**Healthy Eating**
AADE Practice Synopsis
Issued April 29, 2015

Healthy eating is key to the prevention of type 2 diabetes and treatment of diabetes. The purpose of this practice synopsis is to summarize key messages about healthy eating, describe the role of the diabetes educator as it relates to this behavior, provide some recommendations for practice, and to share essential resources and references.

## Key Messages

***Healthy eating is a cornerstone of diabetes management and can contribute to the prevention of diabetes.***

All standards and guidelines for diabetes prevention and diabetes care agree on the importance of healthy eating and nutrition therapy. [1-5] The National Standards for Diabetes Self-Management Education and Support recommend that a core topic to cover is "incorporating nutritional management into lifestyle".[2] There is, however, occasionally confusion over terms and roles including *healthy eating* and *medical nutrition therapy*. This paper focuses on recommendations for healthy eating patterns.

- Healthy Eating – a pattern of eating a wide variety of high quality, nutritionally-dense foods in quantities that promote optimal health and wellness. All healthcare professionals can provide guidance for healthy eating.

- Medical Nutrition Therapy (MNT) – an evidence-based application of the nutrition care process by a registered dietitian (RD) and is the legal definition of nutrition counseling by an RD in the U.S.[5, 6]

***The focus for healthy eating should be more on the quality of food choices and less on nutrient percentages.***

Evidence suggests there are not ideal percentages of calories from carbohydrate, protein, and fat

for all people with diabetes (or for those who are at risk for diabetes).[7] Therefore, macronutrient distribution should be based on individualized assessment of current eating patterns, preferences, and metabolic goals. Emphasis is placed on high-quality, minimally processed foods. Table 1 includes recommendations and discussion topics for healthy eating that have been shown to reduce the risk for diabetes and /or improve glycemic control, blood lipids and blood pressure in persons with diabetes.[5, 8] Additional attention is being placed on intentional or mindful eating to help individuals be more aware of their eating habits.[9]

**Table 1**

**Healthy Eating Priority Recommendation and Discussion Topics For Diabetes Treatment and Prevention**

Adapted from Evert AB, Boucher JL, Cypress M, et al: American Diabetes Association. Nutrition therapy recommendations for the management of adults with diabetes. Diabetes Care. 2014; 37:s120-s143.

| Recommendation | Discussion Topics |
|---|---|
| • Adopt healthy eating patterns | • Use whole grains, fruits, vegetables, legumes and nuts and seeds; reduce or eliminate refined grains; eliminate sugar-sweetened beverages.<br>• Choose leaner protein (fish, poultry) sources and plant-based protein (beans, peas, lentils, nuts) sources; limit red meat, especially high fat or processed meats.<br>• Choose healthy fats (especially poly- and monounsaturated fats such as olives, avocado, nuts, seeds and vegetable oils such as olive and canola oils) instead of saturated and trans- fats.<br>• Minimize fried foods and fast food meals. |
| • Choose a variety of carbohydrates (carbs) that are good sources of fiber; limit high glycemic load carbs. | • Carb foods include starchy vegetables, grains and cereals, pasta, fruit, milk and yogurt and sweets or sugars.<br>• Whole fruits and vegetables, whole grains, legumes nuts and seeds are examples of higher fiber foods which are more filling and may have less of an effect on blood glucose levels than low fiber, processed carbs that have added fat, sodium and sugar.<br>• Substituting low-glycemic load carbs for higher-glycemic load carbs may modestly improve glycemic control. |
| • Aim for consistent carbohydrate intake | • Monitoring carbohydrate amounts is a useful strategy for improving postprandial glucose control.<br>• If on a fixed daily insulin dose, consistent |

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| | carbohydrate intake with respect to time and amount can result in improved glycemic control and reduced risk for hypoglycemia. |
| • Portion control is important for weight loss and maintenance | • Use a smaller plate.<br>• Read food labels to learn portion size.<br>• Choose more foods that have higher satiety value (such as higher fiber foods and foods containing healthy fats). |
| • Limit sodium intake | • Reduce sodium intake to 2,300 mg/day; if hypertensive, further reduction in sodium is indicated. |
| • If drinking alcohol, drink in moderation (1-4oz glass of wine or 1-12oz lite beer or 1oz hard alcohol) | • 1 drink per day or less for adult women and 2 drinks per day or less for adult men if no contraindication.<br>• Educate about risk for hypoglycemia, importance of blood glucose monitoring, and drinking alcohol with a meal. |
| • Vitamin and mineral supplementation is generally not indicated | • There is no clear evidence of benefit from vitamin, mineral or herbal supplementation in most healthy individuals.<br>• Certain groups may need additional supplementation (e.g., pregnant women, vegetarians, elderly) but this is evaluated on an individual basis. |

***There is no single best recommended healthy eating pattern***

A healthy eating plan for persons with prediabetes and diabetes should be individualized. Performing an individualized assessment should be used to understand a person's habits, and areas for change that will make an impact on health. It is important to merge this goal with what the individual is able and willing to do and make a plan. Personal preferences, (e.g., usual habits, tradition, culture, religion, health beliefs) and metabolic goals should be considered when recommending one eating pattern over another.

**Table 2**

**Eating Patterns Linked with Beneficial Outcomes**

| **Type of Eating Pattern** | **Description on Eating Patterns for the Prevention and Treatment of Type 2 Diabetes** (see list of education resources at the end of the synopsis) |
|---|---|
| Plate Method | • The plate model for meal planning was first described in the 1970's to provide people with diabetes and heart disease a |

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| | practical visual aide to select and create healthy meals in acceptable food portions without measuring.<br>• My Plate was released in 2011 by the USDA to prompt consumers to build a healthy plate at mealtime, while promoting the 2010 Dietary Guidelines for Americans. The recommendations include the following messages: make half your plate fruits and vegetables, switch to skim or 1% milk, make at least half your grains whole grains, vary your protein sources, cut back on added sugars and sodium, and eat fewer foods high in solid fats. It is based on criteria from the Healthy Eating Index (HEI) measure of diet quality.[10]<br>• There are many versions of the plate methods available in the resource section. |
| DASH (Dietary Approaches to Stop Hypertension) | • Rich in vegetables, fruits, and low-fat dairy products, including whole grains, poultry, fish, and nuts; lower in saturated fat, red meat, sweets, and sugar containing beverages; and reduced in sodium.<br>• Adherence to the DASH eating pattern is associated with lower risk of type 2 diabetes, improving glycemia, as well as lower cardiovascular (CVD) mortality.[11] |
| Mediterranean Style | • Definitions vary. In general, this pattern recommends high consumption of minimally processed plant-based foods; olive oil as the principal source of fat; low-to-moderate consumption of dairy, fish, and poultry; low consumption of red meat; and low-to-moderate consumption of wine with meals.<br>• Mediterranean eating patterns have been found to be effective in the prevention and treatment of type 2 diabetes and CVD.[8, 12, 13] |
| Vegetarian and Vegan | • Vegan eating patterns are devoid of all flesh foods and animal-derived products; vegetarian meal plans are devoid of all flesh foods, but include egg (ovo) and/or dairy (lacto) products.<br>• Vegan and vegetarian eating patterns are associated with a significant risk reduction for type 2 diabetes and is recognized as an effective therapeutic option for type 2 diabetes.[14]<br>• A wholefoods, plant-based dietary pattern has been shown to reverse heart disease, the leading cause of death in people with diabetes.[15] |

***For people who are overweight or obese, reducing energy intake while maintaining a healthful eating pattern is recommended to promote weight loss.***

Weight loss and healthy weight maintenance is the priority for most people with prediabetes and

type 2 diabetes. Most of the successful approaches to weight loss involve both a calorie restricted meal plan (approximately 500-1,000 calories/day less than usual intake but not below 1200 calories) and an increase in physical activity (with a goal of at least 150 minutes per week of moderate-intensity aerobic physical activity). Successful approaches include ongoing support such as community based groups, individual sessions with a RD or health coach, learning to eat more mindfully, meal-replacement based approaches and online programs. The goal of any weight loss program should be to develop healthful eating patterns with the individual's collaboration, which can be maintained over time.[16] (See AADE Obesity Practice Synopsis paper for more information)

**Role of the Diabetes Educator**

Diabetes self-management education (DSME) should be provided using a patient-centered, individualized approach, with the participant and instructor(s) developing an education and support plan focused on behavior change that meets the unique needs and goals of the participant.[2] Incorporation of nutritional management into the participant's self-care plan is central to DSME. Providing accurate information about nutrition and healthy eating is the responsibility of the whole healthcare team..[2, 6] Accordingly, all diabetes educators have a role in promoting healthy eating behaviors, with the registered dietitian having a unique role in providing medical nutrition therapy (MNT). Misinformation about nutrition is abundant, especially related to diabetes prevention and management so all diabetes educators need to understand basic healthy eating principles to help patients separate the nutrition facts from fallacies. Diabetes educators should understand the differences between healthy eating and MNT, what role they should play in providing education, and when to refer a patient to a registered dietitian.[5, 6] Situations warranting such a referral to a dietitian include patients:

- With newly diagnosed diabetes or prediabetes as a component of the comprehensive diabetes evaluation.
- Experiencing a change in therapy (e.g., bariatric surgery, adoption of a vegetarian eating pattern)
- With a new diagnosis or other change in health status affecting nutritional status (e.g., celiac disease, gastroparesis, pregnancy/lactation, eating disorder)
    - Recognize cases when input from additional team members, such as a mental

health provider (e.g., psychologist) in the case of eating disorders or a social worker in the case of financial or familial hardships, may be helpful.

The following provides key aspects of the diabetes educator's role in promoting healthy eating and assisting people with prediabetes and diabetes in achieving effective behavior change.[18]

***Facilitate successful healthy eating behavior change with interventions tailored to the individual's stage of readiness to embrace new behaviors.***

Education on healthy eating habits should be based on an understanding of the person's usual eating habits, medical history, metabolic goals, health beliefs, and tailored to the individual's religious and cultural preferences, with consideration of health literacy and numeracy.[5] Diabetes educators play a critical role in supporting behavior change by working as a member of the multidisciplinary diabetes care team to deliver a healthy eating intervention commensurate with individualized self-management education needs and stage of readiness for change.[17] If necessary, individuals with underlying psychosocial issues to healthy eating, e.g., depression, food addiction, limited income, homelessness, etc. need to be referred to a mental health care provider or social worker. In line with the person's readiness to change, the diabetes educator can work with the individual collaboratively to determine individualized healthy eating goals and provide key self-management education and coaching to equip the patient to achieve said goals. Ongoing support and evaluation of progress toward achievement of healthy eating goals is important to promote short- and long-term success.

***Provide practical education regarding meal planning skills.***

Nutrition education provided by a diabetes educator should also include practical information regarding meal planning skills and management.[6, 17]

***Measure outcomes demonstrating the effectiveness of healthy eating interventions***

Measuring outcomes is an important step in demonstrating the impact of healthy eating behaviors. Diabetes educators need to measure outcomes in a variety of domains including knowledge and skill acquisition (e.g., patients ability to state meal plan, demonstrate label reading, carb counting skills), behavior change based on specific goals set (e.g., eat 3 meals/day; eat 5-7 serv-

ings of fruits and vegetables/day) or clinical indicators (e.g., weight, A1C, blood pressure, post-prandial glucose levels).

Referring providers should make their treatment goals clear to the educator so all team members can be working towards mutual goals with the patient. The educator's communication with the referring provider should clearly document the patient's efforts, effectiveness of healthy eating interventions, and possible room for additional improvement, in order for the provider to evaluate if medication or other treatment changes are needed to reach targeted goals.

**Summary**

Healthy eating is a cornerstone of the prevention and treatment of diabetes. While it is recommended that all persons with diabetes see a registered dietitian for MNT at diagnosis and as needed thereafter, all diabetes educators have an important role to assess needs and provide basic information and ongoing support focusing on healthy eating habits. This practice synopsis reviews key messages all diabetes educators should know and describes the role that educators have regarding teaching healthy eating behaviors. Also provided are lists of key educational resources for teaching each of the described patterns or approaches to healthy eating as well as key references the educator should be familiar with that offers additional detail regarding the approaches discussed in this paper.

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3. Gonzalez-Campoy JM, St Jeor ST, Castorino K, et al. Clinical practice guidelines for healthy eating for the prevention and treatment of metabolic and endocrine diseases in adults: cosponsored by the American Association of Clinical Endocrinologists/the American College of Endocrinology and the Obesity Society: executive summary. *Endocr Pract*. 2013; 19: 875-87.
4. American Association of Diabetes Educators. Guidelines for the Practice of Diabetes

Education. Available at: http://www.diabeteseducator.org/export/sites/aade/_resources/pdf/research/ScopeStandards_Final2_1_11.pdf. Accessed April 17, 2015.
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14. Yokoyama Y, Barnard ND, Levin SM and Watanabe M. Vegetarian diets and glycemic control in diabetes: a systematic review and meta-analysis. *Cardiovasc Diagn Ther*. 2014; 4: 373-82.
15. Barnard ND, Cohen J, Jenkins DJ, et al. A low-fat vegan diet and a conventional diabetes diet in the treatment of type 2 diabetes: a randomized, controlled, 74-wk clinical trial. *Am J Clin Nutr*. 2009; 89: 1588S-96S.
16. American Association of Diabetes Educators. Obesity and Diabetes Practice Synopsis. Available at: http://www.diabeteseducator.org/export/sites/aade/_resources/pdf/general/ObesityPracticeAdvisory_FinalFinal.pdf. Accessed April 17, 2015.
17. Geil P. Healthy Eating. *The Art and Science of Diabetes Self-Management Education Desk Reference*. Second ed. Chicago, IL: American Association of Diabetes Educators, 2014.

**Educational Resources for Patient Education**

***Plate Method***

1. MyPlate. USDA. Access online at www.choosemyplate.gov.

2. Choose Your Foods: Plan Your Meals. Academy of Nutrition and Dietetics/American Diabetes Association. 2009. Access online at www.eatright.org or www.store.diabetes.org

3. What Can I Eat? The Diabetes Guide to Healthy Food Choices, 2014 edition http://shopdiabetes.org/1575-What-Can-I-Eat-The-Diabetes-Guide-to-Healthy-Food-Choices-2014-Edition-25-Pkg.aspx

4. Healthy Food Choices. Academy of Nutrition and Dietetics/American Diabetes Association. 2010. Access online at www.eatright.org or www.store.diabetes.org

5. The Healthy Eating Plate Harvard School of Public Health. Access online at: http://www.hsph.havard.edu/nutritionsource/healthy-eating-plate/

6. Idaho Plate Method. Access online at http://www.platemethod.com/

***DASH***

7. DASH Eating Plan – Your guide to lowering your blood pressure. U.S. Department of Health and Human Services, NIH Publication No. 06-4082, April 2006. Access online at http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/new_dash.pdf.

***Mediterranean***

8. Healthy Eating Pyramid. Harvard School of Public Health. Access online at www.hsph.harvard.edu/nutritionsource.

9. Mediterranean Diet Pyramid – Oldways. Access online at: http://oldwayspt.org/resources/heritage-pyramids/mediterranean-pyramid/overview

10. http://www.diabetes.org/mfa-recipes/tips/2011-09/featured-article-the.html

***Vegetarian/Vegan***

11. American Diabetes Association. Vegetarian Meal Plans. Access online at: http://www.diabetes.org/mfa-recipes/tips/2014-02/vegetarian-meal-plans-and.html

12. http://www.joslin.org/info/Tips_on_Vegetarian_Eating_and_Diabetes.html

13. The Power Plate. Physicians Committee for Responsible Medicine. Access online at: www.thepowerplate.org

**Recommended Reading:**

Franz MJ and Evert AB editors. The American Diabetes Association Guide to Nutrition Therapy for Diabetes. 2nd edition. Alexandria, VA. 2012.

Academy of Nutrition and Dietetics Evidence Analysis Library (all AADE members have access) Available at: https://www.andeal.org/

AHA/ACC Guideline on Lifestyle Management to Reduce CV Risk – 2013 Available at: http://circ.ahajournals.org/content/early/2013/11/11/01.cir.0000437740.48606.d1

http://www.ncbi.nlm.nih.gov/pubmed/12765960

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Getting to the heart of diabetes: From evidence to guidelines to individualization. From *On the Cutting Edge, a newsletter of the Diabetes Care and Education Practice Group, Academy of Nutrition and Dietetics.* Perry ML, Editor. 2014; 35:1-36.

American Association of Diabetes Educators Technical Review. Diabetes self-management education and training outcomes measures. 2011 (cited 2014 Nov 5). Available at: http://www.diabeteseducator.org/export/sites/aade/_resources/pdf/research/Outcomes_technical_review_2011.pdf