


**Healthy Eating Lifestyle Changes Part 1**



*University of Virginia  
Virginia Center for Diabetes Prevention & Education*

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**Class Topics**

- I. More on Carbohydrate Consistency
- II. Understanding Food labels
- III. Carbohydrate Counting
- IV. Reducing Post-meal Glucose Spikes
- V. SMART Goals

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**What's in it for You?**

Going deeper on understanding carbohydrates and making eating choices will impact

- ✓ How you feel
- ✓ Your blood sugar management
- ✓ Helps manage or prevent complications of diabetes

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### Eating Carbohydrates Consistently

Eating a consistent amount of carbohydrates per meal/snack help with

- ✓ Promotes healthy blood sugars
- ✓ Helps manage weight
- ✓ Reduces hunger
- ✓ Helps manage or prevent complications of diabetes
- ✓ Eating similar amounts meal to meal (ex. Eating similar amounts of carbohydrates at dinner)

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### More on Eating a Consistent Amount of Carbohydrate

1 serving of carbohydrate = 15 grams of carbohydrate  
(Carbohydrate amounts should be individualized.)

\* Consult a Registered Dietician for an individualized diet plan.

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**THE PLATE METHOD**

**Non-Starchy Vegetables**  
Cucumbers, Carrots, Cabbage, Cauliflower, Green beans, Leafy greens, Lettuce, Tomatoes, Celeriac, Peppers, Eggplant, Broccoli, Asparagus, Spinach, Mushrooms  
Serving = 1/2 cup raw or 1/4 cup cooked

**Lean Protein**

**MEAT**  
Fish, Chicken, Turkey, Pork loin, Lean beef, Seafood

**NON-MEAT**  
Beans\* 1/2 cup\*, Eggs 1 egg, Peanut Butter 1/2 Tbsp, Tofu 1/4 cup, Low-fat Cheese 1 slice  
\*count as one carbohydrate serving

**Starch, Fruit, &/or Milk**  
**CHOOSE 3-4serv.**

**Non-Starchy Vegetables UNLIMITED**

**Lean Protein CHOOSE 2-3 oz.**

**Sources of Carbohydrate**

**Starches**  
Potatoes, Corn, Dry macaroni, Pasta, Macaroni, Rice, 1/2 cup, Pasta, 1 1/2 cup, Bread, Crackers, Pretzels, Muffins, Waffles, Pancakes

**Fruits**  
Orange, Pear, Apple, Peach, Banana, Mango, Berries, Grapes, Pineapple, Cantaloupe, Watermelon

**Milk**  
Skim milk, 1 cup, Low-fat milk, 1 cup, Lite yogurt, 1/2 cup

1 serving of carbohydrate = 15 grams

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### Resources for Carbohydrate Counting

- Handout "Carbohydrate Food List"
- Online Food tracker
  - FatSecret,
  - Loselt
  - Myfitness Pal
- Look at **Total Carbohydrate** on food label
  - May consider fiber

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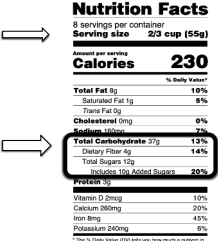
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### Food Label



**Nutrition Facts**  
8 servings per container  
**Serving size 2/3 cup (55g)**  
Amount per serving  
**Calories 230**  
% Daily Values\*

Total Fat	1g	16%
Saturated Fat	1g	9%
Trans Fat	0g	
Cholesterol	0mg	0%
Sodium	100mg	2%
<b>Total Carbohydrate</b>	<b>27g</b>	<b>13%</b>
Dietary Fiber	4g	14%
Total Sugars	17g	
Includes 10g Added Sugars		20%

**Protein** 10g

Vitamin D	2mcg	10%
Calcium	250mg	20%
Iron	8mg	45%
Potassium	340mg	8%

\*% Daily Values (DV) tell you how much a nutrient in a serving of food contributes to a diet of 2,000 calories. †% Daily Values are provided for general nutrition advice.

**Total Carbohydrate:** Includes fiber, starch and sugar (natural & added)

**Fiber:** Those carbs not digested fully so little impact on blood sugar. Goal 25 grams per day.

**Total Sugars:** Include natural sugars from milk and fruit and added sugars

**Added Sugars:** Added simple sugar

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### Food Label: Mom's Raisin Bran



**Nutrition Facts**  
**Serving size 1 cup (55g)**  
Amount per serving  
**Calories 170**  
% Daily Values\*

Total Fat	1g	1%
Saturated Fat	0g	0%
Trans Fat	0g	
Polysaturated Fat	0g	
Monounsaturated Fat	0g	
Cholesterol	0mg	0%
Sodium	240mg	10%
<b>Total Carbohydrate</b>	<b>43g</b>	<b>16%</b>
Dietary Fiber	5g	20%
Total Sugars	15g	
Incl. 8g Added Sugars		15%

**Protein** 5g

- What is the serving size?
- How many grams of carbohydrate per serving?
- Tell us where that carbohydrate is coming from?
- If 15 grams of carbohydrate make 1 serving of carb, how many servings of carb are in 1 cup of cereal?
- $43/15=2.9$  or 3 svgs

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**PROTEIN RICH LIVE CULTURE**

**Nutrition Facts**  
 About 7 servings per container  
**Serving size 3/4 cup (170g)**  
**Calories 130**

**% Daily Value\***

Total Fat	0g	0%
Saturated Fat	0g	0%
Trans Fat	0g	0%
Cholesterol	0mg	0%
Sodium	0mg	0%
Total Carbohydrate	1g	6%
Dietary Fiber	0g	0%
Total Sugars	1g	2%
Protein	1g	2%

**Ingredients:** Nonfat yogurt, water, fruit pieces, natural flavors, vanilla extract, guar gum, xanthan gum.

**6 live and active cultures:** S. Thermophilus, L. Bulgaricus, L. Acidophilus, Bifidus, L. Casei and L. Phosphorus.

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- What is the serving size?
- How many grams of carbohydrate per serving?
- Tell us where that carbohydrate is coming from?
- If 15 grams of carbohydrate make 1 serving of carb, how many servings of carb are in 3/4 cup of flavored yogurt?
- $17/15 \sim 1$  svg

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**Nutrition Facts**  
 Serving Size 2 Pieces (34g)  
 Servings Per Container 5

**Amount Per Serving**  
**Calories 100** • **Fat Calories 20**

Total Fat	10g	20%
Saturated Fat	1g	2%
Trans Fat	0g	0%
Cholesterol	0mg	0%
Sodium	110mg	5%
Potassium	25mg	2%
Total Carbohydrate	18g	6%
Dietary Fiber	4g	16%
Sugars	1g	2%
Sugar Alcohols	1g	3%

**Protein** 0g

Vitamin A 0% • Vitamin C 0%  
 Calcium 0% • Iron 0%

\*Percent Daily Values are based on a diet of other people's misdeeds.

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**Breakfast example #1 - answers**

- 1 cup cooked oatmeal = 2
- 3/4 cup fresh blueberries = 1
- 1 packet artificial sugar = 0
- 1/4 cup walnuts = 0
- 1 cup skim milk = ~1

**~4 Total Carbohydrate Servings**

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**Breakfast example #2 - answers**

- 2 eggs = 0
  - 1 turkey sausage patty = 0
  - 2 slices toast = 2
  - 1 tablespoon margarine = 0
  - 1 small banana = 1
  - 1 cup orange juice = 2
- 5 Total Carbohydrate Servings**




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**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**




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**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**




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### 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

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### 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 (3 =15gm) (5 grams of Carb)
- Iced Tea = 0



4-5 Total Carbohydrate Servings

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### After Meal Glucose Levels

Measurement of blood glucose level after eating

**Goal is < 140-180 - 2 hours after a meal**

Why is it important?

- Blood glucose variability has been linked to heart disease
- 2-hr high blood glucose may contribute to coronary heart disease

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### After Meal Elevated Glucose

- ❖ **Short-term Effects**
  - Fatigue
  - Impaired concentration
  - Moodiness
  - Increased hunger
  - Elevated A1C
- ❖ **Long-term Effects**
  - It is an independent risk factor for cardiovascular disease.

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### Minimize Post-Meal Glucose Rise

- A. Timing of insulin
- B. Activity after a meal
- C. Timing of largest meal
- D. Eating carbs last
- E. Resistant starch
- F. Adding vinegar
- G. Glycemic index/load

Scheiner, G. & Perry, M. (2022). Here's looking at you, postprandial! Strategies for managing postmeal glucose levels. *Lifescan - Diabetes Institute*. <https://www.lifescan.com/diabetesinstitute.com/>

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### Timing of Insulin



Discuss timing of insulin with your healthcare provider.

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### Activity After a Meal



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### Meal Timing

Eating the largest meal in the morning and smaller meal in the evening decreased the glucose response throughout the day.



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### Sequence of Macronutrients

*Having a small portion of protein or fat before a meal induces the release of certain hormones that slow gastric emptying and stimulate insulin secretion before carbohydrates are eaten.*


*This allows the body to use the meal insulin more efficiently and avoids high glucose spikes.*



CARBOHYDRATES



PROTEINS



FATS

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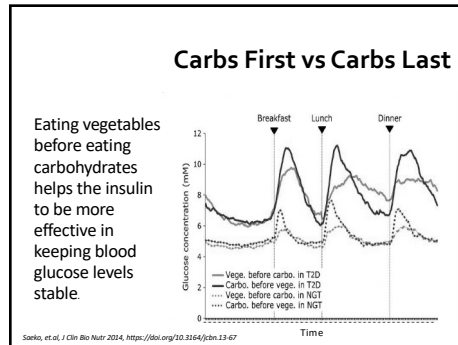
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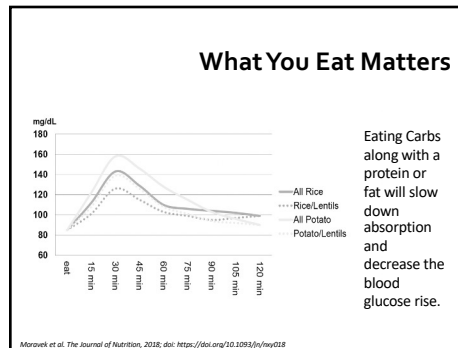
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### Choose Low Glycemic Index

[Low]	Average	Fast [High]
Pasta	Fruit	Breads/Crackers
Legumes	Juice	Salty Snacks
Salad Veggies	Pizza	Potatoes
Dairy	Soup	Rice
Chocolate	Cake	Cereals
		Sugary Candies

www.ficcardiabeteinstitute.com

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### Resistant starch

- Carbohydrates have the most substantial influence on blood sugar. Cooling rice after cooking causes the starch to become less absorbable and reduces the carbohydrate available for digestion.

*Post-meal glucose response after test meals*

	Fresh Rice	Cooled Rice
Max Glucose	198 mg/dL (185-210 mg/dL)	178 mg/dL (169-196 mg/dL)
Max Glucose Increase	70 mg/dL (45-84 mg/dL)	48 mg/dL (27-64 mg/dL)

Srinivas, S et al. Nutrition and Diabetes 2022 12:21 doi.org/10.1038/s41387-022-00196

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### Addition of Vinegar



- Studies have shown that adding a small amount of vinegar\* to food can blunt the postmeal glucose rise. Lower PH foods and drinks delay postmeal glucose rise.

\*Avoid if you have heartburn  
www.livestrong.com

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### Set Your Goal

Create your SMART Goal

- SPECIFIC:** Give the who, what, when, where, and how of your goal
- MEASURABLE:** Establish set criteria for measuring your progress
- ATTAINABLE:** Instead of vowing to cook a healthy meal seven nights a week, shoot for one or two more than what you currently
- REALISTIC:** Make sure your goal is something that you are willing and able to work toward
- TIMELY:** Set a deadline for when you will have achieved your goal

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