

Medical Nutrition Therapy for Diabetes



Carbohydrates

Along with proteins and fats, carbohydrates (carbs) are one of the three main nutrients found in foods and drinks. Foods that are high in carbohydrates include grains, fruits, starchy vegetables, dairy, sugar, and desserts. Foods with little to no carbohydrates are meat, meat substitutions, non-starchy vegetables, and fats.

Carbohydrates are important to monitor with diabetes because your body breaks down carbohydrates into glucose. Therefore, foods with carbohydrates make your blood glucose or blood sugar levels rise. Counting the amount of carbohydrates you consume at each meal helps you control your portion sizes of carbs, and ultimately helps you control your blood glucose levels.

Recommendations for Blood Glucose Control:

Eat three meals per day



Do not skip meals. Aim to eat meals/snacks around the same time each day.

Counting carbohydrates



Consume a consistent amount of carbohydrates at every meal.



One carb choice = 15 grams of carbohydrates



Females: 3-4 carb choices (or 45-60 grams) per meal



Males: 4-5 carb choices (or 60-75 grams) per meal

Limit added sugars and refined carbohydrates



Choose whole grains and other high fiber foods instead.



Whole grains and other high fiber foods get digested more slowly, so they don't spike blood glucose levels as high.



Limit adding sugar! Instead of using white sugar, honey, brown sugar, etc. try sugar substitutes like stevia.

























Each serving (picture) is equal to 1 carb choice (15 grams)



Males
4-5 carb choices per meal
(60-75 grams)



















Females
3-4 carb choices per meal
(45-60 grams)

 <p>1 SLICE OF BREAD</p>	 <p>1/3 CUP PASTA OR RICE</p>	 <p>1/2 CUP OATMEAL</p>	 <p>4-INCH PANCAKE</p>
 <p>6-INCH TORTILLA</p>	 <p>3/4 CUP UNSWEETENED CEREAL</p>	 <p>1/2 CUP FRUIT</p>	 <p>1 MEDIUM APPLE</p>
 <p>1/2 CUP 100% FRUIT JUICE</p>	 <p>15 GRAPES</p>	 <p>2 TBSP RAISINS</p>	 <p>1/2 BANANA</p>
 <p>1/2 CUP BEANS</p>	 <p>1/2 CUP MASHED POTATOES</p>	 <p>1/2 CUP CORN</p>	 <p>1/2 CUP PEAS</p>
 <p>3 OZ POTATO</p>	 <p>1/2 CUP SWEET POTATO</p>	 <p>3 CUPS POPCORN</p>	 <p>4-6 SMALL CRACKERS</p>
 <p>9-13 POTATO CHIPS OR PRETZELS</p>	 <p>1 CUP MILK</p>	 <p>1 CUP FAT-FREE YOGURT</p>	 <p>1 CUP SOY MILK</p>

Free Foods

(Foods with little to no carbs - no need to count)

 <p>TOMATOES</p>	 <p>MUSHROOMS</p>	 <p>BELL PEPPERS</p>	 <p>ZUCCHINI / YELLOW SQUASH</p>
 <p>BROCOLI / CAULIFLOWER</p>	 <p>CARROTS</p>	 <p>MIXED GREENS</p>	 <p>CUCUMBER</p>
 <p>CELERY</p>	 <p>ONIONS</p>	 <p>ASPARAGUS</p>	 <p>BRUSSELS SPROUTS</p>
 <p>3 OZ MEAT</p>	 <p>1 WHOLE EGG</p>	 <p>1 OZ CHEESE</p>	 <p>1 TSP FAT</p>

Tips for Eating Healthy











- Choose low-fat meats like skinless poultry, seafood, fish, and lean beef
- Choose low-fat dairy products like low-fat or fat-free cheese
- Choose plant oils instead of butter or lard



High Carb Foods



(Foods with added sugar)

 SODA POP 12 fl oz = 39g carbs	 SPORTS DRINKS 32 fl oz = 52g carbs	 ENERGY DRINKS 8.4 fl oz = 28g carbs	 BOTTLED GREEN TEA 20 fl oz = 33g carbs
 REGULAR PUDDING 1/4 cup = 25g carbs	 FRUIT CUP IN SYRUP 1/2 cup = 25g carbs	 1 DONUT 39g carbs	 1 SLICE OF CAKE 51g carbs
 3 COOKIES 22g carbs	 17 GUMMY BEARS 31g carbs	 1 CUP ICE CREAM 32g carbs	 1 CANDY BAR 25g carbs

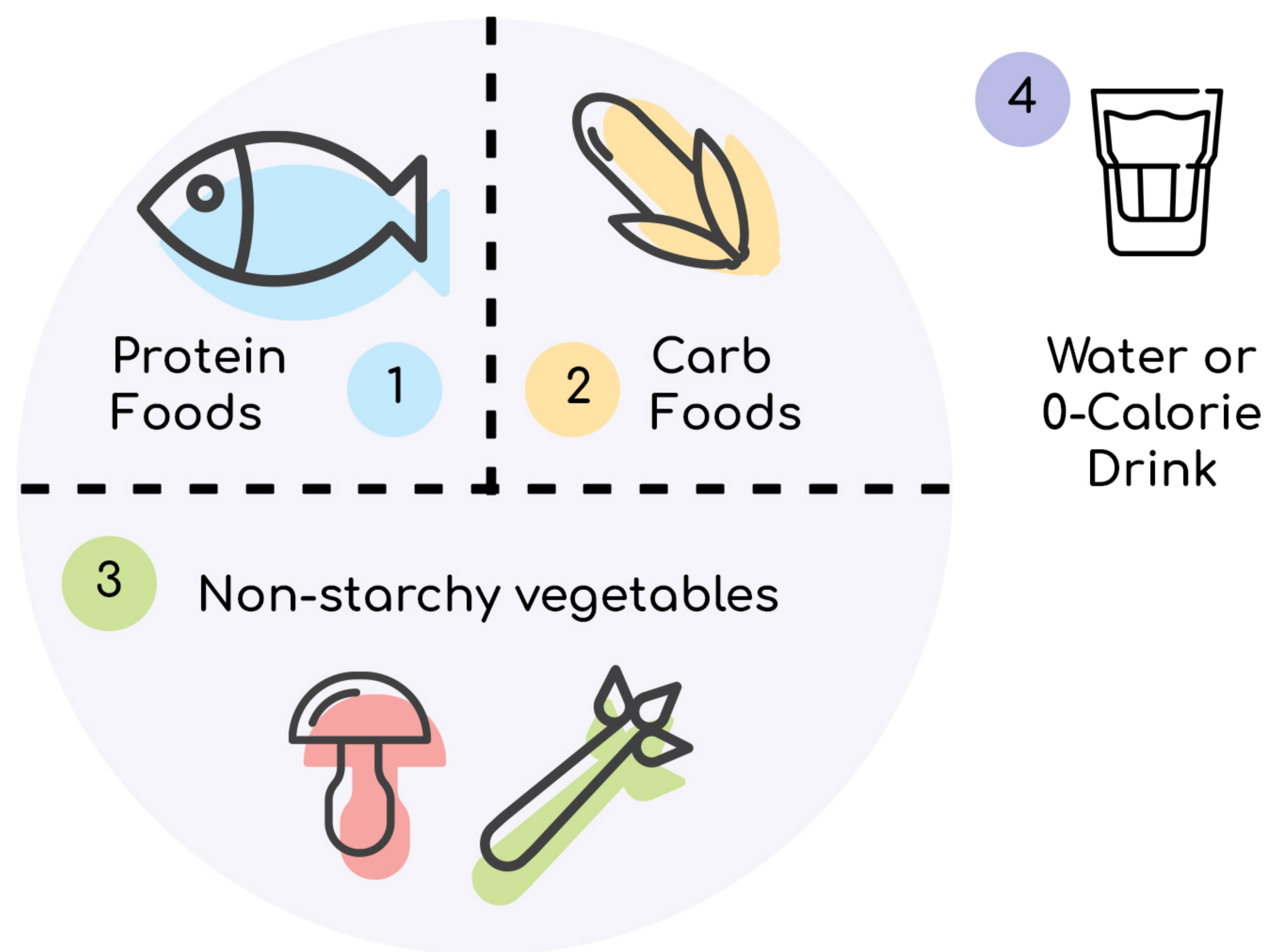
Hypoglycemia

A blood glucose level below 70 mg/dL

Causes	Symptoms	Treatment
<ul style="list-style-type: none"> • Errors in medication administration • Inadequate food intake • Skipping meals or snacks • Delayed meals or snacks • Improper timing of insulin in relation to food intake • Unplanned or increased physical activity. • Alcohol intake without food 	<p>HUNGER</p> <p>SWEATING</p> <p>SHAKINESS</p> <p>DIZZINESS</p> <p>LIGHT-HEADEDNESS</p> <p>SLEEPINESS</p> <p>CONFUSION</p> <p>DIFFICULTY SPEAKING</p> <p>ANXIETY</p> <p>WEAKNESS</p> <p>BLURRY VISION</p>	<p>1 Consume 15 grams of carbohydrates (preferably sugar because it is fast-acting)</p> <p>1/2 cup juice or soda</p> <p>1 tbsp of sugar or honey</p> <p>Hard Candy: 6 lifesavers, 3 peppermints</p> <p>1 Retest blood glucose in 10-15 minutes</p> <p>1 Repeat if blood glucose is still below 70 mg/dL</p>

The Diabetes Plate Method

Using this plate method is a simple way to plan your meals and control the amount of carbohydrates you eat. Make your plate at mealtimes look like the picture below. Use the following chart to help you choose your foods.



Food Group	Examples of Foods/Beverages
<p>1 Section 1: Non-Starchy Vegetables Fill ½ of your plate with non-starchy vegetables</p>	<p>Asparagus, broccoli, cabbage, cauliflower, celery, cucumber, green beans, kale, mushrooms, onions, peppers, or zucchini.</p>
<p>2 Section 2: Protein Foods Fill ¼ of your plate with a lean protein</p>	<p>Lean meat, poultry, fish, seafood, cheese, eggs, tofu, beans, lentils, nuts or nut butters.</p>
<p>3 Section 3: Carbohydrate Foods Fill ¼ of your plate with carbohydrate foods</p>	<p>Whole grains, whole wheat bread, brown rice, whole grain pasta, polenta, corn tortillas, fruit, or starchy vegetables (potatoes, green peas, corn, beans, acorn squash, and butternut squash). One cup of milk also counts as a food that contains carbohydrate.</p>
<p>4 Section 4: Beverage Choose water or a low-calorie, zero-sugar drink for your beverage</p>	<p>Unsweetened tea, coffee, or flavored/sparkling water without added sugar.</p>

Snacking

Eating snacks between meals helps you spread out your intake of carbohydrates, which can help control your blood sugar. Choose snacks that contain protein and ~15 grams of carbohydrates (1 carb choice). Healthy snack options are shown below.



1 cup non-starchy vegetables
¼ cup hummus



4-6 unsalted crackers
¼ cup tuna



1 ounce cheese
3 large wheat thin crackers



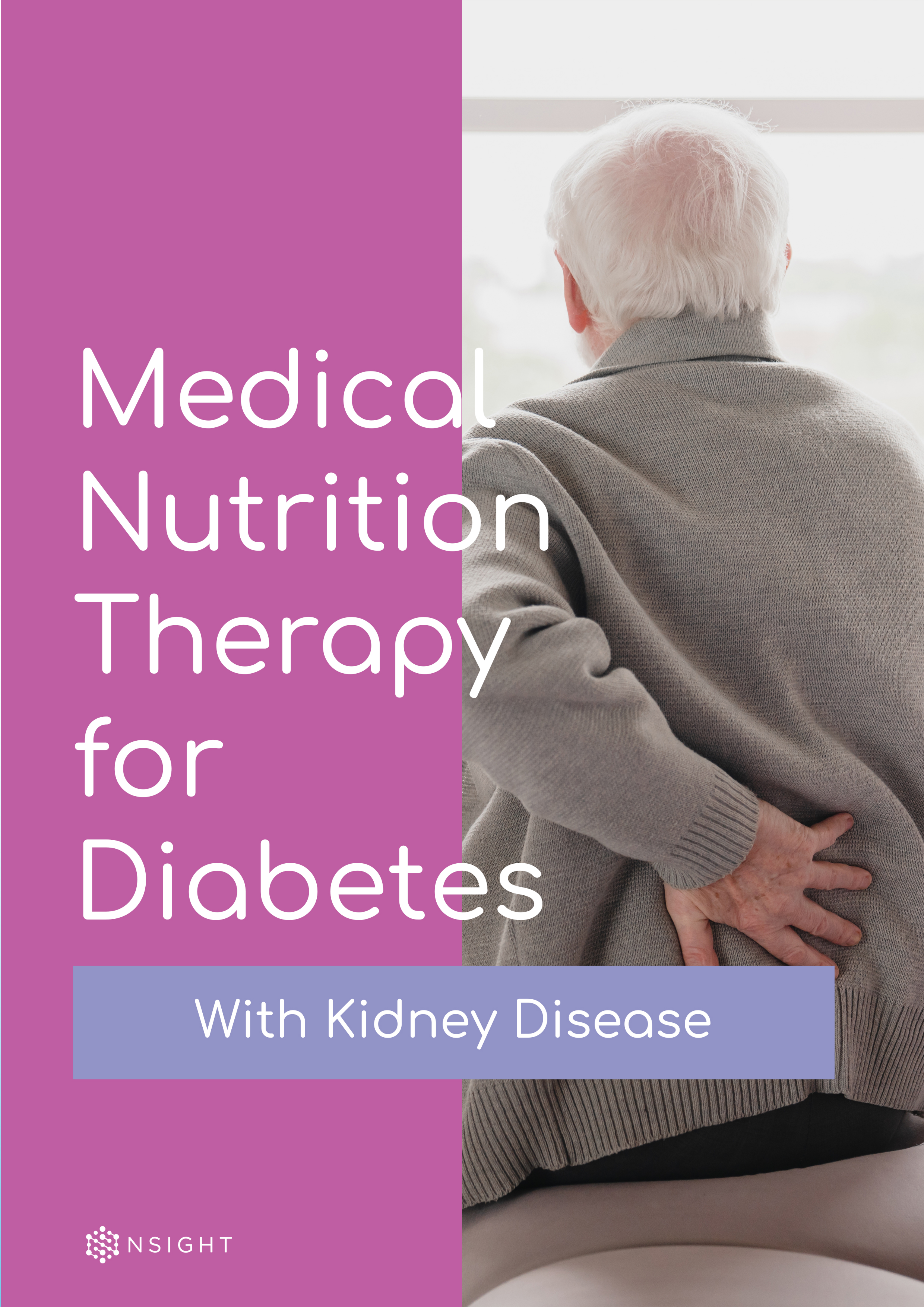
2 tbsp nuts
15 grapes



½ cup berries
¼ cup no salt added cottage cheese



1 small apple
1 tbsp peanut butter
or 2 tbsp PB2






Medical Nutrition Therapy for Diabetes

With Kidney Disease




Overview

Managing diabetes and chronic kidney disease at once can be challenging, but making thoughtful food choices can help you maintain a healthy nutrient balance, slow the progression of kidney disease, and keep your blood glucose controlled.




Your meal plan will be based on your unique nutritional needs, and those will likely change over time. You will likely be asked to modify your intake of certain foods based on your laboratory values. For example, you may be advised to consume more or less protein, sodium, potassium, phosphorus, and fluids. There is not one eating plan that is right for everyone with diabetes and kidney disease, but the following information can serve as a general guideline when planning your meals. This list accounts for the sodium, potassium, phosphorus, sugar, and saturated fat content of foods included.

 Food Group	 Avoid	 Recommended
Fruits	<p><u>High Potassium Fruits:</u></p> <ul style="list-style-type: none"> • Apricots (raw = 2 medium-sized; dried = 5 halves) • Avocado (1/4 of a whole) • Banana (1/2 of a whole) • Cantaloupe • Dates (5 whole) • Dried figs • Dried fruits • Grapefruit juice • Honeydew melon • Kiwi (1 medium-sized) • Mango (1 medium-sized) • Nectarine (1 medium-sized) • Orange (1 medium-sized) • Orange juice • Papaya (1/2 of a whole) • Pomegranate (1 whole) • Pomegranate juice • Prunes and prune juice • Raisins <p><u>Other:</u></p> <ul style="list-style-type: none"> • Fruit canned in syrup • Frozen or canned fruits with added “phos” ingredients 	<p><u>Low Potassium Fruits:</u></p> <ul style="list-style-type: none"> • Apple (1 medium-sized) • Applesauce and apple juice • Apricots (canned in juice) • Blackberries • Blueberries • Cherries • Cranberries • Fruit cocktail • Grapes and grape juice • Grapefruit (1/2 of a whole) • Mandarin oranges • Peaches (raw = 1 small-sized; canned = ½ cup) • Pears (raw = 1 small-sized; canned = ½ cup) • Pineapple and pineapple juice • Plum (1 whole) • Raspberries • Strawberries • Tangerine (1 whole) • Watermelon (limit to 1 cup)




Continued...

 Food Group	 Avoid	 Recommended
Vegetables	<p><u>High Potassium Vegetables:</u></p> <ul style="list-style-type: none"> • Acorn squash • Artichoke • Bamboo shoots • Beans (baked, black, dried, or refried) • Butternut squash • Beets • Broccoli (cooked) • Brussels sprouts • Carrots, raw • Chinese cabbage • Greens (except kale) • Hubbard squash • Kohlrabi • Lentils • Legumes • White mushrooms (cooked) • Okra • Parsnips • Peas, dried • Potatoes (white and sweet) • Pumpkin • Rutabagas • Seaweed • Spinach (cooked) • Tomatoes and tomato products • Vegetable juices <p><u>Other:</u></p> <ul style="list-style-type: none"> • Frozen or canned vegetables with added “phos” ingredients 	<p><u>Low Potassium Vegetables:</u></p> <ul style="list-style-type: none"> • Alfalfa sprouts • Asparagus (raw = 6 spears) • Beans (green or wax) • Broccoli (raw) • Cabbage (green or red) • Cauliflower • Celery (1 stalk) • Corn (fresh = ½ ear; frozen = ½ cup) • Cucumber • Eggplant • Kale • Lettuce • Mixed vegetables • White mushrooms (raw) • Onions • Parsley • Peas (green) • Peppers • Radish • Rhubarb • Water chestnuts (canned) • Watercress • Yellow squash • Zucchini squash
Grains	<ul style="list-style-type: none"> • Bran bread • Frosted or sugar-coated cereals • Instant cereals • Bran or granola • Gingerbread • Pancake mix and cornbread mix • Biscuits, brownies, cakes, muffins, pastries • Salted snacks including potato chips, corn chips and crackers • Whole wheat cereals like wheat flakes and raisin bran, and whole grain hot cereals contain more phosphorus and potassium than refined products, but may still be included in limited amounts. 	<ul style="list-style-type: none"> • White, wheat, rye, sourdough, whole wheat and whole grain bread • Barely, buckwheat, bulgur • Unsweetened, refined dry cereals • Cream of wheat, grits, malt-o-meal, oatmeal, noodles • White or whole wheat pasta • Brown, white or wild rice • Bagel (small) • Hamburger bun • Unsalted crackers • Cornbread (made from scratch) • Flour or corn tortilla

Continued...

 Food Group	 Avoid	 Recommended
<p>Protein Foods</p>	<p><u>Proteins High in Sodium, Phosphorus, or Potassium:</u></p> <ul style="list-style-type: none"> • Processed meats: bacon, ham, sausage, pepperoni, salami, bologna, and corned beef • Canned meats: chili, Vienna sausage, sardines, and ham • Smoked fish and meats • Luncheon meats • Organ meats: liver, heart, kidney • Breaded or fried meats, chicken, fish or seafood • Oysters, clams, sardines 	<p><u>Choose More Often:</u></p> <ul style="list-style-type: none"> • All-natural chicken, turkey, fish or seafood • Lean and fresh beef, lamb, pork, veal, or wild game • Fresh fish: halibut, cod, salmon, tuna • Canned or packed tuna or salmon (rinsed) (no more than 4 ounces at 1 serving) • Seafood: lobster, shrimp, blue crab • Cottage cheese, no salt added (1/4 cup) • Whole eggs or egg whites (1 egg is 1 ounce) <p><u>Choose Less Often (limit to 1 serving):</u></p> <ul style="list-style-type: none"> • Tofu, beans, lentils, hummus (1/4-1/3 cup) • Unsalted nuts (1/4 cup) or nut butters (1 tablespoon)
<p>Dairy & Dairy Alternatives</p>	<ul style="list-style-type: none"> • Chocolate milk • Buttermilk • Condensed or evaporated milk • Coconut milk • Enriched almond, oat or rice milk • Sweetened yogurt • Eggnog • Processed cheese, such as American • Processed cheese spreads and dips • Sweetened Ice cream, pudding or frozen yogurt 	<ul style="list-style-type: none"> • Skim or fat-free milk • Unfortified almond, oat, or rice milk • Soy milk • Non-dairy creamer without “phos” ingredients • Yogurt: all natural, unsweetened, or plain • Sugar-free pudding or ice cream • Natural cheese such as brie, feta, Swiss, cheddar, or mozzarella. Only have a small amount (1 ounce - size of your thumb or 2 dice) • Low-fat cream cheese, Neufchatel, or sour cream (1 tbsp) • Sugar-free Sherbet, sorbet, fruit ice, or popsicles (1/2 cup) <p>*Portions of dairy products are often limited to ½ cup (4 ounces) due to high protein, potassium, or phosphorus content</p>

Continued...

 Food Group	 Avoid	 Recommended
Fats & Oils	<ul style="list-style-type: none"> • Salted butter or margarine • Olives 	<ul style="list-style-type: none"> • Unsalted margarine, soft Oil: canola, olive • Low-fat, no added sugar salad dressing • Light mayonnaise
Beverages	<ul style="list-style-type: none"> • Coconut water • Low-sodium broths and soups (1 cup, ½ can, 1 packet, bouillon cube) • Bottled/instant tea • Dark sodas (Coca Cola, Pepsi) • Energy drinks • Sports drinks • Fruit juices • Alcohol • Fruit-flavored drinks • Bottled or canned iced tea • Lemonade containing sugar, syrup, or phosphoric acid • Tea or lemonade sweetened with sugar 	<ul style="list-style-type: none"> • Water • Tea or coffee, unsweetened or sweetened with a low-calorie sweetener (8 ounces, fresh brewed) • Diet clear sodas • Lemonade sweetened with a low calorie sweetener

Important Notes:

High-fiber carbohydrates like whole grain bread, whole grain pasta, brown rice, etc. help prevent your blood sugar from spiking; however, they tend to contain higher amounts of potassium and phosphorus than refined carbohydrates. That isn't to say that they can't be or shouldn't be included in your diet though. Whole grains with lower potassium and phosphorus content include barley, buckwheat, bulgur, popcorn, and wild rice. It is generally recommended that half of the grains you eat each day come from whole grain sources. Talk to your dietitian or physician to determine what's right for you.

Remember

1 Portion control is important. Measure your serving sizes and read food labels.

2 Balance is the key to success.

Disclaimer: Please note that the information provided herein is intended to serve as a general guideline and may not meet the unique nutritional needs of individual patients. The distribution of these materials is at the discretion of the physician. The creator is not responsible for their application or outcomes on individual health conditions. All patients are advised to consult with their physician for personalized advice tailored to their unique needs and circumstances.