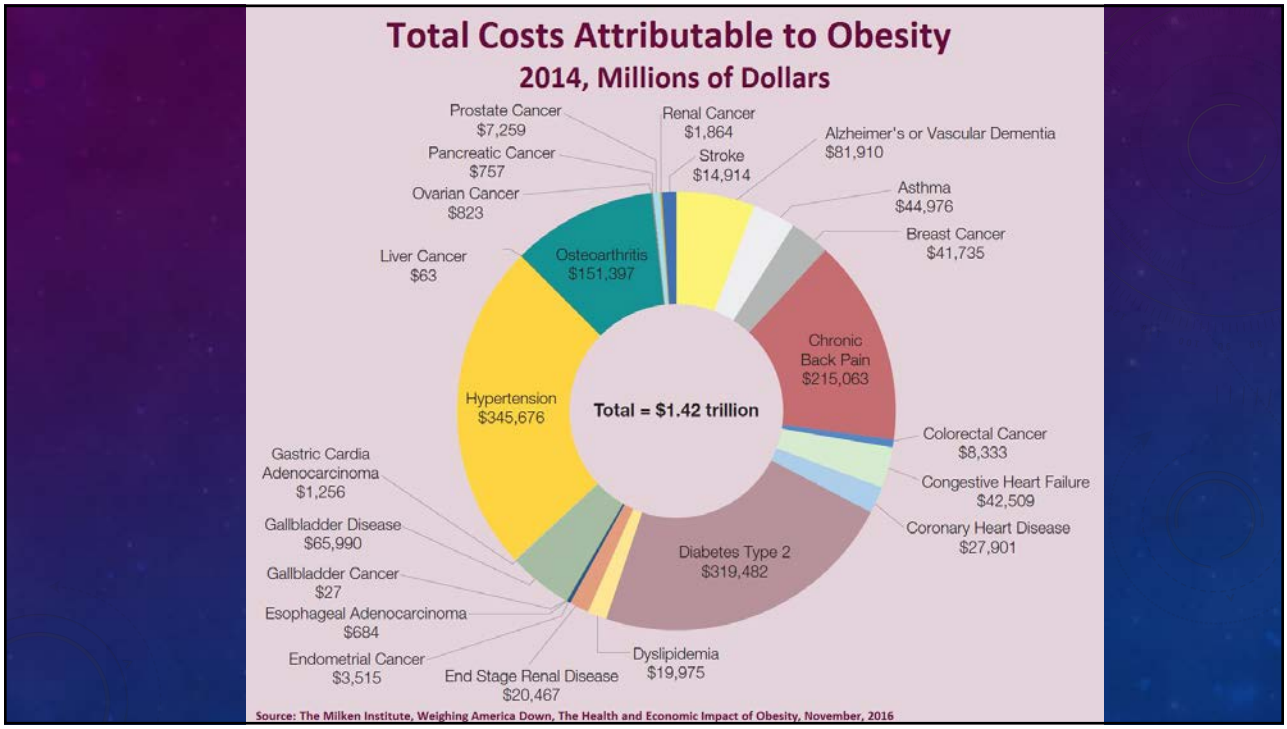
SPECIAL CONSIDERATIONS IN CARE FOR OBESE AND POST BARIATRIC SURGERY PATIENTS

STEPHEN R. BELL DO

MARCH 2, 2019



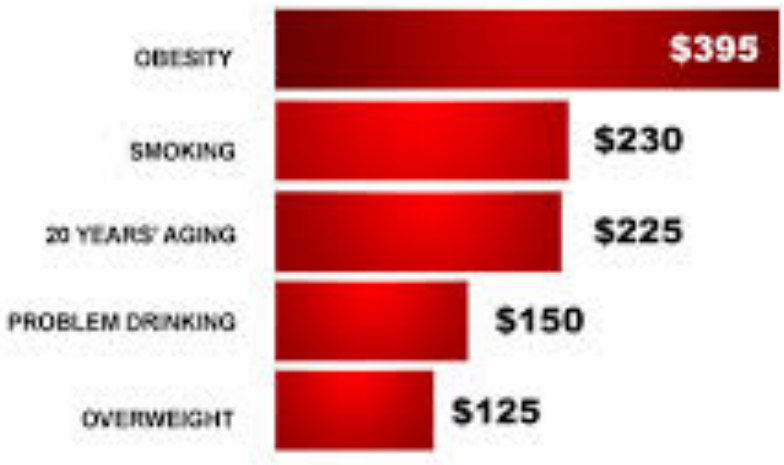
Economic Effects of Obesity

- Obesity is a bad health investment, leading to **higher medical expenditures** and **lower earnings**.
- Finkelstein and colleagues (2009) report that medical spending for the obese was about 42 percent higher per year when compared to someone of normal weight.
- Cawley (2004) finds that heavier
  - white females, black females, Hispanic females, and Hispanic males tend to earn less,
  - black males tend to earn more, than their less heavy counterparts.
  - The effect is particularly strong for white females. A difference in weight of 64 pounds is associated with a wage difference of 9 percent. The magnitude of this difference is equivalent in absolute value to the wage effect of roughly 1.5 years of education or three years of work experience.

ECONOMIC EFFECTS OF OBESITY

Healthcare Costs Due to Obesity

Estimates of what various conditions add to health-care service costs over a 12-month period, based on a survey of 10,00 people



Source: Rand

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

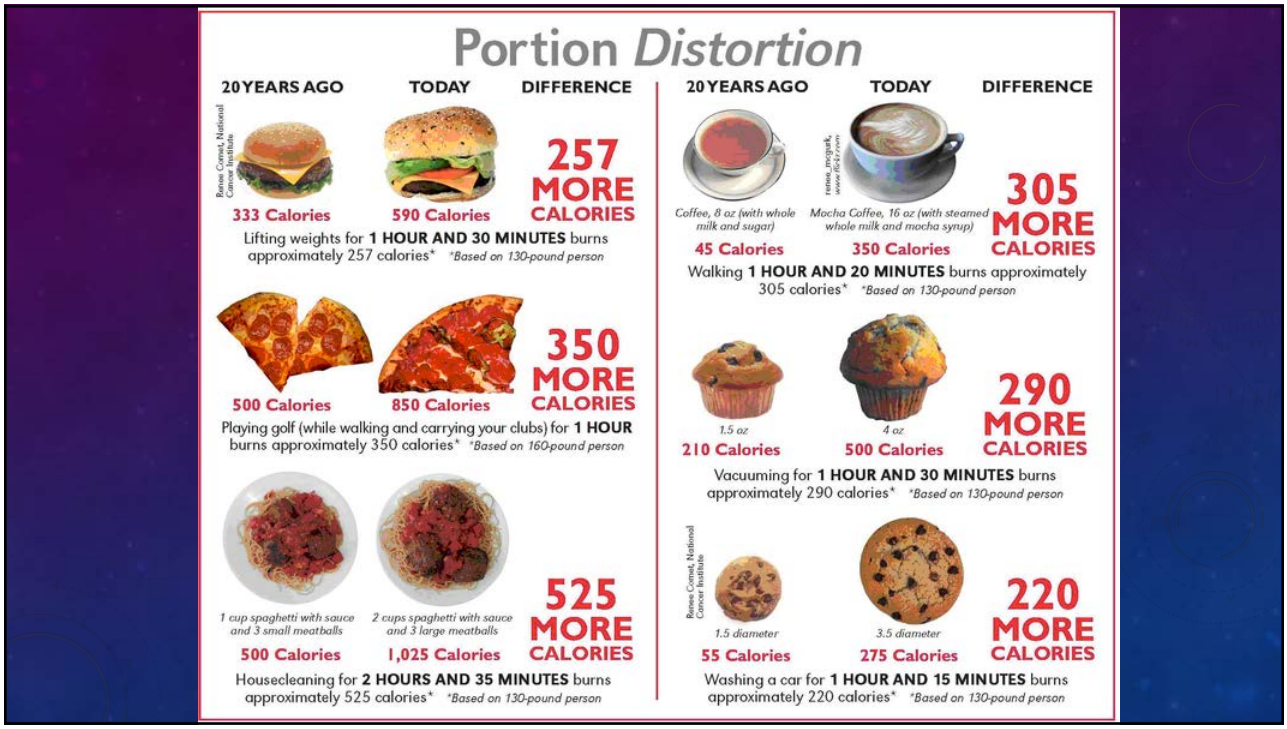
Severe pancreatitis

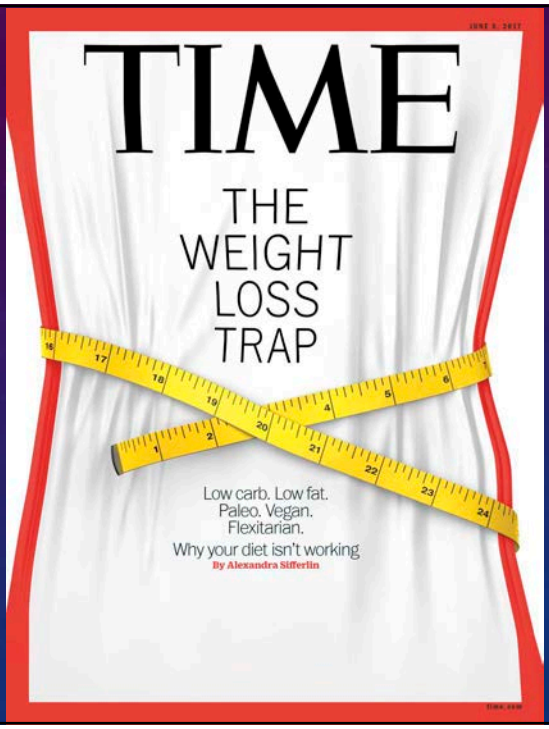
Cancer
breast, uterus, cervix
colon, esophagus, pancreas
kidney, prostate

Phlebitis
venous stasis

Slide Source:
www.obesityonline.org


THINK OUTSIDE THE BUN.
TACO BELL
FOOD & MENUS | EXPLORE & DISCOVER
LOG IN | COMPANY | CAREERS
FIND US
ENTER ZIP CODE
FOURTHMEAL
THE MEAL BETWEEN DINNER & BREAKFAST.
IT'S NOT FOOD.
IT'S FOURTHMEAL.®
GET YOUR FOURTHMEAL


Portion Distortion
20 YEARS AGO
TODAY
DIFFERENCE
333 Calories
590 Calories
257 MORE CALORIES
Lifting weights for 1 HOUR AND 30 MINUTES burns approximately 257 calories* *Based on 130-pound person
500 Calories
850 Calories
350 MORE CALORIES
Playing golf (while walking and carrying your clubs) for 1 HOUR burns approximately 350 calories* *Based on 160-pound person
1 cup spaghetti with sauce and 3 small meatballs
2 cups spaghetti with sauce and 3 large meatballs
500 Calories
1,025 Calories
525 MORE CALORIES
Housecleaning for 2 HOURS AND 35 MINUTES burns approximately 525 calories* *Based on 130-pound person
20 YEARS AGO
TODAY
DIFFERENCE
Coffee, 8 oz (with whole milk and sugar)
Mocha Coffee, 16 oz (with steamed whole milk and mocha syrup)
45 Calories
350 Calories
305 MORE CALORIES
Walking 1 HOUR AND 20 MINUTES burns approximately 305 calories* *Based on 130-pound person
1.5 oz
4 oz
210 Calories
500 Calories
290 MORE CALORIES
Vacuuming for 1 HOUR AND 30 MINUTES burns approximately 290 calories* *Based on 130-pound person
1.5 diameter
3.5 diameter
55 Calories
275 Calories
220 MORE CALORIES
Washing a car for 1 HOUR AND 15 MINUTES burns approximately 220 calories* *Based on 130-pound person

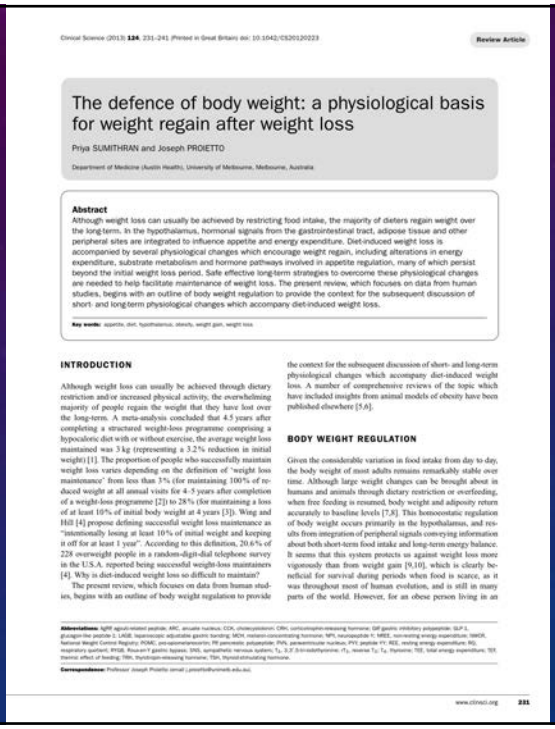


- **Failure to recognize, acknowledge and address mental health issues in patients seeking obesity treatment, as with other chronic disorders, is likely to result in poor compliance and adherence as well as high rates of**

Recidivism.

Recidivism

ENHCA



Clinical Science (2013) **124**, 231–241 (Printed in Great Britain) doi: 10.1042/CS20120223

Review Article

The defence of body weight: a physiological basis for weight regain after weight loss

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Abstract

Although weight loss can usually be achieved by restricting food intake, the majority of dieters regain weight over the long-term. In the hypothalamus, hormonal signals from the gastrointestinal tract, adipose tissue and other peripheral sites are integrated to influence appetite and energy expenditure. Diet-induced weight loss is accompanied by several physiological changes which encourage weight regain, including alterations in energy expenditure, substrate metabolism and hormone pathways involved in appetite regulation, many of which persist beyond the initial weight loss period. Safe effective long-term strategies to overcome these physiological changes are needed to help facilitate maintenance of weight loss. The present review, which focuses on data from human studies, begins with an outline of body weight regulation to provide the context for the subsequent discussion of short- and long-term physiological changes which accompany diet-induced weight loss.

Key words: appetite, diet, hypothalamus, obesity, weight gain, weight loss

INTRODUCTION

Although weight loss can usually be achieved through dietary restriction and/or increased physical activity, the overwhelming majority of people regain the weight that they have lost over the long-term. A meta-analysis concluded that 4.5 years after completing a structured weight-loss programme comprising a hypocaloric diet with or without exercise, the average weight loss maintained was 3 kg (representing a 3.2% reduction in initial weight) [1]. The proportion of people who successfully maintain weight loss varies depending on the definition of 'weight loss maintenance' from less than 3% (for maintaining 100% of reduced weight at all annual visits for 4–5 years after completion of a weight-loss programme [2]) to 28% (for maintaining a loss of at least 10% of initial body weight at 4 years [3]). Wing and Hill [4] propose defining successful weight loss maintenance as "intentionally losing at least 10% of initial weight and keeping it off for at least 1 year". According to this definition, 20.6% of 228 overweight people in a random-digit-dial telephone survey in the U.S.A. reported being successful weight-loss maintainers [4]. Why is diet-induced weight loss so difficult to maintain?

The present review, which focuses on data from human studies, begins with an outline of body weight regulation to provide the context for the subsequent discussion of short- and long-term physiological changes which accompany diet-induced weight loss. A number of comprehensive reviews of the topic which have included insights from animal models of obesity have been published elsewhere [5,6].

BODY WEIGHT REGULATION

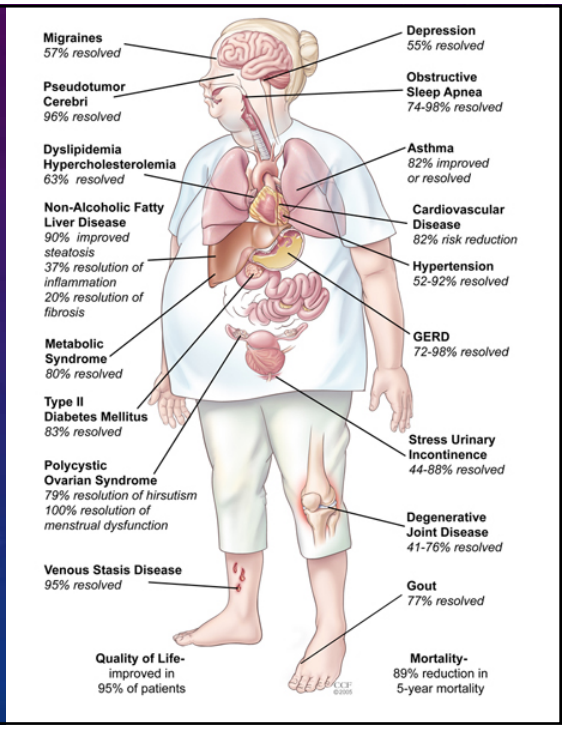
Given the considerable variation in food intake from day to day, the body weight of most adults remains remarkably stable over time. Although large weight changes can be brought about in humans and animals through dietary restriction or overfeeding, when free feeding is resumed, body weight and adiposity return accurately to baseline levels [7,8]. This homoeostatic regulation of body weight occurs primarily in the hypothalamus, and results from integration of peripheral signals conveying information about both short-term food intake and long-term energy balance. It seems that this system protects us against weight loss more vigorously than from weight gain [9,10], which is clearly beneficial for survival during periods when food is scarce, as it was throughout most of human evolution, and is still in many parts of the world. However, for an obese person living in an

Abbreviations: AgRP, agouti-related peptide; ARC, arcuate nucleus; CCK, cholecystokinin; CRH, corticotrophin-releasing hormone; GIP, gastric inhibitory polypeptide; GLP-1, glucagon-like peptide-1; LAGB, laparoscopic adjustable gastric banding; MCH, melanin-concentrating hormone; NPY, neuropeptide Y; NREE, non-resting energy expenditure; NWCR, National Weight Control Registry; POMC, pro-opiomelanocortin; PP, pancreatic polypeptide; PVN, paraventricular nucleus; PYY, peptide YY; REE, resting energy expenditure; RQ, respiratory quotient; RYGB, Roux-en-Y gastric bypass; SNS, sympathetic nervous system; T_3, 3,3′,5-triiodothyronine; rT_3, reverse T_3; T_4, thyroxine; TEE, total energy expenditure; TEF, thermic effect of feeding; TRH, thyrotropin-releasing hormone; TSH, thyroid-stimulating hormone.

Correspondence: Professor Joseph Proietto (email j.proietto@unimelb.edu.au).

"Obese individuals would rather have a normal weight with a severe disability such as be deaf, have heart disease, have an amputation and others rather than be obese without any of these conditions" (Livingston 2003).

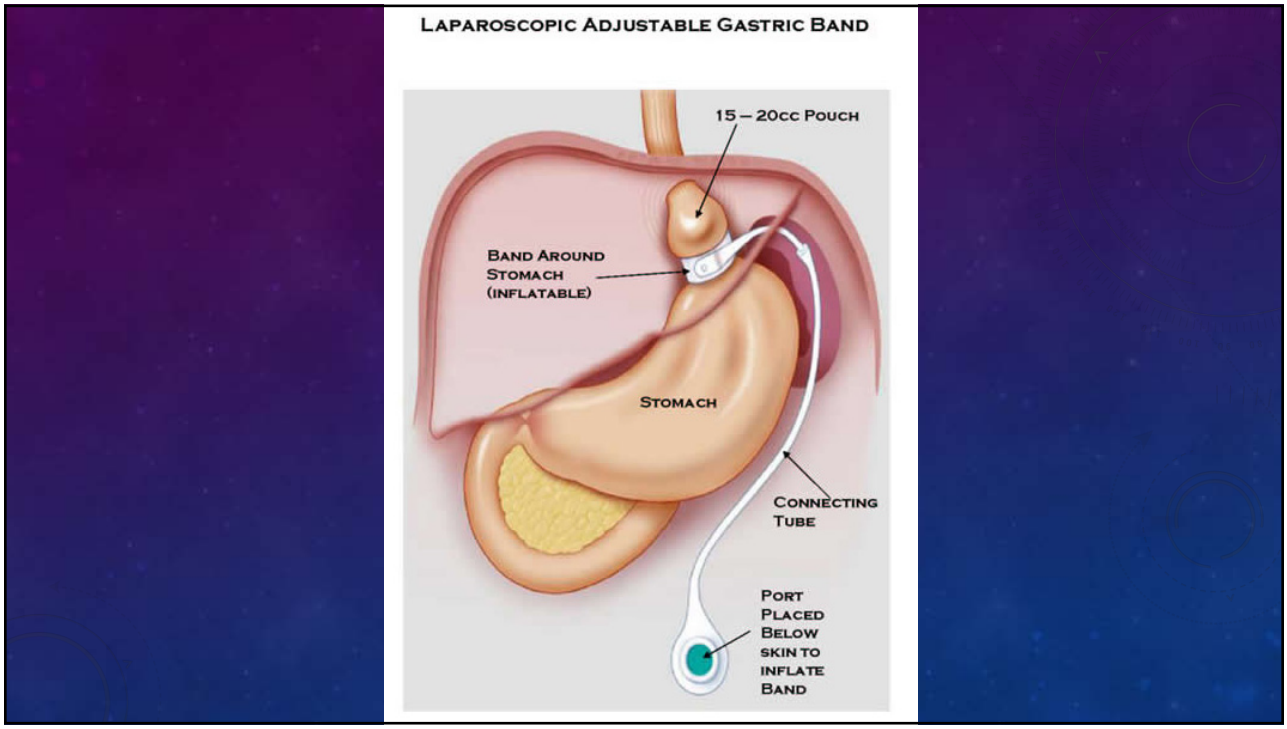
THE POSITIVE EFFECTS OF WEIGHT LOSS

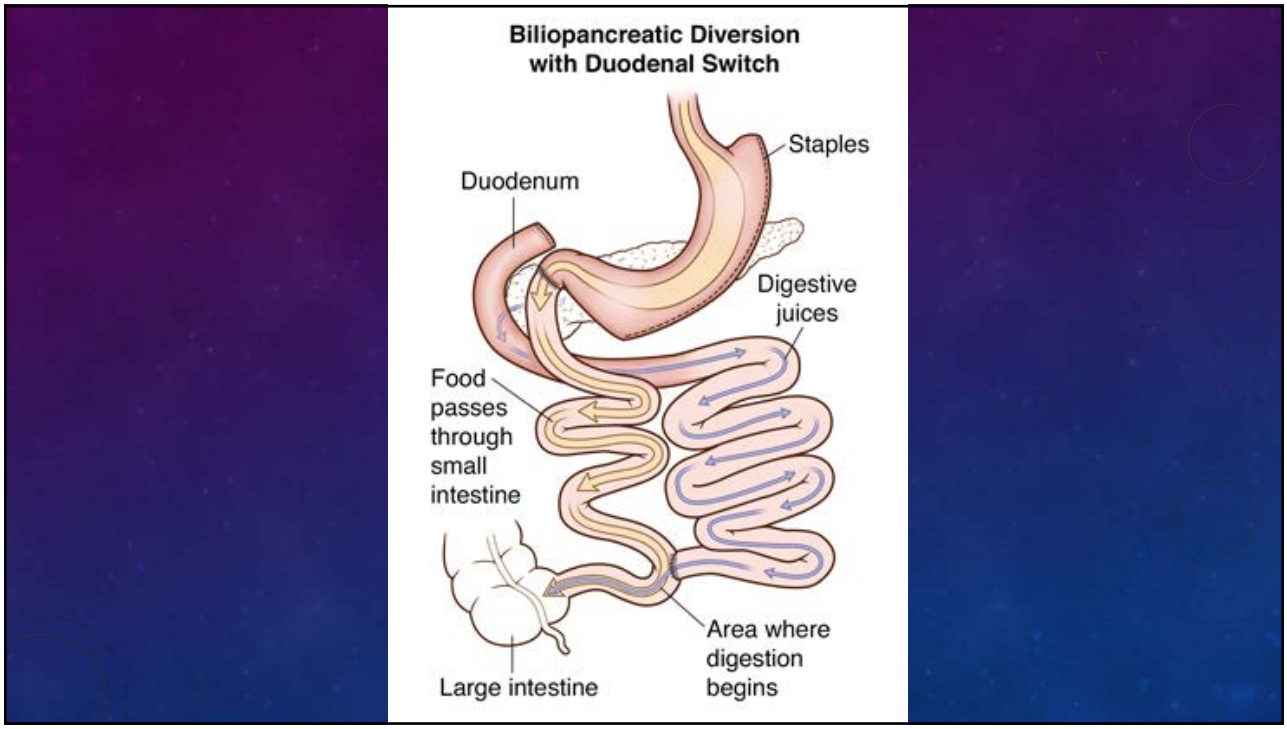


IMPROVEMENTS OF CO-MORBIDITIES

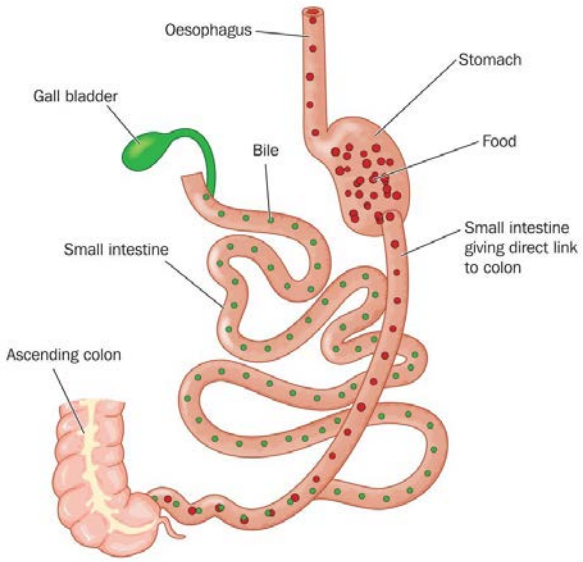
- 2 years after surgery **diabetes mellitus was resolved in 83%** of pre-operative diabetic patients (Sugerman et. al 2005)
- 2 years following surgery **69% had resolution of hypertension**
  - 8 years post-surgery there was complete relapse in those with gastric banding
- **25% decrease in total cholesterol and 40% decrease in triglycerides** 6 to 12 months after surgery

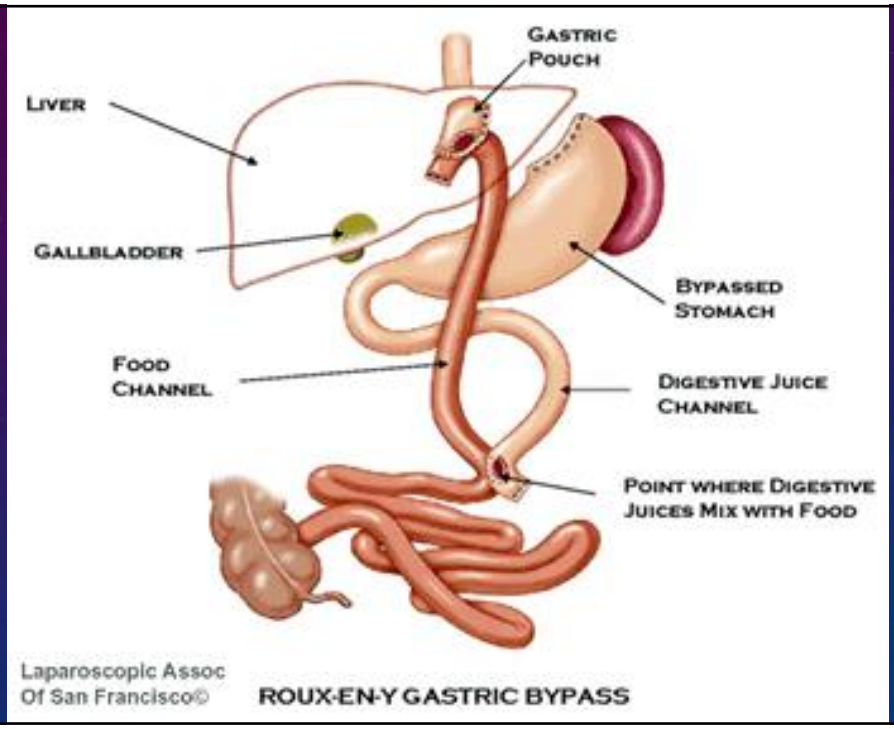
" Most obese patients consider impaired QOL the most crippling aspect of their disease, and after surgery consider enhanced QOL the greatest benefit" (Puzziferri 2005).

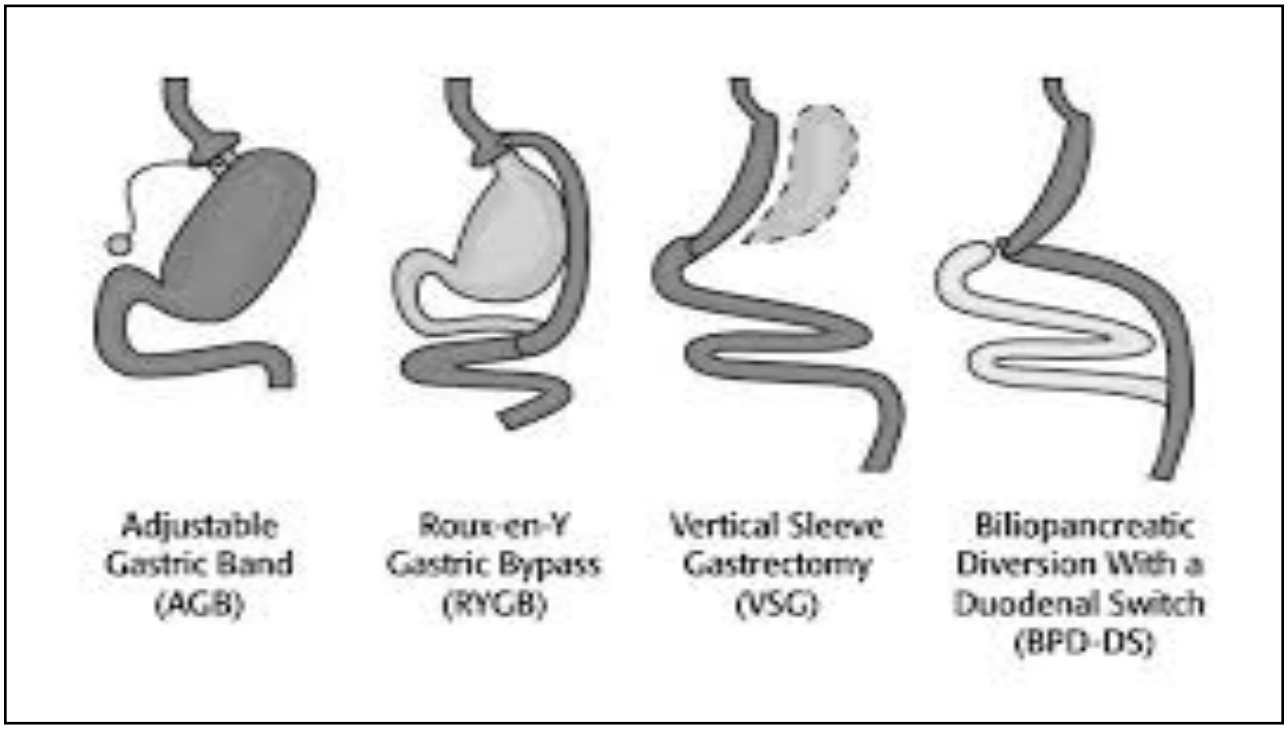

LAPAROSCOPIC ADJUSTABLE GASTRIC BAND
15 – 20cc POUCH
BAND AROUND STOMACH (INFLATABLE)
STOMACH
CONNECTING TUBE
PORT PLACED BELOW SKIN TO INFLATE BAND


Biliopancreatic Diversion with Duodenal Switch
Staples
Duodenum
Digestive juices
Food passes through small intestine
Area where digestion begins
Large intestine

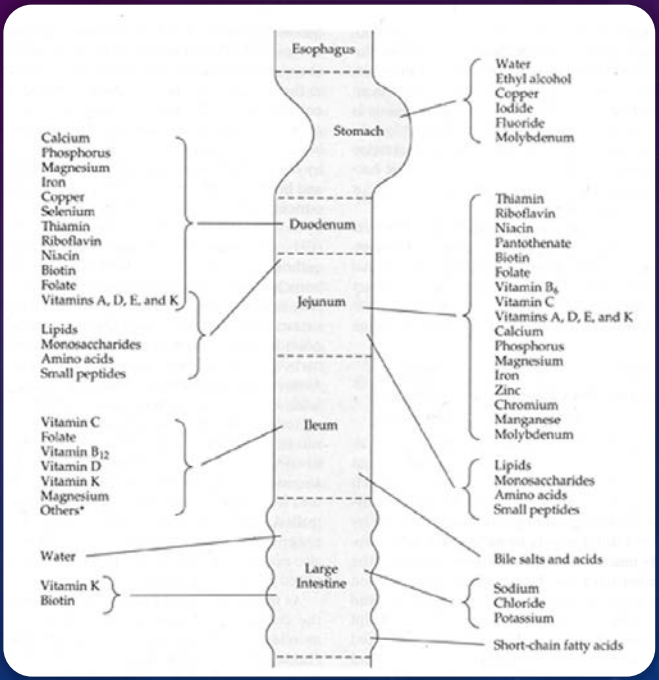
Duodenal Switch Surgery



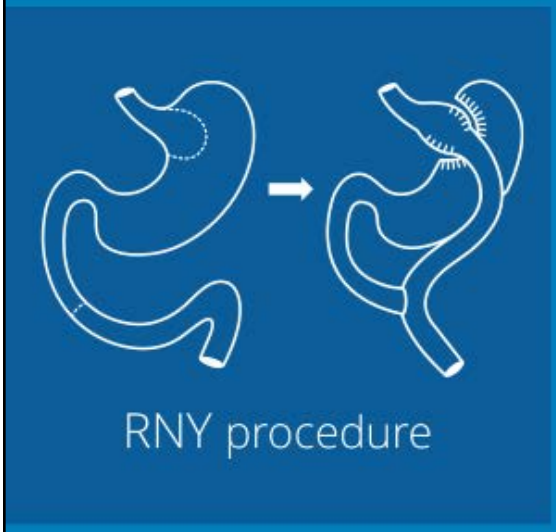




THE FLASHBACK SLIDE



How Does Gastric Bypass Affect Drug Absorption?



RNY procedure

- ↓ exposure to gastric acid
- ↑ pH will ↓ solubility of drugs
- ↑ pH will ↑ absorption of weak bases (most means psychiatric drugs)

- Reduces intestinal exposure and drug absorption
- ↓ absorption of many drugs
- Changes in first pass metabolism

Levenson, J. L., & Ferrando, S. J. (Eds.). (2016). Clinical manual of psychopharmacology in the medically ill. American Psychiatric Pub.

Psychopharmacology Institute

COMMON PROBLEMS POST-OP

- Dehydration
  - 8x8 oz glasses of water are encouraged
  - Constipation occurs when added to iron supplements and low fiber
- Nausea and Vomiting
  - Eating regular foods at regular speeds will cause sometimes spectacular results. Slower, smaller, more frequent meals are encouraged
- Dumping Syndrome (about 15%)
  - Usually about 30 minutes following a meal as sugary/fatty foods are"dumped" into the small intestine. “Flu-like symptoms include nausea, sweating, bloating, abdominal cramps, and diarrhea.
- Diarrhea
  - Secondary to new onset lactose intolerance

COMMON PROBLEMS POST-OP

- Ulceration of Stoma
  - 12%-15% within 2-4 months
  - Presents as GERD, nausea, vomiting
  - Due to
    - Increased Acid production
    - Anastamotic breakdown
    - NSAIDs
  - Tx
    - PPI, carafate
    - Antibiotics H. Pylori
    - Avoidance of causal foods & NSAIDs
    - Referral back to surgeon!!

LAB TESTING FOR THE POST-OP PATIENT

- Vitamin A
- CMP
- CBC
- Mag
- Calcium
- Lipid Iron/TIBC
- Hgb A1c
- *LDH*
- *CPK*
- *Albumin*
- *Uric acid*
- *GGT*
- *Phosphate*
- Vitamin B-1
- Vitamin B-6
- Vitamin B-12
- Folate
- Vitamin D
- **Vitamin C**
- Zinc

HELPFUL HINTS

- Get 30-45 minutes of moderate intensity exercise “most “ days of the week
- Small bites, chew food well enough to make it a paste, before swallowing
- Take appropriate supplements- chewable or smaller than an “M&M”
- At least 64 oz of fluids daily, but
- NO DRINKING with meals (5 minutes before to 30 minutes afterwards)
- Avoid intake of 2+ gms of sugar in a serving
- Avoid high fat foods
- Eat 6 small high protein meals daily (meet your individualized goal)

IMPROVEMENTS OF CO-MORBIDITIES?

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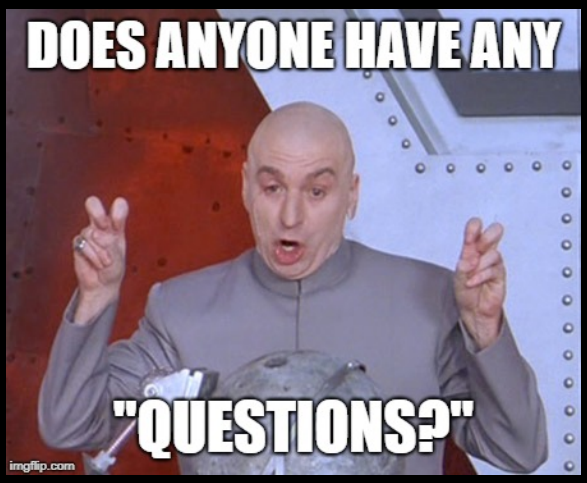
IMPROVEMENT – IS IT WORTH IT??

- There is a lack of long term studies which go beyond 2 years.
- Steve's opinion- There may be long term weight loss to some degree, although there is **usually** some gain. However the cost is a lifetime of side effects (surgery dependent) and chaos within one's personal relationships.
- Is there a good weight loss answer?

INTERPERSONAL RELATIONSHIPS

- Individuals who have undergone bariatric surgery have a higher probability of getting married, separating from their partner or getting divorced- JAMA Surgery

- University of Gothenburg. "Relationship changes after bariatric surgery." ScienceDaily. ScienceDaily, 28 March 2018. <www.sciencedaily.com/releases/2018/03/180328123926.htm
- Gustaf Bruze, Tobias E. Holmin, Markku Peltonen, Johan Ottosson, Kajsa Sjöholm, Ingmar Näslund, Martin Neovius, Lena M. S. Carlsson, Per-Arne Svensson. **Associations of Bariatric Surgery With Changes in Interpersonal Relationship Status**. *JAMA Surgery*, 2018; DOI: 10.1001/jamasurg.2018.0215


DOES ANYONE HAVE ANY
"QUESTIONS?"
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