Simplified Carbohydrate Education Approaches

Advancements in Diabetes Webinar Series,
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Vision: Healthy Communities, Healthy People
Objectives

1. Use visual cues to identify and count carbohydrates on sample plates to balance carbohydrates in meals with a variety of non-carbohydrate foods for optimal nutrition.

2. Learn to interact with clients to identify carbohydrates and demonstrate understanding of carbohydrate content of foods.

3. Present an alternative approach for carbohydrate counting, adapted for numeracy and literacy.
Health Education is Not “One size fits all”

• According to the ADCES, content should be adapted to meet individuals’ needs, accounting for:
  ▪ Age
  ▪ Developmental stage
  ▪ Type of diabetes
  ▪ Cultural factors
  ▪ Health literacy and numeracy
  ▪ Comorbidities

• The ADCES also recommends that education “should include helping the person with diabetes develop problem-solving skills and attain ongoing decision-making support necessary to self-manage diabetes.” (Beck et al., 2017)
Background: Developing a Revised Carbohydrate Counting Method

“Degree to which an individual has the capacity to obtain, communicate, process and understand basic health information and services to make appropriate health decisions.” (U.S. Department of Health & Human Services, 2000)

“Ability to access, use, interpret, and communicate mathematical information and ideas, to engage in and manage mathematical demands of a range of situations in adult life.” (Centers for Disease Control & Prevention, 2016)

Lower literacy and numeracy levels in patients with diabetes have been associated with:

- Poor comprehension of food labels (Rothman et al., 2006)
- High percent of calories from carbohydrates (Bowen, 2013)
- Inaccurate diet reporting (Bowen, 2013)
- Higher A1C levels (Marden et al., 2011)
Education Group Setting Approach

• Driven by patient feedback
• Utilization of content from recommended curriculum (i.e., ADCES)

What is Food?
• Carbohydrates
• Fat
• Protein

Foods that Effect Blood Glucose
• Food Models
• Demonstrations
• Identification of the foods that patients/clients consume with CHOs

How Much Carbohydrates to Eat
• Points Method
• My Native Plate
How Much Should I Eat Using the Points Method?

Males:
• **Meals**: 3 – 4 points (*carbohydrate servings*) per meal (45-60 grams carb/meal)
• **Snacks**: 1 – 2 points per snack (15-30 grams carb/snack)

Females:
• **Meals**: 2 – 3 points per meal (*30-45 grams carb/meal*)
• **Snacks**: 1 – 2 points per snack (*15-30 grams carb/snack*)

**Meal Timing**: Recommended 3 meals/day, every 4-6 hours
**Snacks**: 2-3 snacks per day in between meals
How Many Carbohydrates Should I Eat to Help My Blood Sugar?

### Women: 2-3 points at each meal
- Meat, eggs, poultry
- 1 serving of bread, cereal, rice, pasta
- 1 serving of using 100% whole grain
- 1 serving of potatoes
- 1 serving of vegetable
- 1 serving of fruit
- 1 serving of milk or dairy

### Men: 3-4 points at each meal
- Meat, eggs, poultry
- 1 serving of bread, cereal, rice, pasta
- 1 serving of using 100% whole grain
- 1 serving of potatoes
- 1 serving of vegetable
- 1 serving of fruit
- 1 serving of milk or dairy

### Snacks: 1-2 points per snack
- 1 serving of nuts
- 1 serving of yogurt
- 1 serving of cheese
- 1 serving of fruit
- 1 serving of vegetable

### Points System
- 0 Points: Vegetables (broccoli, spinach), dark leafy greens, beans, lentils, nuts
- 1 Point: Most fruits, lean meats, poultry, dairy, whole grains, eggs, tofu
- 2 Points: Most desserts, fatty meats, cheese, full-fat dairy, smoky fish,shellfish, dark chocolate

### Portion Sizes
- 1 serving = 1 slice of bread, 1 medium apple, 1 medium banana, 1 oz of meat, 1 slice of cheese, 1/2 cup of pasta, 1/2 cup of cereal, 1/3 cup of rice

### Tips
- Eat 3 meals - 4-6 hours between meals
- Snacks: 2-3 small snacks per day between meals
- It is okay to have a 1.2 point snack before and/or after exercising—check blood sugar to be sure.

Contact: Susan Gue, MD, RN, LD, CHES for additional information or questions: 508-289-7190.
Developing Problem Solving Skills

- In-class instruction and practice problems
- Use of traditional and commonly-consumed foods
- Individual and group Problem solving exercises using real-life situations
- Barrier identification and group solution development
- Peer support
Translating Learnings to Real Life Experiences

• Measuring serving sizes using hands
• Additional instruction using the Points System for individuals interested in reading labels
• Incorporation of 50/50 Plate Method and My Native Plate
Evaluation of Modified Carbohydrate Counting Method

Evaluation Support from Morgan Farley, BS, Dine College – Student Research Enhancement Program

• Compared to traditional CHO Counting, the Points System was reported to be \textit{easier}, and patients had \textit{more confidence} in utilizing the method.

• Patients who received the Points method were \textit{more likely to answer skills questions correctly}, suggesting that the Points method is easier to use.

• \textbf{52.0\%} class participants identified as \textit{food insecure} and were less likely to answer questions correctly.
  
  ▪ Only \textbf{30.8\%} \textit{answered all three questions correctly}, compared to 50\% of food secure participants

• \textbf{52\%} of food insecure individuals were \textit{not receiving any type of food access assistance}.

• Most used services: (1) SNAP, (2) FDPIR, (3) Senior Meals, (4) WIC
Adapting Education Based on Patient Feedback

• Patient-reported weight loss of 10+ pounds after learning how to count points

• Patient prescribed multiple blood glucose medications with uncontrolled diabetes for about 20 years – “I never understood until now...I’m counting points, watching what I eat and taking my medicine correctly!”

A subset of patients taught both the CHO Counting and Points Method showed that:

• No patients reported preference for the commonly-taught Carbohydrate Counting Method

• Most of the patients preferred points method

“I’m counting my points – my blood sugars went from the 300s to the 100s!!”

“I was taught carbohydrate counting years ago and I don’t like it. But I like this way, it seems easier so I’m willing to try it.”
Carbohydrate Counting Methods Compared

Traditional Carbohydrate Counting Method

• Requires ability to:
• Read a food label correctly
• Use measuring cups
• Make conversion from grams of carbs to carb serving (division/multiplication)
• 15 grams of carbohydrates = 1 carbohydrate serving
• Meal recommendations in both servings and grams

Modified Points System Method

• Requires ability to:
• Choose from a list of cultural foods, add points up to 5
• Use hands for measuring
• Read a food label, convert grams to points using guide (optional)
• Simplified language >> 15 grams = 1 point
• Complex mathematical calculations are eliminated when selecting from list
• Meal recommendations use points
Wrap-Up & Conclusion

• Ensure education is individualized and patient-centered

• Utilize culturally relevant materials including preferred learning methods, cultural foods, pictures, language and terms, etc.

• Present visual and interactive education

• Use clear communication, avoiding jargon and long or complicated words

• Incorporate practical teaching methods that can be used in other settings

• Offer food access resources in your local community

“Education is the most powerful weapon which you can use to change the world.”

- Nelson Mandela

Centers for Disease Control & Prevention, 2016; Beck et al., 2017; U.S. Department of Health and Human Services, 2000
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