndrome

Nonalcoholic fatty liver disease
steatosis
steatohepatitis
cirrhosis

Gall bladder disease

Gynecologic abnormalities
abnormal menses
infertility
polycystic ovarian syndrome

Osteoarthritis

Skin

Gout

Idiopathic intracranial hypertension

Stroke

Cataracts

Coronary heart disease

Diabetes

Dyslipidemia

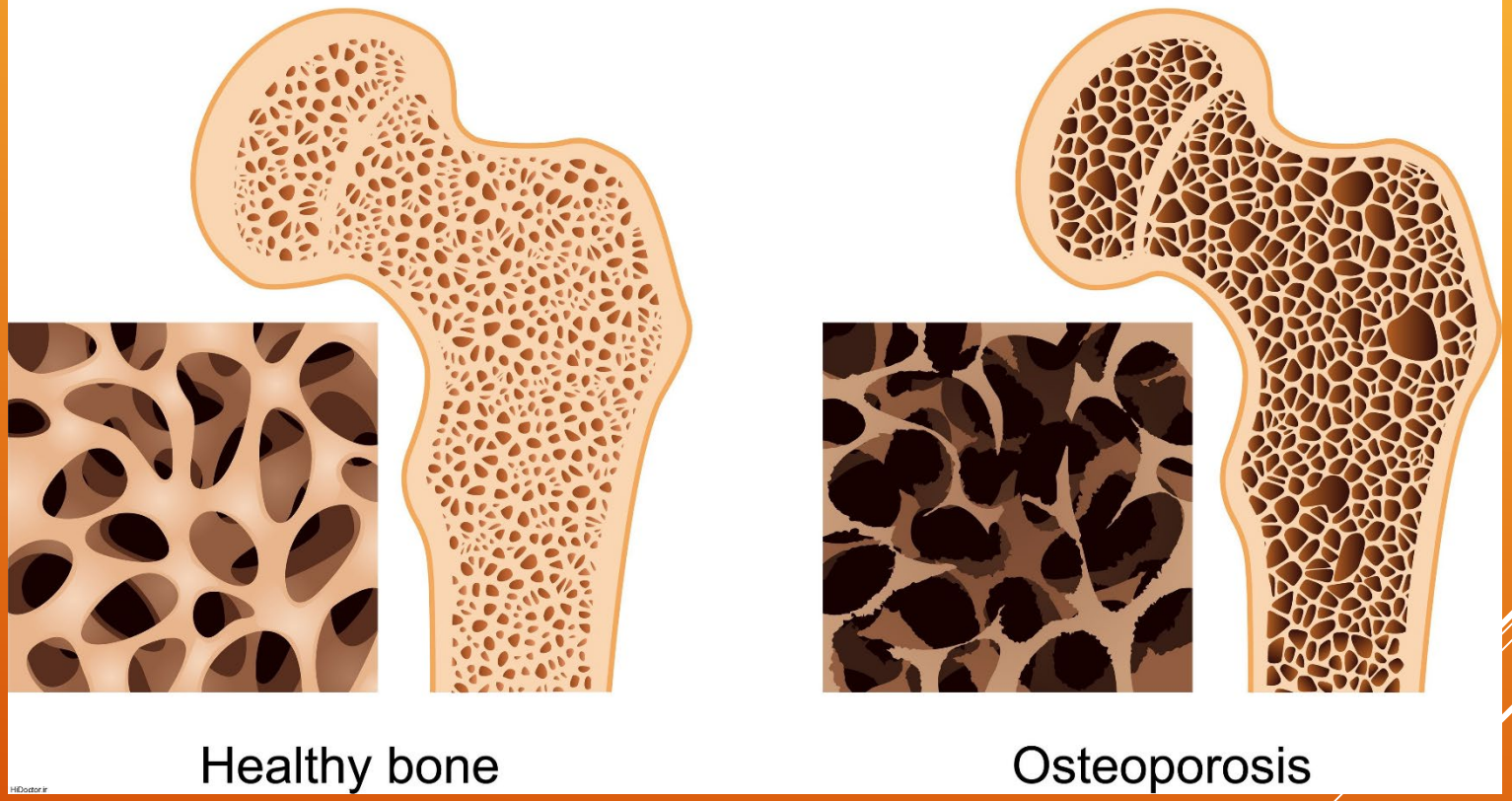
Hypertension

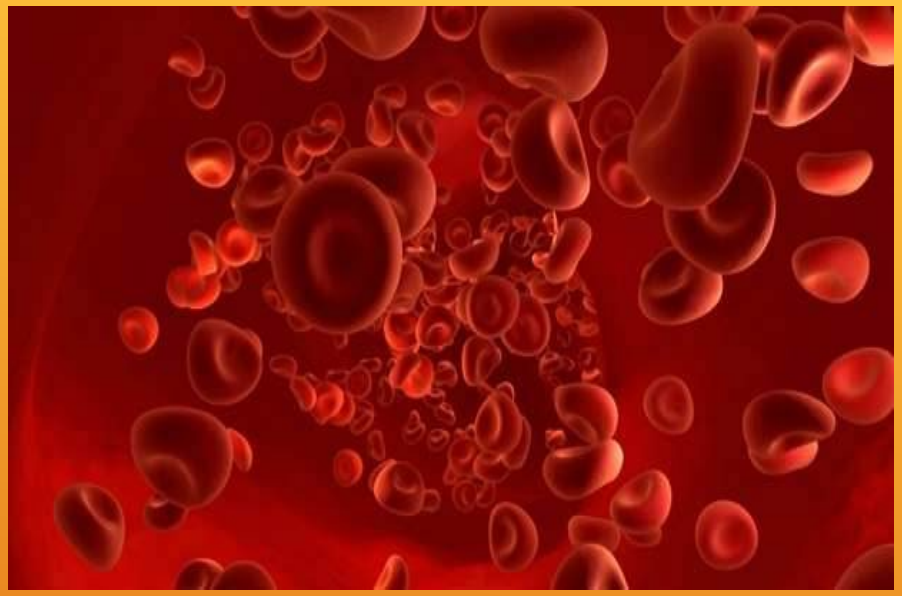
Severe pancreatitis

Cancer
breast, uterus, cervix
colon, esophagus, pancreas
kidney, prostate

Phlebitis
venous stasis

Osteoporosis







Late Complications of Roux-en-Y Gastric Bypass

	Patients (%)
Dumping syndrome	71
Vitamin B_{12} deficiency	40
Anemia	39
Hospital readmission	38
Incisional hernia	24
Depression	23
Staple-line failure	15
Gastritis	13
Cholelithiasis	11
Bile reflux	9

Pories WJ et al. Ann Surg. 1995;222:339-350.

COMPLICATIONS



- **MORTALITY:** 1/500

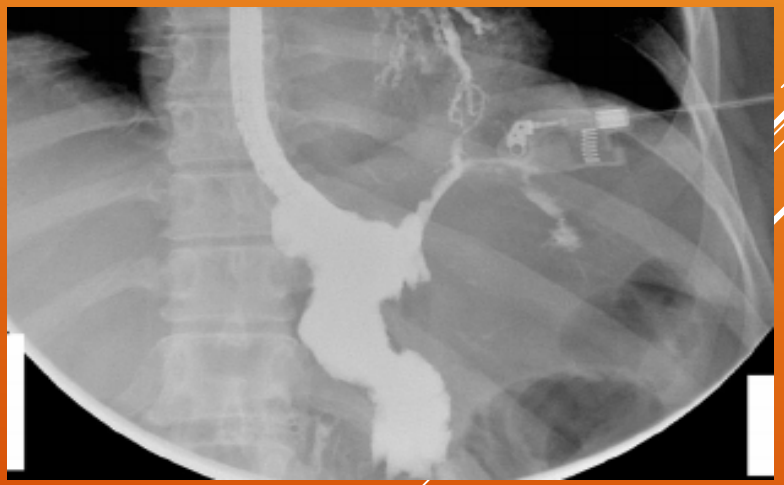
- **MORBIDITY**

  RESTRICTIVE:

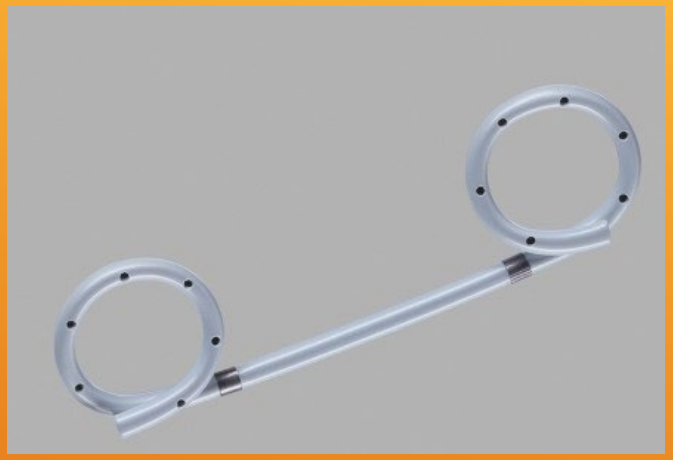
  - LEAK
  - STRICTURE
  - FOREIGN BODY REACTION
  - INFECTION
  - REFLUX

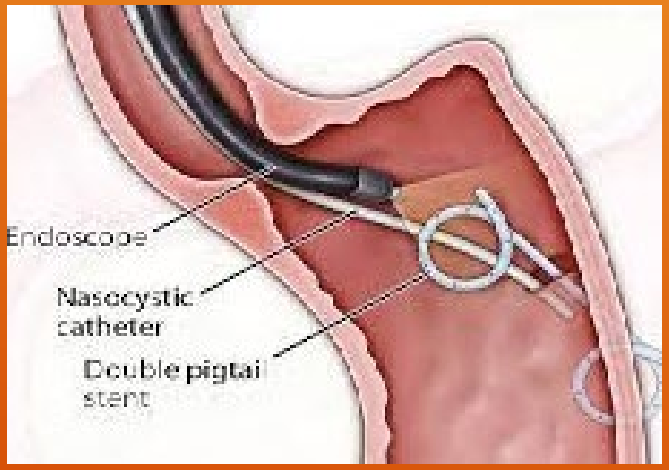
  MALABSORPTIVE:

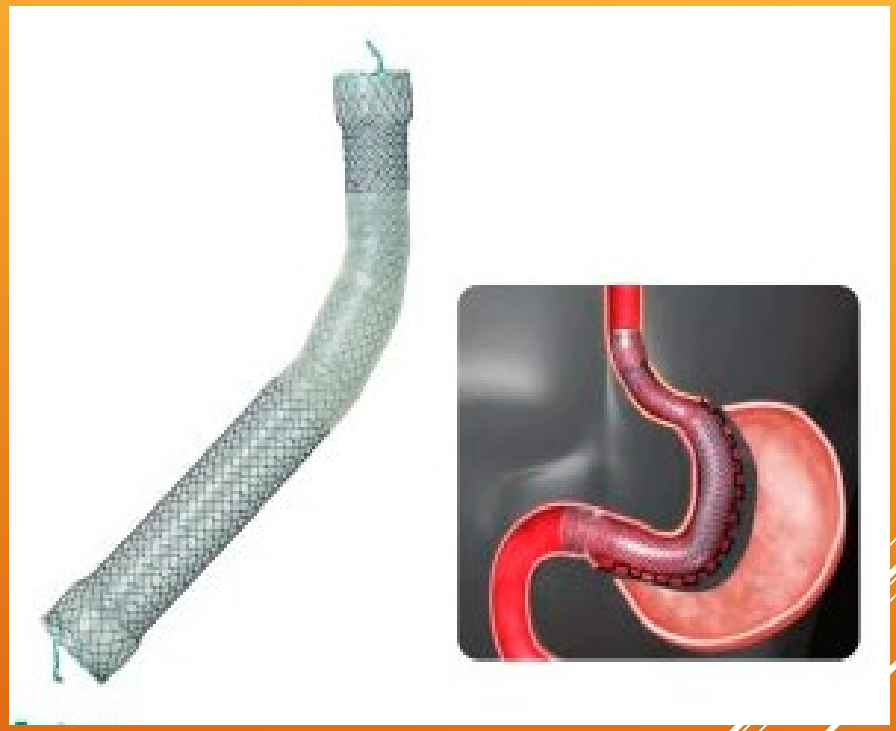
  - DIARREHA
  - DUMPING
  - RENAL STONE
  - GALLSTONE



ENDOSCOPIC LEAKAGE CONTROL

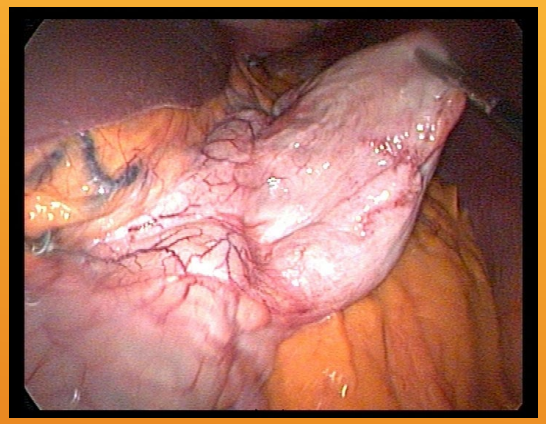


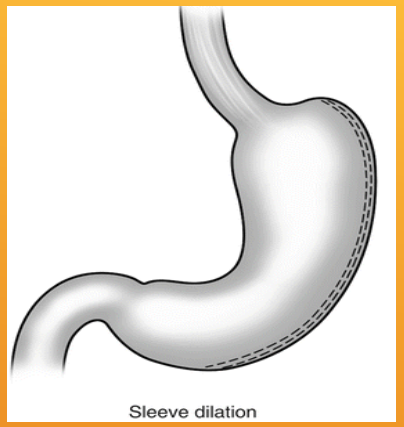




REGAIN

- RESTRICTIVE





- MALABSORPTIVE

