

Bariatric Surgery and Devices and Post-operative Care for Primary Care

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OBESITY MANAGEMENT IN PRIMARY CARE CERTIFICATE PROGRAM:

A Practice Management & Leadership Training Program for PAs and NPs



Commercial Support

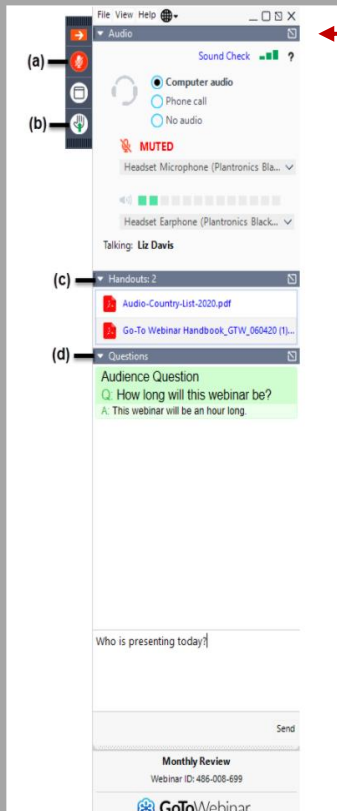
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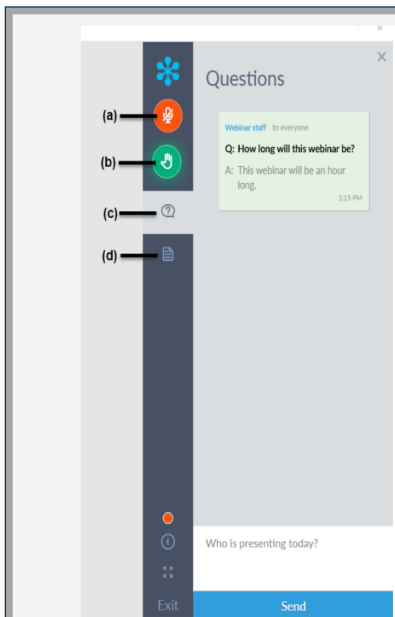
House Keeping

Using Your GTW Control Panel and Reminders



Desktop App Control Panel:

- (a) Mute/unmute
- (b) Raise your hand
- (c) Handouts for you to download
- (d) Ask (type in) a question



Browser-based Control Panel:

- (a) Mute/unmute
- (b) Raise your hand
- (c) Ask (type in) a question
- (d) Handouts for you to download

Questions

- Please post questions throughout the webinar via the **Questions / (?)** section in your GTW control panel (CP)
- In the Desktop app click on the 'triangle' to open the Questions bar.
- In the browser CP, click on the "?" icon.
- Your questions will be addressed during the Q&A section at the end of the webinar.

Handouts

- The faculty selected handouts for you to review, use in practice, and/or to follow along with during this session.
- In the Desktop app CP click on the 'triangle' to open the Handouts bar.
- In the browser CP, click on the "document" icon
- To download the handouts double click on the PDF links

Polling Questions

- There are audience response-like questions that I'll refer to as "polling questions" in this presentation.
- Please be sure to respond to each polling question accordingly. You'll have 10 seconds to submit your responses.



Where are you headed on vacation this summer or where do you wish you could go?

- A. Northeast
- B. Southeast
- C. Midwest
- D. Southwest
- E. West
- F. Noncontiguous US
- G. Outside of the US

AAPA Learning Central: Module 6

Posttest and Evaluation

- After completion of this webinar, please go to Module 6 of the course in AAPA's Learning Central to complete the posttest and evaluation to obtain credit for this activity.

[Home Page](#) [Overview](#) [Pre-Test](#) [Assignments](#) [Discussion Forum](#) [Clinical Webinar](#) [Post-Test](#) [Evaluation](#) [CME/CE Certificate](#) [Coaching Webinars](#) [Resources](#)



Faculty and Disclosure Statement

- Melissa Davis is a board-certified adult nurse practitioner, clinical nurse specialist, RN first assistant, Assistant Professor of Practice-University of Arizona College of Medicine (Phoenix), and Fellow of the American Association of Nurse Practitioners.
- She earned her Bachelor of Science in Nursing from Seton Hall University, post-master's nurse practitioner from Saint Louis University, and doctorate in nursing practice from Northern Arizona University.
- Dr. Davis has been caring for bariatric medical and surgical patients since 2001. Her role includes assisting in surgery, hospital rounding, clinic exams, education, research, and program coordination.
- Melissa has been an active member of the American Society of Metabolic and Bariatric Surgery (ASMBS) since 2002, elected in 2013 to the Integrated Executive Council, and participating extensively on the Integrated Health Clinical Issues and Guidelines, Integrated Health Nominations, and RN Certification Committees.
- **Disclosures:** none

Disclosures

- None

Objectives

Identify

Identify patients who might be appropriate candidates for referral for surgery or devices.

Describe

Describe current FDA- and ASMBS-approved metabolic and bariatric surgeries and devices.

Summarize

Summarize the effects of bariatric surgery on weight reduction and comorbidities.

Develop

Develop a long-term management plan for patients who have had a bariatric surgical procedure.

Topics

01

Criteria for referral
and metabolic/
bariatric surgery

02

Current metabolic/
bariatric surgical
procedures

03

Devices

04

Post-operative
care

Appropriate Referrals for Metabolic/Bariatric Surgery

- BMI ≥ 40 kg/m²
- BMI ≥ 35 kg/m² + 1 obesity-related complication
 - Eg, high risk for T2DM (insulin resistance, metabolic syndrome, prediabetes), poorly controlled hypertension, NAFLD/NASH, OSA, OA of the knee or hip, SUI
- BMI 30-34.9 kg/m² + T2DM with inadequate glycemic control despite optimal lifestyle and medical therapy
- Inability to achieve healthy weight loss sustained for a period of time, with prior weight loss efforts

Clinical Note: BMI criteria for bariatric procedures should be adjusted for ethnicity (≥ 25 kg/m² classified as obesity in Asians)

BMI, body mass index; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; OA, osteoarthritis; OSA, obstructive sleep apnea; SUI, stress urinary incontinence; T2DM, type 2 diabetes mellitus.

American Society for Metabolic and Bariatric Surgery. 2016. <https://asmbs.org/patients/who-is-a-candidate-for-bariatric-surgery>. Accessed April 7, 2021.

Johnson RJ, et al. *Am Surg*. 2012 Jun;78(6):685-692. Mechanick JI, et al. *Endocr Pract*. 2019;25(12):1346-1359.



Polling Question

Which of the following is a contraindication for bariatric surgery?

1. Active binging/bulimia
2. Advanced age
3. HbA1c >8%
4. New diagnosis of cancer
5. BMI

Metabolic/Bariatric Surgery

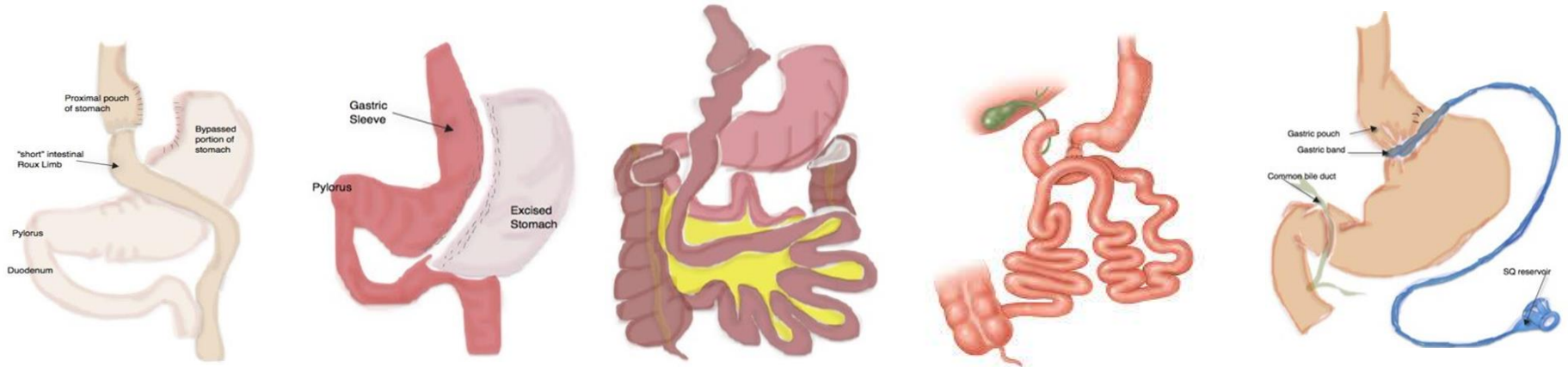
Contraindications:

- Active substance abuse
- Active psychiatric disease
- Active bingeing/bulimia
- Noncompliance
- Poor competence

Not a Contraindication:

- HbA1c >8%
- Advanced age (data do not support age cutoff)
- New diagnosis of cancer
- BMI

Metabolic/Bariatric Surgical Procedures



Images created by Melissa Davis.

How Does Metabolic/Bariatric Surgery Work?

Change in microbiomes

NOT restriction

Change in hunger hormones

NOT only malabsorption

Change in satiety hormones



Polling Question

Which bariatric surgery is most performed currently?

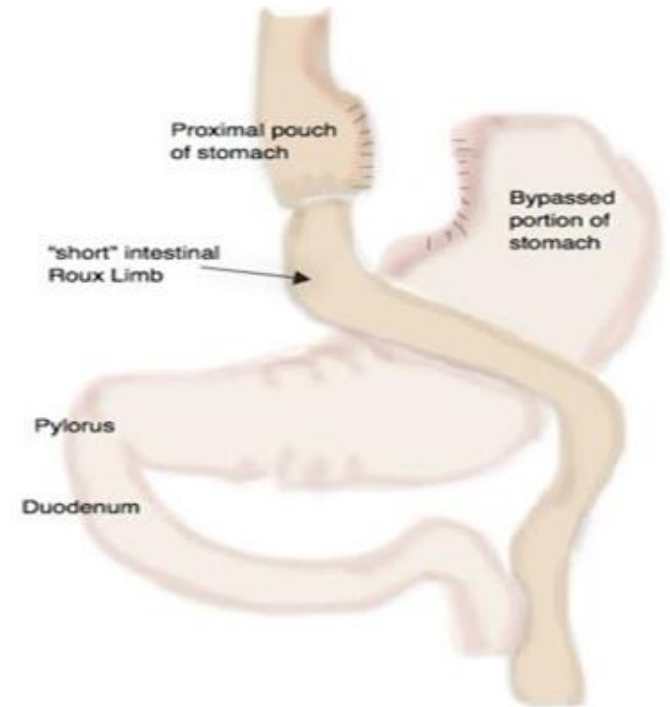
1. Gastric Bypass Roux-en-Y
2. Vertical Sleeve Gastrectomy
3. Duodenal Switch
4. Single Anastomosis Duodenal Ileostomy
5. Adjustable Gastric Band

Gastric Bypass Roux-en-Y (RYGB)

Accounts for 17% of all bariatric surgeries performed¹

Procedure:²

- Stomach stapled to create ~15-30 mL proximal pouch
- Small bowel divided at jejunum
- Distal jejunum anastomosed to proximal stomach pouch (ante or retro-colic*)
- Distal stomach remains in place; proximal small bowel is anastomosed to jejunum



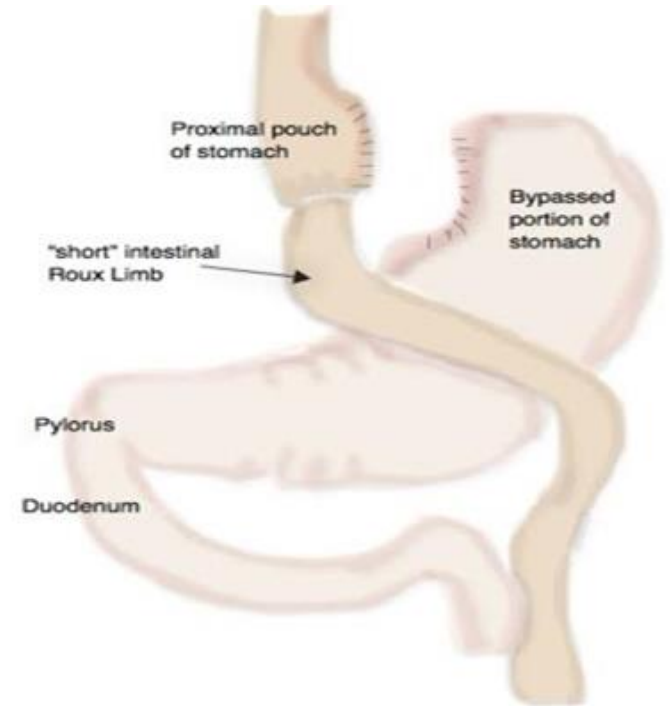
*Two different techniques with different adverse events.

1. American Society for Metabolic and Bariatric Surgery. 2021. <https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers>. Accessed April 12, 2021.

2. Pucci A, et al. *J Endocrinol Invest*. 2019;42(2):117-128.

RYGB Mechanism of Action

- Decrease in ghrelin¹
- Increase in satiety hormones (GLP-1, PYY, etc.)¹
- 30%-35% TBWL²
- GERD/obesity advantage²
- Reversible²



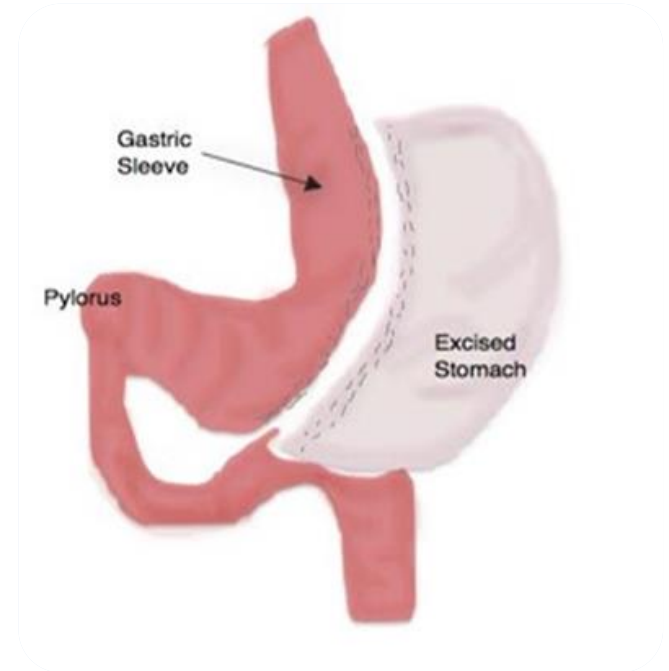
GERD, gastroesophageal reflux disease; GLP-1, glucagon-like peptide; LRYGB, laparoscopic RYGB; PYY, peptide YY; TBWL, total body weight loss.
1. Pucci A, et al. *J Endocrinol Invest.* 2019;42(2):117-128. 2. Mechanick JI, et al. *Endocr Pract.* 2019;25(12):1346-1359.

Vertical Sleeve Gastrectomy (VSG)

Accounts for 60% of all bariatric surgeries performed¹

Procedure:²

- 75%-85% of stomach removed (fundus/greater curvature)
- Pylorus preserved
- No intestinal disruption

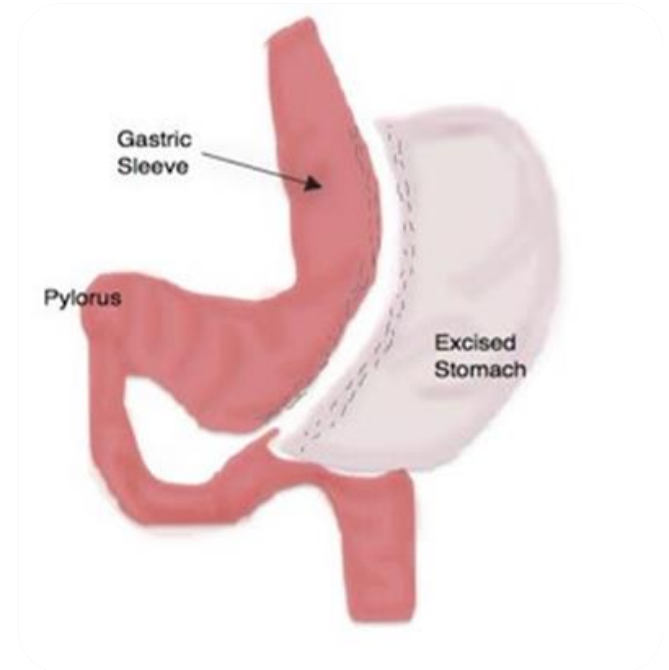


1. American Society for Metabolic and Bariatric Surgery. 2021. <https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers>. Accessed April 12, 2021.

2. Pucci A, et al. *J Endocrinol Invest*. 2019;42(2):117-128.

VSG Mechanism of Action

- Decrease in ghrelin¹
- Increase in satiety hormones (GLP-1, PYY, etc.)¹
- 25%-30% TBWL²
- Potential to increase GERD²
- Irreversible³



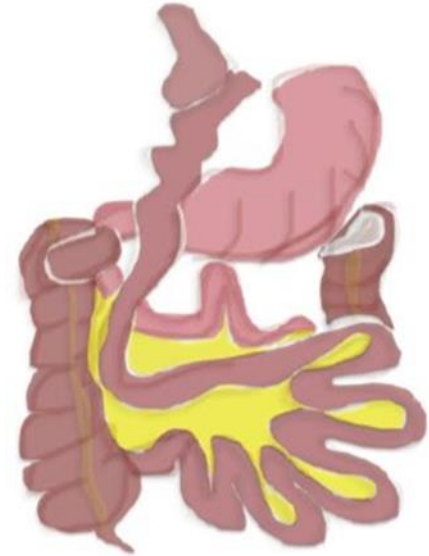
1. Pucci A, et al. *J Endocrinol Invest*. 2019;42(2):117-128. 2. Mechanick JI, et al. *Endocr Pract*. 2019;25(12):1346-1359. 3. American Society for Metabolic and Bariatric Surgery. 2021. <https://asmbs.org/patients/bariatric-surgery-procedures>. Accessed April 8, 2021.

Duodenal Switch (DS)

Accounts for 0.9% of all bariatric surgeries performed¹

Procedure:²

- Sleeve gastrectomy (1st stage)
- Bypass:
 - Alimentary limb (100 cm)
 - Common channel (150 cm)
- Requires proficient intracorporeal suturing



1. American Society for Metabolic and Bariatric Surgery. 2021. <https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers>. Accessed April 12, 2021. 2. Conner J, et al. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021. <https://www.ncbi.nlm.nih.gov/books/NBK563193/>.

DS Mechanism of Action

- Decrease in ghrelin¹
- Increase in satiety hormones (GLP-1, PYY, etc.)¹
- 2-stage^{2,3}
- 35-45% TBWL²
- Strongest potential for remission of T2DM^{2,3}
- Vitamin deficiency potential^{2,3}

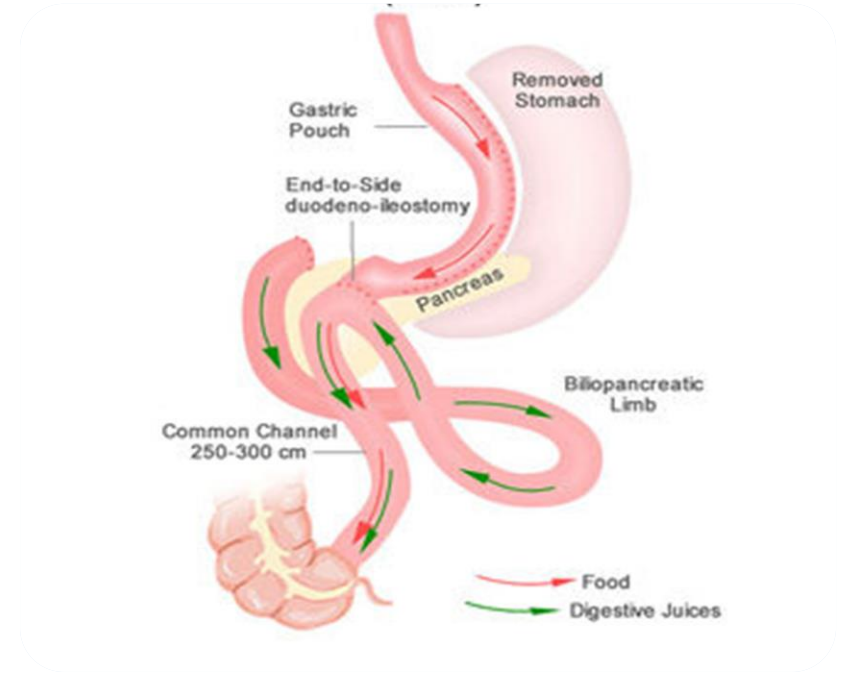


1. Pedersen SD. *Gastroenterol Res Pract*. 2013;2013:528450. 2. Mechanick JI, et al. *Endocr Pract*. 2019;25(12):1346-1359. 3. Conner J, et al. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021. <https://www.ncbi.nlm.nih.gov/books/NBK563193/>.

Single Anastomosis Duodenal Ileostomy (SADI)

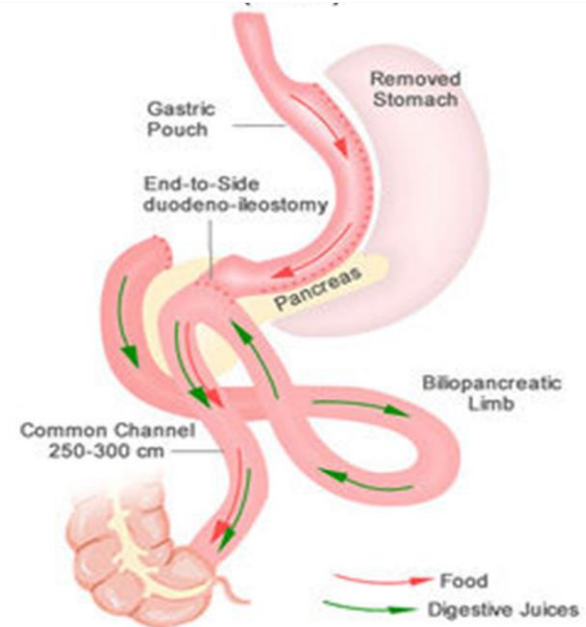
Procedure:

- Modification of DS
- Sleeve gastrectomy
- 1 anastomosis (duodenum-ileum)



SADI Mechanism of Action

- Decrease in ghrelin*
- Increase in satiety hormones* (GLP-1, PYY, etc.)
- Decreased risk obstruction?*
- Decreased OR time?*
- 35-45% TBWL¹



OR, operating room.

*Limited evidence at this time.

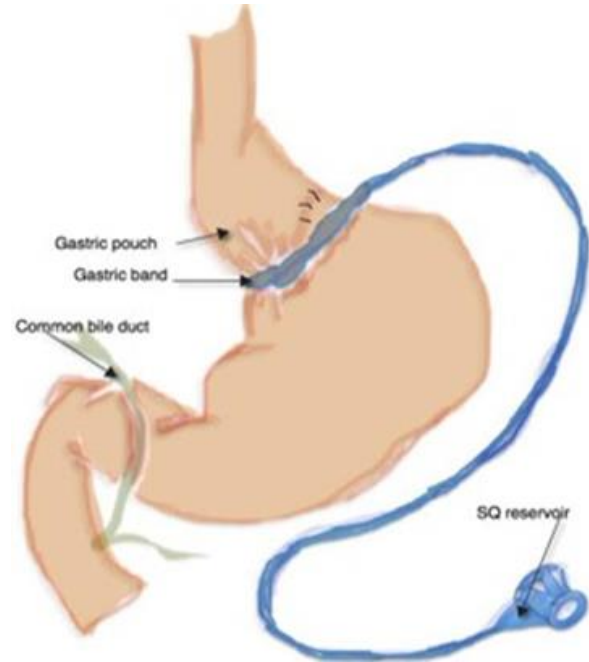
1. Mechanick JI, et al. *Endocr Pract.* 2019;25(12):1346-1359.

Adjustable Gastric Band (AGB)

Accounts for 0.9% of all bariatric surgeries performed¹

Procedure:²

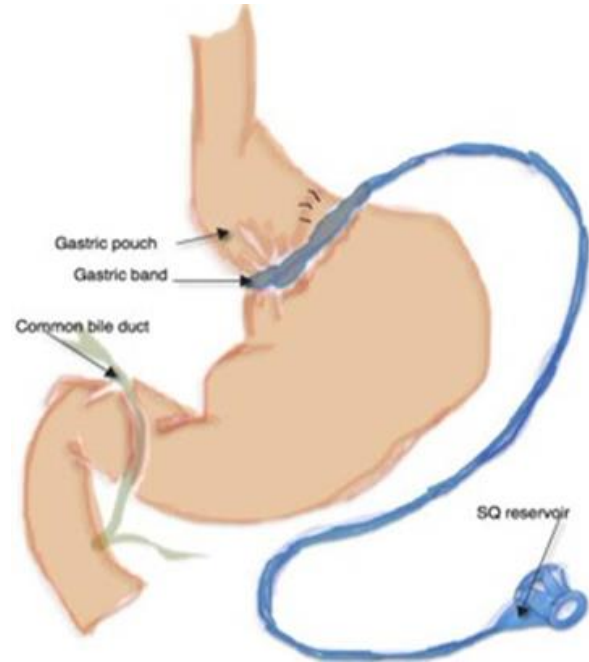
- Pars Flacida approach
- Around vagus
- Restriction?



1. American Society for Metabolic and Bariatric Surgery. 2021. <https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers> Accessed April 12, 2021. 2. Pedersen SD. *Gastroenterol Res Pract.* 2013;2013:528450.

AGB Mechanism of Action

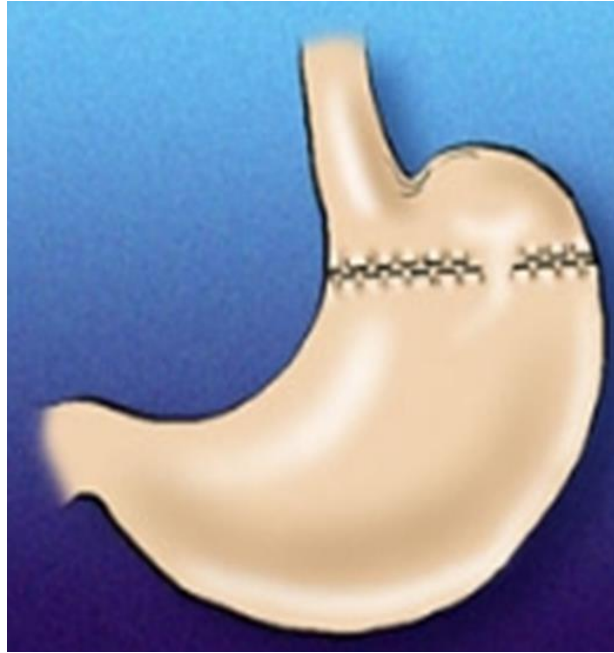
- Increased ghrelin (60%)
- Reversible¹
- Potential tissue and vagus damage
- Multiple complications/little long-term weight loss
- 20-25% TBWL¹



1. Mechanick JJ, et al. *Endocr Pract.* 2019;25(12):1346-1359.

Revisional Bariatric Surgery

Approximately 15% of bariatric procedures performed per year are revisions



Complications of Metabolic/Bariatric Surgeries

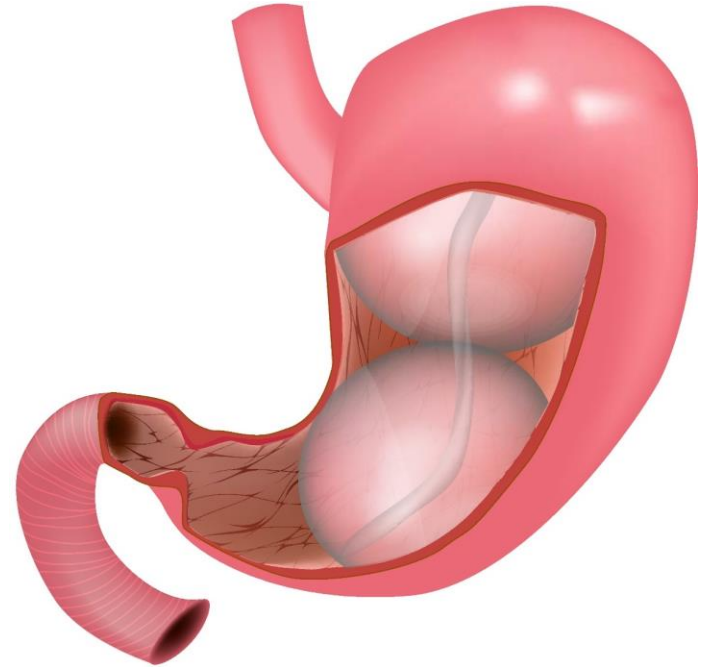
Early (<30 days)

- Bleeding
- Leak
- Pneumonia
- Bowel obstruction
- VTE (PE/DVT)
- Dehydration
- N/V

Late (>30 days)

- Stricture
- Hernia (incisional and internal)
- Marginal ulcer
- Vitamin deficiencies
- Osteoporosis
- Dumping

Weight-loss Devices



Weight-loss Devices

FDA Approved

- Adjustable gastric band (Lap-Band[®])
- Intra-gastric balloons (Orbera[®], Reshape[®], Obalon[®])
- Transpyloric bulb (TransPyloric Shuttle[®])
- Aspiration therapy (AspireAssist[®])
- Vagal Nerve Blocking Therapy (Vbloc[®])

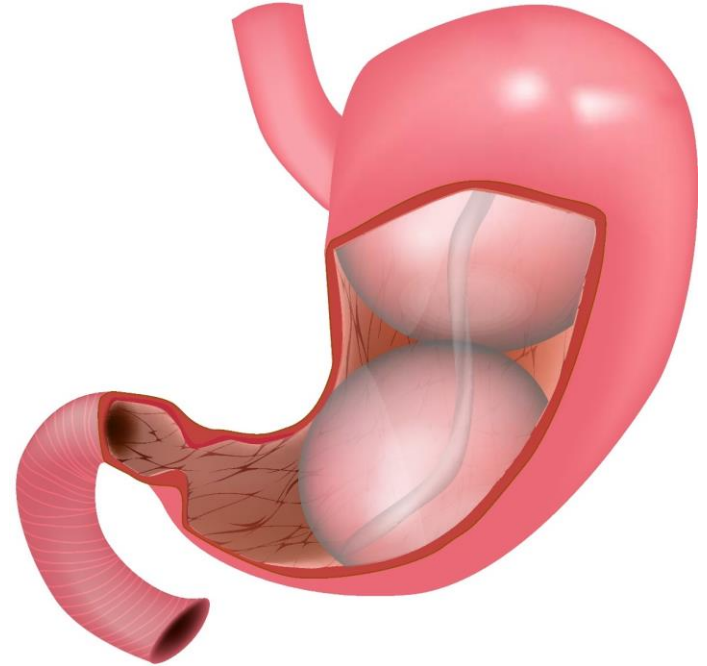
ASMBS Approved

- Adjustable gastric band (Lap-Band[®])
- Intra-gastric balloons (Orbera[®], Reshape[®], Obalon[®])

Intragastric Balloons

Accounts for 1.8% of all bariatric surgeries performed¹

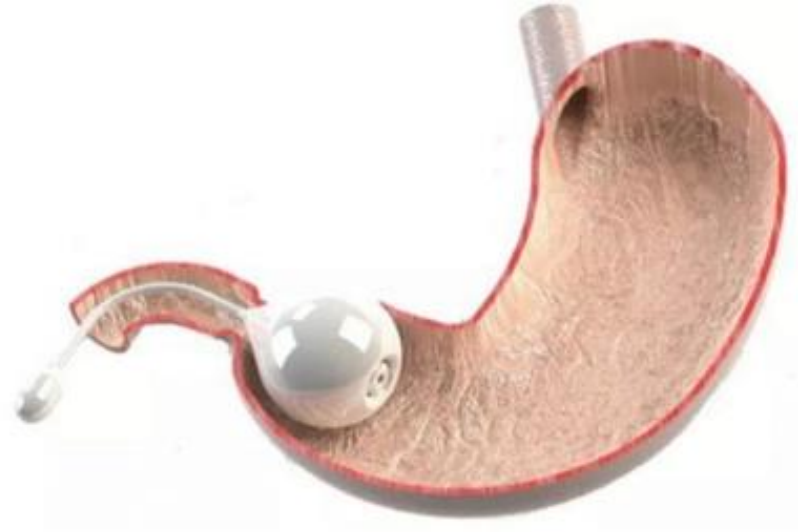
- Procedure²
 - “Space occupying”
 - Series of balloons (1, 2, or 3)
 - Removed after 6 months
 - Outpatient placement (radiology or endoscopy)
 - Outpatient removal (endoscopy)
- 10-12% TBWL²
- Insurance exclusion
- Best studied device
- Minimal long-term follow up



1. American Society for Metabolic and Bariatric Surgery. 2021. <https://asmbs.org/resources/estimate-of-bariatric-surgery-numbers>. Accessed April 12, 2021. 2. Mechanick JI, et al. *Endocr Pract*. 2019;25(12):1346-1359.

Transpyloric Bulb

- Procedure:¹
 - Introduced and removed endoscopically
 - Large bulb – pylorus
 - Small bulb – duodenum
- “Faster filling time and delayed gastric emptying”
- Remains intact up to 12 months
- 14% TBWL²
- Insurance exclusion

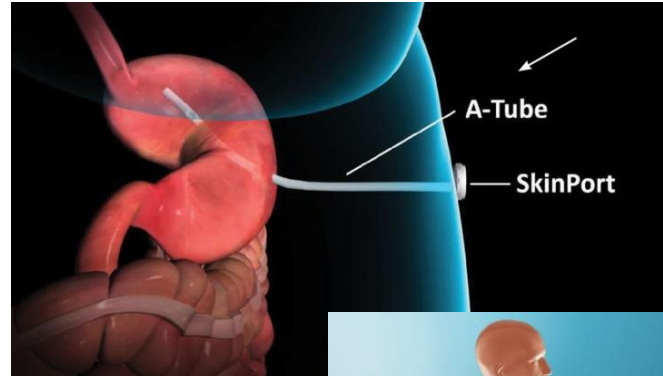


1. Szoka NL, et al. 2019. <https://www.sages.org/publications/tavac/transpyloric-shuttle/>. Accessed April 12, 2021. 2. Mechanick JI, et al. *Endocr Pract.* 2019;25(12):1346-1359.

Aspiration Therapy

- Procedure:¹
 - Endoscopically placed G-tube (connected to a skin port valve)
 - Connector locks after 115 cycles (5-6 weeks) so patient must return to the clinic
- Patient aspirates stomach contents after each meal¹
- Can remain intact indefinitely
- 12-14% TBWL²
- Insurance exclusion

Device Components³



1. Sullivan S, et al. *Gastroenterology*. 2013;145(6):1245-1252.e525. 2. Mechanick JJ, et al. *Endocr Pract*. 2019;25(12):1346-1359. 3. Badurdeen D, et al. *Bariatric Times*. 2019;16(2):8-10.

Vagal Nerve Blocking Therapy

- Procedure:¹
 - Laparoscopically placed
 - Requires meticulous dissection of anterior and posterior vagus
- Large neuroregulator¹
- Requires 12-hour use/day¹
- 24-month follow up
- 8-9% TBWL²
- Insurance exclusion

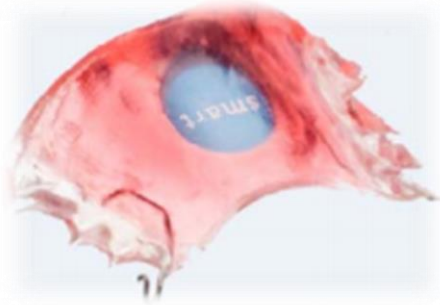


1. Ikramuddin S, et al. *JAMA*. 2014;312(9):915-922. Erratum in: *JAMA*. 2015;313(1):95. 2. Mechanick JI, et al. *Endocr Pract*. 2019;25(12):1346-1359.

Weight-management Devices

Oral removable palatal space occupying device – SMART^{®1}

- Worn when eating
- Temperature recording sensor
- Limits bite size
- Slows down the intake of food



Ingested, transient, space-occupying device – Plenity^{®2}

- Swallowed
- Transiently occupies space in the stomach
- Passes via the GI tract

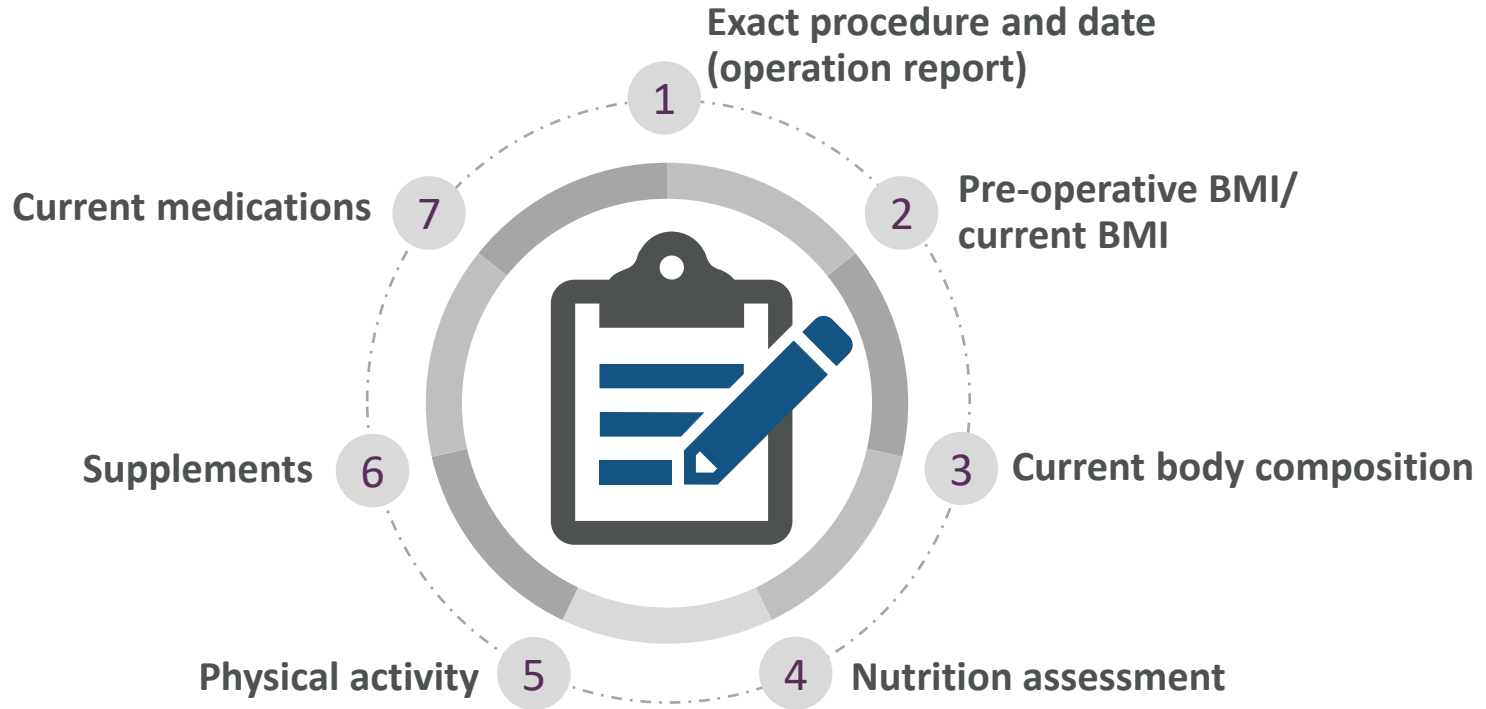


1. Food and Drug Administration, HHS. *Fed Regist.* 2017;82(144):35067-35069. 2. Greenway FL, et al. *Obesity* (Silver Spring). 2019;27(2):205-216. Erratum in: *Obesity* (Silver Spring). 2019;27(4):679. Erratum in: *Obesity* (Silver Spring). 2019;27(7):1210.

Post-operative Care



Initial Assessment



Metabolic/Bariatric Procedure (GBP, VSG, DS, SADI) Follow-up

Annual:

- CBC
- CMP
- Lipid panel
- HgbA1c
- TSH
- PTH
- Iron panel
- Vitamins A, B1, B6, B12, D, folate
- Zinc
- Copper (DS)
- DEXA (every other yr if normal)



Vitamins/supplements (bariatric preferred):

- 2 MVI (20 minerals), including 18 mg iron
- Calcium citrate, 1200-1500 mg/day in 3 divided doses of 500-600 mg

Miscellaneous

- No NSAIDs or ASA >81 mg
- No alcohol
- Caution with anticoagulation other than warfarin

ASA, aspirin; CBC, complete blood count; CMP, comprehensive metabolic panel; DEXA, dual energy X-ray absorptiometry; DS, duodenal switch; MVI, multivitamin injection; NSAID, nonsteroidal anti-inflammatory drug; PTH, parathyroid hormone; TSH, thyroid-stimulating hormone.

Adjustable Gastric Band and Devices Follow Up

Adjustable Gastric Band

- Annual UGI fluoroscopy
- Refer to bariatric provider

Devices

- Refer to bariatric provider



UGI, upper gastrointestinal.

Hospital or Surgical Facility

- High-volume accredited center
- Emergency department and intensive care unit
- Dedicated bariatric unit
- Bariatric certified nurses (CBN)
- CT scanner (600+ pounds)
- MRI (500+ pounds)
- Specialized surgical team

CT, computed tomography; MRI, magnetic resonance imaging.

Metabolic/Bariatric Obesity Program

Lifetime follow up

Support groups

Coordination of care with primary care provider

Newsletter and web chat support

Mobile phone app

Medical and surgical care

Pre- and post-operative classes

24/7 call coverage

1-800 number

National accreditation

Metabolic/Bariatric Surgical Programs and Facility



American College of Surgeons Bariatric Surgery Center Network Accreditation Program.

Additional Resources

- American Society for Metabolic and Bariatric Surgery: www.asmb.org
- Obesity Action Coalition: <https://www.obesityaction.org/>
- Centers for Disease Control and Prevention:
<http://www.cdc.gov/obesity/resources/>
- The Obesity Society (NHLBI): <http://www.obesity.org/>
- Obesity Medicine Association: <https://obesitymedicine.org/>



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Any Questions?



Thank you!

