The Obesity Epidemic

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Iowa Weight Loss

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Medical Weight Loss

Iowa Weight Loss

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Qualifications & Experience

Todd Eibes, MD, FACS

- Bariatrics since 2001
- Exclusively bariatrics since 2006
  - **500** Roux en Y Gastric Bypasses
  - **650** Lap Bands
  - **1600** Sleeve Gastrectomies
- MBSAQIP Center of Excellence
- Blue Distinction Center of Excellence
- United/Optum Center of Excellence

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Case Presentation

- N.N. 43 yo Female
  - Allergies – Metformin
  - Medications
    - Januvia – 100mg/day
    - Levemir – 80U SQ/day
    - Humalog – 20U SQ/TID with meals
    - Lisinopril – 5mg/day
    - Atorvastatin – 20mg/day
    - Gabapentin – 300mg/TID
    - Topiramate – 150mg/day

Case Presentation

- Past Medical History
  - Diabetes Mellitus (type II)
  - Hypertension
  - High Cholesterol
  - Low Back Pain
  - Polycystic Ovarian Syndrome
- Past Surgical History
  - Laminectomy

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Case Presentation

- Tobacco use: Never
- Alcohol use: 1-2 drinks/year
- Substance abuse: Never

- Married/5 children
- Exercise
  - Walks daily – limited by back pain

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Case Presentation

- Diet History
  - Body by Vi: 5 months -20lbs
  - Exercise/low calorie 9 months -80lbs

  - Lowest Adult Weight: 1990 – 225 lbs (age 18)
  - Highest Adult Weight: 2013 – 412 lbs
  - 1 year prior to consult: 338 lbs

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Case Presentation

- Diet
  - 24 hour recall
    - Breakfast — Protein shake or skips
    - Lunch: — Out with husband (Applebees/Mexican)
    - Dinner: — Meat/Veg/Rice or Bread
    - Eat out: — 2-3 times/week
  - Daily
    - Fluid: — 2-4 cans diet Coke/20 ounces water
    - Snack: — Skinny popcorn/Almonds

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Case Presentation

- Height – 5’7”
- Weight – 366 lbs
- BMI – 57.5

- Estimate – basal calorie needs 2300 kcal/day

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Case Presentation

- Medical Weight Loss
  - Short term goals
    - Decrease soda to 2 cans/day
    - Increase Water to 48 ounces/day
    - Food Journal (will set calorie goals next visits)
    - Exercise

Case Presentation

- Long term goals (set by patient)
  - Get off insulin
  - Weight under 300 lbs
  - Be able to fit on rides at Adventureland
  - Be able to fit on rides at Disney World
  - Be able to ride on airplane without seatbelt extender
  - Be able to walk on vacation with kids

Case Presentation

- Patient effort
  - Met with team for 6 months
  - Worked with psychiatric provider
  - Worked with exercise specialist
  - Joined local gym
    - Stationary bike/swim: 3-5 days/week
  - Increased water intake – 48 ounces/day

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Case Presentation

- Results
  - Pre medical: Weight-366 lbs BMI-57.5
  - Post 6 months: Weight-330 lbs BMI-51.6

  - Meds unchanged
  - Continued Diabetes/Hypertension/High Cholesterol

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Case Presentation

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Case Presentation

- Lap Sleeve Gastrectomy
  - 36 French Lighted Bougie
  - UGI day following surgery
  - Began liquid diet day following surgery
  - Discharged home 36 hours postop
  - Home Meds
    - Omeprazole/Lovenox(2 weeks)
  - Diet
    - 64 ounces fluid/60-80g protein daily
    - 2 weeks full liquid/2 weeks pureed

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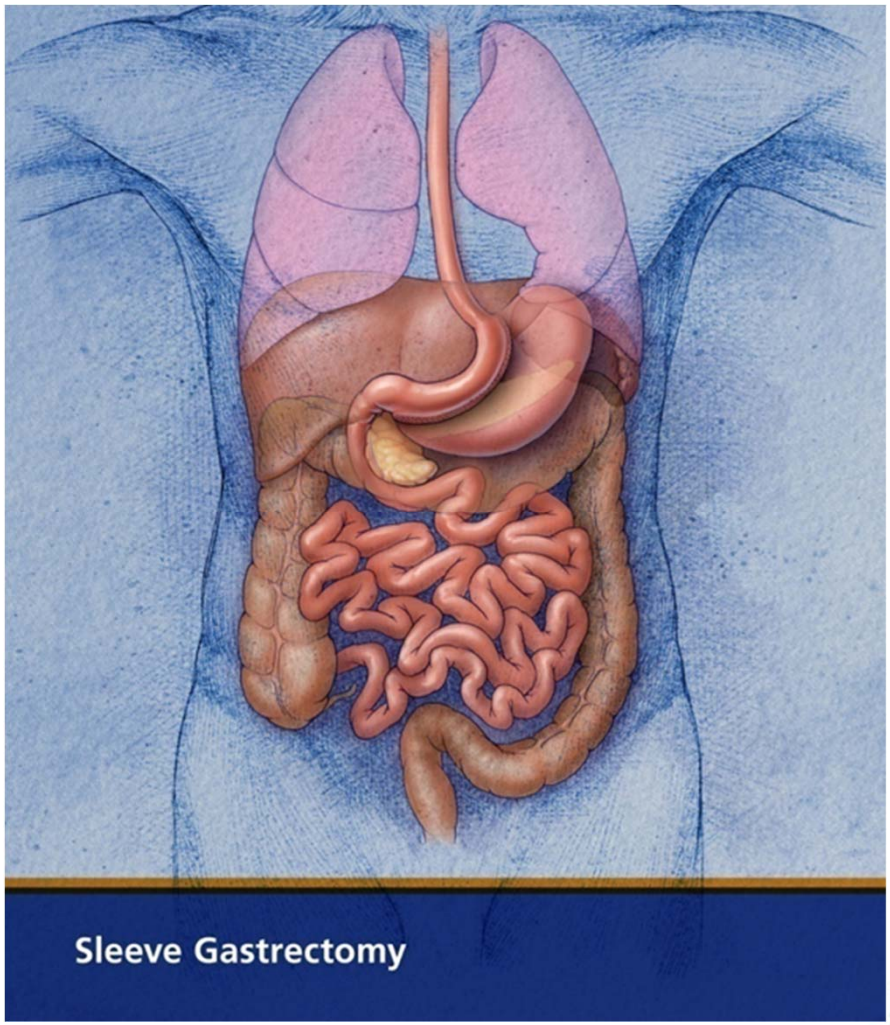
Case Presentation



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Case Presentation

- Results

	Pre	1wk	6wk	3mo	6mo	9mo	1yr
Wt(lbs)	330	310	296	272	244	223	207
Wt loss(lbs)		-18	-33	-67	-85	-106	-122
BMI	51.5	48.6	46.3	42.6	38.2	34.9	32.4
MM (lbs)	70	66	65	58	56	53	52
FM (lbs)	185	175	158	144	118	98	84
BF%	56	56	53.5	53	48.6	44	40

Case Presentation

- Final Results
  - 1 year post surgery
    - Total Weight loss – 168 lbs
      - Medical: -36 lbs Surgical: -122 lbs
    - Starting Excess Weight – 207 lbs
    - Percent Excess Weight loss – 81%
  - Exercise
    - Walking/stationary bike/swim (goal 3-5days/wk)
      - Had foot surgery at 9 mos postop – limited exercise
  - Diet
    - 3 meals/occasional 1 snack

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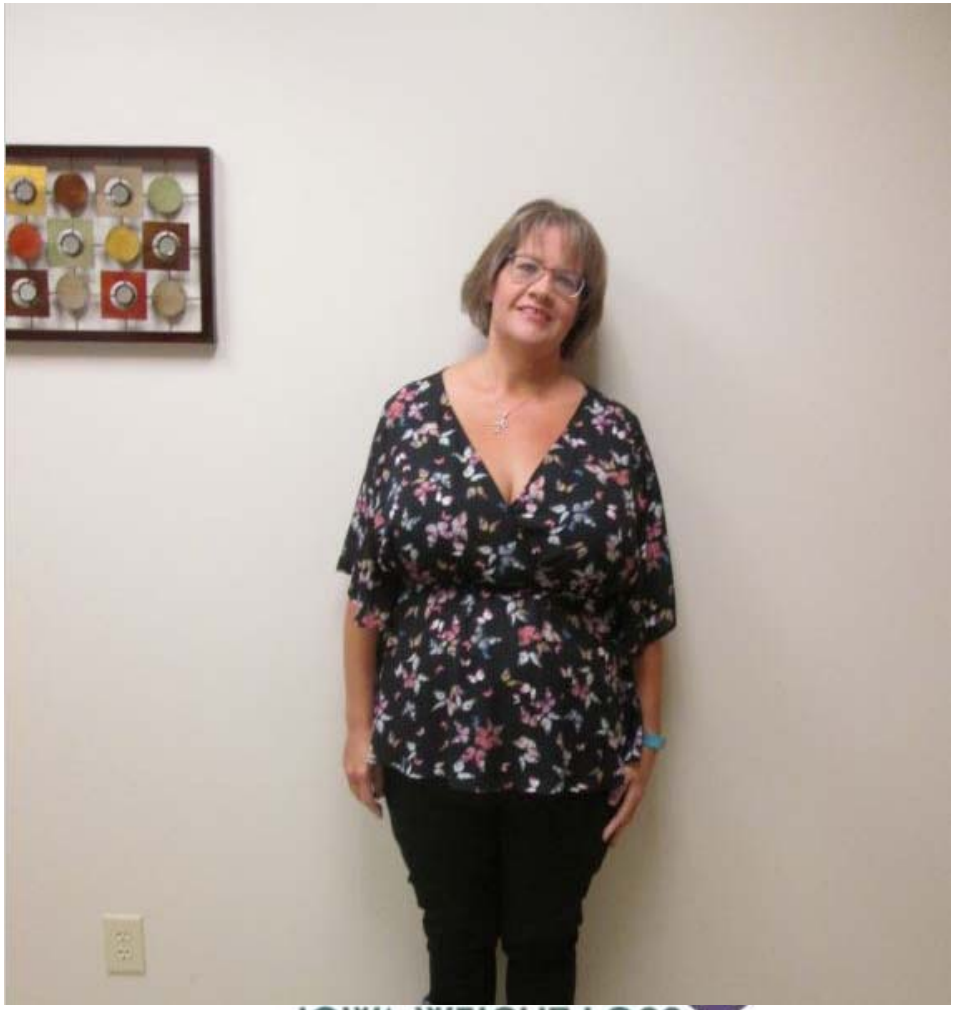
Case Presentation

- Final results
  - Diabetes
    - Immediately after surgery – sliding scale only
    - 8 weeks postop – off all insulin
    - Hemoglobin A1C – 5.9 off meds at 3 months postop
  - Hypertension
    - Off lisinopril – 9 months postop
  - Cholesterol
    - Continues on Statins

Case Presentation



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Obesity Definition

- Normal Weight — BMI 20.0 – 24.9
- Overweight — BMI 25.0 – 29.9
- Severe Obesity
  - Class I — BMI 30.0 – 34.9
  - Class II — BMI 35.0 – 39.9
  - Class III — BMI > 40
- **Morbid Obesity** — **BMI >40** or **100 lbs** overweight

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Obesity Epidemic

- 68% Americans are overweight or obese
- 2013 National Study
  - BMI > 40 — 26 million Americans
  - BMI 30-40 — 60 million Americans

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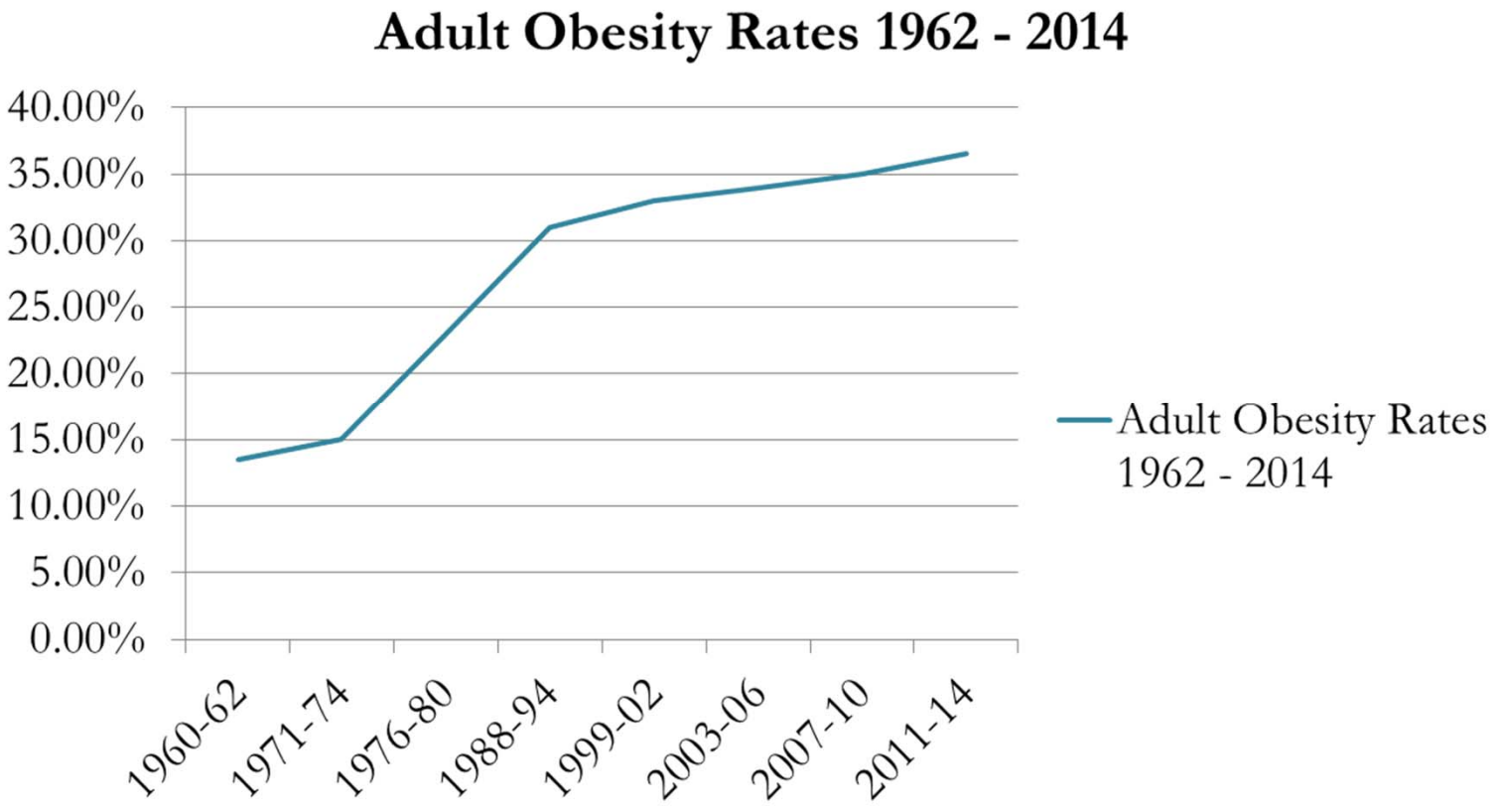
Obesity Epidemic

National Health and Nutrition Exam Survey (NHANES)



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Adolescent Obesity

- Childhood obesity epidemic
  - 80% obese kids become obese adults
  - Eating patterns form at young age
  - Deposition of fat cells in youth
  - Health is affected
    - **Diabetes**
    - **Sleep apnea** (22% of obese children)
    - **Fatty liver** (38% of obese children)
  - Weight bias and discrimination
  - Bullying

Obesity - Impact

- Increasing mortality rate as weight increases
  - BMI>40: **2x** mortality rate
  - BMI>40 and diabetic: **5x** mortality rate

- Mortality
  - 300,000 deaths yearly
  - Decreased life expectancy (5-15 years)

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Morbid Obesity Risks

Disease	Relative Risk	Source
Type 2 DM	3.4 times	NHANES survey
CAD	1.69 times	(meta analysis 31 studies/389,239 pts)
CHF	2.12 times	Framingham Heart Study
Breast Cancer	1.5 times	*Int Jour Cancer,* Vol 111(2004): 762-771
Ovarian Cancer	3.2 times	*BMC Pub Health,* Vol 9(2009) #88

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Morbid Obesity Effects

- **Diabetes Mellitus**
  - 7th Leading Cause of Death in United States
  - 90% Type 2 cases related to obesity

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Morbid Obesity Effects

- **Diabetes Mellitus** (National Data 6/2014 CDC/NIH)
  - Prevalence
    - 29.1 Million Cases (9.3% of US population)
      - 1.25 Million Type I
      - **27.85 Million Type II**
  - New Cases
      - **1.4 Million yearly**
  - Prediabetes
      - US 2010 – 79 Million
      - US 2012 – 86 Million

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Morbid Obesity Effects

- **Diabetes Mellitus**
  - Diabetes Cost
    - Total Cost of diagnosed cases – **245** billion dollars
    - Direct Medical Cost – 176 billion dollars
    - Reduced Productivity Cost – 69 billion dollars
  - Associated Disease
    - Diagnosed diabetics >18 years old
      - 71% Hypertension
      - 65% LDL>100 or on cholesterol lowering meds

Morbid Obesity Effects

- Cardiovascular Disease
  - Risk of heart attack directly related to amount excess weight
  - Morbid obesity causes heart strain
    - 10% of patients have congestive failure
- Hypertension
  - Directly related to heart and vascular disease
  - Occurs in 50% patients with morbid obesity

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Morbid Obesity Effects

- Cancer
  - Obesity causes up to 90,000 cancer deaths/year
  - Overall death rate from any form of cancer
    - Men increases by 52%
    - Women increases by 62%
  - CDC estimates 2030 – 500,000 cancer death/year

- Respiratory
  - Sleep apnea occurs in over 70% of morbidly obese
  - Asthma occurs in over 25% of morbidly obese

Preop Risk Factors

- IA Specialty (4/15 – present)
  - Mean BMI 46.5
  - Diabetes 19.4%
  - Hypertension 42.3%
  - Sleep Apnea 32.4%
  - Hyperlipidemia 26.6%
  - GERD 35.6%

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Surgeon General Report 2003

- **Health Crisis**
  - Fastest-growing cause of disease/death in U.S.
  - Nearly 2/3 Americans are overweight or obese
  - **1/8 deaths in America are caused by an illness directly related to overweight & obesity!**

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Psychological Factors

- Discrimination By Society
  - Viewed as less intelligent
  - Disease is your fault
- 90% of morbidly obese – clinically depressed
  - Repeated failed diets – feeling hopeless
  - Constant reminders that you are obese
    - Clothes/airline seats/limited mobility
    - Affects relationships and self-worth

Why Is Weight Increasing

- Food Supply
  - Increased calories/less nutrition
  - High carbohydrate processed foods
  - 1970 to 2014 – avg American 300cal/day more
- Physical Activity
  - Decreased at home – TV/video games/computer
  - Decreased at work – Knowledge based/less labor

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Appetite Control
What causes hunger?

- Hormones
  - Stomach – Ghrelin
  - Pancreas – Polypeptide YY
  - Small Intestine – Incretins
  - Fat Cells – Leptin

  - Gut microbiota – variable ability to utilize calories

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Appetite Control

- Leptin
  - Produced by fat cells
  - Increased when cells full – decreases appetite
  - Not released by meal patterns

  - Chronic elevated calories – induces leptin resistance
  - Fructose – induces leptin resistance

Appetite Control

- Cortisol
  - Produced by adrenal glands
  - Increased by stress or lack of sleep
  - Increases abdominal fat
  - Increases appetite

Appetite Control

- Neuropeptide Y
  - Produced by hypothalmus
    - Inhibited by Leptin/Insulin – decrease appetite
    - Stimulated by Ghrelin/Cortisol – increases appetite

Appetite Control

- **Ghrelin** – stomach – increases appetite
- Incretins - ileum – (GLP1) – suppress ghrelin
- Cholecystekinin – duodenum - decrease appetite
- Peptide YY – ileum/colon
  - Peak 1-2 hours after meal
  - Highest level after fatty meal
  - Decrease appetite/slow gastric emptying
  - Elevated after sleeve or bypass

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Metabolism

- Pancreas
  - Insulin
    - Produced by increased blood glucose
    - Stores excess calories as fat
    - Chronic elevation – downregulates recptors
      - Insulin resistance / Diabetes
  - Glucagon
    - Produced by low blood glucose
    - Mobilizes fat for energy / increases blood sugar

Insulin Stimulation

- Types of calories important

	Pancreas insulin response
Fat	None
Protein	Minimal
Carbs	Large

Increasing evidence – carbs are harmful

Initial Treatment

- Dieting and exercise (**Document**)
  - Diet trial – for few months
  - Physician or dietitian supervision
  - Lifestyle change
    - Decrease calories
    - Increase physical activity
  - Change type of calories (lower carb)

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Medical Weight Loss

- Medical Provider
  - Optimize current meds (eliminate weight promoting)
  - Possible use of meds (appetite suppression)
  - Set goals (realistic and attainable)
- Dietitians
  - Meal planning
  - Education of types of calories
  - Vitamin deficiencies and supplements

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Medical Weight Loss

- Psychiatric provider
  - Trauma history
    - High rates of history of sexual abuse
  - Eating as coping mechanism
  - Eating for pleasure
  - Discrimination history due to weight
  - Treatment plans
    - EMDR
    - Counseling
    - Group Therapy

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Dieting Results

- Weight loss if **morbidly obese**
  - Diet 1 year
    - **7%** excess weight loss
  - Diet and Drugs for 1 year(Qsymia, Belvique, Contrave, Phentermine)
    - **10-15%** excess weight loss
  - Surgery results at 1 year
    - **65%** excess weight loss

- Chance of losing 50% excess weight
  - Diet – 1%
  - Surgery – 90%

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National Institute of Health

- 1991 Consensus Statement on treatment of morbid obesity
  - Dieting is ineffective
  - Bariatric Surgery Indications
    - BMI > 40
    - BMI 35-40
      - Diabetes
      - Hypertension
      - Sleep Apnea

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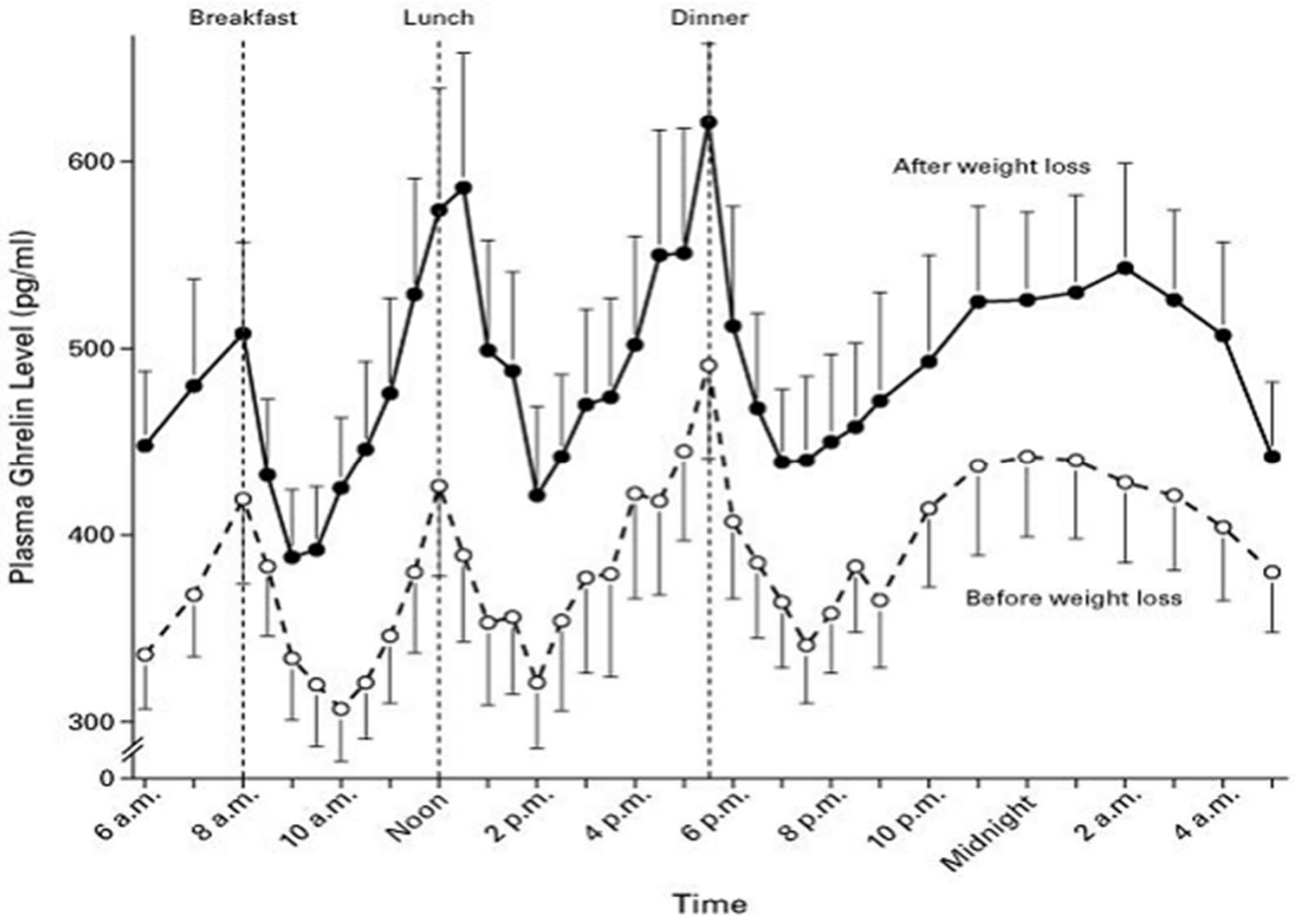
Hormone Control of Appetite



Cummings DE et al. N Engl J Med 2002;346:1623-1630

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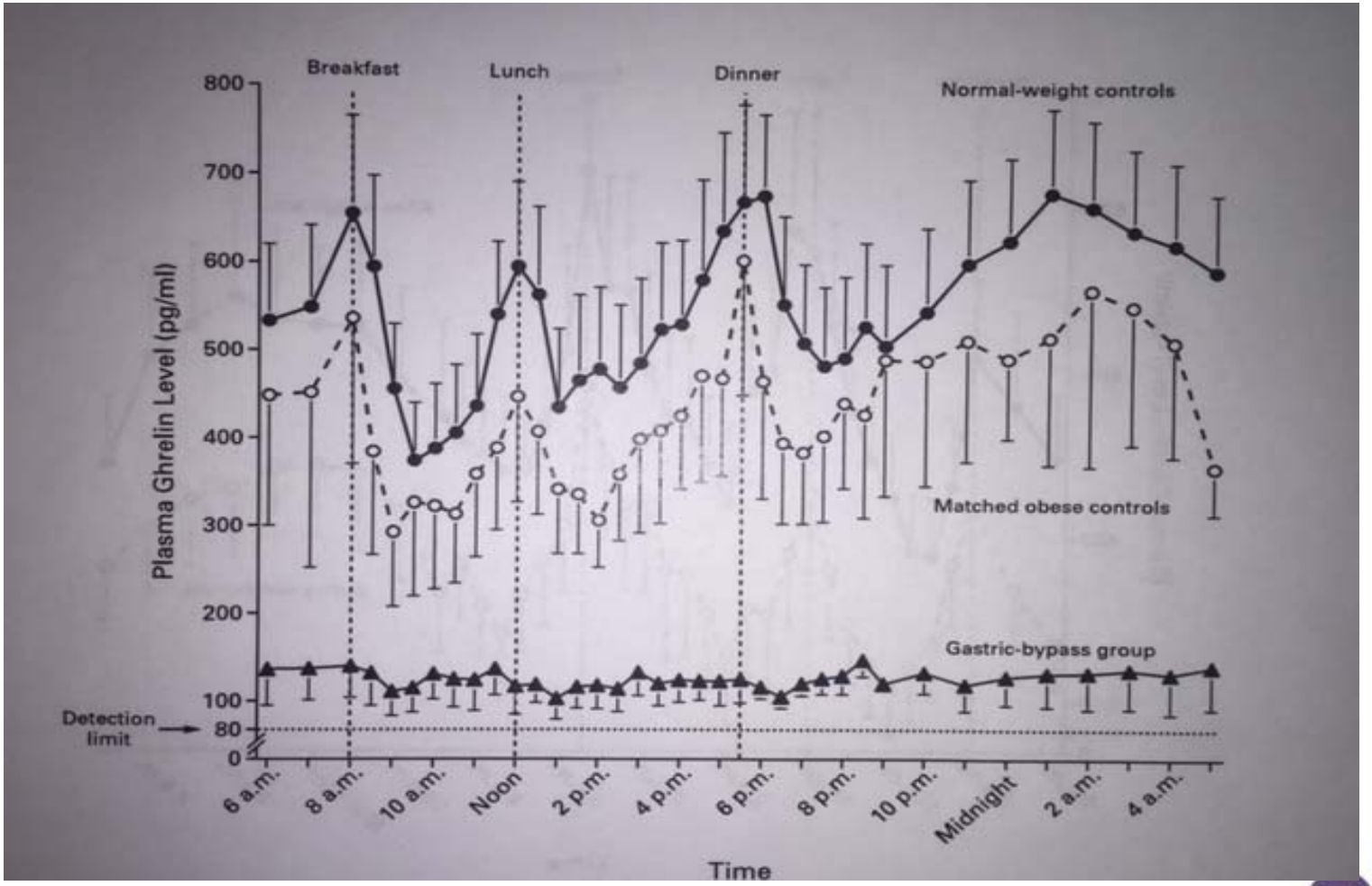
Hormone Control of Appetite



Cummings DE et al. N Engl J Med 2002;346:1623-1630

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Postop Sleeve Results

- Ghrelin Reduction
  - 12 patients – prospective trial – 5 years

	Preop	1 Year	5 Year
Ghrelin	593 +-52	219 +-23	257+-23
Decrease Ghrelin		63%	57%

Bohdjalan et al. *Obes Surg*, May 2010;20:535-40.

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Weight Loss Surgery

- Restrictive – not metabolic
  - **Laparoscopic Adjustable Gastric Banding**
  - Vertical Banded Gastroplasty
- Metabolic Procedures
  - **Vertical Sleeve Gastrectomy**
  - **Roux-en-Y Gastric Bypass**
    - Open/Laparoscopic/ Robotic assisted
- Malabsorptive
  - Bileopancreatic Diversion

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Roux-en-Y Gastric Bypass

How Does RYGB Work?

Mechanical

- Small pouch holds less food
- Dumping syndrome if too many sweets

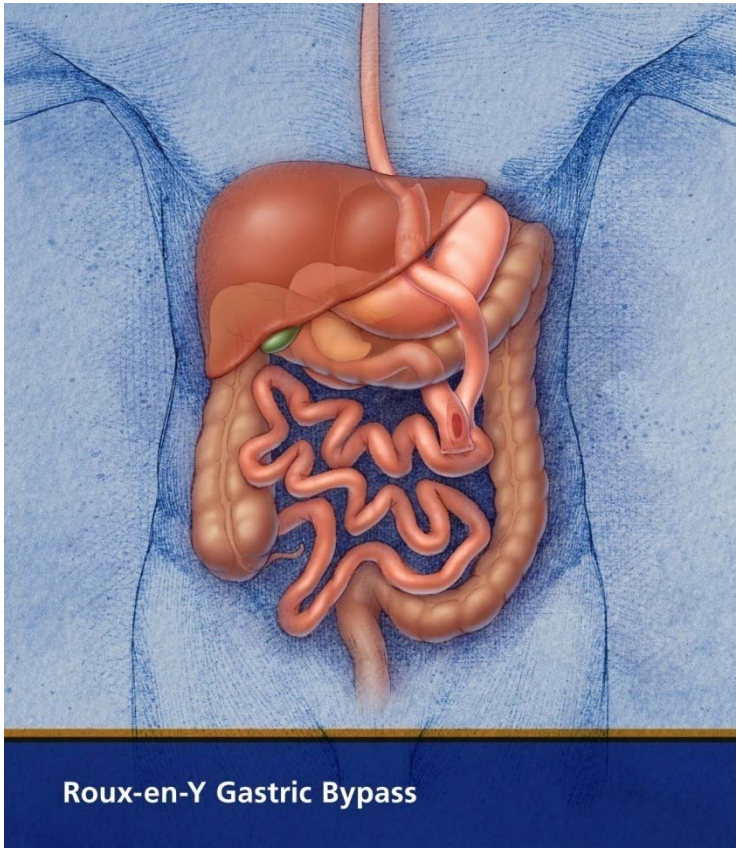
Malabsorption

- Bypassed bowel (reduced calories absorbed)

Metabolic

Hormonal changes

- Decreased hunger (decreased Ghrelin)
- Increased insulin activity (modulated through neuropeptide Y-food in ileum)



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Roux-en-Y Gastric Bypass

- Advantages
  - Long history of proven effectiveness
  - Good weight loss – **70% excess weight at 1 year**
  - Suppresses hormones and controls portions
- Disadvantages
  - **Most invasive bariatric surgery**
  - More difficult surgery and increased challenge as weight increases
  - Highest rate of complications
  - Complications more severe and can happen years later

  - Vitamin deficiencies
  - Dumping syndrome
  - Bowel Obstructions

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Surgical Risks Roux-en-Y

- Anastamotic Leak: 1-2%
- DVT/PE
- Bleeding
- Stricture
- Pneumonia
- Ulcer (smoking)
- Wound Infection
- Hernia
- **Nutrient Deficiency**
  - Geisinger database(2000 patients) – 10% iron def with Hb<8 at 8 year postop
- **Bowel Obstruction:** 2-3%
- Death

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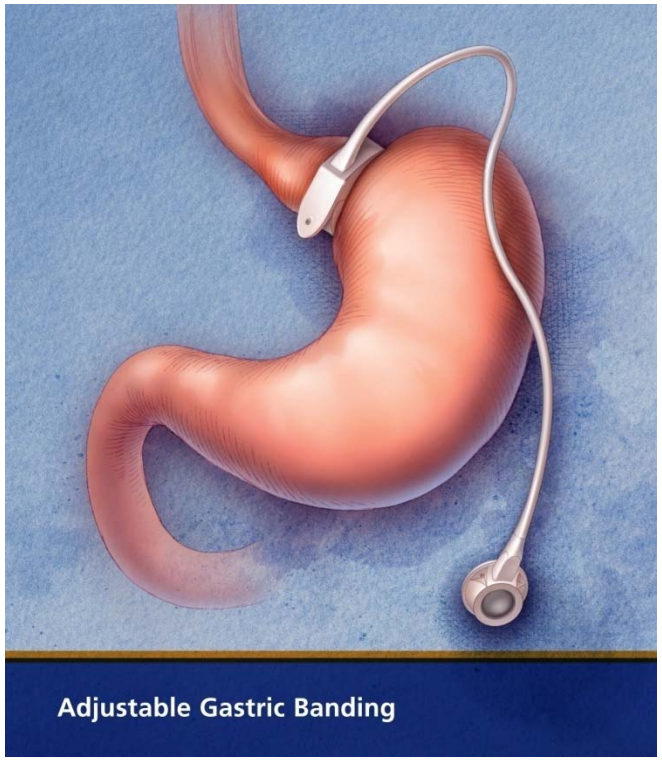
Adjustable Gastric Banding

How Does Lap-Band Work?

Mechanical
- Pressure on vagus nerve
- Feeling of satiety
- Limit portions
- Slow eating

Hormonal
- **No effect**



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Lap-Band

- Disadvantages
  - Least weight loss – 30-40% at 2 years
  - **No regulation of appetite hormones**
  - **Inadequate appetite suppression**
  - Highest rate of mechanical problems
    - Slips or esophageal dilation
  - Highest rate of reoperations (10-20% removal rate)
  - Most unnatural eating – food sticking/spitting up

Lap Band

- 1996-2007 France – 1 hospital
- 897 bands placed

- Mechanical failure or weight loss<25%

2 year	10 year	15 year
18.4%	43%	70%

Arapis et al. *Obes Surg* 6/2016

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Vertical Sleeve Gastrectomy

How Does Sleeve Work?

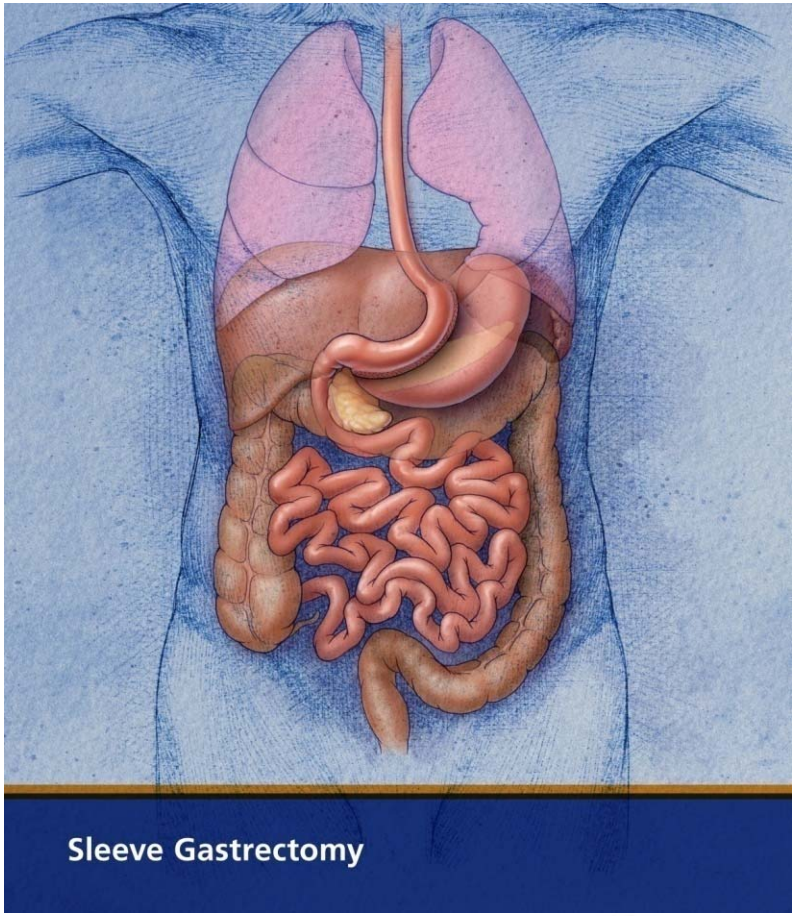
Metabolic

Hormone control

Decreased Ghrelin

Mechanical

Limits portion size



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Lap Sleeve Gastrectomy

- Advantages
  - Good weight loss – 65% at 1 year
  - Technically easier surgery – no rerouting
  - Suppressed hormones and controls portions
  - Much less vitamin deficiency
  - Eat more naturally (rare dumping or sticking)
  - **No rerouting – options for future (meds)**
  - Rapid recovery
  - Much easier long-term care (bariatric surgeon)

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Lap Sleeve Gastrectomy

- Advantages
  - Compared to Band
    - No foreign body
    - No adjustments
    - Better appetite suppression
    - Much lower risk of reoperation
    - Much lower risk of spitting up food
  - Compared to Gastric Bypass
    - Much lower surgical and long-term risk
    - Much faster recovery
    - Much lower risk vitamin deficiency
    - Weight loss nearly identical to bypass

Lap Sleeve Gastrectomy

- Disadvantages
  - Not reversible
  - Sleeve could stretch
  - Long-term data limited (past 8 years)

Surgical Risks Sleeve Gastrectomy

- Iowa Weight Loss Data – 1200 Patients

Gastric leak	0.1%
DVT/PE	0.1%
Portal Vein Thrombosis	0.2%
Bleeding	1%
Hernia	0.2%
Stricture	0.1%

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Long Term Sleeve Weight Loss

Author	Patients	Follow up (yrs)	Weight Loss (est.)
Himpens et al.	41	6	53%
Bohdjalian et al.	26	5	55%
Sarela et al.	20	8-9	69%
D' Hondt et al.	23	6	56%

Long Term Sleeve Results

- 185 Patients had sleeve 2006-2008
- **148** Patients followed up at **6** years after surgery
- **37** Patients followed up at **7** years after surgery

- Excess Weight Loss 6 years – **67.3%**
- Excess Weight Loss 7 years – **65.7%**

- *G. Cassela et al. Surg Obes Rel Dis 2016;12:757-762.*

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Long Term Sleeve Results

Preop	Number	Resolution	Improved
Diabetes	31	83%	12%
Htn	67	60%	39%
Sleep Apnea	37	75%	21%

G. Cassela et al. Surg Obes Rel Dis 2016;12:757-762

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Sleeve vs Gastric Bypass

- Randomized trial

	6 months	12 months
Lap Sleeve	50%	60%
Lap Gastric Bypass	55%	67%

Ann Surg. 2008 Mar;247(3):401-7.

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Bariatric Surgery in U.S.

- Michigan Bariatric Surgery Collaborative Database
- 43,732 patients (2006-2013)

	2008	2012
Lap Band	34%	4%
Lap Gastric Bypass	58%	27%
Lap Sleeve	6%	67%

2013 – Lap Sleeve most common surgery

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Bariatric Surgery United States

ASMBS database

	2012	2013	2014	2015	2016
Cases(thousands)	173	179	193	196	210
Morbid obesity (CDC data 2016)		18 Million		24 Mil	26 Mil

Surgical Risks

- Surgery vs. Morbid Obesity
  - Surgery carries much less risk than obesity
  - Morbid obesity
    - Diabetes
    - High blood pressure
    - Heart disease
    - Sleep apnea
    - Cancer
    - Decreased life expectancy
    - Decreased quality of life

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Weight Loss Surgery Results

- Utah – Adams study
  - Surgery patients (n=7925)
  - Matched Controls (n=7925)
  - Follow up of 7.1 years
- Death Rate after surgery
  - All Causes: Decreased 40%
  - Diabetes: Decreased 92%
  - Heart disease: Decreased 56%
  - Cancer: Decreased 60%

N Engl J Med 2007; 357:753-61

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Weight Loss Surgery Risks

- ASMBS National Database
  - 60,000 patients
  - 30 day mortality – **0.06%**
    - (Less than for gallbladder surgery)
  - Major Complication Rate (Leak/Abscess/Bleed/DVT/PE/Death)
    - Sleeve Gastrectomy – 1-1.5%
    - Gastric Bypass – 2-3%

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Personal Accountability

- Appetite Suppression
- Portion Control
- Accountability
  - Good food choices
  - Avoid snacking and liquid calories
  - Exercise
    - Most that exercise regularly lose 80% excess weight

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Surgery for Diabetes

- **Literature review**
  - 621 studies
  - 135,247 patients
  - Diabetes
    - Improved and decreased meds, 85%
    - Remission and off all meds, 60-70% (1 year)

Surgery for Diabetes

- Stampede Trial (Cleveland Clinic)
  - 150 patients prospective and randomized
    - 50 each to intensive medical care/Bypass/Sleeve
    - Med group follow up visits
      - Every 3 months first 2 years
      - Every 6 months last 3 years
  - BMI range 27-43 (all type 2 diabetics)
  - Trial duration – 5 years
  - Primary outcome – HbA1C < 6.0 on or off meds

Schauer et al. *N Engl J Med.* 2017;376(7):641-51.

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Surgery for Diabetes

	A1C<6	A1C<6 no med	Wt Loss(Kg)
Med(38 pts)	2 (5%)	0	-5.3
Bypass(49pts)	14(29%)	11(22.4%)	-23.2
Sleeve(47pts)	11(23%)	7(14.9%)	-18.6

Schauer et al. *N Engl J Med.* 2017;376(7):641-51

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Diabetes Mellitus

- 3rd World Congress Consensus Conference (2016)
  - International Diabetes Federation Recommendations
  - Surgery for those not achieving treatment targets with dieting
  - Surgery acceptable for BMI > 35
  - Surgery is **cost effective**
  - Surgery is **very low risk** (similar to gallbladder)

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Economic Impact of Diabetes

- Lifetime cost of diabetes in the United States
  - Diagnosed at age 50 - $100,000
  - Diagnosed at age 30 - $200,000

- **Insurance companies decreasing presurgery requirements**
  - Diet visits (monthly)
    - Cigna – 1
    - Blue Cross – 2
    - United/Optum - 0
    - Medicaid – 6
    - Medicare - 6

Surgery for Sleep Apnea

- Weight loss highly effective at producing remission

- Numerous studies
  - Remission rate is 80% at 6 months after surgery

Surgery for Cardiovascular Disease

- Hypertension
  - Improved or resolved in over 30-40%
- Congestive heart failure
  - Significant improvements in heart function
  - Decreased heart strain and hypertrophy as weight decreases

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Pregnancy

- Morbid Obesity
  - Infertility
  - Pre-eclampsia
  - Gestational Diabetes

- Sleeve gastrectomy
  - Recommend wait 1 year after surgery
  - Decreased risk to baby and mother
  - Improved fertility

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Orthopedic Surgery

- Knee Replacement
  - BMI 40-50: 6 times higher risk
  - BMI >50: 18 times higher risk
- Spinal Surgery
- Hip Replacement

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Surgery Cost Savings

- Study by George Washington University
  - Individual Annual Cost of Obesity
    - Men - $6,518 yearly
    - Women - $8,365 yearly
  - Costs 15 times higher overall compared to BMI<30

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Surgery Cost Savings

- Scandinavian Obesity Surgery Registry
  - Lifetime results per patient
    - Direct Cost Savings – 8408 euros
    - Added Life Years – 0.8 years
    - Added Quality Adjusted Life Years – 4.1 years
  - Overall Cohort Savings – 66 million euros

Obesity Surgery, Sept 2015;25:1559-68.

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Long Term Results

- Bariatric Surgery
  - Safe
  - Effective
  - Durable results
  - Only effective treatment for morbid obesity

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Results of Weight Loss Surgery

- Bariatric surgery – **long term weight loss**
  - 90% patients maintain over 50% excess weight loss
- Bariatric surgery is **safe**
  - 60,000 patients and risk of dying was 0.06%
- Bariatric surgery is **effective**
  - 78% resolution of diabetes
  - 90% resolution of sleep apnea
  - Average weight loss is 60% of excess
- **Only effective tool for long-term weight control if morbidly obese**

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Results of Weight Loss Surgery

- Bariatric surgery – long term weight loss
  - 90% patients maintain over 50% excess weight loss
- Bariatric surgery is safe
  - 60,000 patients and risk of dying was 0.13%
- Bariatric surgery is effective
  - 78% resolution of diabetes
  - 90% resolution of sleep apnea
  - Average weight loss is 60% of excess
- Only effective tool for long-term weight control if morbidly obese

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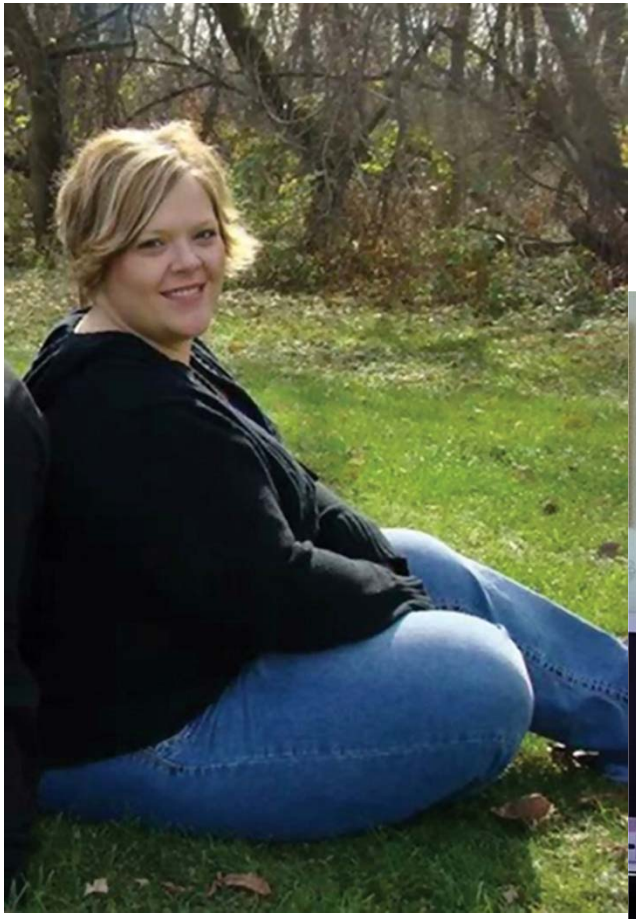

Laparoscopic Vertical Sleeve Gastrectomy

Starting Weight: 303

4 years post-op: 165

Total weight loss: 138

Lost 92% of excess weight

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Laparoscopic Vertical Sleeve Gastrectomy

Starting Weight: 323

7 months post-op: 220

Total weight loss: 103

Lost 100% of excess weight

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Laparoscopic Vertical Sleeve Gastrectomy
(Failed Lap Band Prior)

Starting Weight: 297

1 year post-op: 196

Total weight loss: 101

Lost 73% of excess weight

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Vertical Sleeve Gastrectomy

Starting Weight: 290

9 months post-op: 200

Total weight loss: 90

***Lost 70%* of excess weight**

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Medical Weight Loss

Comprehensive team approach

-Mental health

-Dietitians

-Exercise

-Medications

-Possible surgery referral

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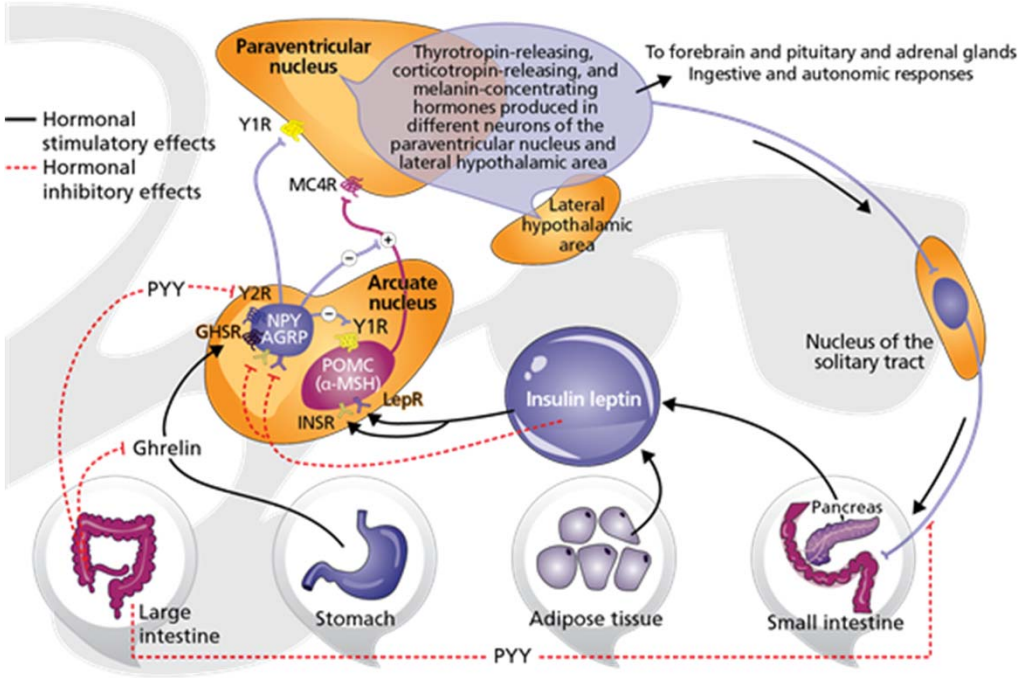
Why Use Weight Loss Medications?



AGRP: agouti-related peptide; α-MSH: α-melanocyte-stimulating hormone; GHSR: growth hormone secretagogue receptor; INSR: insulin receptor; LepR: leptin receptor; MC4R: melanocortin-4 receptor; NPY: neuropeptide Y; POMC: proopiomelanocortin; PYY: peptide YY; Y1R; neuropeptide Y1 receptor; Y2R: neuropeptide Y2 receptor.
Apovian CM, Aronne LJ, Bessesen D et al. *J Clin Endocrinol Metab*. 2015;100:342-362.

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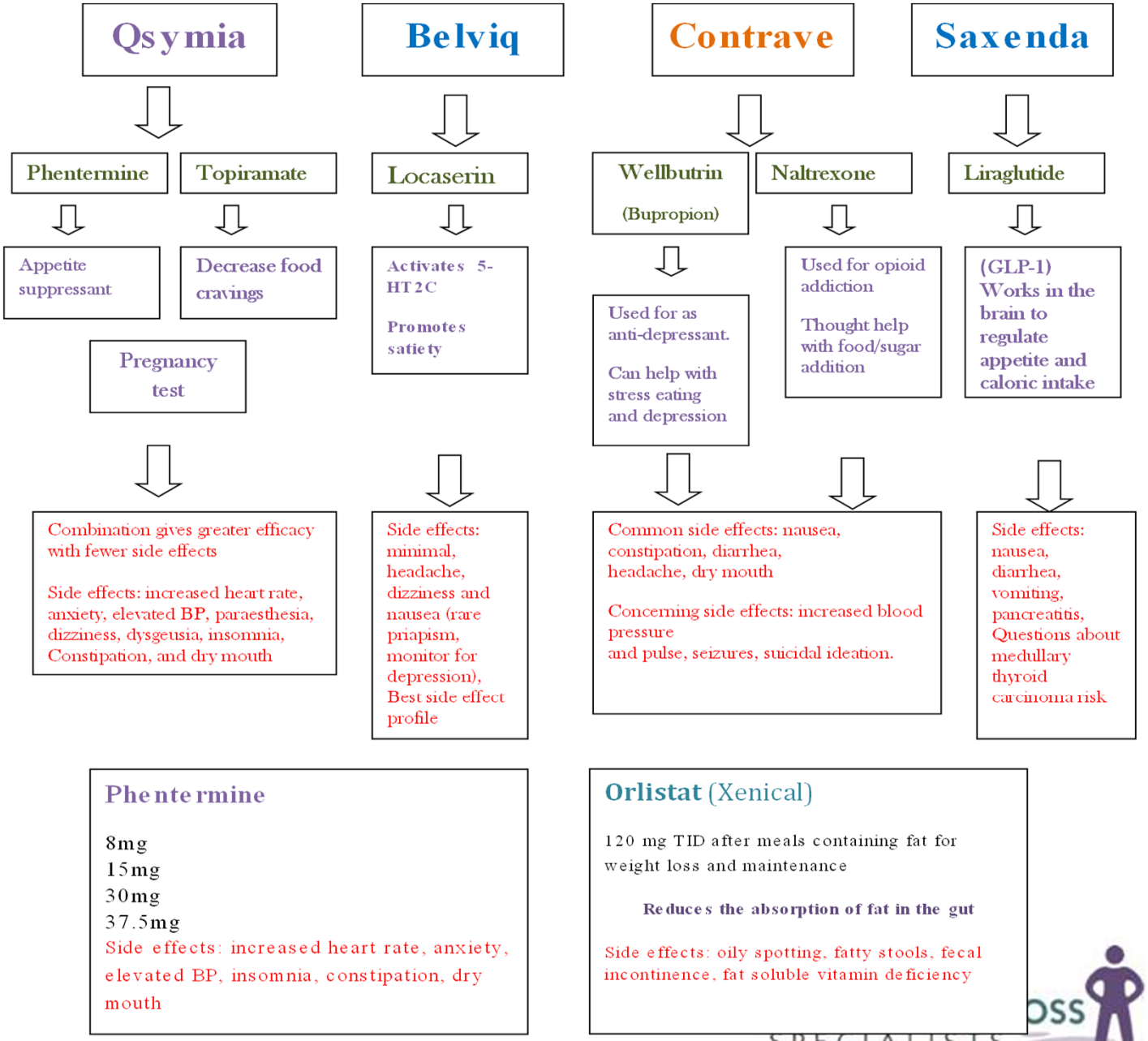
Qsymia
Belviq
Contrave
Saxenda
Phentermine
Topiramate
Locaserin
Wellbutrin
(Bupropion)
Naltrexone
Liraglutide
Appetite suppressant
Decrease food cravings
Activates 5-HT2C
Promotes satiety
Used for as anti-depressant.
Can help with stress eating and depression
Used for opioid addiction
Thought help with food/sugar addition
(GLP-1) Works in the brain to regulate appetite and caloric intake
Pregnancy test
Combination gives greater efficacy with fewer side effects
Side effects: increased heart rate, anxiety, elevated BP, paraesthesia, dizziness, dysgeusia, insomnia, Constipation, and dry mouth
Side effects: minimal, headache, dizziness and nausea (rare priapism, monitor for depression), Best side effect profile
Common side effects: nausea, constipation, diarrhea, headache, dry mouth
Concerning side effects: increased blood pressure and pulse, seizures, suicidal ideation.
Side effects: nausea, diarrhea, vomiting, pancreatitis, Questions about medullary thyroid carcinoma risk
Phentermine
8mg
15mg
30mg
37.5mg
Side effects: increased heart rate, anxiety, elevated BP, insomnia, constipation, dry mouth
Orlistat (Xenical)
120 mg TID after meals containing fat for weight loss and maintenance
Reduces the absorption of fat in the gut
Side effects: oily spotting, fatty stools, fecal incontinence, fat soluble vitamin deficiency

Things to remember

- Obesity is a disease!
  - Much more complicated than eat less exercise more
  - What may be easy for you may seem impossible for someone else
- If you have an interest in treating your patients obesity get educated!
  - If not, refer to obesity specialist
- BE KIND!
  - Patients are shamed by medical providers regularly
  - Obese patients are at higher risk for depression and hx of physical and sexual abuse

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References:

- Arapis et al. *Obes Surg* 6/2016
- AGRP: agouti-related peptide; α-MSH: α-melanocyte-stimulating hormone; GHSR: growth hormone secretagogue receptor; INSR: insulin receptor; LepR: leptin receptor; MC4R: melanocortin-4 receptor; NPY: neuropeptide Y; POMC: proopiomelanocortin; PYY: peptide YY; Y1R; neuropeptide Y1 receptor; Y2R: neuropeptide Y2 receptor. Apovian CM, Aronne LJ, Bessesen D et al. *J Clin Endocrinol Metab*. 2015;100:342-362.
- Apovian, C. M., Aronne, L., & Powell, A. G. (2015). *Clinical management of obesity*. West Islip, NY: Professional Communication.
- Bohdjalan et al. *Obes Surg*, May 2010;20:535-40.
- Cummings DE et al. N Engl J Med 2002;346:1623-1630
- Hamman, R. F., Wing, R. R., Edelstein, S. L., Lachin, J. M., Bray, G. A., Delahanty, L., … Wylie-Rosett, J. (2006). Effect of Weight Loss With Lifestyle Intervention on Risk of Diabetes. *Diabetes Care*, *29*(9), 2102–2107. http://doi.org/10.2337/dc06-0560
- How Saxenda® Works. (n.d.). Retrieved April 17, 2018, from https://www.saxenda.com/learn-about-saxenda/how-it-works.html Novo Nordisk Inc.
- *G. Cassela et al. Surg Obes Rel Dis 2016;12:757-762*
- *N Engl J Med* 2007; 357:753-61
- Schauer et al. *N Engl J Med.* 2017;376(7):641-51
- When you're trying to lose weight and keep it off, your brain could be working against you. Find out how CONTRAVE can help. (n.d.). Retrieved April 17, 2018, from https://contrave.com/how-contrave-works/ 2018 Orexigen Therapeutics, In

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