The Weight is Over: What Every PA Needs to Know About Long-Term Surgical Obesity Management

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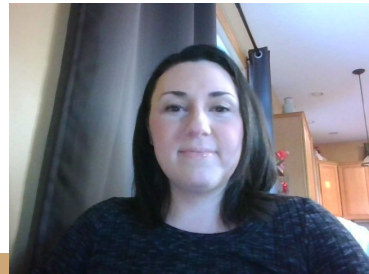
Disclosures

- No relevant commercial relationships to disclose

Learning Objectives

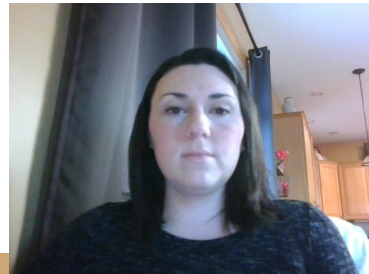
1. Define the chronic disease of obesity and its effects on co-morbid conditions.
2. Identify patients that could potentially benefit from referral to a bariatric surgery program.
3. Describe the basic anatomic and physiologic changes related to the most common bariatric surgery procedures in the U.S.
4. Identify the best practices for monitoring and supporting bariatric surgery patients post-operatively for long-term success



Changing Thought Patterns: Obesity

Declaration of Obesity as a Disease[1]:

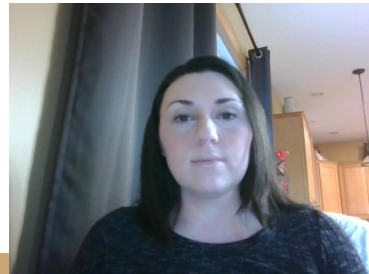
- National Institutes of Health -1998
- Social Security Administration-2002
- Centers for Medicare and Medicaid Services-2004, 2006
- American Association for Clinical Endocrinology-2012
- American Medical Association-2013



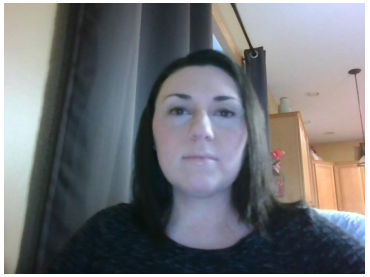
What is Obesity?

Definition by the American Society for Metabolic and Bariatric Surgery [2]:

“Obesity is a chronic, progressive disease medically defined as a body mass index (BMI) of 30 or more. ”

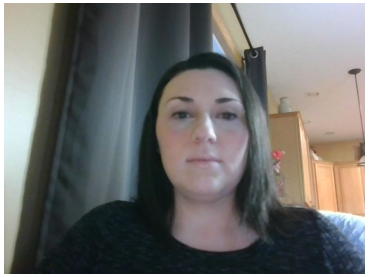


What Causes Obesity?



- It is not considered a lifestyle choice
- **Pathophysiology is Multifactorial:** the intersection of genetics , environment/behavior, metabolism, and socioeconomic factors[2,3]
- Obesity also 'begets' obesity, which is one of the reasons why the disease is considered "progressive."[2]
  - Weight gain causes a number of hormonal, metabolic and molecular changes in the body that increase the risk for even greater fat accumulation and obesity.[3]
  - Reduction in fat utilization[3]
  - Increase in conversion of sugar to fat[3]
    - Which in turn enhances body's capacity to store fat by increasing fat cells size and numbers and by reducing fat breakdown.

What Causes Obesity?



- Defects in fat metabolism mean that more of the calories consumed are stored as fat.
- Obesity also affects certain regulators of appetite and hunger in a manner that can cause an increase in the amount of food eaten at any given meal and the desire to eat more often.
- Chronic inflammation created by the excess weight contributes to the development of diseases like hypertension and diabeted through disruptions to lipid and glucose metabolism [3]

The Turning Point: a BMI of 30

- Ultimately, obesity contributes to the development of more than 40 other diseases once we surpass a BMI of 30[3]

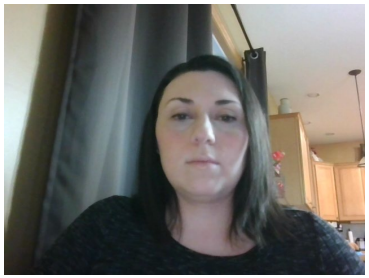
Cardiovascular:
-Hypertension
-Hyperlipidemia
-MI
-Stroke
-DVT/PE

Respiratory:
-Sleep Apnea
-Asthma

G.I.:
-GERD
-NASH
-Gallbladder

Endocrine:
-Diabetes

Orthopedic:
-Arthritis
-Joint Problems
-Back Pain



Reproductive:
-Infertility
-PCOS
-Stress Incontinence

Psychological:
-**Depression**
-Anxiety

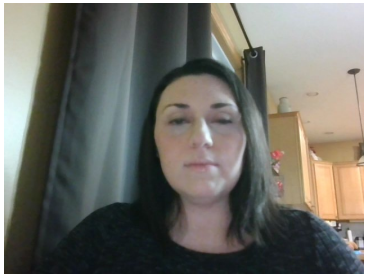
Cancer
-40% of all cancers have a connection to obesity! [4]

Obesity and Cancer

Several possible mechanisms are postulated:

- Chronic low-level inflammation
- Excess estrogen production
- Hyperinsulinemia
- Adipokines (hormones that can influence cellular growth)
- Effects on other cellular growth regulators

- Altered immune responses



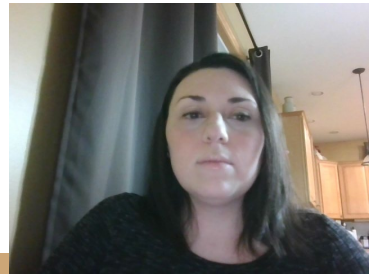
- Breast
- Ovarian
- Endometrial
- Thyroid
- Esophageal
- Liver
- Gallbladder
- Colorectal
- Pancreatic
- Gastric (cardia)
- Kidney
- Multiple myeloma

Obesity and Cancer

Obesity caused

- Approximately **28,000** new cancer cases in **men** in 2012
- Approximately **72,000** new cancer cases in **women** in 2012

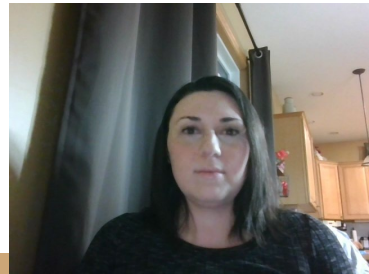
- The U.S. has the highest fractions of cancer attributable to obesity for colorectal, pancreatic, and postmenopausal breast cancers



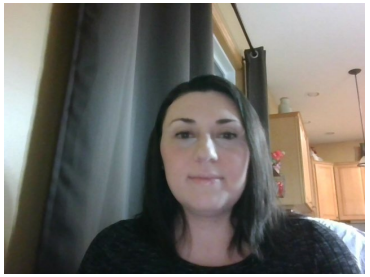
Risk of Premature Death

- Obesity is the 5th leading cause of death in the world
- Attributed to 5% of all preventable global deaths each year

- Reduces life expectancy by 9 years for women and by 12 years for men!!



Economic Costs



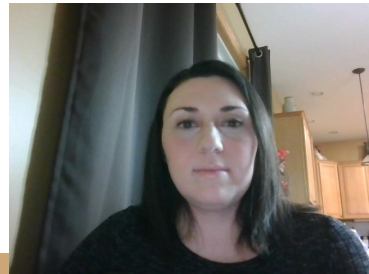
It all adds up…

Obese individuals need more healthcare and have more disability, morbidity, and mortality (loss of productivity)

- Direct costs to U.S. economy: $147 billion/year
- Individuals with obesity have healthcare expenses 42% times higher
- Individuals with severe obesity have heathcare expenses 81% higher
- Every 1 point increase in BMI= 4% medical cost rise; 7% medication cost rise
- Direct costs to global economy: $2 trillion/year

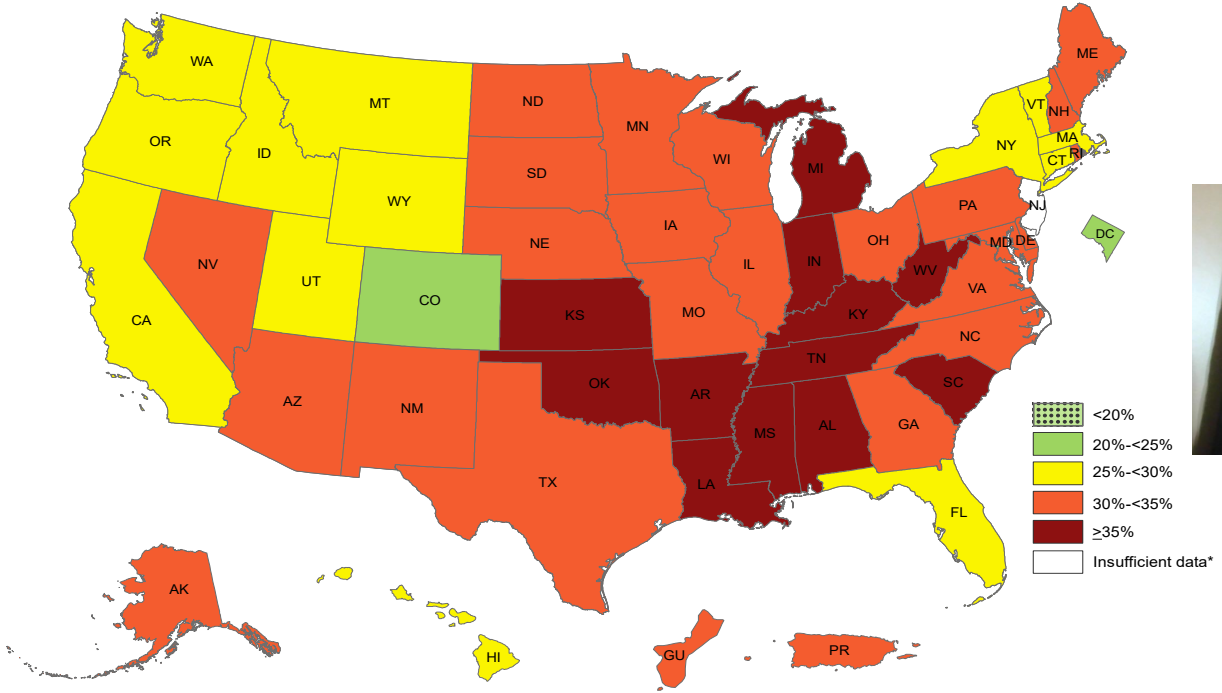
Obesity in America—Epidemic Proportions

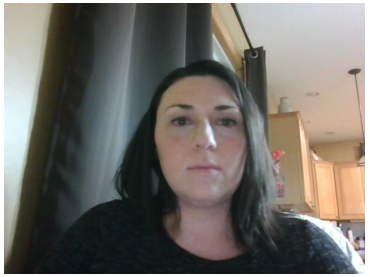
- Over 93 million adult people have obesity in the U.S.[3]
- **No state in the U.S. has an obesity rate of less than 20% of their population**[6]
- **12 states exceed an obesity rate of 35%**[6]
  - Alabama
  - Arkansas
  - Indiana
  - Kansas
  - Kentucky
  - Louisiana
  - Michigan
  - Mississippi
  - Oklahoma
  - South Carolina
  - Tennessee
  - West Virginia



Prevalence¶ of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2019[6]

¶ Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.





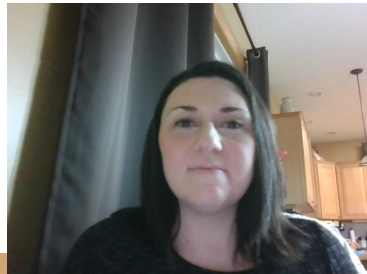
*Sample size <50, the relative standard error (dividing the standard error by the prevalence) ≥30%, or no data in a specific year.

So what do we do about this?

- **Check your patient's BMIs and have the conversation !!**

According to the National Healthcare Quality and Disparities Reports:

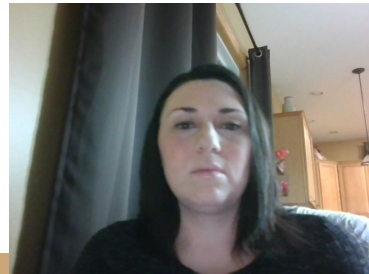
- Adults age 20 or over with *obesity* who had been told by a health professional that they were overweight[7]
  - 2001-2004: 64.5%
  - 2005-2008: 65.7%
  - 2009-2012: 67%
  - 2013-2016: 70.5%



Body Mass Index (BMI)

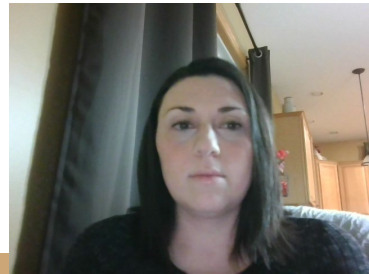
- Obesity Class I: 30-34.9
- Obesity Class II: 35-39.9
- Morbidly Obese: >40
- Super Morbidly Obese: >60

BMI is one item used to evaluate eligibility for bariatric surgery



Calculating BMI

- Teach your patients to calculate BMI by visiting: www.cdc.gov and searching “BMI Calculator” with them
- This is something that can be done at preventative health visits (and many others!!!)



So what do we do about this?

Know the resources available in your health system and use them:

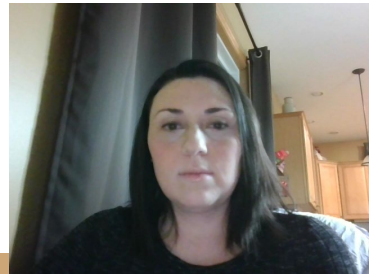
- Nutrition counseling
- Cognitive-behavioral therapy
- Medical weight loss programs +/- pharmacotherapy

- **When numerous weight loss therapies have failed, or when weight loss is needed to improve comorbid conditions, surgical interventions become an option.**

Metabolic and Bariatric Surgery[8] As A

Bariatric surgery is safe!!!

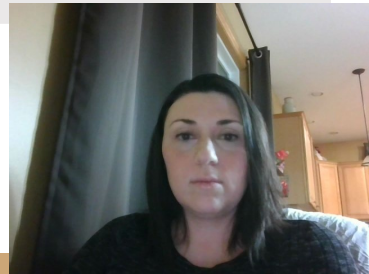
- Overall major complication rate is about 4%
- Overall mortality rate is about 0.1%
- The risks of severe obesity outweigh the risks of bariatric surgery



Metabolic and Bariatric Surgery[8] As A

- Patients typically lose as much as **60% of their excess weight within 6 months** of surgery
- On average, patients **maintain 50% of their excess weight loss at 5 years**
  - "Just happy I'm not gaining anymore…"
- Reduces risk of premature death by 30% or more
- After surgery, we see a **60% reduction in cancer mortality**
  - Most prominently breast and colon

Resolution/ Improvement in Co-Morbid Conditions Post-Op	
Type II DM	86%
HTN	78.5%
OSA	85.7%
Hyperlipidemia	78.5%



General Guidelines on When to Refer

Bariatric Surgery Program

- **Meet the Body Mass Index (BMI) criteria** :
  - BMI is at **least 40,** or
  - BMI is **35 to 39.9** and are suffering from at least two serious related health problems

- **Have been overweight for at least two years with only short -term success with serious weight loss attempts.**

- **The patient must be prepared to attend regular follow up appointments and make the necessary lifestyle changes to have a successful surgery outcome (evaluate motivation -VERY IMPORTANT!!)**

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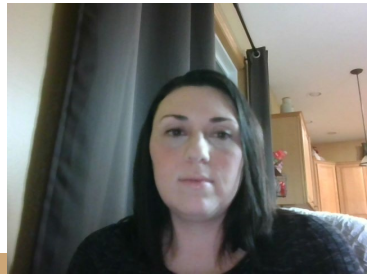
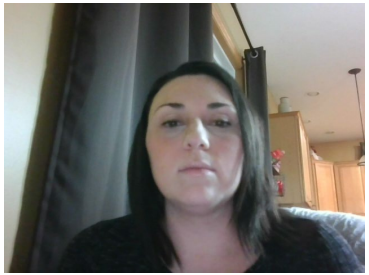


Typical Course in a Bariatric Surgery

- Informational Session
- Consult with surgeon/APP
- Visits with dietitian to work on improving dietary behaviors and receive counseling and practice with the dietary changes needed post -op
- Assessment and visits with psychologist
- Check-in visits with APP during course of preparations

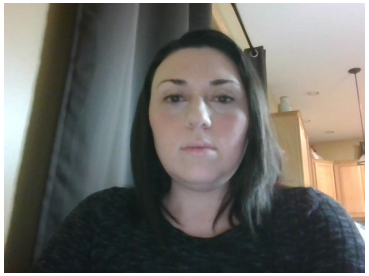


Typical time to surgery: minimum of about 6 months from consult to OR

Bariatric Surgery -related medical tourism does exist

How Do We Use Surgery To Treat Obesit

There are 3 different categories of weight loss procedures that work in different ways:



Restrictive: Reduce how much the stomach can hold

Malabsorptive: Shorten the digestive tract

Combined: Do both (Reduce how much the stomach can hold & shorten the digestive tract)

PSA: IT IS SO VERY IMPORTANT TO KNOW WHICH PROCEDURE YOUR PATIENT HAS HAD...they are NOT one and the same...

ASMBS Approved Procedures and Devices[8]

- **Sleeve Gastrectomy**
- **Roux-en-Y Gastric Bypass**
- **Adjustable Gastric Banding**
- Duodenal Switch
- Bariatric Reoperative Procedures (revisions)
- Intragastric balloon

Bariatric Surgery By the Numbers

252,000 procedures in 2018

61.4% Sleeve Gastrectomy

17.0% Roux-en-Y Gastric Bypass

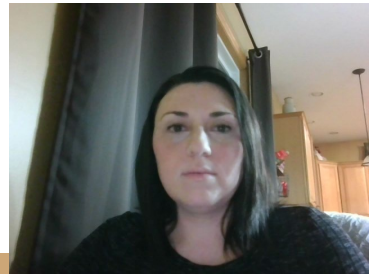
1.1% Adjustable Gastric Band

0.8% BPD-DS

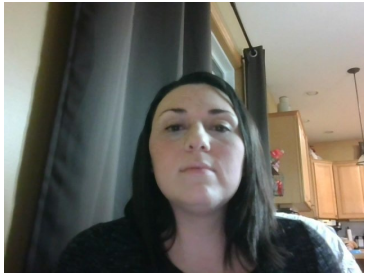
15.4% Revisional

2.3% Other (investigational)

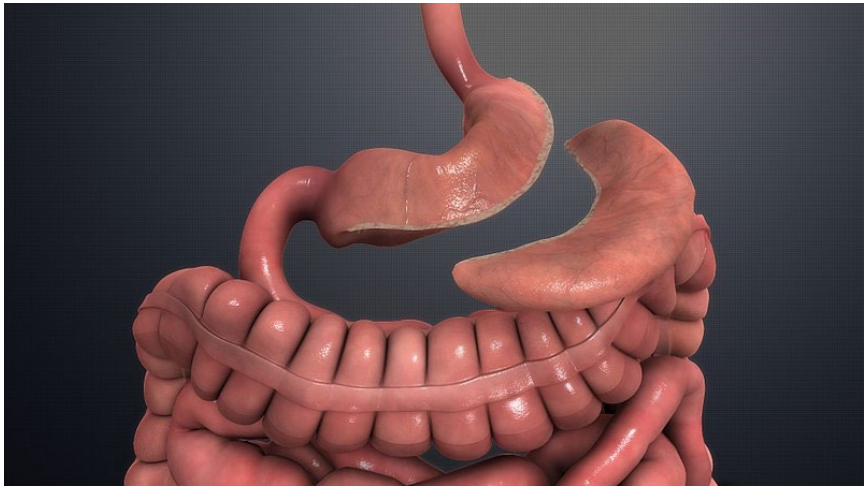
2.0% Intragastric Balloons



Sleeve Gastrectomy

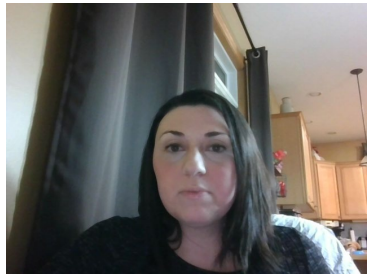


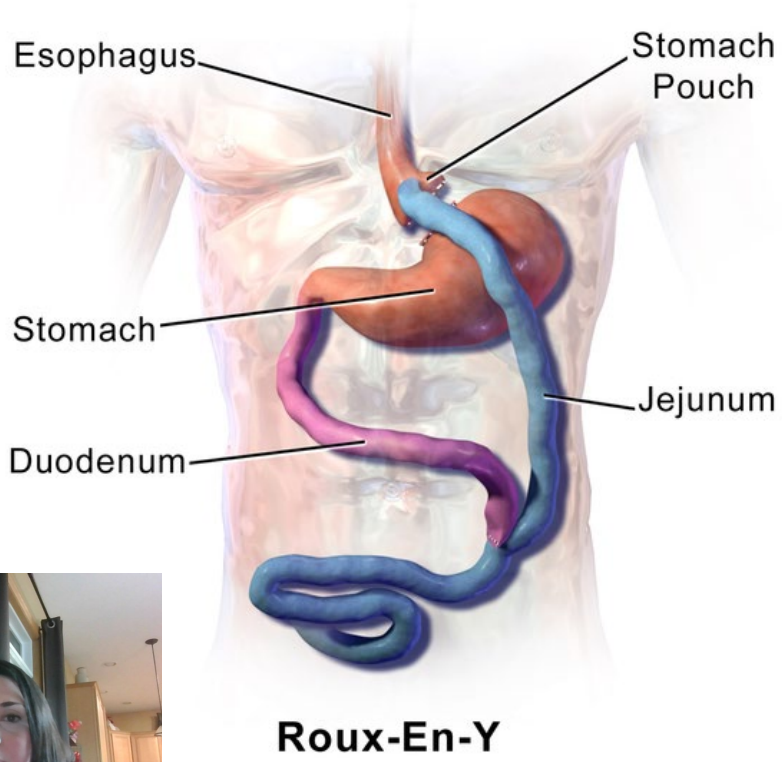
- Newer procedure, but has now outpaced RNY
- About 80% of the stomach is removed
- Creates banana-shaped pouch
- No re-routing of the small intestine
- Restrictive only, but does also affect gut hormones, especially in regards to satiety
- Can affect production of intrinsic factor (IF)
- >50% excess weight loss
- Maintenance of weight loss appears to be about 50% excess weight loss



Roux-en-Y Gastric Bypass[10]

- Historically called the “gold standard” of weight loss surgery
- Previously the most commonly performed procedure
- “Combined” type of procedure
- Restrictive component=small stomach pouch (30mL volume)
- Malabsorptive component=skipping over the 1st part of the small intestine
- The re-routed food stream also causes changes in gut hormones that promote satiety, suppress hunger, and more **significantly affect blood glucose control**



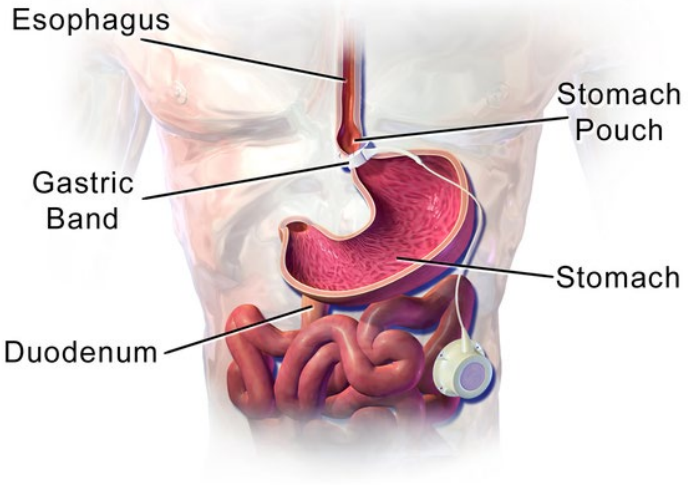


Roux-en-Y Gastric Bypass[10]

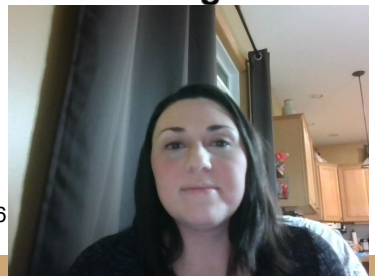
- 60-80% excess weight loss
- Typical maintenance of >50% excess weight loss
- More complex operation
- Can lead to deficits in vitamin B12, iron, calcium, folate
- Dumping Syndrome possible (85% of pts)
- Excessive weight loss possible
- Postprandial Hyperinsulinemic Hypoglycemia
- Really need to remind these patients to make sure they are taking multivitamin and calcium supplements every day
- Extremely difficult and risky to reverse

Adjustable Gastric Band

- Silicone band placed at superior portion of stomach, which has an inflatable balloon that creates a smaller stomach pouch above band
- Considered restrictive
- The feeling of restriction or fullness depends on the amount of saline in the balloon
- This “filling” or “adjustment ” is accomplished by injecting or removing sterile saline through a port under the skin

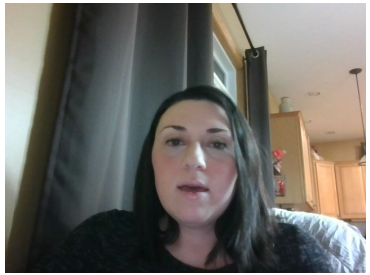


Adjustable Gastric Banding



Adjustable Gastric Band

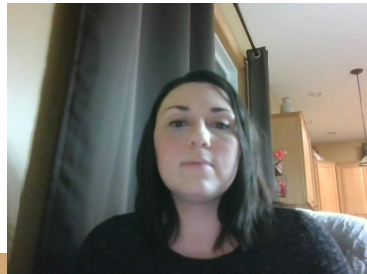
- NEVER use a regular needle to access port
- MUST be a non-coring needle (Huber) needle
- Excess weight loss of up to 40-50%, but generally much slower progress[10]
- Also, significantly higher number of patients fail to achieve at least 50% excess weight loss[10]
- Requires foreign device implantation
- Highest rate of re-operation
  - Port site/access problems
  - Band slip
  - Band erosion
- More frequent follow-up appointments and procedures (band adjustments)



Bariatric Surgery Lifestyle Changes

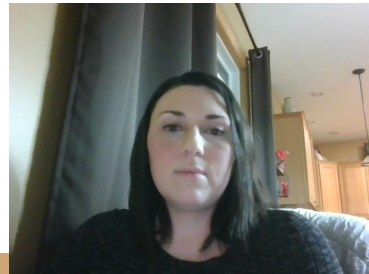
Common Diet transitions:

- Liquid diet for 14 days (2 weeks) after surgery
- Pureed diet for 14 days (2 weeks) after liquid diet
- Regular bariatric diet afterwards:
    - Hydration is extremely important
    - Goal of 64 oz. calorie free fluids/day
    - Portions at meals about 1/2C in size
    - Minimal caffeinated & carbonated beverages
    - Protein supplementation encouraged
    - Goal of 60g protein/day
    - Separate solids and liquids when eating
    - Chew very well and eat slowly
    - Daily multivitamin and calcium important +/ - other supplements depending on procedure types



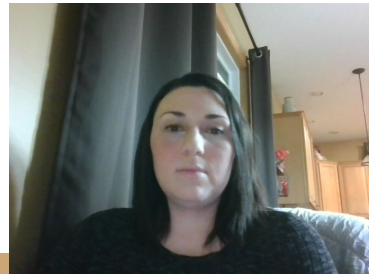
Diet Limitations

- Some foods are not tolerated as previously with all operations, and can get caught, resulting in discomfort, vomiting, or both.
  - *Examples: high fat foods, doughy breads, white rice, some pastas, drier meats.*



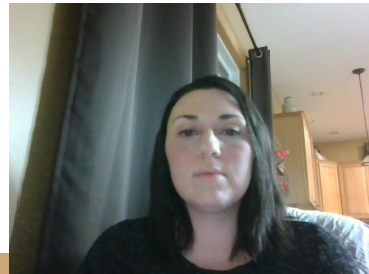
Smoking/Nicotine Use

- Patients need to quit smoking (ideally all forms of nicotine use) prior to bariatric surgery and need to understand that this change needs to be permanent
- Higher risks for MI, pneumonia, DVT/PE early post-op
- Higher risk for gastritis and ulcer formation later

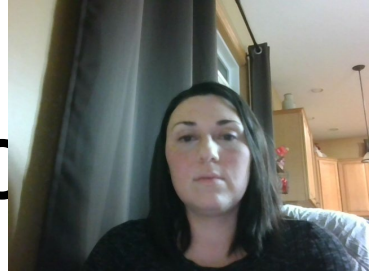


Alcohol Use

- Alcohol is absorbed more quickly following bariatric surgery, creating a situation where patients have higher levels of blood alcohol faster and for a longer period of time
- Chronic alcohol use also puts the patient at higher risk of gastritis and ulcer formation



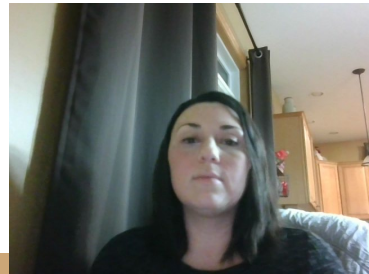
A Word About Transfer Addic



- Refers to the tendency for people with an addiction to relapse, but with another substance.
- Often times, people who undergo bariatric surgery may have an underlying addiction or dependence on food, and are at risk of developing other addictive behaviors post -operatively as they can no longer get satisfaction from eating, as they previously did.
- This is one of the major reasons a psychological evaluation is a required step of bariatric surgery programs, as it is important to identify and work with individuals who may be at significant risk (i.e. learning to develop new skills to deal with issues like loneliness, stress, traumas, etc.)

Pill Types

- Some patients do no tolerate tablets/capsules well after bariatric surgery
    - This may not be an issue for all patients
    - Typically resolves over time
- Medication adjustments may also need to be made more frequently in the first several months or more post -op
    - Absorption changes
    - May need assistance of a clinical pharmacist for changes to medications
- AVOID NSAID use!!!!!!

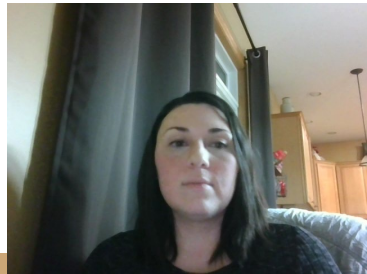


A word about fertility

- Fertility can increase with weight loss in males and females
- Pregnancy within the first year postop has potential to be unsafe
- Best to encourage avoidance of pregnancy for 12 to 18 months post-op[11]
  - The rapid weight loss can make it difficult to maintain appropriate nutrition to support a pregnancy
  - If a patient is a female of child-bearing age, would recommend that they be on at least one form of reliable birth control for a year

Follow Up

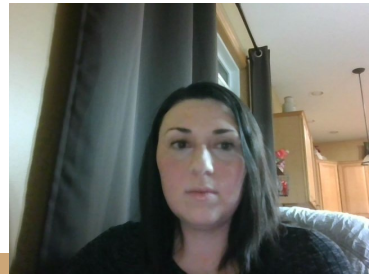
- Ideally, a patient who has undergone bariatric surgery will have a follow-up plan laid out for them by the bariatric surgery team
    - Fairly regular visits throughout the first year post-operatively
    - Annual visits with a bariatric surgery team are encouraged
- Try to connect your bariatric surgery patients with a bariatric surgery team if they aren't seeing someone already



Lab Work

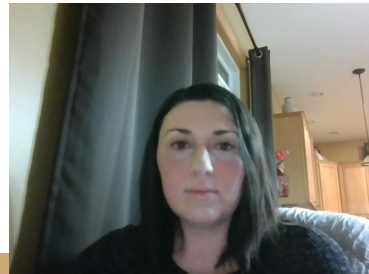
- If you have a bariatric surgery patient under your care that isn't connected with a bariatric surgery team, consider the following labs to be completed annually:

-CBC
-BMP/CMP
-Vitamin B12
-PTH
-Vitamin D
-Folate
-Iron/Ferritin

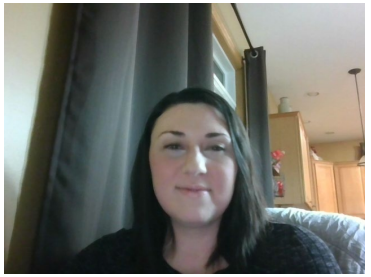


Plastic Surgery After Successful Weig

- After successful weight loss, some patients require plastic surgery to remove excess skin.
- If significant excess skin is present and the patient has been able to maintain their goal weight for at least 6 months, a referral can be made to a plastic surgeon (this may vary by practice).
- Plastic surgery for correction of excess skin is not always covered by insurance.



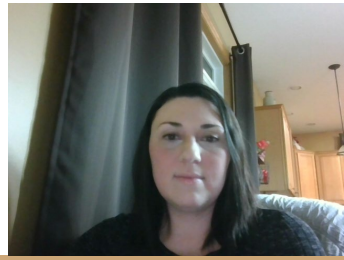
Take Home Points



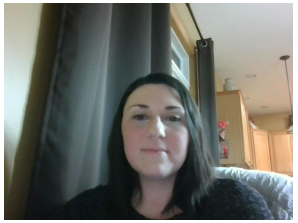
- Obesity is a chronic disease that contributes to over 40 co-morbid conditions and shortens the life span of our patients.
- Screen your patients (no matter your setting!) for the presence of obesity (BMI greater than or equal to 30) and have the conversation about weight!
- Patients with BMIs greater than 40 or greater than 35 with co-morbid conditions + failure to lose weight via other means should be considered bariatric surgery candidates
- Common procedures include: sleeve gastrectomy, Roux-en-Y gastric bypass
- Inquire about specific type of bariatric surgery your patients have had (they are not created equal!)

Take Home Management Points for A

- **AVOID NSAIDs** like the plague in these patients!!
- Ask the patient if they can tolerate regular size tablets/capsules before you prescribe something (they may need chewable or liquid formulations of medications)
- Emphasize smoking cessation if applicable
  - Smoking + Bariatric surgery= disaster waiting to happen
- Ask your patient if they are following up with their **bariatric team** , even years later
- **Remember their surgery status** ...if they are having G.I. complaints, send them back to their bariatric team (don ’t just dump these folks on Gastroenterology’s doorstep!)



References



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Questions?

Feel free to reach out!

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