This session will review the current American Diabetes Association Nutrition Therapy Recommendations for the Management of Adults with Diabetes and provide strategies for non-RD providers to use when discussing nutrition with diabetes patients. Participants will be invited to practice using the discussed strategies and information presented during break-out case studies.

The American Diabetes Association currently recommends that there is no ideal amount of carbohydrate, protein or fat for individuals to consume, but specific nutrient recommendations should be individualized based upon an individual’s eating preferences, current dietary intake and metabolic goals. Modest weight loss may result in improved metabolic control in overweight and obese individuals with diabetes, particularly early in the disease process. A variety of eating patterns, including the DASH, Mediterranean style, vegetarian, low carbohydrate and low fat diets may be helpful in achieving metabolic goals. The American Diabetes Association currently recommends that replacing low-glycemic index foods for higher-glycemic index foods may modestly improve glycemic control, while people with diabetes should consume at least the amount of fiber and whole grains that is currently recommended for the general public. Sodium intake should be limited to no more than 2300 mg per day, as is recommended for the general population. There is no clear benefit from vitamin or mineral supplementation in people with diabetes who do not have underlying deficiencies, and there is insufficient evidence to recommend any dietary supplement for the management of diabetes. Adults with diabetes may consume alcohol, but they should be educated about safe use of alcohol and understand the risk and treatment of hypoglycemia.

References:


Five Minute Nutrition Counseling for the Non-RD
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Speaker Disclosures
- Board Member/Advisory Panel: Lilly Diabetes; Tandem Diabetes Care, Inc.
- Device Trainer: Medtronic Diabetes
- Stock/Shareholder: Medtronic Diabetes

Objectives
- At the conclusion of this session, attendees will be able to:
  - Discuss diabetes nutrition topics that are important for medical providers to address with diabetes patients.
  - Identify key nutrition concerns of patients living with diabetes.
  - Implement effective counseling strategies when discussing nutrition with diabetes patients.

What eating questions do patients have?
- What can I eat?
- What should I eat?
- Did eating sugar cause my diabetes?
- Do I have to give up sugar?
- Do I have to go on a no-carb diet?
- Can I still eat _____?
- Can I still drink alcohol?
- Is it ok for me to be on the __________ diet?
- What about fat?
- How about salt?

Provider Diet Advice: Does It Make a Difference?

Patients’ Perceptions of Nutrition Care Provided by GPs: Focus on Type 2 Diabetes

<table>
<thead>
<tr>
<th>Patients’ Perceptions of Nutrition Care Provided by GPs</th>
<th>Ideal Care (%)</th>
<th>Previous Care (%)</th>
<th>Satisfied with care (%)</th>
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<tbody>
<tr>
<td>Explain potential T2D complications</td>
<td>87</td>
<td>75</td>
<td>74</td>
</tr>
<tr>
<td>Explain T2 DM risk factors</td>
<td>86</td>
<td>84</td>
<td>93</td>
</tr>
<tr>
<td>Prescribe appropriate medication</td>
<td>85</td>
<td>81</td>
<td>95</td>
</tr>
<tr>
<td>Provide nutrition advice</td>
<td>88</td>
<td>87</td>
<td>91</td>
</tr>
<tr>
<td>Explain diabetes physiology</td>
<td>83</td>
<td>72</td>
<td>96</td>
</tr>
<tr>
<td>Explain term “diabetes”</td>
<td>81</td>
<td>74</td>
<td>92</td>
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<tr>
<td>Refer to further care or information</td>
<td>78</td>
<td>86</td>
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<tr>
<td>Provide written diabetes information</td>
<td>72</td>
<td>49</td>
<td>95</td>
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<tr>
<td>Provide exercise advice</td>
<td>71</td>
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</tr>
<tr>
<td>Monitor weight</td>
<td>70</td>
<td>71</td>
<td>86</td>
</tr>
<tr>
<td>Monitor waist circumference</td>
<td>59</td>
<td>30</td>
<td>85</td>
</tr>
</tbody>
</table>

Ball L et al. Family Practice. 2012;29:719-726
Effectiveness of Nutrition Care in Improving Personal Nutrition Care Behavior

- Definitely Effective 24%
- Somewhat Effective 34%
- Not Effective 42%

Ball L et al. Family Practice. 2012;29:719-725

Priority Nutrition Topics for All People with Diabetes

- Portion control for weight loss and maintenance
- Carbohydrate intake and endogenous insulin production largely determine post-meal glucose level
- Understand what foods contain carbohydrate
- Avoid sugar sweetened beverages
- Most people do not need to subtract grams of fiber or sugar alcohols from total carbohydrate
- Substitute unsaturated fats (liquid oils) for trans and saturated fats


All People with Diabetes, cont.

- Select leaner protein sources and meat alternatives
- Vitamin/mineral supplements, herbal products and cinnamon are not recommended to manage diabetes due to lack of evidence
- Moderate alcohol intake has minimal acute or long-term effects on blood glucose
- Alcohol should be consumed with food to reduce risk of hypoglycemia if taking insulin or secretagogues
- Limit sodium intake to 2300 mg per day

Priority: Coordinate Food with Diabetes Medication – Secretagogues

- Moderate amount of carbohydrate at each meal and snack
- Reduce risk of hypoglycemia
- Eat some carbohydrate at each meal
- Do not skip meals
- Physical activity may result in hypoglycemia; carry carbohydrate

Metformin

- Gradually titrate dose to minimize GI side effects
- Take medication with food or 15 minutes after a meal

Alpha Glucosidase Inhibitors

- Gradually titrate dose to minimize GI side effects
- Take at start of meal to have maximal effect
- If hypoglycemic, consume monosaccharides [glucose tablets]

Incretin Mimetics

- Titrate dose to minimize GI side effect
- Timing of dose(s) – prior to meal vs. any time of day
- See HCP if side effects do not resolve in a few weeks
- Review risk of hypoglycemia if taking with insulin or secretagogue
Type 1 Diabetes and Insulin-requiring Type 2 Diabetes

- Use meal planning approach to “match” mealtime insulin to consumed carbohydrate
- Learn how to count carbohydrates or use meal planning approach to quantify carbohydrate intake
- For those taking multiple mealtime injections or on an insulin pump
- Take mealtime insulin before eating
- Meals may be consumed at different times
- If physical activity planned within 1 to 2 hours of mealtime insulin, dose may be reduced to decrease risk of hypoglycemia

High-fat, High-protein Insulin Dosing Recommendations

- For meals containing > 40 g fat and >25 g protein, consider increasing meal bolus by 25 to 30%
- Give bolus as combination bolus
  - 30 to 50% given initially
  - Remainder of bolus given over 2 to 2.5 hours
- Adjust subsequent boluses based on individual glucose results

Insulin-requiring Diabetes, cont

- High protein, high fat meals may require mealtime insulin dose adjustments to compensate for delayed postprandial glycemic excursions

Chris

- 48 year old male
- Type 2 diabetes for the past 14 years, A1c 10.3%
- Admitted to hospital with right heel ulcer, LE cellulitis
- PMH: HTN, arthritis, asthma, fibromyalgia, sleep apnea (CPAP), chronic fatigue, obesity, tobacco use
What Diet is Best for Managing Diabetes?

- Mediterranean-style
  - High intake of fruits, vegetables, legumes, nuts, low to moderate amounts of fish and poultry, olive oil as principal source of fat, limited amounts of red meats, moderate consumption of wine with meals
- Vegetarian/Vegan
- DASH Plan
  - Emphasizes fruits, vegetables, low-fat dairy products, reduced amounts of saturated fat, total fat and cholesterol (red meats) and sugar-sweetened beverages
- Low carbohydrate
  - No absolute definition of “low carbohydrate”
  - Generally 20 to 60 grams per day, or up to 40% of daily energy intake
- Low glycemic index
  - Low GI index = GI score of 55 or less
  - Medium GI = 56 to 69

Best Diet, continued

- Review of current evidence suggests that there is no specific eating pattern that is best for improving glycemic control, CV risk factors, weight
- Mediterranean-style eating plan appears to be one of the most effective plans for reducing A1c

Different Dietary Approaches

“Our review of the existing literature on low-carbohydrate, low GI, Mediterranean and high-protein diets suggests that these diets may be effective in improving various markers of CV risk in people with diabetes and could have a wider role in the management of diabetes. Dietary behaviors and choices are often personal, and it is usually more realistic for a dietary modification to be individualized rather than to use a one-size-fits-all approach for each person. The diets reviewed in this study show that there may be a wide range of beneficial dietary options for people with type 2 diabetes.”


How Much Carbohydrate Should be Recommended?

- Inconclusive evidence for an “ideal” amount of carbohydrate (C)
- Carbohydrate goals should be developed with the patient
- Important to consider total carbohydrate intake at eating occasion and available insulin (most important factors) (A)
- Some strategy for monitoring carbohydrate intake is a key factor for achieving glycermic control (B)
- Carbohydrate intake from vegetables, fruits, whole grains, legumes and dairy products should be advised over other sources (B)

Simple Method for Selecting Appropriate Amounts of Carbohydrate

The Plate Method
The Plate Method

Plate Method Resources
http://shopdiabetes.org

Give 'em a Hand to Select Reasonable Portions

Sample Questions to Assess Basic Understanding of Eating for Diabetes
- How do you figure out what you should eat?
  - Ask patient to briefly describe meals eaten in a day
- What foods cause the greatest increase in your blood sugar level?
  - Carbohydrate
  - Sweets, desserts, "regular" carbonated beverages
  - Breads, starches, fruits, fruit juices, milk, yogurt
- Do you think about/count protein foods, like chicken or beef?
  - No, protein foods do not contain carbohydrate and usually do not have large impact on blood glucose
- Is it important to think about your fat intake?
  - Fat does not have carbohydrate, but some types of fat affect blood lipid levels

Carb Counting
- Multiple approaches to quantifying carbohydrate intake
- Carb choices
  - One choice = 15 grams carbohydrate
  - Typical intake per meal is 2 to 4 carb choices per meal for females, 3 to 5 choices per meal for males, 1 to 2 choices per snack
- Examples of one carb choice
  - 1 slice of bread
  - ½ cup potatoes
  - 1 cup milk
  - ½ cup rice or pasta
  - 1 small piece of fruit
  - ¼ cup orange juice
- Counting carbohydrate choices works for using an insulin to carbohydrate ratio

Tools for Counting Carb Choices
American Diabetes Association and Academy of Nutrition and Dietetics
International Diabetes Center Publishing
Sample Questions to Assess Knowledge of Counting Carb Choices

- How many carb choices do you try to have at each meal or snack?
- Usually 2 to 3 or 3 to 4 carb choices per meal for women, 3 to 4 or 4 to 5 choices per meal for men.
- Snacks: typically 1 to 2 choices per snack, 1 to 3 snacks per day.
- How many carb choices in a ham and cheese sandwich?
- Two choices, from the 2 slices of bread.
- Do you count any carb choices for peanut butter or cream cheese on a bagel?
- No, neither item contains significant amounts of carbohydrate (but the bagel does!)

Carb Counting in Grams

- Individuals taking mealtime insulin may count grams of carbohydrate.
- Total carbohydrate gram intake is then used in the person’s insulin-to-carbohydrate ratio for calculating mealtime insulin dose.
- Real life examples:
  - 6 inch Subway turkey sub = 46 grams
  - Large Honeycrisp apple = 34 grams
  - Nature Valley Salted Caramel Nut Protein Bar = 14 grams
  - 1 cup cooked Butternut squash = 22 grams

Carb Counting Tools

- Sample Questions to Assess Carb Counting Knowledge:
  - What is your insulin-to-carb ratio?
  - How many grams of carbohydrate are in:
    - One slice of bread? 15 to 20 grams
    - One large orange? 25 to 30 grams
    - One ounce bag of chips? 14 to 20 grams
  - Using your insulin-to-carb ratio, how much insulin would you take for 42 grams of carbohydrate?
    - For example, if ratio is 1 unit per 10 grams of carbohydrate, patient would take 4 units

Dietary Fats

- All fats are not evil!
- Help patients to understand which fats are “heart-healthy” and which are not.
- Low to moderate amounts of fat do NOT appear to affect glucose levels.
- Help patients to understand why we are concerned about their fat intake.

Nonnutritive/Hypocaloric Sweeteners

- Approved by FDA for consumption by the general public.
- No conclusive evidence that NNS use leads to reduction in body weight or cardiometabolic risk factors.
- Use of NNS to replace caloric sweeteners without caloric compensation may be useful in reducing caloric and carbohydrate intake.
Alcohol

- Moderate alcohol intake has minimal acute or long-term detrimental effects on blood glucose
- One drink per day for adult women and two drinks per day for men
- Excessive intake (>3 drinks per day) consumed consistently may contribute to hyperglycemia
- Alcohol intake may increase risk for delayed hypoglycemia
- Consuming alcohol with food can minimize risk of nocturnal hypoglycemia

Sample Questions to Guide Patient-Centered Assessment

- How is diabetes affecting your daily life and that of your family?
- What questions do you have?
- What is the hardest part right now about your diabetes, causing you the most concern or most worrisome to you about your diabetes?
- How can we best help you?
- What is the one thing you are doing or can do to better manage your diabetes?

And please don’t say….

Case Studies

Marion

- 73 years old, newly diagnosed type 2 diabetes
- Fasting glucose 174 mg/dL, A1c 7.2%
- Blood pressure 130/80 on lisinopril 10 mg daily
- Height 63 inches, weight 185 pounds, BMI 32.8
- Recently widowed; very anxious about living without her spouse of 51 years
- Maintains her own home, drives, does her own grocery shopping and cooking
- You are seeing Marion to discuss her lab results and will be prescribing metformin

She asks you how she should eat.
What do you say?
Rex
- 56 year-old male, type 2 diabetes diagnosed 2007
- Pertinent medical history: hyperlipidemia, obesity, LE neuropathy, erectile dysfunction, leg edema
- Labs
  - A1c 12.4%; 10.2% 6 months ago; >14% one year ago
  - Cholesterol 235, HDL-C 49, LDL-C 116, Triglycerides 352
  - Blood pressure 132/76
- Meds
  - metformin 1000 mg BID
  - Humulin R U-500 0.28 mL AM, 0.2 mL PM
  - trazodone 25 mg HS
  - tramadol 50 mg PRN
  - pravastatin 20 mg
  - levothyroxine 50 mg
  - gabapentin 600 mg TID
  - duloxetine 60 mg daily
  - furosemide 20 mg daily
  - omeprazole 40 mg daily
- Glucose meter memory indicates fasting glucose 89 - 279, later in day 159 - 337

Jodie
- 56 year-old female, type 1 diabetes since age 8 with chronically poor control
- Pertinent medical history: hypoglycemia unawareness, dyslipidemia, OCD, ADD, polysubstance abuse, sober since 2008, insomnia
- A1c 8.6%, 8.2% 4 months ago, 9.2% 8 months ago
- CGM upload
- Pertinent medications:
  - degludec U-200 18 units daily
  - lispro 2 to 6 units at meals
  - Adderall XR 40 mg daily
  - lisinopril 5 mg
  - simvastatin 20 mg daily

Questions?
THANK YOU!