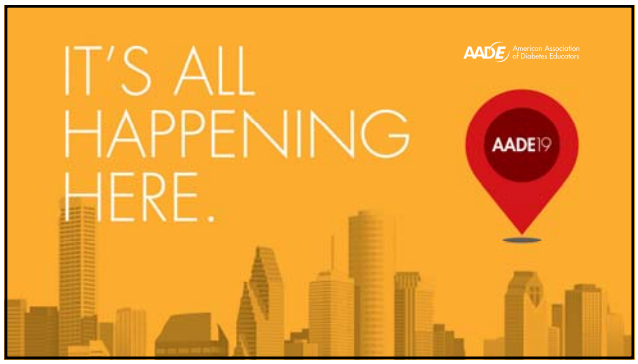

1

Navigating the Real World of Eating Plans – Beyond Carb Counting

AADE19
August 9, 2019
3:15 – 4:15 p.m.

#AADE19

2

Patti Urbanski
MEd, RD, LD, CDE
Diabetes Educator/Clinical Dietitian

St. Luke's Diabetes Care
Duluth, MN

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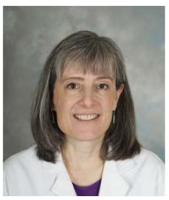
3



Alison Evert

MS, RD, LD, CDE
Manager, Nutrition and Diabetes Programs

UW Medicine – UW Neighborhood Clinics
Seattle, WA

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4

Disclosure to Participants

- 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: Patti Urbanski, MEd, RD, LD, CDE – Stockholder, Medtronic Diabetes; Consultant, Abbott Diabetes Care
  - Presenter: Alison Evert, MS, RD, CDE – Consultant, Abbott Diabetes Care
- Non-Endorsement of Products:
  - Accredited status does not imply endorsement by AADE, ANCC, ACPE or CDR of any commercial products displayed in conjunction with this educational activity
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  - 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

At the conclusion of this presentation learners will be able to:

- Discuss different eating patterns that may be used for the management of diabetes.
- Discuss strategies for evaluating eating plans for diabetes.
- Outline strategies for discussing low carbohydrate, ketogenic and intermittent fasting eating plans for diabetes management.

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6

How Are Nutrition Recommendations Developed?

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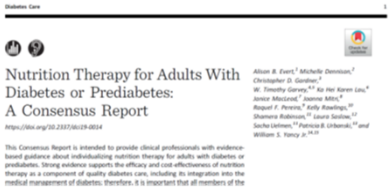
7

ADA Nutrition Consensus Report

Alison B. Evert
Michelle Dennison
Christopher D. Gardner
W. Timothy Garvey
Ka Hei Karen Lau
Janice MacLeod
Joanna Mitri
Raquel F. Pereira
Kelly Rawlings
Shamera Robinson
Laura Saslow
Sacha Uelmen
Patricia B. Urbanski
William S. Yancy Jr.



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

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8

Must have bookmarked pages for all diabetes educators!

- ADA Practice Guideline Resources: https://professional.diabetes.org/content-page/practice-guidelines-resources
- Nutrition Consensus Report: http://care.diabetesjournals.org/content/early/2019/04/10/dci19-0014
- ADA SOC Lifestyle Section: http://care.diabetesjournals.org/content/42/Supplement_1/S46

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9

Eating Pattern Options for Diabetes

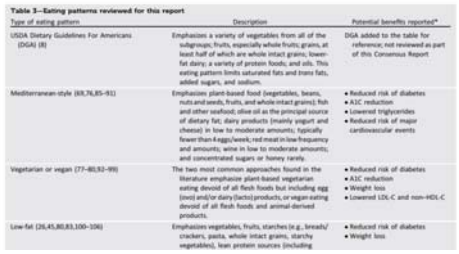

Table 3—Eating patterns reviewed for this report

Type of eating pattern	Description	Potential benefits reported*
USDA Dietary Guidelines For Americans (DGA) (8)	Emphasizes a variety of vegetables from all of the subgroups; fruits, especially whole fruits; grains, at least half of which are whole intact grains; lower-fat dairy; a variety of protein foods; and oils. This eating pattern limits saturated fats and trans fats, added sugars, and sodium.	DGA added to the table for reference; not reviewed as part of this Consensus Report
Mediterranean-style (83,76,85–91)	Emphasizes plant-based food (vegetables, beans, nuts and seeds, fruits, and whole intact grains); fish and other seafood; olive oil as the principal source of dietary fat; dairy products (mainly yogurt and cheese) in low to moderate amounts; typically fewer than 4 eggs/week; red meat in low frequency and amounts; wine in low to moderate amounts; and concentrated sugars or honey rarely.	• Reduced risk of diabetes • A1C reduction • Lowered triglycerides • Reduced risk of major cardiovascular events
Vegetarian or vegan (77–80,92–99)	The two most common approaches found in the literature emphasize plant-based vegetarian eating devoid of all flesh foods but including egg (ovo) and/or dairy (lacto) products, or vegan eating devoid of all flesh foods and animal-derived products.	• Reduced risk of diabetes • A1C reduction • Weight loss • Lowered LDL-C and non-HDL-C
Low-fat (26,45,80,83,100–106)	Emphasizes vegetables, fruits, starches (e.g., breads/crackers, pasta, whole intact grains, starchy vegetables), lean protein sources (including	• Reduced risk of diabetes • Weight loss

Evert AB et al. Diabetes Care. 2019;42 (5):731-754

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Case Studies

What do I do when a patient wants to follow a certain eating plan?

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Wade wants help with an eating plan

- 56 YO M, newly-diagnosed T2D during Merchant Marine physical
- PMH includes HTN, hyperlipidemia, predb for past 3 years
- BMI 32.1, A1c 8.1%, BP 156/88, cholesterol labs WNL, triglycerides 391
- Owns a construction company, works long hours, lives with his wife

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Wade, continued

- Has already purchased elliptical machine and joined fitness club
- Over the past week has eliminated almost all CHO in his eating
  - Low CHO protein shake for breakfast and lunch
  - Meat and vegetables for dinner
  - Eliminated 5 to 6 craft beers per night

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Wade, some more

- Has initiated metformin 1000 mg daily, will increase to 1000 mg BID in 1 week
- Wade hates taking medications
- He wants to follow a very low carb diet and be able to stop metformin

What would you discuss with Wade?

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Joan wants help with an eating plan too

- 57 year old female; single; BMI: 35; HTN; newly diagnosed with T2D, A1C 9.8%
- Anti-hyperglycemic agents: just started - glimiperide 4 mg q am, metformin 1000 mg BID
- Blood Pressure medications: HCTZ and just started ACE inhibitor

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What would you discuss with Joan?

- Makes it very clear – she doesn't want to count calories or spend time meal planning
- Doesn't ever eat breakfast, rarely eats lunch
- Asking your advice on intermittent fasting weight loss program she read about online

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Eating Plans: Diabetes & Prediabetes





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Mediterranean-style

- Emphasizes
  - Plant-based foods
  - Fish, seafood
  - Olive oil
  - Yogurt/cheese in low to moderate amounts
  - Typically fewer than 4 eggs per week
  - Rare red meats, concentrated sugars, honey
  - Low to moderate amounts of wine

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Evidence to support Mediterranean eating plan

- Mixed effect on A1c, weight and lipids in 6 RCTs, reduced Db risk[1]
- Lowest A1c seen with Mediterranean, low CHO eating plan (28% energy from CHO) vs Med, kcal restricted or low fat, kcal restricted plans[2]
- No type 1 diabetes trials met inclusion criteria

[1]Evert AB et al. Diabetes Care 2019;42 (5):731-754
[2]Shai I et al. N Engl J Med 2008; 359:229-241

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Vegetarian/vegan eating plans

- Devoid of all flesh foods
- May include dairy (lacto) and egg (ovo) products
- Vegan: Devoid of all flesh foods and animal-derived products

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Evidence to support Vegetarian/Vegan eating plans

- 6 type 2 diabetes studies, duration 12 to 74 weeks: mixed results for glycemia and CVD risk
- Most studies reported weight loss

Evert AB et al. Diabetes Care 2019;42 (5):731-754

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Vegetarian/Vegan evidence, continued

- 2 meta-analyses (T2 DM)
  - A1c decreased 0.3 to 0.4%
  - Weight decreased 2 kg
  - Waist circumference, LDL-C, non-HDL-C decreased
- No type 1 diabetes studies met inclusion criteria

Evert AB et al. Diabetes Care 2019;42 (5):731-754

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Low-carbohydrate eating plans

- No consistent definition
- Consensus report: 26 to 45% of total calories
- Emphasizes
  - Low-carbohydrate vegetables
  - Some low carbohydrate fruits
  - Meats, poultry, fish/seafood, eggs, cheese, nuts and seeds
  - Fats

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Very low-carbohydrate eating plans

- <26% of kcal from carbohydrate
- Often has a goal of 20 to 50 g of nonfiber carbohydrate: "keto" diets
- High fat - typically 65-80% of total kcal

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Evidence for LC and VLC plans: Meta-analysis of 25 T2 DM RCTs

- A1c difference when <26% kcal from CHO:
  - -0.47% at 3 mos
  - -0.36% at 6 mos
  - No difference at 12 or 24 months
- No A1c difference when CHO was 26 to 45% of kcal

Sainsbury E et al. Diab Res Clin Pract 2018;139:239=252 #AADE19

25

LC and VLC evidence continued: Meta-analysis of 36 Type 2 DM RCTs

- A1c
  - -1.38% up to 8 weeks
  - -0.36% up to 1 year
  - No difference at 2 years
- Small improvements in triglycerides, HDL-C
- No difference in weight, LDL-C, BP, QOL

Van Zuren EJ et al. Am J Clin Nutr 2018;108:300-331 #AADE19

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LC and VLC evidence continued: Meta-analysis of 10 T2 DM RCTs

A1c

- 0.34% lower in LCD compared to HCD
- Greater restriction in CHO resulted in greater A1c reduction
- No difference at 1 year between LCD and HCD
- No difference in BMI/weight, LDL-C, QOL

Snorgaard O et al. BMJ Open Diab Res and Care 2017;5:e000354 #AADE19

27

VLC evidence for type 1 diabetes

- Limited evidence!
- 10 participants followed VLC plan for 1 week and high CHO plan for 1 week
  - Less glycemic variability
  - More time in euglycemia
  - Less hypoglycemia

Ranjan A et al. Diabetes Obes Metab 2017;19:179-1484 #AADE19

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VLC evidence for type 1 diabetes, continued

Single-arm study, 48 participants, goal 75 g CHO/d

- 3 months: lower A1c, triglycerides, weight; increased HDL-C
- 4 years: A1c still reduced (-1.8% in 27% of participants who were following VLC plan), HDL-C still increased

Nielsen JV et al. Diabetology & Metabolic Syndrome 2012;4:23 #AADE19

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DASH Eating Plan Definition

Emphasizes

- Fruits and vegetables
- Low-fat dairy
- Whole, intact grains
- Poultry, fish, nuts
- Reduced saturated fat, red meat, sweets, SSB
- May be reduced sodium

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Evidence for DASH eating plan: T2 DM

- 2 RCTs, 40 and 44 subjects
- 8 week study: improved A1c, BP, cholesterol, weight[1]
- 4 week study: lower BP; no difference in A1c, weight, lipids[2]

Azadbakht L et al. Diabetes Care 2011;34:55-57
Paula TP et al. J Clin Hypertens 2015;17:895-901

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Paleo Eating Pattern

- Evidence limited to small studies (13 to 29 subjects) of short duration (3 months or less)
- Inadequate evidence to make conclusions

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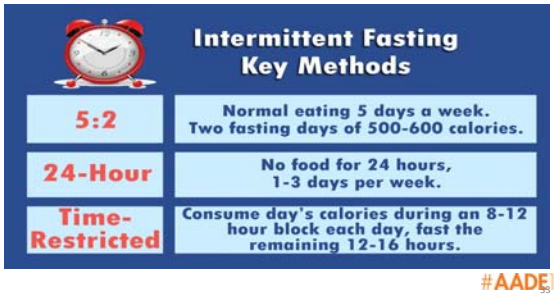
Intermittent Fasting



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Intermittent fasting evidence

- 4 studies with participants with T2 DM
- 3 studies:
  - Weight loss
  - No A1c improvement compared to controls
- 1 study:
  - Similar A1c, weight and medication reductions compared with chronic energy reduction group

Evert AB et al. Diabetes Care 2019;42 (5):731-754 #AADE19

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Eating Pattern Evidence for Prediabetes

- Most widely studied eating plans
  - Mediterranean-style – 30% lower relative risk
  - Low-fat: U.S. DPP, Finnish Diabetes Prevention, Da Qing IGT – reduced risk and decreased incidence
  - Low carbohydrate: Epidemiologic studies
- Epidemiological studies
  - Mediterranean, vegetarian, DASH – reduced Db risk
  - Low carbohydrate – no effect

Evert AB et al. Diabetes Care 2019;42 (5):731-754 #AADE19

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Let's Talk About the Cases

- Wade
- Joan

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Person-Centered Care

- Need to talk about options with all our clients/patients
- Then conduct nutrition assessment to determine what is he/she/they able to do
- Eating plan will be easier to follow *if* the person chooses it, **not you**

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Individualizing the nutrition education session

- What's the evidence?
- Describe foods and beverages commonly consumed in this eating pattern
- Nutrient considerations, pros/cons, cost, etc.…
- Discuss how the person could plan and prepare meals
- Role of physical activity
- Medication adjustments
- Resources and recipes

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Wade: Low Carb or Very Low Carb?

- What would you discuss with Wade?

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What might a low carb day of eating look like?

	Grams carbohydrate
Breakfast	
2 hard cooked eggs	1
1 medium tomato, sliced	5
½ medium avocado	6
Lunch	
4 cups lettuce, 14 mini carrots, 1 cup chopped red pepper, 6 cherry tomatoes, 1 oz shredded cheddar cheese, 2 Tbsp olive oil, 2 Tbsp cider vinegar	24
6 oz grilled chicken breast	0
Dinner	
5 oz salmon portion	0
2 cups broccoli roasted with 2 Tbsp olive oil	12
Snacks	
2 oz raw almonds	12
1 cup fresh raspberries	15
Total	75

2078 kcal, 152 g fat, 129 g protein (14% energy from CHO)

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Ketogenic Diet

DietDoctor website (1 of 95,000,000 hits)

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A Balancing Act

- Pre-existing conditions
  - CKD
  - Pregnancy
  - Disordered eating
- Dehydration when initiating keto diet
  - Low carb researcher tip: divide body weight in half, resulting number is fluid goal (200 lbs ÷ 2 = 100 ounces ~ 12 cups)
- "Keto flu"

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RD perspective:

- **Nutrient Considerations**: without milk difficult to obtain calcium + vitamin D; increase leafy greens to provide vitamins A, C, K, and folate; role of potassium in healthy blood pressure
- **Constipation**: when choosing carbs, choose fiber-rich non-starchy vegetables
- **Cost:** protein sources often more expensive items vs pasta, rice, bread
- **Adherence**: as with any eating plan, ongoing support seems to be a key consideration

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RD perspective:

- Online research trial[1]
  - 27% did not report following a VLCD with diabetes provider
  - 49% felt their health care providers were supportive of LCD
- Fat Intake: intake of saturated fats often increases, choose heart-healthy mono- and polyunsaturated fats
- CVD Risk: important to assess baseline and re-evaluate
  - Often HDL increases, TG decrease and LDL increases
  - LDL increase due to increase in large, fluffy LDL particles?
  - If elevation of LDL, refer to endo

[1]Lennerz BS et al. Pediatrics 2018;141(6)

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Medication Adjustment

- **Need to be in close contact with patient**
- In people with diabetes – monitor glucose
- T2D
  - To reduce risk of hypoglycemia, reduce dose(s) of sulfonylureas and insulin
  - Discontinue SGLT-2 inhibitors
- T1D:
  - Reduce doses of insulin
  - SGLT-2 inhibitors: may be contra-indicated with keto diet, may increase risk of euglycemic diabetic ketoacidosis
- Hypertension: monitor BP, adjust meds as indicated

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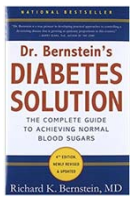
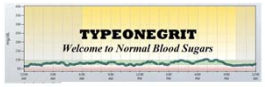
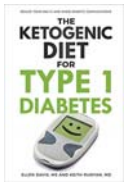
Resources for Type 1 Diabetes (NOT an endorsement)



www.diabetes-book.com/ Richard Bernstein: Q&A webcasts (12/26/18)

www.facebook.com/Type1Grit/





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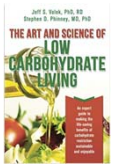
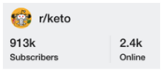
Resources for Prediabetes or Type 2 Diabetes (NOT an endorsement)





www.dietdoctor.com/lchf-in-twelve-languages
www.youtube.com/c/DietDoctorVideo
www.reddit.com/r/keto
www.lowcarbprogram.com
www.nutritionadvance.com

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Additional Resources

- www.lowcarbusa.org/science/clinical-guidelines/
- A clinician's guide to inpatient low carbohydrate diets for remission of type 2 diabetes : toward a standard of care protocol (Diabetes Management (2019) Volume 9, Issue 1)
- www.lowcarbdietitian.com/
- https://ketodietapp.com/Blog/author/franziskaspritzler (Franziska Spritzler, RD, CDE)

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Take-Away: Ketogenic – Low-carb diets

- Based on current studies, people with overweight/obesity, pre-diabetes, and T2D should receive individualized or group education and ongoing support from PCP and/or RD/RN medical staff
- While LC and Ketogenic diet trials reveal greater weight loss and improved glycemia at 6 months, larger, long-term trials are needed
- To date – no long-term studies have examined LC diet lowers one's risk for CVD events or mortality

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Joan: Fasting Eating Plan?

- What do you plan to discuss with Joan?

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Bottom Line: What's the Evidence

- Great variation in intermittent fasting study design, all were small in size [1]
- *Short-term (< 6 months)* trials report intermittent fasting can reduce body weight, improve insulin sensitivity, lower BP, improve lipid profiles, and reduce inflammation and oxidative stress[1]

Evert AB et al. Diabetes Care 2019;42 (5):731-754

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FACTORS THAT MAY IMPACT ADHERENCE

- Managing hunger & appetite on fasting days
- "Rebound" overeating on "feasting" days
- Overeating during intermittent eating periods
- Social life

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What did Joan decide to do?

- Time restricted eating plan
  - 12 pm to 8 pm

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Meal Planning Approach: using shared decision making

- Plan some meals together for the next 24 hours:
  - What could you eat for dinner tonight?
  - Breakfast tomorrow?
  - And Lunch?
- Next time you go shopping
  - How would you go about planning a few meals?

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Meal Planning Approach: using shared decision making

Together with Joan – based on her chosen fasting approach:

- Plan some fasting meals AND non-fasting day meals together:
  - *What could you eat for dinner tonight?*
  - And Lunch?

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Meal Planning Approach: using shared decision making

Together with Joan – based on her chosen fasting approach:

- Next time she goes shopping
  - Despite her statement that she doesn't want to plan meals, she does need assistance making a shopping list and a plan
  - Focus on healthy food choices during her eating time

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Medication Adjustment for T2D

- Need to be in close contact for adjustments
- Increase self-blood glucose monitoring to advise medication adjustments on fasting and non-fasting days

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Medication Adjustment Continued

- Risk of hypoglycemia in 41% of individuals with diabetes studied
  - Hypoglycemia risk 2x greater on fasting days (despite med adjustment & hypo education)
- Reduce medications on **fasting days**:
  - 50 to 70% if individuals eating <400 calories
  - If possible, eliminate use of hypoglycemic medication such as sulfonylureas on fasting days
  - Reduce insulin doses

Corley BT, et al. Diabetic Medicine. 2018; 35:

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4 Step Approach to Starting a Nutrition Therapy Session

#1: **What brought you here today?**

- My goal – *get the person talking so I can find out what they want to do.*
- Answer also helps me to quickly determine readiness to change:
  - "My doctor said I had to come meet with you"
  - "I don't know, I thought I was having a lab test"
  - "I asked my doctor for a referral to the dietitian"

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4 Step Approach to Starting a Nutrition Therapy Session

#2: **Before we get started with your nutrition session today, do you have a burning question for me**?

- Answer helps me to determine if they have another agenda that is important to them.
- If they are concentrating their question instead of the nutrition session, my time with them might not be as effective.
- Over the years I am truly amazed by the answers:
  - I can't get my meter to work
  - I can't afford my medicine
  - Don't understand how to use the new insulin pen
  - Where is the closest food bank?

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4 Step Approach to Starting a Nutrition Therapy Session

#3: **Is there an eating plan or diet you are interested in learning more about or one that you know you'd like to follow**?

- Answer helps me to determine what they are interested in vs what I think they should do

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4 Step Approach to Starting a Nutrition Therapy Session

#4: **OH NO, I have never heard of the diet they want to follow, what do I do now?**

- Is there evidence about use of this eating plan conducted in people WITH diabetes
- Conduct a PubMed https://www.ncbi.nlm.nih.gov/pubmed/

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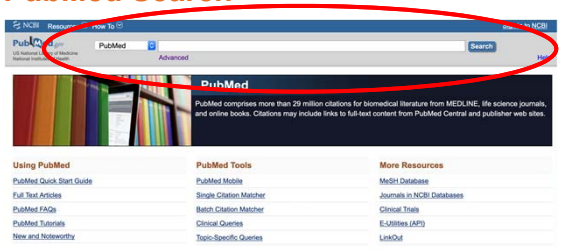
PubMed Search



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Type 'eating plan' + 'diabetes'

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And remember

People with diabetes and prediabetes should be screened and evaluated during DSMES and MNT encounters for disordered eating, and nutrition therapy should accommodate these disorders.

Evert AB et al. Diabetes Care 2019;42 (5):731-754

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Take-Aways:

- Research reveals:
  - A variety of eating plans work **can** work for people with diabetes, there is **no** "one-size fits all approach"
- What works long-term?
  - **Creating an environment** with your patient/client that allows for shared decision making
  - Working **with** the person with diabetes to create an eating plan they would like to follow

Evert AB et al. Diabetes Care 2019;42 (5):731-754

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Questions and Answers

Thank you!

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