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Health Resources & Services Administration

Simplified Carbohydrate Education Approaches

Advancements in Diabetes Webinar Series,
Division of Diabetes Treatment & Prevention, Indian Health Service

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Vision: Healthy Communities, Healthy People

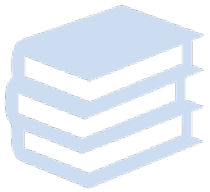
Objectives

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"

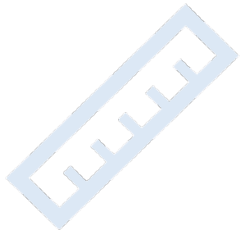
- According to the ADCES, content should be adapted to meet individuals' needs, accounting for:
  - Age
  - Developmental stage
  - Type of diabetes
  - Cultural factors
  - Health literacy and numeracy
  - Comorbidities
- The ADCES also recommends that education "should include helping the person with 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



Health Literacy

"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)



Numeracy

"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)

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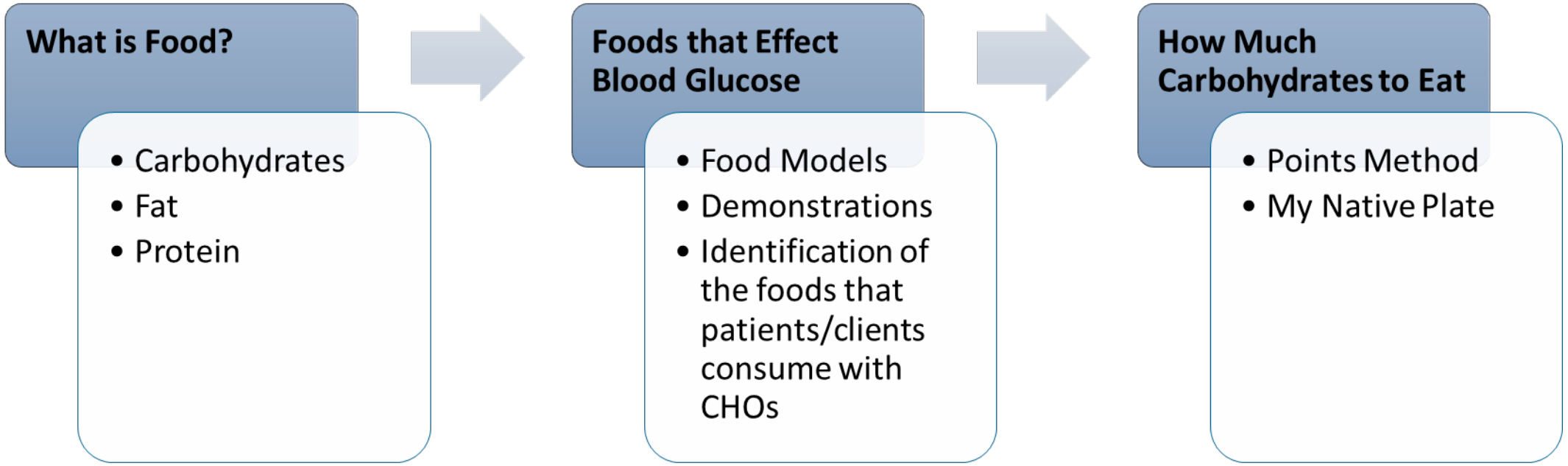
Education Group Setting Approach

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



How Much Should I Eat Using the Points Method?

Males:

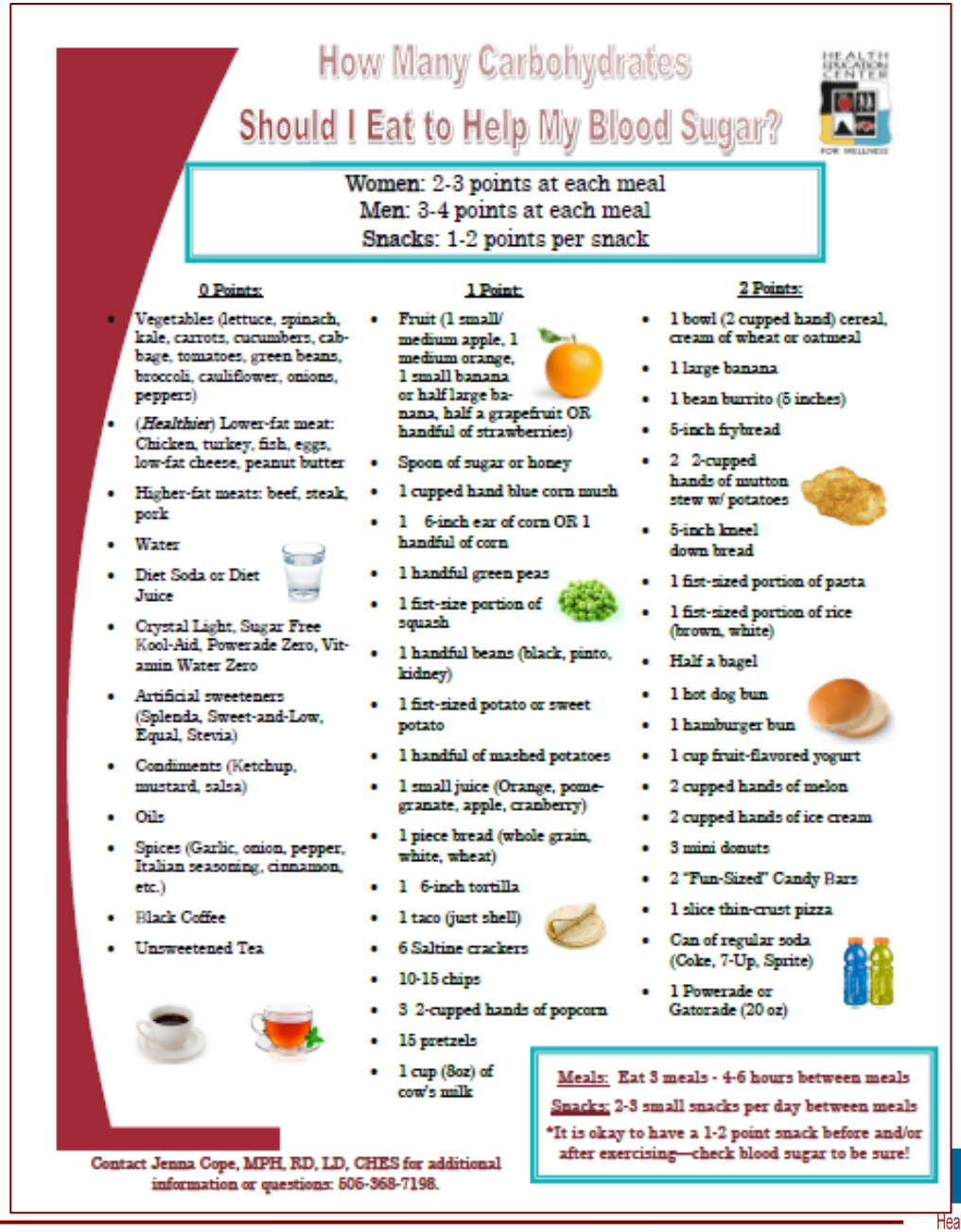
- ***Meals***: 3 – 4 points (*carbohydrate servings*) per meal (45-60 grams carb/meal)
- ***Snacks***: 1 – 2 points per snack (15-30 grams carb/snack)

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?



How Many Carbohydrates Should I Eat to Help My Blood Sugar?

Women: 2-3 points at each meal
Men: 3-4 points at each meal
Snacks: 1-2 points per snack

0 Points:

- Vegetables (lettuce, spinach, kale, carrots, cucumbers, cabbage, tomatoes, green beans, broccoli, cauliflower, onions, peppers)
- (*Healthier*) Lower-fat meat: Chicken, turkey, fish, eggs, low-fat cheese, peanut butter
- Higher-fat meats: beef, steak, pork
- Water
- Diet Soda or Diet Juice
- Crystal Light, Sugar Free Kool-Aid, Powerade Zero, Vitamin Water Zero
- Artificial sweeteners (Splenda, Sweet-and-Low, Equal, Stevia)
- Condiments (Ketchup, mustard, salsa)
- Oils
- Spices (Garlic, onion, pepper, Italian seasoning, cinnamon, etc.)
- Black Coffee
- Unsweetened Tea

1 Point:

- Fruit (1 small/ medium apple, 1 medium orange, 1 small banana or half large banana, half a grapefruit OR handful of strawberries)
- Spoon of sugar or honey
- 1 cupped hand blue corn mush
- 1 6-inch ear of corn OR 1 handful of corn
- 1 handful green peas
- 1 fist-size portion of squash
- 1 handful beans (black, pinto, kidney)
- 1 fist-sized potato or sweet potato
- 1 handful of mashed potatoes
- 1 small juice (Orange, pomegranate, apple, cranberry)
- 1 piece bread (whole grain, white, wheat)
- 1 6-inch tortilla
- 1 taco (just shell)
- 6 Saltine crackers
- 10-15 chips
- 3 2-cupped hands of popcorn
- 15 pretzels
- 1 cup (8oz) of cow's milk

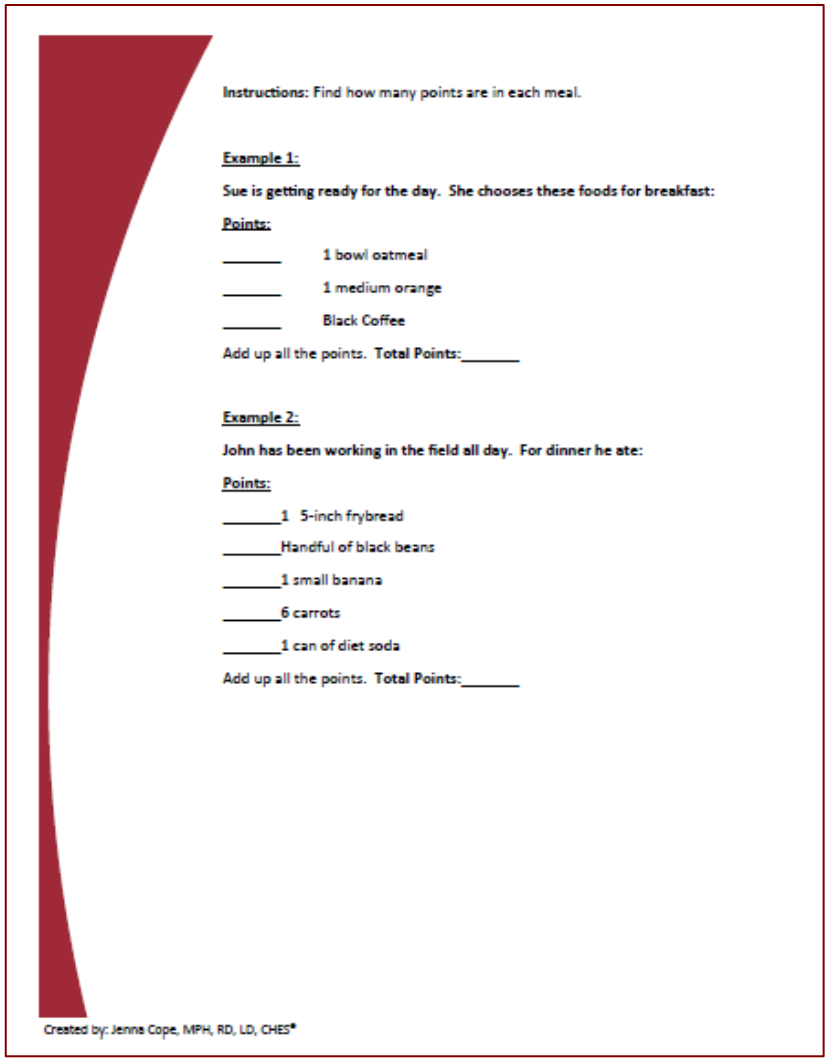
2 Points:

- 1 bowl (2 cupped hand) cereal, cream of wheat or oatmeal
- 1 large banana
- 1 bean burrito (5 inches)
- 5-inch frybread
- 2 2-cupped hands of mutton stew w/ potatoes
- 5-inch kneel down bread
- 1 fist-sized portion of pasta
- 1 fist-sized portion of rice (brown, white)
- Half a bagel
- 1 hot dog bun
- 1 hamburger bun
- 1 cup fruit-flavored yogurt
- 2 cupped hands of melon
- 2 cupped hands of ice cream
- 3 mini donuts
- 2 "Fun-Sized" Candy Bars
- 1 slice thin-crust pizza
- Can of regular soda (Coke, 7-Up, Sprite)
- 1 Powerade or Gatorade (20 oz)

Meals: 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 Jenna Cope, MPH, RD, LD, CHES for additional information or questions: 606-368-7198.

Developing Problem Solving Skills



Instructions: Find how many points are in each meal.

Example 1:

Sue is getting ready for the day. She chooses these foods for breakfast:

Points:

_____ 1 bowl oatmeal

_____ 1 medium orange

_____ Black Coffee

Add up all the points. **Total Points:**_____

Example 2:

John has been working in the field all day. For dinner he ate:

Points:

_____1 5-inch frybread

_____Handful of black beans

_____1 small banana

_____6 carrots

_____1 can of diet soda

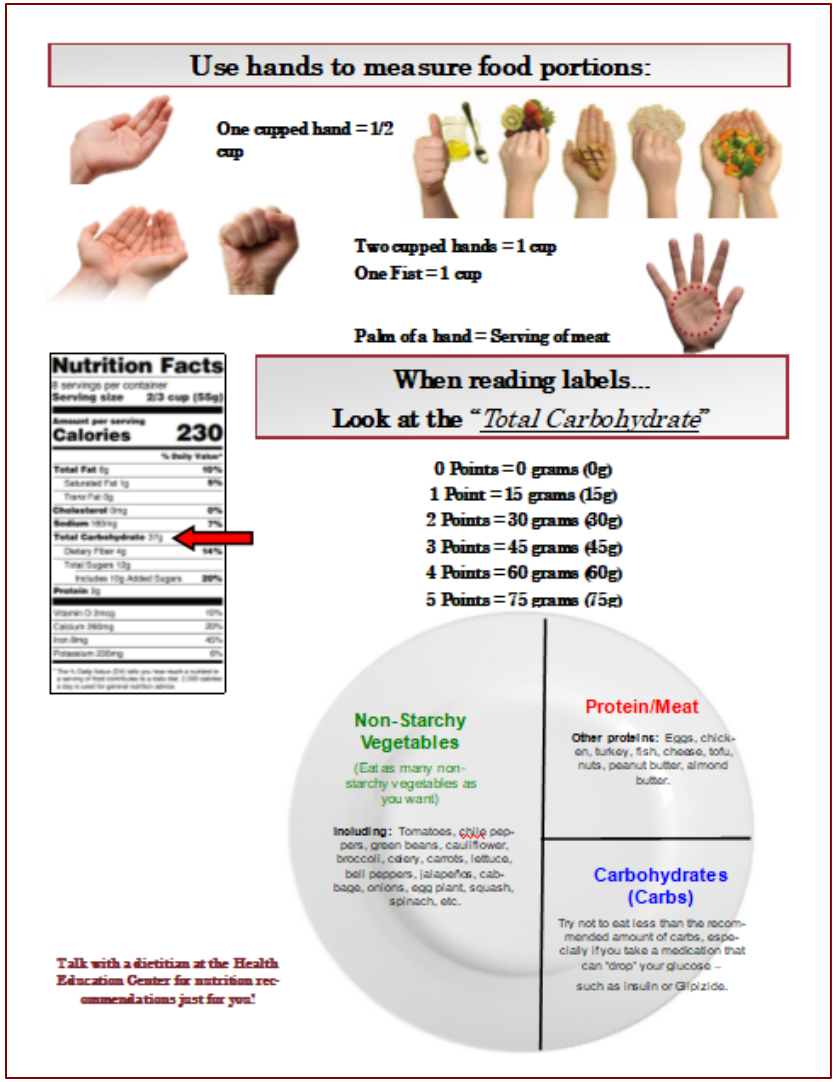
Add up all the points. **Total Points:**_____

Created by: Jenna Cope, MPH, RD, LD, CHES®

- 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 ***easier***, and patients had **more confidence** in utilizing the method.
- Patients who received the Points method were **more likely to answer skills questions correc**tly, suggesting that the Points method is easier to use.
- **52.0%** class participants identified as **food insecure** and were less likely to answer questions correctly.
  - Only **30.8% answered all three questions correctly**, compared to 50% of food secure participants
- **52%** of food insecure individuals **were 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!*"

"I'm counting my points – my blood sugars went from the 300s to the 100s!!"

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 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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