Diabetes Symposium 2025

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GLP-1 Receptor Agonists & Nutrition Management

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Disclosures

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- Notice of Requirements For Successful Completion
  - Please refer to learning goals and objectives
  - Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours
- Conflict of Interest (COI) and Financial Relationship Disclosures:
  - Presenter: Jaclyn Moore, MS, RD, CSO
  - COI/Financial Relationship to disclose – Speaker's Bureau :Alcresta Therapeutics and AbbVie Inc.
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- Off-Label Use:
  - Participants will be notified by speakers to any product used for a purpose other than for which it was approved by the Food and Drug Administration.

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Learning Objectives
After completing this activity, the participant should be able to:

1. **Obtain a basic understanding of GLP-1 receptor agonists: indications, mechanism of action, and available drug variations.**
2. **Obtain a basic understanding of malnutrition risk and GLP-1 receptor agonist use.**
3. **Understand how to manage common nutrition related side effects of GLP-1 receptor agonist use.**

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Objective #1:
Obtain a basic understanding of GLP-1 receptor agonists: indications, mechanism of action, and available drug variations.

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What are GLP-1 Receptor Agonists?

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- GLP-1 = Glucagon-like peptide 1
- Agonists are medications that mimic natural gut hormone involved in insulin secretion and appetite regulation
- Available in both oral and injectable forms
- Approved for the management of Type 2 diabetes and obesity.

Reference: Seino Y, Fukushima M, Yabe D. GIP and GLP-1, the two incretin hormones: Similarities and differences. J Diabetes Investig. 2010 Apr 22;1(1-2):8-23. doi: 10.1111/j.2040-1124.2010.00022.x. PMID: 24843404; PMCID: PMC4020673.

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Detailed Comparison Table

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Medication	Brand Name(s)	Indication(s)	Dosing Regimen	Route	Avg. Wt. Loss
Semaglutide	Ozempic	T2DM	Weekly: 0.25→0.5→1-2 mg	SubQ	6-8%
	Wegovy	Obesity	Weekly: 0.25→2.4 mg	SubQ	15-17%
	Rybelsus	T2DM	Daily PO: 3→7→14 mg	Oral	5%
Liraglutide	Victoza	T2DM	Daily: 0.6→1.2-1.8 mg	SubQ	4-6%
	Saxenda	Obesity	Daily: 0.6→3.0 mg	SubQ	8-10%
Dulaglutide	Trulicity	T2DM	Weekly: 0.75→4.5 mg	SubQ	3-5%
Exenatide	Byetta	T2DM	BID: 5→10 mcg	SubQ	2-3%
	Bydureon BCise	T2DM	Weekly: 2 mg	SubQ	3-4%
Lixisenatide	Adlyxin	T2DM	Daily: 10→20 mcg	SubQ	2-4%
Tirzepatide (Dual GIP/GLP-1)*	Mounjaro	T2DM	Weekly: 2.5→15 mg	SubQ	20-22% +
	Zepbound	Obesity	Weekly: 2.5→15 mg	SubQ	20-22% +

*GIP = gastric inhibitory polypeptide.

Reference: Warshaw H. The New Weight Management Meds. Today's Dietitian. 2023 Aug; 25(9): 24. Link: https://www.todaysdietitian.com/newarchives/1123p24.shtml.

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Key Findings and Considerations

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- Cardiovascular benefits proven for:
  - Ozempic, Trulicity, Victoza, Wegovy
- Pediatric approvals:
  - Saxenda (12+), Wegovy (12+), Victoza (10+ T2DM)
- Contraindications:
  - Personal/family hx medullary thyroid cancer
  - Pancreatitis

Reference: Yin Y, Zhang M, Cao Q, Lin L, Lu J, Bi Y, Chen Y. Efficacy of GLP-1 Receptor Agonist-Based Therapies on Cardiovascular Events and Cardiometabolic Parameters in Obese Individuals Without Diabetes: A Meta-Analysis of Randomized Controlled Trials. J Diabetes. 2025 Apr;17(4):e70082. doi: 10.1111/1753-0407.70082. PMID: 40207414; PMCID: PMC11982705.

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GLP-1 Mechanism of Action

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- Delay gastric emptying
- Increase satiety and reduce appetite leading to reduced food intake
- Improve glycemic control by stimulating the pancreas to release insulin
- Promote weight loss

Reference: Seino Y, Fukushima M, Yabe D. GIP and GLP-1, the two incretin hormones: Similarities and differences. J Diabetes Investig. 2010 Apr 22;1(1-2):8-23. doi: 10.1111/j.2040-1124.2010.00022.x. PMID: 24843404; PMCID: PMC4020673.

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The Growing Popularity

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- Surge in off-label use for weight loss
  - Both obese and non-obese individuals
- Play a role in obesity management for both adult and pediatric patients
- Trend in indefinite therapy for diabetes and obesity management
- Popularity has resulted in national shortages

Reference: Nanayakkara N, Lh Huang M, Jenkins AJ, Cohen ND. The impact of GLP-1 receptor agonist shortages on glycaemic Control: Findings from an Australian specialist diabetes clinic. Diabetes Res Clin Pract. 2024 Jul;213:111740. doi: 10.1016/j.diabres.2024.111740. Epub 2024 Jun 7. PMID: 38852625.

Image: https://sizesense.ai/how-to-measure-your-waist/

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Objective #2:
Obtain a basic understanding of malnutrition risk and GLP-1 receptor agonist use.

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What is Malnutrition?

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- The result of inadequate food and nutrient intake or assimilation
- May include:
  - Involuntary weight loss (significant = 5% within 1 month, 10% loss within 6 months)
  - Loss of excessive subcutaneous fat (ex. temporal wasting)
  - Fluid accumulation
  - Diminished functional status (ex. grip strength)
- Affects both underweight and obese patients

Reference: Skipper A. Table: Academy of Nutrition and Dietetics (Academy)/American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) clinical characteristics that the clinician can obtain and document to support a diagnosis of malnutrition. J Academy of Nutr and Dietetics. 2012 May. 112(5).

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Screening and Monitoring for Malnutrition

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- Regular weight and BMI checks are not enough
- Best practice:
  - Screen all patients for malnutrition risk
  - Involve a registered dietitian early and often
  - Develop a comprehensive care plan
- Nutrition monitoring should include routine assessment of dietary intake, muscle mass, and labs

Reference: Skipper A. Table: Academy of Nutrition and Dietetics (Academy)/American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) clinical characteristics that the clinician can obtain and document to support a diagnosis of malnutrition. J Academy of Nutr and Dietetics. 2012 May. 112(5).

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Nutritional Concerns with GLP-1 Use

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- Reduced appetite = reduced nutrient intake
- Risk of skipping meals or small portion sizes
- Common side effects that negatively impact nutrition intake:
  - Fullness
  - Nausea
  - Vomiting
  - Reflux/heartburn
  - Diarrhea or constipation
- Potential for food aversions

Reference: Mozaffarian D, Agarwal M, Aggarwal M, Alexander L, Apovian CM, Bindlish S, Bonnet J, Butsch WS, Christensen S, Gianos E, Gulati M, Gupta A, Horn D, Kane RM, Saluja J, Sannidhi D, Stanford FC, Callahan EA. Nutritional priorities to support GLP-1 therapy for obesity: A joint Advisory from the American College of Lifestyle Medicine, the American Society for Nutrition, the Obesity Medicine Association, and The Obesity Society. Obesity (Silver Spring). 2025 Aug;33(8):1475-1503. doi: 10.1002/oby.24336. Epub 2025 May 30. PMID: 40445127; PMCID: PMC12304835.

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Clinical Implications

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- Prolonged GLP-1 receptor agonist use without nutritional guidance can lead to serious complications:
  - Weakened immune system
  - Poor wound healing
  - Eye problems (signs of vitamin A deficiency)
  - Irritability, apathy, or decreased social responsiveness
  - Mood changes, depression, and lethargy
  - Poor concentration
- Consider both medical and behavioral implications of long-term GLP1 receptor agonist use

Reference: Mozaffarian D, Agarwal M, Aggarwal M, Alexander L, Apovian CM, Bindlish S, Bonnet J, Butsch WS, Christensen S, Gianos E, Gulati M, Gupta A, Horn D, Kane RM, Saluja J, Sannidhi D, Stanford FC, Callahan EA. Nutritional priorities to support GLP-1 therapy for obesity: A joint Advisory from the American College of Lifestyle Medicine, the American Society for Nutrition, the Obesity Medicine Association, and The Obesity Society. Obesity (Silver Spring). 2025 Aug;33(8):1475-1503. doi: 10.1002/oby.24336. Epub 2025 May 30. PMID: 40445127; PMCID: PMC12304835.

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Best Practice: Multidisciplinary Care

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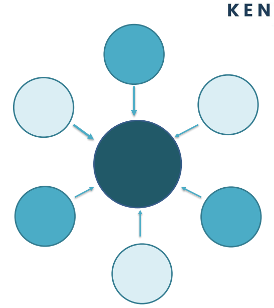
- Provider(s)
  - Primary care/internal medicine
  - Weight management/bariatric surgery
  - Endocrinology
- Registered dietitian
- Pharmacy
- Behavioral health/psychological support
- Financial counseling (due to drug cost)



Reference: Brown A, Mellor D, Makaronidis J, Shuttlewood E, Miras AD, Pournaras DJ. "From evidence to practice" - Insights from the multidisciplinary team on the optimal integration of GLP-1 receptor agonists in obesity management services. Nutr Bull. 2024 Sep;49(3):257-263. doi: 10.1111/nbu.12700. PMID: 39136338.

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Polling Question #1

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What is the most commonly reported side effect of GLP-1 receptor agonist use?

A) Nausea
B) Reflux and heartburn
C) Constipation
D) Diarrhea
E) None of the above

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Objective #3: Understand how to manage common nutrition-related side effects of GLP-1 receptor agonist use.

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Consult a Registered Dietitian

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- Thorough review of medical, weight, and diet history
- Labs and medication review
- Calculate estimated nutrition and hydration needs
- Develop a personalized nutrition plan
- Manage digestive symptoms and complications of GLP-1 therapy
- Collaborate with multidisciplinary team

Reference: Gentinetta S, Sottotetti F, Manuelli M, Cena H. Dietary Recommendations for the Management of Gastrointestinal Symptoms in Patients Treated with GLP-1 Receptor Agonist. Diabetes Metab Syndr Obes. 2024 Dec 19;17:4817-4824. doi: 10.2147/DMSO.S494919. PMID: 39722834; PMCID: PMC11668918.

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Nutrition Counseling and Support:
Managing Common Side Effects

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- Nausea/Vomiting
- Early satiety/delayed gastric emptying (DGE)
- Reflux/Heartburn
- Gas/Bloating
- Diarrhea/Constipation
- Rare but severe

Reference: Gentinetta S, Sottotetti F, Manuelli M, Cena H. Dietary Recommendations for the Management of Gastrointestinal Symptoms in Patients Treated with GLP-1 Receptor Agonist. Diabetes Metab Syndr Obes. 2024 Dec 19;17:4817-4824. doi: 10.2147/DMSO.S494919. PMID: 39722834; PMCID: PMC11668918.

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Nausea and Vomiting

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- Sip on fluids to prevent dehydration
- Take small bites of bland, dry food
- Eat smaller meals throughout the day
- Avoid strong odors
- Choose cold vs hot foods (less odor)
- Try citrus and ginger
  - Fruit infused water
  - Hard, sour candy
- Exercise regularly
- Manage reflux

Reference: https://www.eatright.org/health/health-conditions/digestive-and-gastrointestinal/gastroesophageal-reflux

Image: https://www.verywellmind.com/why-do-i-feel-nauseous-all-the-time-for-no-reason-8722443

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Fullness and DGE

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- Eat smaller, more frequent meals
  - "Two Hour Rule"
- Consider nutrition drinks/liquid Kcals
  - PLUS vs High Protein supplements
- Walk between meals – min. 10 minutes
- Hydrate properly
- Exercise regularly
- Avoid greasy, high-fat foods

Image: https://www.healthline.com/health/appetite-decreased

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Reflux and Heartburn
Nutrition and Lifestyle Recommendations

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- Eat smaller, more frequent meals
- Avoid lying flat in bed or after eating – prop from the waist up overnight
  - Sleep or lean to your RIGHT side
- Avoid alcoholic beverages and smoking
- Avoid tight-fitting garments
- Avoid greasy, fried foods
- Avoid caffeinated and carbonated beverages (coffee, tea, soda)
- Avoid whole milk products
- Avoid acidic foods (citrus fruits, juices, tomatoes and tomato-based products)
- Avoid peppermint and spearmint

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Reflux and Heartburn
Medication Management

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- OTC Acid Buffers (ex. Mylanta, TUMS, Gaviscon)
- H2 Blockers (ex. Pepcid AC, Zantac)
- Proton Pump Inhibitors (PPIs) (ex. omeprazole, pantoprazole)
  - H2 blockers may inhibit PPI effect
- Motility Agents (ex. metoproclamide, erythromycin)
- Mucosal Protectors (ex. Sucralfate)
  - May be taken in combination with PPIs

Reference: https://www.eatright.org/health/health-conditions/digestive-and-gastrointestinal/gastroesophageal-reflux

Image: https://eroftexas.com/heartburn/

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Gas and Bloating

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- Avoid gas-producing foods
- Avoid spicy or heavily seasoned foods
- Avoid greasy, high-fat foods
- Avoid carbonated beverages
- Slowly increase fiber intake
- Stay hydrated
- Exercise daily and between meals
- Try OTC gas relief medications or heat compress
- Sleep or lean to your LEFT side

Image: andrea-digestive-clinic.com/bloating/

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Polling Question #2

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Patients with reflux symptoms should avoid the following foods except:

A) Fried chicken

B) Spaghetti

C) Bacon

D) BBQ sauce

E) All of the above foods should be avoided

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Diarrhea

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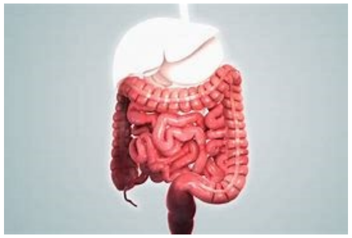
- More than 4 liquid BMs per day
  - Incontinence
- Increased risk for dehydration
  - Replace with 8oz water per BM
- Increase soluble fiber (foods + soluble fiber pwd)
  - Benefiber, Metamucil, Nutrisource Fiber, etc.
  - 1-3 doses per day
- Probiotic
  - High potency (>50 billion CFUs per day)
  - Refrigerate
- Anti-diarrhea medications
  - Imodium, Lomotil, Bentyl



Reference: https://www.uptodate.com/contents/acute-diarrhea-in-adults-beyond-the-basics

Image: Shutterstock

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Constipation

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- Definition:
  - No BM ≥ 3 consecutive days
  - Hard, difficult to pass stools
- Recommendations:
  - Consume >64 fl oz water per day (>8 cups, >4 water bottles)
  - Increase insoluble fiber (bran, vegetables/fruit, fortified breads/cereals, beans, nuts)
  - Increase physical activity
  - AVOID fiber powders and supplements (soluble fiber adds bulk to stool)
  - Consider OTC laxatives (Miralax pwd, Smooth Move hot tea)
  - Aim for >8 hours of sleep
  - Reduce stress

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Summary

- GLP-1 receptor agonist drugs (and Dual GIP/GLP-1 drugs) have been shown to effectively promote weight loss and glucose control in patients with T2DM and obesity.
- Patients treated with GLP-1 receptor agonist therapy should receive comprehensive care through a multidisciplinary team approach that includes providers, dietitians, pharmacists, behavioral health specialists, and financial counselors.
- The most common side effects of GLP-1 receptor agonists are delayed gastric emptying, early satiety, nausea, reflux, vomiting, constipation, and diarrhea.
- Registered dietitians are an integral part of the GLP-1 multidisciplinary care team and should be consulted prior to initiation of treatment and follow patients throughout treatment.

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References

1. Seino Y, Fukushima M, Yabe D. GIP and GLP-1, the two incretin hormones: Similarities and differences. J Diabetes Investig. 2010 Apr 22;1(1-2):8-23. doi: 10.1111/j.2(1124.2010.00022.x. PMID: 24843404; PMCID: PMC4020673.
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Questions?

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