

DiabetesEd Services | ONLINE UNIVERSITY

Welcome to Boot Camp 6 – Medical Nutrition Therapy 2025

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Dietitian- Diabetes Educator
Founder: Nutrition for Daily Living

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We are Here to Help!



Bryanna Sabourin
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Customer Advocate &
Customer Happiness Expert

If you have questions, you can chat with us at www.DiabetesEd.net
or call 530 / 893-8635 or email at info@diabetesed.net

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Diabetes Education Services Inclusion Statement

Based on the IDEA Initiative inspired by CDR

- ▶ Inclusion
- ▶ Diversity
- ▶ Equity
- ▶ Access



- ▶ We are committed to promoting diversity and inclusion in our educational offerings.
- ▶ We recognize, respect, and include differences in ability, age, culture, ethnicity, gender, gender identity, sexual orientation, size, and socioeconomic characteristics.
- ▶ Our goal is to promote equity and access, acknowledging historical and institutional inequities.
- ▶ We are committed to practicing cultural humility and cultivating our cultural competence.
- ▶ We wish to create a safe space within our community where one's beliefs, experiences, identity, and differences in ability, age, size, socio-cultural/socioeconomic characteristics, and political affiliations are considered and respected.

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Christine Craig, MS, RDN, CDCES has No Relevant Conflicts of Interest

- ▶ Information is based on:
- ▶ The ADA Standards of Care in Diabetes

Christine is the Founder of Nutrition for Daily Living, where her mission to increase access to compassionate and evidenced-based nutrition and diabetes care.

She authors a very popular monthly blog and question of the week for our company.

Her experience is vast and includes providing diabetes care within Primary, Telemedicine and Endocrinology clinics.

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Boot Camp Class 6:

Medical Nutrition Therapy

Objectives:

1. Discuss national guidelines for Medical Nutrition Therapy
2. State different meal planning approaches
3. Describe gastrointestinal issues associated with diabetes
4. Discuss approaches to discussing and supporting weight loss



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Main References

STANDARDS OF CARE | DECEMBER 09 2024

5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2025 [\(PDF\)](#)

American Diabetes Association Professional Practice Committee

Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report

Alison B. Evert¹, Michelle Dennison², Christopher D. Gardner³, W. Timothy Garvey⁴, An Hee Kwon⁵, James MacLellan⁶, James Miller⁷, Rosalind P. Stewart⁸, Kelly Stangor⁹, Shyamala Subramanian¹⁰, Laura S. Taylor¹¹, Sacha Uemura¹², Patricia B. Urbanski¹³, and William S. Yancy Jr.¹⁴

Author disclosures

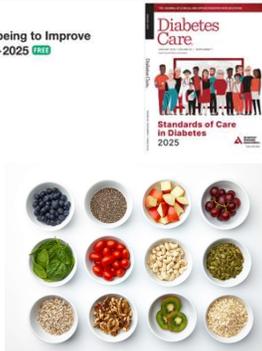
Corresponding author: William S. Yancy Jr., will.yancy@diabetes.edu

Diabetes Care 2019;42(12):2193-2194

<https://doi.org/10.2337/dci19-0024>

<https://care.diabetesjournals.org/content/42/12/2193.full-text.pdf>

[Diabetes Exchange List](#) ▶ a brief summary of serving size and carbohydrate counts for common foods. Excellent study tool for the exam.



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ADA Standards 2025 – Section 5

“People eat food, not nutrients, nutrient recommendations need to be applied to WHAT people eat”



STANDARDS OF CARE | DECEMBER 19, 2024
5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes – 2025

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Medical Nutrition Therapy – ADA Macronutrient Distribution

“No one-sized-fits-all eating pattern for individuals with diabetes”

- ▶ no ideal percent of calories from protein, carbohydrate & fat
- ▶ Macronutrient distribution based on **individualized assessment**
- ▶ **Consider personal preferences**
 - ▶ tradition, culture, religion, health beliefs & goals, economics
 - ▶ metabolic goals & comorbidities



Healthcare team members should complement MNT, providing guidance on healthy food choices for the individual and behavioral support

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Goals of Medical Nutrition Therapy – ADA Promote and support *individualized* healthful eating patterns

1. Support healthful eating patterns

- Emphasize eating a variety of nutrient dense foods in appropriate portions to:
 - Attain individualized BP, glycemic and lipid goals
 - Attain & maintain body wt goals
 - Delay &/or prevent complications

3. Maintain pleasure of eating.

- Provide positive, nonjudgmental messages about food
- Limit food choices only when backed by science

2. Individualize nutrition care based on:

- Personal & cultural preferences
- Health literacy & numeracy
- Access to healthful foods
- Willingness & ability to make behavioral changes
- Barriers to Change

4. Provide practical tools for developing healthful eating patterns

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Poll Question 1

Based on the 2025 ADA Standards of Care on nutrition therapy, which statement is most accurate?

- A. MNT provided by a RD/RDN is associated with an A1c decrease of 0.3 to 2.0%.
- B. A low carbohydrate, high protein diet is associated with increased risk of renal failure.
- C. With new type 2 diabetes, try to achieve A1c targets with MNT for 3 months then advancing to medication therapy.
- D. People with diabetes and hypertension have improved outcomes when they decrease sodium intake to less than 1,500 mg a day.



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ADA or ADCES Recognized Program

DSME & Medical Nutrition Therapy – What Medicare Covers

MNT

- ▶ 3 hours initial benefit in first calendar year
- ▶ 2 hours follow-up annually
- ▶ Billing Codes:
 - ▶ 97802- Initial
 - ▶ 97803- Follow-up

DSMES

- ▶ 10 hours initial benefit
 - ▶ 1 hour individual assess
 - ▶ 9 hours group (once in a lifetime)
- ▶ 2 hours follow-up annually (starts on Month 13 after first DSMES Bill)
- ▶ Billing Codes
 - ▶ G0108- 1:1
 - ▶ G0109 – Group (2-20 people)



Meeting with a RD can result in a 0.3-2% drop in A1C

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Keep it Person Centered

An individualized eating pattern & plan

- ▶ considers health status, skills, literacy, resources and environment
- ▶ Addresses individual nutrition needs based on: personal & cultural **preferences, access to food, willingness and barriers**



Long-term support needed from diabetes care team

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Poll Question 2

MB has newly diagnosed type 2 diabetes. BMI is 31, waist circumference is 41 and A1c is 7.3%. They want to learn how to adjust eating habits to help lower BG. Where would you start?

- A. Focus on the importance of counting carbs.
- B. Gently encourage avoiding junk food and sugary drinks
- C. Provide information for an ADA diabetic diet
- D. Ask about usual eating habits



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Healthy Eating Patterns/Approaches

Eating Patterns:

Total Foods Consumed

- ▶ Mediterranean Diet
- ▶ Plant based eating
- ▶ DASH (Dietary Approaches to Stop Hypertension)
- ▶ Low Carbohydrate

Eating Approach:

Tools for developing an eating pattern

- ▶ Diabetes Plate Method
- ▶ Carbohydrate Counting
- ▶ Individualized behavioral approaches



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Eating Patterns: Key Nutrition Principles

Until there is more evidence:

- ▶ Emphasize non-starchy vegetables in a rainbow of colors
- ▶ “Power carbs”: fruit, legumes, whole grains, nuts & seeds, lean proteins, low-fat dairy
- ▶ Minimize red meat, added sugars, sugary beverages, refined grains & ultra-processed foods



Any approach should consider:

Individual needs: “health status, personal & cultural preferences, ability to sustain recommendations, food access & nutrition security”

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Assess for Food Insecurity

- ▶ Any member of the health care team can screen for food insecurity using **The Hunger Vital Sign**.
- ▶ Households are considered at risk if they answer either or both of the following statements as “often true” or “sometimes true”



- ▶ “Within the past 12 months, we worried whether our food would run out before we got money to buy more.”
- ▶ “Within the past 12 months, the food we bought just didn’t last, and we didn’t have money to get more.”

<https://childrenshealthwatch.org/public-policy/hunger-vital-sign/>

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Healthy Lower Cost Foods

- ▶ Beans
- ▶ Lentils
- ▶ Frozen vegetable and fruits
- ▶ Canned veggies and fruit
- ▶ Milk
- ▶ Yogurt tubs
- ▶ Oatmeal
- ▶ Corn tortillas
- ▶ Salsa
- ▶ Fruits & Veggies in season
- ▶ Brown rice
- ▶ Pasta/ sauce
- ▶ Peanut butter
- ▶ Canned tuna
- ▶ Soups – homemade or canned
- ▶ Chili



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Fiber – the New “F” Word

- ▶ Goal: minimum
 - ▶ 14 gms / 1000 calories, ~ 30 gms a day
- ▶ How?
 - ▶ Avoid highly processed foods
 - ▶ Choose > 3 gm fiber per serving
 - ▶ Foods: Whole intact grains, legumes, fruits, veggies, nuts/seeds, avocados
- ▶ Why?
 - ▶ Lower all cause mortality
 - ▶ Reduced risk of T2DM
 - ▶ Increased microbiome diversity

Nutrition Facts

Serving Size 1 cup (236g)
Servings Per Container about 2

Amount Per Serving		% Daily Value*	
Calories	260	Calories from Fat 130	
Total Fat	14g		22%
Saturated Fat	5g		25%
Trans Fat	0g		
Cholesterol	35mg		12%
Sodium	990mg		41%
Total Carbohydrate	19g		6%
Dietary Fiber	3g		12%
Sugars	4g		
Protein	15g		29%
Vitamin A	10%	Vitamin C	0%
Calcium	4%	Iron	8%

*Percent Daily Values are based on a 2,000 calorie diet.

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Sodium, Vitamins and Fat

- ▶ Sodium – Limit to less than 2,300 mg a day (one tsp a day)
- ▶ Fat - same rec as general population (DGA)
 - ▶ HOW: limit red meat, full-fat dairy, butter and coconut oil. Choose fatty fish, olive, canola oil.
 - ▶ Mediterranean Diet, outcomes reduced CVD events – basic principles can be applied across patterns.
- ▶ Vitamin and mineral supplements not recommended -lack of evidence.
 - ▶ B12: Using Metformin, consider screening- provide supplementation if level is low



The type of fats consumed is more important than total amount of fat

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Supplements CHEAT Sheet



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Poll Question 3 - Person Centered

MR eats fast foods for lunch and notices that they have been feeling worse as a result. What response would support sustained behavior change?



- ▶ A. Do you think you could bring a packed lunch a few days a week?
- ▶ B. What about asking for burgers without the bun?
- ▶ C. Could you eliminate sodas?
- ▶ D. What change do you think you could start with?

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8. Obesity and Weight Management for Prevention & Treatment of Type 2 Diabetes

- ▶ Use person-first language
- ▶ *Be sensitive, allow for privacy and awareness of weight stigma experiences*
- ▶ Once a year, calculate BMI and assess weight trajectory to inform approach
 - ▶ Active in weight mgmt - weigh every 3 months

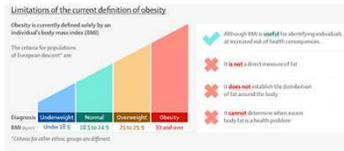


STANDARDS OF CARE | OCTOBER 15, 2024
 8. Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: Standards of Care in Diabetes-2025
 American Diabetes Association Professional Practice Committee

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Use of BMI

- ▶ WHO defines Obesity as: *abnormal or excessive fat accumulation that presents a risk to health*
- ▶ Dx obesity using :
 - ▶ BMI + distribution measures:
 - ▶ waist circumference, waist:hip, waist:height ratio & associated health consequences



THE UNITED DIABETES & ENDOCRINOLOGY COMMISSION | October 2024
 Definition and diagnostic criteria of clinical obesity

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Weighing and Respect

- ▶ Regard weight & BMI as sensitive health information
- ▶ Situate scales in a private area/room
- ▶ Measure & report weight nonjudgmentally
- ▶ If weighing is questioned or refused
 - ▶ Be mindful of possible prior stigmatizing experiences
 - ▶ Consider/discuss the value of weight monitoring
 - ▶ Is it needed to inform treatment decisions?



Paul RM, Hornsblom ML, Spright L. Weight Stigma and Diabetes: Stigma Implications for Weight-Related Health Behaviors in Adults With Type 2 Diabetes. Clin Diabetes. 2022 Jan;40(1):51-61. doi: 10.2337/1405-0071.

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Health Behavior Change: Shifting Focus

Health at Every Size (HAES) Principles

- ▶ Weight Inclusivity
- ▶ Health Enhancement
- ▶ Eating for Well-being
- ▶ Respectful Care
- ▶ Life-Enhancing Movement

"Lots of people are fat and fit—many avid dancers, runners, lifters, and sports team members are big to start with and stay that way. They tend to be far healthier than thin people who don't move around much or eat a nutritious mix of foods."

"People might think they can tell who's fit and who's not by looking at them, but in fact, it's trickier than that."

"Health at Every Size: The Surprising Truth About Your Weight." Bacon holds a Ph.D. in physiology with a focus on nutrition and weight regulation.

"Health at Every Size is about taking care of your body without worrying about whether you're 'too' big or small."

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Weight Loss is Helpful

3-7 % Wt Loss

Diabetes Mgmt Improves glycemia, BP, Lipids, intermediate CVD risk, reduce RX, Reduced progression to diabetes

↓

> 7% Wt Loss

Diabetes Prevention DPP weight loss goal is ≥ 7%, associated with reduced progression to diabetes

↓

> 10% Wt Loss

Diabetes Mgmt May lead T2DM remission, improved CVD & metabolic comorbidities & reduced mortality

Reduces need for medications

**Optimal goal is healthy weight maintenance:
Continue monitoring & support**



"For individuals with diabetes & overweight/obesity any magnitude of weight loss may benefit."

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Interested in Weight Loss?

- ▶ Ask Permission
 - ▶ Assess readiness/willingness to engage in changes for weight loss
- ▶ Use non-judgmental language
- ▶ Action-Based Goals
 - ▶ Use shared-decision making for weight-loss goals & intervention strategies
 - ▶ Strategies may include dietary changes, physical activity, behavioral therapy, pharmacologic therapy, medical devices, & metabolic surgery



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Poll question 4 – Get your calculator

JJ eats 2 snickers bars a day. Each snickers bar is 215 calories. JJ is committed to losing weight. If JJ stopped eating all snickers bars for two weeks, how much weight would JJ lose?

- a. 1.7 pounds
- b. .86 pounds
- c. 2.4 pounds
- d. 1.7 kgs



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How to Achieve Weight Loss?

- ▶ Individualized plan - consider health disparities
- ▶ Intensive interventions = ≥ 16 within 6 months
- ▶ Energy deficit + enhanced activity + behavior therapy
 - ▶ Goal: 500 -750 kcal/day energy deficit
 - ▶ (3,500 kcals = 1 pound)



What is 500 kcals?

1 Large Fry, 1 Double Cheeseburger, 1 King Size Snickers, 1 bagel w/ cream cheese, 4 oz tortilla chips, ~ 3 cans sodas

5 apples, 2 sweet potatoes, 5 eggs, 2 cups of beans, 1 cup almonds

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Weight Loss/Maintenance Strategies

- ▶ Weekly self-weighing/tracking
- ▶ Structured programs
- ▶ Increase physical activity
 - ▶ 200-300 minutes/week
- ▶ Alter macronutrients
- ▶ Use meal replacements
- ▶ Eat “healthy” foods
- ▶ Drink Water
- ▶ Get Sleep, Consider Chrononutrition
- ▶ Consider Incretin or metabolic surgery



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Metabolic (Bariatric) Surgery

- ▶ Consider for adults with:
 - ▶ BMI >30 (> 27.5 for Asian Americans) who are otherwise good surgical candidates
- ▶ Perform at high volume center with an experienced team
- ▶ Need lifelong medical & behavioral support & monitoring
- ▶ Screen psychological & behavioral health prior to & ongoing
- ▶ Monitor for post surgery hypoglycemia



8. Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: Standards of Care in Diabetes-2023 400
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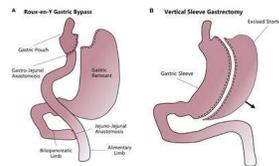
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Metabolic Surgery Benefits

More likely to have remission*:

- ▶ Younger age, duration of diabetes (< 8 yrs), no pre-surgical insulin, greater visceral fat to lose (Asian Americans)
- ▶ **Year 5 Remission: 86.1% (VGS) & 83.5% (RYGB)**
- ▶ 35 – 50% re-developed diabetes
- ▶ Average remission time 8.3 years
 - ▶ Majority maintain improved glycemia for 5-15 years

*complete remission = A1c levels <6.0% without meds

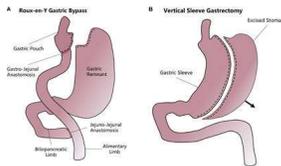


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Metabolic Surgery Benefits

- ▶ Superior glycemic mgmt & CVD risk reduction for people w/T2DM & Obesity compared to non-surgical interventions.
 - ▶ reduces microvascular disease
 - ▶ Improves quality of life
 - ▶ cancer risk reduction
 - ▶ Improved MASH
 - ▶ All cause mortality



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Wt Loss Pharmacotherapy & Diabetes

- ▶ BMI \geq 27 + Diabetes
 - ▶ Weight loss meds may be effective + lifestyle
 - ▶ Assess benefit vs risk
- ▶ Minimize medications that cause wt gain:
 - ▶ Diabetes: sulfonylureas, insulin, TZDs
 - ▶ Co-morbidities: steroids, atypical antipsychotics, some antidepressants, b-blockers, etc.
- ▶ If wt loss < 5% at 3 months, re-assess
- ▶ If > 5% consider long term use
 - ▶ Exception: phentermine
 - ▶ Stopping GLP1/Dual RA shows regain of 50-75 % wt lost



4. Quality and Weight Management for the Prevention and Treatment of Type 2 Diabetes
Standards of Care in Diabetes—2025

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GLP-1 RAs Approved for Weight Loss

- ▶ **Liraglutide**
 - ▶ Victoza 1.8 mg (diabetes)
 - ▶ Saxenda 3 mg (wt loss)
 - ▶ 6% wt loss (3.0 mg), \$1077/month*
 - ▶ **Semaglutide**
 - ▶ Ozempic 2 mg (diabetes)
 - ▶ Wegovy 2.4 mg (wt loss)
 - ▶ 9.6% wt loss (2.4 mg), \$933/month*
 - ▶ **Tirzepatide (GLP/GIP)**
 - ▶ Mounjaro 15 mg (diabetes)
 - ▶ Zepbound 15 mg (wt loss)
 - ▶ 15% wt loss (15 mg), \$1030/month
- Approved for use in adults with a:
- ▶ BMI of \geq 30 or
 - ▶ BMI of \geq 27 or greater who have hypertension, type 2 diabetes, or dyslipidemia

*NADAC

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3. Pharmacologic Approaches to Glycemic Treatment: Standards of Care in Diabetes—2025

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Assessing Malnutrition

- ▶ At Risks Groups:
 - ▶ Individuals on GLP-1 or GIP RA or s/p metabolic surgery
 - ▶ Individuals with multiple chronic conditions
 - ▶ Older age groups
 - ▶ Food insecurity and poverty
- ▶ Screen:
 - ▶ For malnutrition and sarcopenia
 - ▶ If > 20% wt loss or > 4 kg/month

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Incretin Therapy: Nutrition Strategies

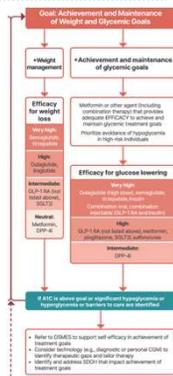
Adverse Effect	Nutrition Intervention
Prevent Malnutrition & Sarcopenia	Sufficient protein (min. 60 gm, up to 1.2-1.5 gm/kg), Nutrient-dense foods eating pattern to support needs Encourage resistance training
Nausea	Small frequent meals Limit high fat foods Stay hydrated, limit carbonation
Constipation	Fiber, Fluids & Movement Consider stool softener as needed.
Diarrhea	Fiber & Fluids Limit sugar alcohols, coffee, dairy, alcohol and carbonation

Incretin-Based Therapies and Lifestyle Interventions: The Evolving Role of Registered Dietitian Nutritionists in Obesity Care
Gigliotti, Linda et al. Journal of the Academy of Nutrition and Dietetics

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Treatment Options DM + Weight Goals

1. Set individualized goals
2. Consider options through shared decision making
3. If BMI ≥ 27 can consider medications. Consider those with highest efficacy
4. If BMI ≥ 30 with co-morbidities can consider metabolic surgery.

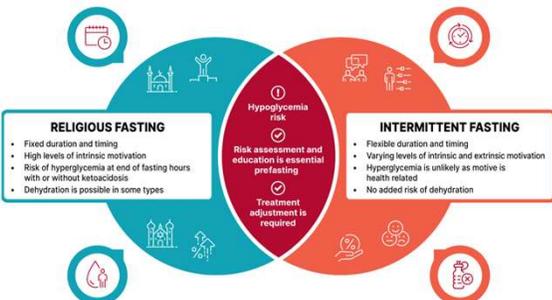


REVISIONS TO CARE | NOVEMBER 2022
9. Pharmacologic Approaches to Glycemic Treatment: Standards of Care in Diabetes—2022

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Fasting

Religious and Intermittent Fasting: Differences and Similarities



Diabetes Care. 2024;48(Supplement_1):S86-S127. doi:10.2337/dc25-S005

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Intermittent Fasting

Results

- ▶ Each produces mild to moderate weight loss of 3–8% loss from baseline over short durations (8–12 weeks)
- ▶ No significant differences in weight loss, waist cir. when compared with continuous calorie restriction.
- ▶ Longer term studies needed

3 overall approaches

- Alternate-day fasting
 - 500–600 calories on alternating days
- 5:2 diet
 - 500–600 calories on two days with usual intake the other five
- Time-restricted eating
 - Daily calorie restriction based on 8-15 hour window of time

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Poll question 5

- ▶ JM has type 1 diabetes, teaches aerobics. BMI was 17 and Fasting BG 312-380s at last visit. Which is most important intervention to improve diabetes management?

- Eat a 15 gm carb snack before teaching class.
- Acknowledge this hyperglycemia signifies end of honeymoon period
- Increase basal insulin dose
- Consider referral to mental health professional



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Disordered Eating

- ▶ For people with type 1
 - ▶ insulin omission causing glycosuria to lose weight is the most reported disordered eating behavior.
 - ▶ Have high rates of diabetes distress and fear
- ▶ For people with type 2
 - ▶ bingeing episodes with an accompanying sense of loss of control most reported.
 - ▶ If treated with insulin, intentional omission is also frequently reported.



People with diabetes and diagnosable eating disorders have high rates of other psychiatric disorders

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Poll Question 6

AJ is a 9-year-old with type 1 diabetes, A1c of 7.2%, uses an insulin pump and CGM. They ask you how to best work in a piece of birthday cake for an upcoming birthday celebration. What is the best advice?



- A. Take additional bolus insulin to cover the extra carbs.
- B. Accept the cake but don't actually eat it.
- C. Increase their daytime basal insulin to prevent hyperglycemia.
- D. Skip the previous meal to allow for the extra cake carbs.

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Healthy Eating Patterns

- ▶ Carb-Restricted
- ▶ Mediterranean Diet
- ▶ Plant-based eating
- ▶ Vegetarian
- ▶ DASH (Dietary Approaches to Stop Hypertension)
- ▶ Structured low-calorie



Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report
© 2019 American Diabetes Association. All rights reserved. For more information, visit <https://doi.org/10.2337/191190>.
Consensus Report: Nutrition Therapy for Adults With Diabetes or Prediabetes
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Carbohydrate-Restricted Pattern

- ▶ Reduced carb intake has significant evidence for improved glycemia
- ▶ **Low Carb Definitions**
 - ▶ Very Low = < 26% of kcals
 - ▶ Ketogenic: 20-50 gm carb, high fat
 - ▶ Most people consume 44-46% of kcals from Carb
- ▶ **HOW:** Focus on key nutrition principles, food quality, & choose minimally processed foods, high fiber



Systematic reviews and RCT found:
- Very low carbohydrate diet effectively reduced A1c at 6 months, less difference beyond 1 year.
- Ketogenic Diet increased LDL & no sig. difference in A1c compared with low-carb Mediterranean diet.

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Very Low Carb Meal Plan Not Recommended for:

- ▶ Women who are pregnant or lactating or children
- ▶ People with or at risk for disordered eating
- ▶ People who have kidney disease
- ▶ Avoid ketogenic diets if taking SGLT-2 Inhibitor due to high risk of ketoacidosis
 - ▶ Educate on prevention, signs of DKA, how to measure ketones



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Mediterranean Pattern

- ▶ **Emphasizes** vegetables, fruits, whole grains, beans/legumes
- ▶ **Includes** low-fat/non-fat dairy, fish, poultry, oils, nuts
- ▶ **Limits** highly processed foods/refined carbohydrates, added sugars, sugar-sweetened beverages, sodium, saturated fats, high fat/process meats

Find Recipes:



Meal Planning Tips:

<https://www.diabetesfoodhub.org/articles/meal-planning-for-a-mediterranean-style-eating-pattern.html>



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Plant-based, Vegetarian or Vegan Diet Patterns

Plan Your Portions

Use a smaller plate. This is a 9-inch plate to help guide you.

© 2015 American Diabetes Association

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Dietary Approaches to Stop Hypertension (DASH)

Key Components:

- Fruits, Vegetables & Whole Grains: Rich in fiber, potassium, & magnesium
- Lean Protein Sources: Such as poultry, fish, & beans
- ▶ Low-Fat Dairy Products
- ▶ Healthy Fats: From sources like nuts, seeds, & vegetable oils



Potential benefits:
reduced risk of diabetes, wt loss, lowered BP

Limits:

- ▶ Saturated fat. Added Sugars. Processed Meat. High Sodium Foods.

Nutrition Therapy for Adults With Diabetes or Prediabetes, A Consensus Report
© 2019 American Diabetes Association. Diabetes Care 42(12):e182-e191. DOI: 10.2337/dci.180000

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Very Low- Calorie Diets: 800-1000 kcals/day

- ▶ Uses high protein foods, meal replacements
- ▶ Small studies demonstrated in T2DM & obesity
 - ▶ Increased rate of wt loss & A1c reduction
- ▶ Monitor Closely:
 - ▶ Electrolyte abnormalities, severe fatigue, cardiac arrhythmias, etc.
 - ▶ Weight regain more likely than with lifestyle



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Standards of Care in Diabetes-2023

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USDA MyPlate.gov

Make Every Bit Count

- ▶ Eat a variety of fruits, vegetables, grains, protein foods, dairy/fortified soy alternatives

Foods to Increase

- ▶ Make half your plate fruits and vegetables.
- ▶ Make at least half your grains whole grains.
- ▶ Move to low-fat or fat-free dairy milk or yogurt (or lactose-free dairy or fortified soy versions)
- ▶ Vary your protein



Foods to Reduce

- ▶ Added sugars, saturated fat, and sodium
- ▶ Check packaged foods that have less or no added sugar
- ▶ Choose plain water/sparkling water with a squeeze of fruit

Tools: Myplate-Kitchen, Shop Simple with MyPlate

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Eating Approaches

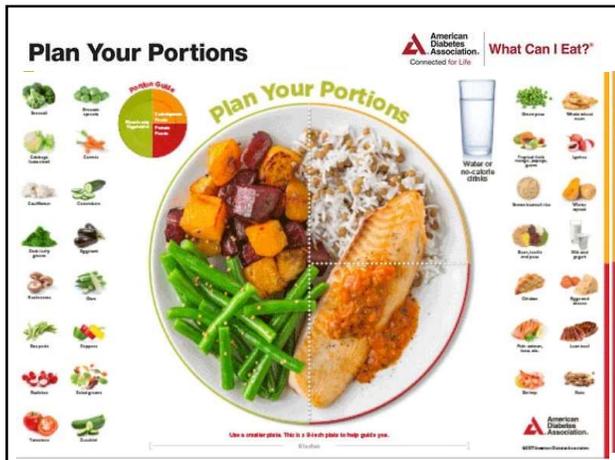
Tools for developing an eating pattern

- ▶ Diabetes Plate Method
- ▶ Individualized behavioral approaches
- ▶ Carbohydrate Choice
- ▶ Carbohydrate Counting



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 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes—2025

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More Nutrition Behaviors

Cook with

- herbs and spices
- onions, garlic, celery, carrots and other vegetables
- vegetable oils instead of butter, shortening, lard

Meal Prep

- plan meals & grocery lists

Include Family with Meal Planning/Prep

- Gain support

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Carb Management Strategies

- ▶ No ideal amount of daily carb intake
- ▶ Monitoring Carb Intake is a key strategy for glycemic management in T1DM & T2DM
- ▶ Educate individuals taking prandial insulin:
 - ▶ relationship of carb intake & insulin needs to promote post meal blood glucose mgmt.
 - ▶ Using Insulin to Carbohydrate Ratios

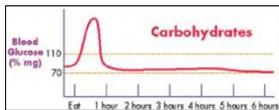


- Starch
- Fruit
- Milk
- Desserts

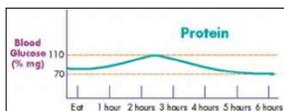
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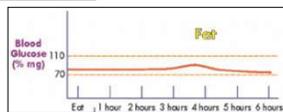
How Nutrients Affect Blood Sugar



Fixed-Dose Insulin Regimen:
Rec Consistent Carb Plan



If type 1/MDI, may need additional or change in insulin amount for high fat / protein meals



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Estimating Carbohydrate for Meals Example (Not ADA Standard)

	Grams	Servings
Each Meal	45-60 gm	3 - 4
Snacks	15-30 gm	1- 2



Carbs affect Post-Meal Glucose
RDA – at least 130 grams of Carb a day
PWD get about 45% of Cals from carbs

Calories	20%	30%	40%	50%
1500	75 g	113 g	150 g	188 g
2000	100 g	150 g	200 g	250 g

Nutrition Therapy for Adults With
Diabetes or Prediabetes:
A Consensus Report

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Poll Question 7

SC can't figure out why their BG always spikes after breakfast. How many grams of carb is in the following breakfast using the exchange list? 1 cup of plain oatmeal, 1/2 cup of milk, 2 Tbsp raisins, and 2 eggs with salsa?



- a. 57 gms
- b. 36 gms
- c. 51 gms
- d. 37 gms



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Diabetes Choose Your Foods Lists

The Diabetic Exchange List

	Carbohydrate (grams)	Protein (grams)	Fat (grams)	Calories
I. Starch/Bread	15	3	trace	80
II. Meat				
Very Lean	-	7	0.1	35
Lean	-	7	3	55
Medium-Fat	-	7	5	75
High-Fat	-	7	8	100
III. Vegetable	5	2	-	25
IV. Fruit	15	-	-	60
V. Milk				
Skim	12	8	0.3	90
Low-fat	12	8	5	120
Whole	12	8	8	150
VI. Fat	-	-	5	45

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Carb Counting - Starch

**Each Food has:
80 Calories
15 grams carb**

- 1/2 cup cooked beans
- 1 small ear of corn or 1/2 cup corn
- 1 slice bread
- 1/3 cup cooked pasta
- 3/4 cup cold cereal
- 1/3 cup cooked rice
- 1 small potato
- 6" tortilla
- 6" roti
- 5-6 small crackers
- 1/2 English muffin

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Carb Counting- Fruit

**Each Food has:
60 Calories
15 grams carb**

- 1 small fresh fruit
- 1/2 cup fruit juice
- 1/2 banana, 4"
- 1/2 cup unsweetened apple sauce
- 17 small grapes
- 1 cup melon
- 1/4 cup dried fruit
- 2 tbsp raisins
- 1 1/4 cup strawberries

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~ 1 in 10 meet Fruit & Vegetable Recommendations

US Adults:

- 12.3% met fruit recommendation**
 - Highest among Hispanic adults (16.4%) and lowest among males (10.1%)
- 10.0% met vegetable recommendation**
 - Highest among adults ≥51 yrs (12.5%) and lowest among adults with low income (6.8%)

Source: USDA, Economic Research Service using data from USDA, National Research Service and US Department of Health and Human Services 2017-18 What We Eat in America, National Health and Nutrition Examination Survey. Dietary Consumption based on Dietary Guidelines for Americans 2020-25. <https://www.ers.usda.gov/pubs/err2020/15/>

Lee SH, Moore LV, Park S, Harris DM, Blanck HM. Adults Meeting Fruit and Vegetable Intake Recommendations — United States, 2019. *MMWR: Morbidity and Mortality Weekly Report* 2022;71:1-9. DOI: <https://doi.org/10.15585/mmwr.mm7115a1a.electronic>

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Carb Counting - Milk

**Each Food has:
100-160 calories
12 grams carb**

- 1 packet sugar-free hot cocoa
- 8 oz buttermilk
- 6 oz low-fat plain yogurt
- 8 oz milk
- 8 oz rice milk, plain
- 8 oz soy milk, plain
- 6 oz light, no added sugar fruit yogurt

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Carb Counting - Sweets

**Each Food has:
Calories vary
15 grams carb**

- 2-inch square cake or brownie, unfrosted
- 1/2 cup sugar-free pudding
- 1/2 cup regular jello
- 2 tsp light syrup
- 2 small cookies
- 1/2 cup ice cream or frozen yogurt
- 1 oz trail mix with fruit
- 1 tbsp syrup, jam, jelly, table sugar, honey
- 1/4 cup sorbet

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Poll Question 8

JR has type 2 diabetes and is trying to lose weight by eating less and moving more. JR asks your advice about drinking diet sodas. Based on the recommendations in the ADA Standards of Care, what is the best the response?

?

- Sodas that contain non-nutritive sweeteners help with weight loss and increase sugar cravings.
- Try to decrease intake of beverages with non-nutritive sweeteners and increase water intake.
- Drinking beverages with non-nutritive sweeteners is better than drinking sugary beverages.
- Research has found that drinking beverages with nonnutritive sweeteners decreases diabetes risk.

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Non-Nutritive Sweeteners

- ▶ Use in moderation & short term to reduce overall kcals /carb
- ▶ Encourage decrease in both sweetened (SSB) & non-nutritive sweetened (NNS) beverages
- ▶ NNS may be acceptable for those transitioning from SSB
- ▶ Emphasize water intake

How: add lemon, lime, or cucumber slices to water, choose no calorie waters



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<https://www.fda.gov/food/food-additives-petitions/aspartame-and-other-sweeteners-food>

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Caloric Sweeteners

- ▶ Nutritive sweeteners (sucrose and fructose)
 - ▶ No specific ADA limit for added sugars
 - ▶ When substituted isocalorically with other carbs, no significant affect on A1c.
 - ▶ **Strongly discourage added sugars as this can displace healthier, more nutrient-dense foods.**
 - ▶ Fructose as sweetener not recommended since may adversely affect lipids. Naturally occurring fructose okay.



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Reduced Caloric Sweeteners

- ▶ Sugar alcohols
 - ▶ Not completely absorbed, so less calories
 - ▶ Unpleasant side effects, diarrhea, bloating and gas
 - ▶ Examples: Sorbitol, maltitol, erythritol, isomalt, xylitol, lactitol, mannitol, tagatose
 - ▶ Carb Count: Estimate that ½ of the sugar alcohols will impact glucose. Subtract ½ from the total amount of carbohydrates
- ▶ Allulose
 - ▶ Contributes few calories, produces negligible increases in blood glucose and insulin levels, does not promote dental decay
 - ▶ Carb Count: Included in total carbohydrates but not total sugars. Subtract all grams from total carbohydrates on the food labels. Calories = 0.4 kcals/gram

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Poll Question 9

You are teaching label reading. If a person ate 4 servings of this Macaroni and Cheese, how much saturated fat would they be eating?

- a. 32 gms
- b. 40%
- c. 2 2/3 cup
- d. 4 gms



Nutrition Facts	
1	8 servings per container Serving size 2/3 cup (55g)
2	Amount per serving Calories 230
% Daily Value*	
3	Total Fat 8g 10% Saturated Fat 1g 5% Trans Fat 0g
	Cholesterol 0mg 0% Sodium 160mg 7%
	Total Carbohydrate 37g 13% Dietary Fiber 4g 14% Total Sugars 12g
4	Includes 10g Added Sugars 20%
	Protein 3g
5	Vitamin D 2mcg 10% Calcium 200mg 15% Iron 8mg 45% Potassium 235mg 6%
6	*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

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Poll Question 10

You are teaching about fat intake. If a person ate 2 servings of this Macaroni and Cheese, how many calories would come from total fat?

- a. 16 gms
- b. 144 kcals
- c. 460 kcals
- d. 20%

Nutrition Facts	
1	8 servings per container Serving size 2/3 cup (55g)
2	Amount per serving Calories 230
% Daily Value*	
3	Total Fat 8g 10% Saturated Fat 1g 5% Trans Fat 0g
	Cholesterol 0mg 0% Sodium 160mg 7%
	Total Carbohydrate 37g 13% Dietary Fiber 4g 14% Total Sugars 12g
4	Includes 10g Added Sugars 20%
	Protein 3g
5	Vitamin D 2mcg 10% Calcium 200mg 15% Iron 8mg 45% Potassium 235mg 6%
6	*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

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Fats- 9 calories per gram

▶ Monounsaturated - healthy

- Olive & canola oils, Nuts, Avocado
- Lowers total cholesterol and LDL
- Raise HDL, high in omega 3 fatty acids

▶ Polyunsaturated – healthy

- corn, walnut, safflower, soybean, avocado
- Lowers total cholesterol and LDL

▶ Saturated fats (unhealthy)

- Animal products – meat, chicken, pork, fish, skin, cheese, butter, dairy
- Plant products include- palm, coconut, palm kernel oil
- Solid at room temp

Serving sizes

- 1 tsp butter, margarine, oil, mayonnaise
- 1 Tbsp salad dressing, cream cheese, seeds
- 2 Tbsp avocado, cream, sour cream
- 1 slice bacon



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Fat –ADA Standards of Care

- ▶ No optimal amount of total fat for people with/at risk of diabetes
 - ▶ **Goals should be individualized** for eating pattern, preferences & metabolic goals
 - ▶ **Type of fat more important** than quantity
 - ▶ Limit intake of saturated fat for CVD & liver health
- ▶ Mediterranean like Patterns
 - ▶ RCT shows improved A1c & Lipids
- ▶ Follow guidelines for general population:
 - ▶ Amount of dietary saturated fat, dietary cholesterol, & trans fat



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Protein – 4 cal per gram

- Choose lean protein
 - Encourage plant sources- beans, lentils, nuts
 - Lean Animal Based Options:
 - Poultry, fish, egg, lean beef
 - Low fat cheese- cottage cheese, mozzarella cheese
- Limit high fat protein
 - Bacon & sausage
 - High fat cuts of beef
 - Whole milk cheese
- Serving size
 - 1 oz = ¼ cup
 - 3 oz = deck of cards



ADA Standards of Care, Amount of Protein: Inconclusive.
Typically consumed: 1-1.5 gm/kg (15-20% of total kcals)

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Protein and Kidney Disease

- ▶ Individualize based on eating pattern
 - ▶ RDA: 0.8 gm/kg/day
 - ▶ Reducing below this not recommended – does not improve BG, CVD or slow kidney disease progression
- ▶ Increase plant-based sources



Higher plant protein intake is associated with lower risk of all-cause and CVD mortality
Women's Health Initiative cohort study

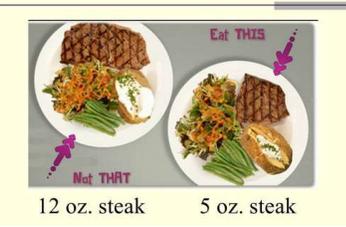
Do not use protein foods to treat hypoglycemia for type 2 (can enhance insulin release)

STANDARDS OF CARE | 2023 EDITION | 2023
11. Chronic Kidney Disease and Risk Management Standards of Care in Diabetes—2023

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Poll Question 11

What does a serving size ~~TooK~~ like?



12 oz. steak 5 oz. steak

Avg person needs about 60gms a day
5 ounces steak is ~35gms

MJ is on an insulin pump and takes 1 unit of insulin for every 15 gms of carb. For this meal with 5 ounces of steak, MJ bolused 3 units of insulin to cover carbs. What might MJ expect to happen 3 hours later?

- A. Glucose spike
- B. Hypoglycemia
- C. BG on target
- D. Need for more carbs

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Poll Question 12

JL is 19 and has type 1 diabetes, drinks a “few beers” on the weekends with their college friends. JL uses an insulin pump, but mostly relies on BG monitoring. According to their log, JL has had a few low blood glucose levels over the past weekend of 62, 49 and 51. What is the most important recommendation?



- ▶ A. Check BG at least 4 times a day when drinking.
- ▶ B. Get glucagon rescue medication.
- ▶ C. Make sure to eat carbs when drinking to avoid low blood glucose levels.
- ▶ D. Decrease or stop alcohol intake.

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Consuming Alcohol Safely

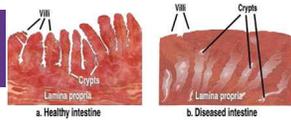
- ▶ No benefit for those who do not drink
- ▶ To reduce risk of harm: consume in moderation & with food
 - ▶ Women: < 1 drink per day
 - ▶ Men: < 2 drinks a day
- ▶ Risks:
 - ▶ hypoglycemia, weight gain, hyperglycemia, may worsen neuropathy



*1 drink equals:
12 oz beer, 5 oz glass of
wine, or 1.5 oz distilled
spirits (vodka, gin etc)*

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Celiac Disease:



Type 1 – Affects ~6 %

▶ Immune reaction to gluten

- ▶ affects function of villi in intestine, decreasing nutrient absorption

▶ Signs and Symptoms:

- ▶ Diarrhea, malabsorption/fatty stools, abd bloating or pain, wt loss, muscle tenderness, failure to thrive, signs of deficiencies

▶ Screen

- ▶ youth with type 1 at diagnosis, within 2 years, & after 5 years or more
- ▶ Adults with diabetes if + symptoms or signs of nutrient deficiencies

▶ Diagnosis

- ▶ check IgA tissue transglutaminase (tTG) antibodies or IgG tTG & deamidated gliadin antibodies, if IgA is deficient

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Treatment – Gluten Free for Life

Treatment: Reduces symptoms and hypoglycemia



Avoid Gluten:

- ▶ Barley
- ▶ Rye
- ▶ Oats (cross-contaminated)
- ▶ Wheat (einkorn, durum, faro, graham, kamut, semolina, spelt)
- ▶ Refer to RDN

“BROW”

ASSOCIATED AUTOIMMUNE DISORDERS

- ▶ Insulin-dependent Type 1 Diabetes Mellitus, Liver diseases, Thyroid Disease-Hashimoto's Thyroiditis, Lupus (SLE), Addison's Disease, Chronic Active Hepatitis, Rheumatoid Arthritis

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Poll question 13

John has gastroparesis and is struggling with bloating and nausea after meals. What is the best recommendation?

- a. Eat low fiber, small meals
- b. Eat raw vegetables and limit fruit
- c. Always take insulin after meals
- d. Avoid foods containing wheat



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Gastroparesis



- ▶ Gastroparesis: affects 20 – 30% of people w/ longstanding diabetes
- ▶ Delayed emptying of stomach contents due to nerve damage
- ▶ S/S: early satiety, fullness, postprandial hypo, vomiting
- ▶ Diagnosis: gastric emptying studies
- ▶ Treatment: Improves BG & GI symptoms
- ▶ Diet: smaller frequent meals, small food particle size/liquids, low-fat, low fiber
- ▶ Address nutritional and fluid deficiencies
- ▶ Meds: Prokinetics, Antiemetic drugs, TCAs

Nutrition Therapy for Adults With Diabetes or Prediabetes, A Consensus Report
American Diabetes Association
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Last Note – Facts to Know

- ▶ Fat - 9 cal per gm
- ▶ Carb – 4 cal per gm
- ▶ Protein – 4 cal per gm
- ▶ Alcohol - 7 cal per gm
- ▶ Common food carb count
- ▶ Milk is 12 gms of carb
- ▶ Alcohol serving sizes
- ▶ 1 lb = 3,500 cal
- ▶ 7,500 to 10,000 steps recommended a day
- ▶ 2000 steps = 1 mile



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DiabetesEd Mastery Series Schedule

Diabetes Mastery & Cert Readiness 2025 Webinar Updates

2024 WEBINARS RECORDED & READY TO WATCH UPON ENROLLMENT

All Courses Begin at 11:30 am PST

- Feb. 6, 2025 | Class 1: Diabetes | Not Just Hyperglycemia | 1.75 CEs
- Feb. 11, 2025 | Class 2: Standards of Care & Cardiovascular Goals | 1.8 CEs
- Feb. 13, 2025 | Class 3: Meds for Type 2 | What you need to know | 1.75 CEs
- Feb. 18, 2025 | Class 4: Insulin Therapy | From Basal/Bolus to Pattern Management | 1.75 CEs
- Feb. 20, 2025 | Class 5: Insulin Intensive & Risk Reduction | Monitoring, Sick Days, Lower Extremities | 1.75 CEs
- Feb. 25, 2025 | Class 6: Medical Nutrition Therapy | 1.75 CEs
- Feb. 27, 2025 | Class 7: Microvascular Complications & Exercise | Screen, Prevent, Treat | 1.75 CEs
- Mar. 3, 2025 | Class 8: Coping & Behavior Change | 1.75 CEs
- Mar. 5, 2025 | Class 9: Test-Taking Coach Session (75+ Practice Questions) | No CE

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Thank You



- ▶ Questions?
- ▶ Info@DiabetesEd.net
- ▶ 530-893-8635
- ▶ We are here to help.

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