NUTRITION BASICS FOR DIABETES

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Diabetes Education and Management Program

HANDOUTS FOR TODAY’S CLASS

• Nutrition Basics handout
• Raisin Bran nutrition label
• Cheerios nutrition label
• Choosing Snacks handout
OBJECTIVES:

• Participants will learn how to make healthy food choices
• Participants will gain an understanding of how different nutrients effect their blood glucose levels and overall health
• Participants will learn the plate method and basic carbohydrate counting for meal planning

WHAT TO EAT?

Eat a Variety of Foods  
- All foods can fit in a healthy, diabetes meal plan

Select whole grains and low fat foods  
Eat plenty of vegetables and fruit  
Lean and plant-based protein

BASIC HEALTHY EATING PRINCIPLES FOR DIABETES
WHEN TO EAT?
Avoid skipping meals
Spread meals out over the entire day
Eat at consistent times each day
Avoid eating one or two large meals
Work snacks into your meal plan, if needed

HOW MUCH TO EAT?
Try to eat the same amount of food at each meal - consistency
Plan meals to include similar amounts of carbohydrate
3-5 carbohydrate choices/meal
Be aware of portion sizes
WHAT ARE CARBOHYDRATES?

Carbohydrates (carbs) are the body’s main energy source and also provide important vitamins, minerals and fiber that your body needs. Carbohydrates are not bad but some choices are better than others. Selecting better carbohydrate choices in right-size portions is a key to healthy diabetes meal planning.

SOURCES OF CARBOHYDRATE

Simple Carbohydrates (sugars)
- Natural Sugars
  - Fruit and Fruit Juice (fructose or fruit sugar)
  - Milk and Yogurt (lactose or milk sugar)
- Added Sugars
  - Table sugar (sucrose)
  - Honey
  - High Fructose Corn Syrup
  - Sweets and desserts made with sugar - regular soda, jello, candy, cake, cookies

Complex Carbohydrates (starches)
- Breads, cereals and grains, pasta, starchy vegetables, crackers, beans, peas, lentils

Fiber
The indigestible part of plant foods that aides in overall good health
WHAT ARE BETTER SOURCES OF CHO?

• Whole grains - Foods that list a whole grain as the first ingredient:
  o Whole wheat flour, stone-ground whole wheat, whole oats/oatmeal, brown rice, wild rice, rye, barley, whole wheat pasta, whole grain corn, popcorn, millet, quinoa
• Beans (legumes) and lentils, like black beans, kidney beans, pinto beans. Beans are also a great plant-based protein source.
• Sweet potatoes instead of white potatoes, more often, when potatoes are eaten

EAT A CONSISTENT AMOUNT OF CARBOHYDRATE:

General Recommendation:
Eat 3-4 servings (45-60 grams)
of carbohydrate per meal

(1 serving of carbohydrate = 15 grams of carbohydrate)
### CARBOHYDRATE LISTS

**Starches/Breads**
1 serving or 15 grams of carbohydrate. At least half your grains should be whole grains.

<table>
<thead>
<tr>
<th>Starches</th>
<th>Starchy Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ½ cup Dried Beans (pinto, navy, lentil, garbanzo, great northern)</td>
<td>• ½ cup Corn or Peas</td>
</tr>
<tr>
<td>• ½ cup cooked cereal</td>
<td>• 6” ear Corn on the cob</td>
</tr>
<tr>
<td>(oatmeal, cream of wheat, grits, etc.)</td>
<td>• 1 small (3 oz.) Potato; baked, boiled, steamed</td>
</tr>
<tr>
<td>• ¾ cup dry, unsweetened Cereal (check labels)</td>
<td>• ½ cup Yam or sweet potato 1/2 cup</td>
</tr>
<tr>
<td>• 1/3 cup Pasta; cooked (all kinds)</td>
<td>• 1 cup Squash (winter, acorn) or Pumpkin</td>
</tr>
<tr>
<td>• 1/3 cup Rice; cooked (all kinds)</td>
<td>• 1/3 cup Plantain (green, mature)</td>
</tr>
</tbody>
</table>

**Breads**
- 1 slice Bread (whole wheat, rye, white)
- ½ English muffin or small bagel
- ½ Pita pocket bread (6”-8” across)
- 1 small Dinner Roll
- 1/2 Sandwich bun or roll
- 1 Tortilla (6” corn or 8” flour)

**Starchy Vegetables**
- 1 medium Apple
- ½ cup Applesauce or canned fruit; no sugar added
- Banana (medium) 1/2
- ¾ - 1 cup Berries
- 1 cup Cantaloupe or honeydew melon
- 12 Cherries
- ½ Grapefruit
- 17 Grapes (small)
- ¾ cup Mandarin oranges
- ½ Mango
- 1 medium Orange
- 1 cup Papaya
- 1 small-medium Peach or pear
- ¾ cup Pineapple; fresh
- 2 Plums
- 2 Tbsp. Raisins or craisins
- ¼ cup Dried Fruit
- 2 Tangerines (cuties, halos)
- 1 ¼ cup Watermelon
- 1 Tbsp. Fruit spreads, jam, or jelly

**Crackers/Snacks**
- 4-6 Crackers
- 3 Graham crackers squares
- ¾ oz. Pretzels (hard)
- 3 cups Popcorn (popped)
- 3 Gingersnaps
- 2 Rice Cakes
- 15-20 Chips

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**Fruits**
1 serving or 15 grams of carbohydrate. Choose fresh, frozen, or canned without added sugar.

<table>
<thead>
<tr>
<th>Fruits</th>
<th>Fruit Juices</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 1 medium Apple</td>
<td>• ½ cup Apple, orange, or grapefruit</td>
</tr>
<tr>
<td>• ½ cup Applesauce or canned fruit; no sugar added</td>
<td>• 1/3 cup Cranberry, grape, or prune</td>
</tr>
<tr>
<td>• Banana (medium) 1/2</td>
<td>• 1 bar (3 oz.) Fruit juice bars, frozen, 100% juice</td>
</tr>
<tr>
<td>• ¾ - 1 cup Berries</td>
<td></td>
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<tr>
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<td>• 1 Tbsp. Fruit spreads, jam, or jelly</td>
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</tr>
</tbody>
</table>
CARBOHYDRATE LISTS

Milk and Milk Products
1 serving or 12 grams of carbohydrate. Choose low-fat, non-fat, or dairy alternatives.

- 1 cup Milk (skim, 1%, 2%, whole)
- 2 cup regular Plant-based milk (soy, almond, cashew, coconut)
- 6-8 oz. Yogurt (non-fat, lite, or plain); read the label
- 1/3 cup dry milk powder

CARBOHYDRATE LISTS

Non-starchy Vegetables (Only ~5gms of carbohydrate/serving)
Enjoy these in any amount because the small amount of carbohydrate (mainly fiber) does not raise your blood glucose levels.

<table>
<thead>
<tr>
<th>Artichokes</th>
<th>Greens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asparagus</td>
<td>Mushrooms</td>
</tr>
<tr>
<td>Bean sprouts</td>
<td>Okra</td>
</tr>
<tr>
<td>Beans (green, waxed, Italian, snap)</td>
<td>Pea pods or snow peas</td>
</tr>
<tr>
<td>Beets</td>
<td>Peppers</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Sauerkraut</td>
</tr>
<tr>
<td>Cabbage</td>
<td>Spinach</td>
</tr>
<tr>
<td>Carrots</td>
<td>Squash (summer and zucchini)</td>
</tr>
<tr>
<td>Eggplant</td>
<td>Tomato</td>
</tr>
<tr>
<td></td>
<td>Tomato or vegetable juice</td>
</tr>
</tbody>
</table>
What to look for on
A Nutrition Fact Label

What to look for on
A Nutrition Fact Label
OTHER LISTS

**Sweets: It is best to look at the label!**
- 2 small cookies
- 2 inch brownie square or cake with no icing
- ½ cup Ice cream (regular, light, or fat free)
- 1/3 cup frozen yogurt
- ½ cup sugar-free Pudding
- ¼ cup Sherbet

“Free Foods” have less than 5 g of carbohydrate per serving. Large portions of some of these foods can raise blood glucose. Examples include:
- Sugar-free gelatin
- 1 piece of hard, sugar-free candy
- 1 Tbsp catsup or pickle relish
- Coffee, tea, diet soft drinks
- Sugar substitutes
- Spices, herbs, mustard, cooking sprays

PROTEIN RECOMMENDATIONS

- Meals should be balanced with adequate protein and fat.
- Most adults need only 6 ounces of protein a day.
  - Large portions of protein may adversely affect your blood sugar.
  - Meals without protein may cause your blood sugar to rise faster than desired.
- Eating too much protein and fat may cause weight gain and other diabetes-related complications such as heart disease and kidney disease.

**Meat and Meat Substitutes**
- cooked lean chicken, beef, pork, fish, turkey, venison
- low-fat cheeses (1 slice is 1-oz protein)
- ½ cup cottage cheese
- 1 egg (1-oz protein)
- 1 Tbsp nut butter (1-oz protein)
- 1/2 cup tofu (1-oz protein)
FAT & SODIUM RECOMMENDATIONS

Include small amounts of healthy fats in your meals. A high fat meal may delay the rise of your blood sugar. Fats are high in calories, too much can contribute to weight gain, so serving sizes should be small.

Fats and Serving Sizes (small amounts):
- 2 Tbsp – Avocado or reduced fat salad dressing
- 1 oz nuts (examples – 10 peanuts, 6 almonds)
- 1 tsp of oil, butter, stick or tub margarine
- 2 tsp. regular mayonnaise
- 1 Tbsp – low-fat margarine spread, reduced fat mayonnaise, regular salad dressing
- 2 Tbsp half and half, sour cream

Reducing dietary sodium may help reduce blood pressure, as well as long-term complications associated with cardiovascular and kidney disease.
- Decrease salt in cooking; Remove the salt shaker from the table
- Try seasonings and spices that can add flavor without adding sodium
- Drain and rinse canned foods
- Limit - fast foods, processed meats, rice/noodle mixes, boxed meals, & salty snacks
Meal Planning Approaches: The Plate Method

The Plate Method is a meal planning approach that promotes consistent carbohydrate, low fat meals for blood glucose control and heart health. Below are the guidelines for following the plate method, and on the reverse is a sample plate. The Plate Method works best when using a 9-inch plate.

- **Carbohydrates.** Your meals should include approximately 3 or 4 carbohydrate choices, which is equivalent to 45 to 60 grams of carbohydrates. (1 carbohydrate choice equals 15 grams of carbohydrates) Carbohydrates are grains, legumes, fruits, starchy vegetables, and dairy. Choose whole grains over processed, refined grains.

- **Vegetables.** Fill half your plate with 1 cup or more of non-starchy vegetables such as lettuce, cabbage, cucumbers, peppers, mushrooms, onions, garlic, beets, green beans, broccoli, celery, carrots, cauliflower and tomatoes. An easy way to meet this requirement is to eat a small salad along with your side vegetable.

- **Lean Protein.** The protein section should provide 3 ounces of meat or meat substitute, the same dimensions as a deck of cards. Examples are: poultry, fish, and lean steak. Examples of vegetarian sources of protein are: beans, tofu, cheese, eggs, and peanut butter.

A healthy daily meal plan includes at least:
- 2-3 servings of non-starchy vegetables
- 2 servings of fruit
- 6 servings of grains, beans, and starchy vegetables
- 2 servings of low-fat or fat-free milk
- About 6 oz. of meat or meat substitute
- Small amounts of fat & sugar

Plate Method at Breakfast

Table: Non-Starchy Vegetables

<table>
<thead>
<tr>
<th>Source</th>
<th>Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cucumbers</td>
<td>1 cup raw</td>
</tr>
<tr>
<td>Carrots</td>
<td>1 cup raw</td>
</tr>
<tr>
<td>Cabbage</td>
<td>1 cup</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>1 cup</td>
</tr>
<tr>
<td>Green beans</td>
<td>1 cup</td>
</tr>
<tr>
<td>Leafy greens</td>
<td>1 cup</td>
</tr>
<tr>
<td>Lettuce</td>
<td>1 cup</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>1 cup</td>
</tr>
<tr>
<td>Celery</td>
<td>1 cup</td>
</tr>
<tr>
<td>Peppers</td>
<td>1 cup</td>
</tr>
<tr>
<td>Eggplant</td>
<td>1 cup</td>
</tr>
<tr>
<td>Broccoli</td>
<td>1 cup</td>
</tr>
<tr>
<td>Asparagus</td>
<td>1 cup</td>
</tr>
<tr>
<td>Spinach</td>
<td>1 cup</td>
</tr>
<tr>
<td>Mushrooms</td>
<td>1 cup</td>
</tr>
</tbody>
</table>

Table: Lean Protein

<table>
<thead>
<tr>
<th>Source</th>
<th>Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>1/2 cup/4 oz</td>
</tr>
<tr>
<td>Chicken</td>
<td>1/2 cup/4 oz</td>
</tr>
<tr>
<td>Turkey</td>
<td>1/2 cup/4 oz</td>
</tr>
<tr>
<td>Pork loin</td>
<td>1/2 cup/4 oz</td>
</tr>
<tr>
<td>Lean beef</td>
<td>1/2 cup/4 oz</td>
</tr>
<tr>
<td>Seafood</td>
<td>1/2 cup/4 oz</td>
</tr>
</tbody>
</table>

Table: Sources of Carbohydrate

<table>
<thead>
<tr>
<th>Source</th>
<th>Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starches</td>
<td>1 cup</td>
</tr>
<tr>
<td>Potatoes</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Corn</td>
<td>1/3 cup</td>
</tr>
<tr>
<td>Dry beans</td>
<td>1/4 cup</td>
</tr>
<tr>
<td>Rice</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Macaroni</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Pasta</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Bread</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Crackers</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Pretzels</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Muffins</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Waffles</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Pancakes</td>
<td>1/2 cup</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fruits</th>
<th>Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>1 fruit</td>
</tr>
<tr>
<td>Pear</td>
<td>1 fruit</td>
</tr>
<tr>
<td>Apple</td>
<td>1 fruit</td>
</tr>
<tr>
<td>Kiwi</td>
<td>1 fruit</td>
</tr>
<tr>
<td>Peach</td>
<td>1 fruit</td>
</tr>
<tr>
<td>Banana</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Mango</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Grapes</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Berries</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Grapes</td>
<td>1/2 cup</td>
</tr>
<tr>
<td>Pineapple</td>
<td>1 cup</td>
</tr>
<tr>
<td>Cantaloupe</td>
<td>1 cup</td>
</tr>
<tr>
<td>Watermelon</td>
<td>1 cup</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Milk</th>
<th>Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skim milk</td>
<td>1 cup</td>
</tr>
<tr>
<td>Low fat milk</td>
<td>1 cup</td>
</tr>
<tr>
<td>Lowfat yogurt</td>
<td>1 cup</td>
</tr>
</tbody>
</table>

1 serving of carbohydrate = 15 grams
Time to Practice

Basic Carbohydrate Counting

BREAKFAST EXAMPLE #1

• 1 cup cooked oatmeal
• ¾ cup fresh blueberries
• 1 packet artificial sugar (like Splenda)
• ¼ cup walnuts
• 1 cup skim milk

How many carbohydrate servings are in this meal?
BREAKFAST EXAMPLE #1 - ANSWERS

• 1 cup cooked oatmeal = 2
• ¾ cup fresh blueberries = 1
• 1 packet artificial sugar = 0
• ¼ cup walnuts = 0
• 1 cup skim milk = 1

4 Total Carbohydrate Servings

BREAKFAST EXAMPLE #2

• 2 eggs
• Turkey sausage patty
• 2 slices toast
• 1 tablespoon margarine
• Medium banana
• 1 cup orange juice
• Coffee with cream

How many carbohydrate servings are in this meal?
BREAKFAST EXAMPLE #2 - ANSWERS

- 2 eggs = 0
- 1 turkey sausage patty = 0
- 2 slices toast = 2
- 1 tablespoon margarine = 0
- 1 medium banana = 1
- 1 cup orange juice = 2

5 Total Carbohydrate Servings

LUNCH EXAMPLE #1

- 1 cup tomato soup
- Grilled ham & cheese sandwich (2 slices bread, 2 slices cheese, 2 slices ham, 2 tsp. margarine)
- ½ cup coleslaw (made with cabbage, carrots, green peppers, mayo, and vinegar)
- 1 cup melon
- 1 large oatmeal-raisin cookie
- Tea with Splenda

How many carbohydrate servings are in this meal?
LUNCH EXAMPLE #1 - ANSWERS

• 1 cup tomato soup = 1
• Grilled ham & cheese sandwich (2 slices bread, 2 slices cheese, 2 slices ham, 2 tsp. margarine) = 2
• ½ cup coleslaw (made with cabbage, carrots, green peppers, mayo, and vinegar) = 0
• 1 cup melon = 1
• 1 large oatmeal-raisin cookie = 1-2
• Tea with Splenda = 0

5-6 Total Carbohydrate Servings

LUNCH EXAMPLE #2

• Hamburger or veggie patty
• 1 whole wheat hamburger bun
• 1 cup raw veggies
• 1 container light yogurt
• Water

How many carbohydrate servings are in this meal?
LUNCH EXAMPLE #2 - ANSWERS

- Hamburger or veggie patty = 0
- 1 whole wheat hamburger bun = 2
- 1 cup raw veggies = 0
- 1 container light yogurt = 1
- Water = 0

3 Total Carbohydrate Servings

DINNER EXAMPLE #1

- 5-oz. salmon filet, grilled with spices
- 1 medium (6 oz.) baked sweet potato with 2 teaspoons margarine
- 10 stalks of asparagus pan sautéed in canola oil
- 1 medium fresh peach with ½ cup ice cream and 1 tablespoon chopped pecans
- Water

How many carbohydrate servings are in this meal?
DINNER EXAMPLE #1 - ANSWERS

• 5-oz. salmon filet, grilled with spices = 0
• 1 medium (6 oz.) baked sweet potato with 2 teaspoon margarine = 2
• 10 stalks of asparagus pan sautéed in canola oil = 0
• 1 medium fresh peach with ½ cup ice cream and 1 tablespoon chopped pecans = 2
• Water = 0

4 Total Carbohydrate Servings

DINNER EXAMPLE #2

• 1 cup pasta
• 1/2 cup spaghetti sauce
• 3 meatballs
• 2 tablespoons parmesan cheese
• Green salad
• 1 breadstick
• 1 Lindt dark chocolate truffle
• Iced Tea

How many carbohydrate servings are in this meal?
DINNER EXAMPLE #2 - ANSWERS

- 1 cup pasta = 3
- 1/2 cup spaghetti sauce = 0 or 1 if store-bought
- 3 meatballs = 0
- 2 tablespoons parmesan cheese = 0
- Green salad = 0
- 1 breadstick = 1
- 1 Lindt dark chocolate truffle = 0
  (5 grams of carbohydrate, 5 grams of fat, and 75 calories)
- Iced Tea = 0

4-5 Total Carbohydrate Servings

Use the Choosing Snacks handout to help you make better snack choices
THANK YOU FOR ATTENDING TODAY’S SESSION

Viola Holmes, MS, RD, CDE
University of Virginia Diabetes Education & Management Program