

This Meal Planning Guide is based on the Exchange System, which groups foods into categories such as starches, fruits, vegetables, milk, meats and meat substitutes, and fats. One serving in a group is called an “exchange.” An exchange has about the same amount of carbohydrates, protein, fat, and calories as a serving of every other food in that same group. So, for example, you could swap one small apple for 3/4 cup of blueberries for one fruit serving. Sometimes nutrient figures may seem to vary a bit from list to list due to rounding-off, different serving sizes, or different methods of preparation. But if you eat the specified number of servings of each group, you can be comfortable that you’ll have a diet rich in nutrients and low in fat and calories.

At first it appears a bit tedious measuring out an ounce of this and a cup of that, and with some foods it can be hard to measure or estimate an exact serving size. An inexpensive kitchen scale will come in handy. And these pictures will illustrate some helpful estimations:



The palm, not including fingers and thumb, is about 3 ounces of meat.	A fist is about 1 cup.	The thumb is about 1 tablespoon.	The thumb tip is about 1 teaspoon.
Based on woman’s hand size. Measure meats after skin, bone, and visible fat have been removed.			

Do best you can, and hope little inaccuracies average out.

Avoid snacks that are not counted in your meal plan, and avoid nibbling while preparing foods. These uncounted portions can add up to a significant number of calories, and are a frequent reason for people not to lose weight when they are otherwise following the meal guide.

For combination foods, like casseroles or dessert items, you may have to do a little research. For packaged foods, look at the nutritional label. For recipes you prepare at home, either add up the calories for all the ingredients and divide by the number of servings, perform an Internet search, or use a smartphone application. One particularly good resource is MyFitnessPal.com.

A diet that promotes weight loss is sometimes slightly deficient in some vitamins and minerals, so you should take a one-a-day type multivitamin/mineral/iron supplement. An inexpensive generic will suffice.

Initially many of these meals and servings will appear much smaller than you’re accustomed to—and that is, after all, part of the object here. To combat hunger as your appetite and serving-size perception adapt, it helps to drink a full glass of water at the start of each meal. Eat slowly; if you eat too fast, your sense of fullness doesn’t get a chance to catch up with what you’ve eaten. And make use of the free foods list—items that you can add in addition to other foods listed in your meal plan.

Exercise promotes weight loss and has numerous other health benefits; it is as close to a fountain of youth as you’ll ever find. Start slowly and work your way up. Even if all you do is walk the length of the yard, that’s fine, as long as you go one step farther tomorrow. If your weight or arthritis problems prohibit you from walking for exercise, consider walking/exercising in a swimming pool; you’ll burn a lot of calories without having to support all of your weight. Try to build up to 30 minutes of exercise daily.

On the exchange lists you’ll see several footnotes. Some of these tell you that that food selection counts as a serving from more than one group. And you’ll see two other footnotes related to sodium (salt) and fiber:

- ◆ Foods marked with ◆ contain 480 mg or more of sodium per serving. The less sodium you get, the better.
- ☺ Foods marked with ☺ contain more than 3 grams of dietary fiber per serving. The more fiber you get, the better.

**References:**

- The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults; National Institutes of Health; National Heart, Lung, and Blood Institute; North American Association for the Study of Obesity; NIH Publication Number 00-4084; October 2000.
- NIH menu planner for 1200, 1400, 1600, 1800, 2000 cal diets. <http://hp2010.nhlbihin.net/menuplanner/menu.cgi>.
- Daily Meal Planning Guide; [www.LillyDiabetes.com](http://www.LillyDiabetes.com).
- MyFitnessPal.com: Numerous online and smartphone weight management tools, including food and exercise calorie listings.
- Choose Your Foods: Exchange Lists for Diabetes; American Diabetes Association and American Dietetic Association, 2007.



## STARCH

Each serving from this list contains 15 grams carbohydrate, 0-3 grams protein, 0-1 gram fat, and 80 calories. Many foods from this group also give you fiber, vitamins, and minerals. Prepare and eat starchy foods with as little added fat as possible. Choose whole grain starches as often as you can.

In general, a single serving of starch is:

- 1/2 cup of cooked cereal, grain, or starchy vegetable.
- 1/3 cup of cooked rice or pasta.
- 1 oz of a bread product such as 1 slice of whole wheat bread.
- 3/4 to 1 oz of most snack foods (some snack foods may also have extra fat).

△ Foods marked with △ should be counted as 1 starch + 1 fat serving.

▶ Foods marked with ▶ should be counted as 1 starch + 1 meat serving.

⊙ Foods marked with ⊙ contain more than 3 grams of dietary fiber per serving. The more fiber you get, the better.

### SERVING CHOICES

<p><b>Bread</b></p> <p>Bagel, large (about 4 oz) 1/4 (1 oz)</p> <p>△ Biscuit, 2.5" wide 1</p> <p>Bread (white/wheat/rye) 1 slice (1 oz)</p> <p>△ Cornbread, 1.75" cube (1 1/2 oz)</p> <p>English muffin 1/2</p> <p>Hot dog or hamburger bun 1/2 (1 oz)</p> <p>Pancake, 4" wide, 1/4" thick 1</p> <p>Pita pocket bread (6" across) 1/2</p> <p>Roll, plain, small 1 (1 oz)</p> <p>Tortilla, corn or flour (6" across) 1</p> <p>△ Waffle, 4" square or round 1</p> <p><b>Cereals and Grains</b></p> <p>Cereals, cooked (oats, oatmeal) 1/2 cup</p> <p>Cereals, unsweetened, ready-to-eat 3/4 cup</p> <p>Granola, low-fat 1/4 cup</p> <p>Pasta, cooked 1/3 cup</p> <p>Rice, white or brown, cooked 1/3 cup</p>	<p><b>Starchy Vegetables</b></p> <p>Corn, cooked 1/2 cup</p> <p>Corn on cob, large 1/2 cob (5 oz)</p> <p>⊙ Hominy, canned 3/4 cup</p> <p>⊙ Peas, green, cooked 1/2 cup</p> <p>Plantain, ripe 1/3 cup</p> <p>Potato</p> <p>    Baked with skin 1/4 large (3 oz)</p> <p>    Boiled 1/2 cup or 1/2 medium (3 oz)</p> <p>    △ Mashed with milk and fat 1/2 cup</p> <p>    French fried (oven-baked) 1 cup (2 oz)</p> <p>Spaghetti/pasta sauce 1/2 cup</p> <p>⊙ Squash, winter (acorn, butternut) 1 cup</p> <p>Yam/sweet potato, plain 1/2 cup</p> <p><b>Crackers and Snacks</b></p> <p>Crackers</p> <p>    △ Round, butter-type 6</p> <p>    Saltines 6</p>	<p>Graham cracker, 2.5" square 3</p> <p>Popcorn</p> <p>    △ ⊙ With butter 3 cups</p> <p>    ⊙ Low fat or no fat added 3 cups</p> <p>Pretzels 3/4 oz</p> <p>Snack chips (tortilla chips, potato chips)</p> <p>    Fat-free or baked 15-20 (3/4 oz)</p> <p>    △ Regular 9-13 (3/4 oz)</p> <p><b>Beans, Peas and Lentils</b></p> <p>Beans, peas and lentils are also found on the Meat list. These servings contain 7 grams of protein.</p> <p>▶ ⊙ Baked beans 1/3 cup</p> <p>▶ ⊙ Beans/lentils, cooked (black, garbanzo, kidney, lima, navy, pinto) 1/2 cup</p> <p>▶ ⊙ Peas, cooked 1/2 cup</p>
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## FRUITS

Each serving from this list contains 15 grams carbohydrate, 0 grams fat, 0 grams protein, and 60 calories. Fruits are good sources of fiber, regardless if they are fresh, frozen, or dried. Fruit juices contain very little fiber; choose fruits instead of juices whenever possible. When using canned fruit, choose fruit packed in its own juice or light syrup.

In general, a single serving of fruit is:

- 1/2 cup of canned or fresh fruit or unsweetened fruit juice.
- 1 small fresh fruit (4 oz).
- 2 tablespoons of dried fruit.

⊙ Foods marked with ⊙ contain more than 3 grams of dietary fiber per serving. The more fiber you get, the better.

### SERVING CHOICES

<p><b>Fruit</b></p> <p>Apple, unpeeled, small 1 (4 oz)</p> <p>Applesauce, unsweetened 1/2 cup</p> <p>Banana, extra small 1 (4 oz)</p> <p>Berries</p> <p>    ⊙ Blackberries 3/4 cup</p> <p>    Blueberries 3/4 cup</p> <p>    ⊙ Raspberries 1 cup</p> <p>    ⊙ Strawberries 1.25 cup whole berries</p> <p>Cantaloupe, small 1/3 melon</p> <p>    or 1 cup cubed (11 oz)</p> <p>Cherries, sweet fresh 12 (3 oz)</p>	<p>Dried fruits (blueberries, cherries, cranberries, mixed fruit, raisins) 2 Tbsp</p> <p>Grapefruit, large 1/2 (11 oz)</p> <p>Grapes, small 17 (3 oz)</p> <p>Guava 1/2 cup</p> <p>⊙ Kiwi 1 (3 1/2 oz)</p> <p>Mandarin oranges, canned 3/4 cup</p> <p>Mango, small 1/2 fruit (5.5 oz) or 1/2 cup</p> <p>⊙ Orange, small 1 (6 1/2 oz)</p> <p>Papaya 1/2 fruit or 1 cup cubed (8 oz)</p> <p>Passion fruit 1/4 cup</p> <p>Peaches (fresh, medium) 1 (6 oz)</p>	<p>Pears (fresh, large) 1/2 (4 oz)</p> <p>Pineapple (fresh) 3/4 cup</p> <p>Plums</p> <p>    Small fresh 2 (5 oz)</p> <p>    Dried (prunes) 3</p> <p>Watermelon 1 slice</p> <p>    or 1.25 cups cubes (13.5 oz)</p> <p><b>Fruit Juice</b></p> <p>Apple, grapefruit, orange, pineapple 1/2 cup</p> <p>Grape, prune, and 100% fruit juice blends 1/3 cup</p>
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## VEGETABLES, NONSTARCHY

Each serving from this list contains 5 grams carbohydrate, 2 grams protein, and 25 calories. Vegetables provide a lot of nutrients and food bulk without a large calorie load. Choose a variety of vegetables to benefit from their important vitamins and minerals. When using canned vegetables, choose no-salt-added versions or rinse regular canned vegetables.

In general, a single serving of a nonstarchy vegetable is:

- 1/2 cup of cooked vegetables or vegetable juice.
  - 1 cup of raw vegetables.
- ◆ Foods marked with ◆ contain 480 mg or more of sodium per serving. The less sodium you get, the better.  
 ☺ Foods marked with ☺ contain more than 3 grams of dietary fiber per serving. The more fiber you get, the better.

### SERVING CHOICES

Beans (green, wax, Italian) Bean sprouts Broccoli Cabbage (green, bok choy, Chinese) ☺ Carrots Cauliflower Celery Cucumber	Eggplant Greens (collard, kale, mustard, turnip) Mushrooms, all kinds, fresh Okra Onions Pea pods ☺ Peppers (all varieties) Radishes	◆ Sauerkraut Spinach Squash (summer, crookneck, zucchini) Tomatoes, fresh and canned ◆ Tomato sauce ◆ Tomato/vegetable juice Water chestnuts
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## MEAT AND MEAT SUBSTITUTES

Meat and meat substitutes are rich in protein, but that often comes at the cost of a lot of fat. Whenever possible, choose lean meats. Portion sizes on this list are based on cooked weight, after bone and fat have been removed. Serving sizes vary as listed below.

- † Foods marked with † should be counted as 1 meat + 1/2 fat serving.
- ‡ Foods marked with ‡ should be counted as 1 meat + 1 fat serving.
- ▶ Foods marked with ▶ should be counted as 1 starch + 1 meat serving.
- ◆ Foods marked with ◆ contain 480 mg or more of sodium per serving. The less sodium you get, the better.

### SERVING CHOICES

#### Lean Meats and Meat Substitutes

Each serving from this list contains 0 grams carbohydrate, 7 grams protein, 0-3 grams fat, and 45 calories.

	<b>Serving Size</b>
Beef, Select or Choice grades— Ground round, roast (chuck, rib, rump), round, sirloin, steak (cubed, flank, porterhouse, T-bone), tenderloin	1 oz
Cheeses with ≤ 3 grams of fat per oz	1 oz
Cottage cheese	1/4 cup
Egg whites	2
Fish, fresh or frozen, plain: catfish, cod, flounder, haddock, halibut, orange roughy, salmon, tilapia, trout, tuna	1 oz
Hot dog with ≤ 3 grams of fat per oz	1
Pork, lean—Canadian bacon, rib or loin chip/roast, ham, tenderloin	1 oz
Poultry, without skin	1 oz
Processed sandwich meats with ≤ 3 grams of fat per oz	1 oz
Tuna, canned in water or oil, drained	1 oz

#### Medium-Fat Meats and Meat Substitutes

Each serving from this list contains 0 grams carbohydrate, 7 grams protein, 4-7 grams fat, and 75 calories.

	<b>Serving Size</b>
† Beef—Corned beef, ground beef, meatloaf, prime grades trimmed of fat (prime rib)	1 oz
† Cheeses with 4-7 grams of fat per oz— Feta, mozzarella, pasteurized processed cheese spread, reduced-fat cheeses, string cheese	1 oz
† Egg	1
† Fish, any fried product	1 oz
† Pork, cutlet, shoulder roast	1 oz
† Poultry, with skin or fried	1 oz
† Ricotta cheese	2 oz or 1/4 cup
† ◆ Sausage with 4-7 grams of fat per oz	1 oz

#### High-Fat Meats and Meat Substitutes

Each serving from this list contains 0 grams carbohydrate, 7 grams protein, 8+ grams fat, and 100 calories.

	<b>Serving Size</b>
‡ ◆ Bacon, pork	2 slices
‡ ◆ Bacon, turkey	3 slices
‡ ◆ Hot dog—Beef, pork, or combination	1
‡ Pork sparerib	1 oz

‡ Processed sandwich meats with 8 grams of fat or more per oz— Bologna, pastrami, hard salami	1 oz
‡ ◆ Sausage with 8 grams fat or more per oz—Bratwurst, chorizo, Italian, knockwurst, Polish, smoked summer	1 oz
‡ Cheese, regular—American, bleu, brie, cheddar, hard goat, Monterey jack, queso, and Swiss	1 oz

#### Plant-Based Proteins

Each serving from this list contains approximately 6-7 grams protein, and 80-100 calories. Beans, peas and lentils are also found on the Starch list. Nut butters are found in smaller amounts on the Fats list.

	<b>Serving Size</b>
▶ ☺ Baked beans	1/3 cup
▶ ☺ Beans/lentils, cooked (black, garbanzo, kidney, lima, navy, pinto)	1/2 cup
▶ ☺ Peas, cooked	1/2 cup
‡ ☺ Hummus	1/4 cup
‡ Nut spreads—Almond butter, cashew butter, peanut butter, soy nut butter	1 Tbsp
‡ Tempeh	1/4 cup
‡ Tofu	4 oz (1/2 cup)

## MILK

Milk and yogurt are rich in calcium and protein. Choose fat-free, low-fat, and reduced-fat varieties as often as possible. (Cheese products are found under MEAT AND MEAT SUBSTITUTES.)

Serving sizes of these items varies as listed below.

### SERVING CHOICES

#### **Fat-Free (skim) or Low-Fat (1%) Milk and Yogurt**

Each serving from this list contains 12 grams carbohydrate, 8 grams protein, 0-3 grams fat and 100 calories.

	<b>Serving Size</b>
Milk, buttermilk, acidophilus milk,	
Lactaid	1 cup
Evaporated milk	1/2 cup
Yogurt, low-fat, plain or flavored with	
a low calorie sweetener	2/3 cup
Yogurt, fat-free, plain or flavored with	
a low calorie sweetener	1 cup
Hot cocoa mix, sugar-free	1 envelope

#### **Reduced-Fat (2%) Milk and Yogurt**

Each serving from this list contains 12 grams carbohydrate, 8 grams protein, 5 grams fat and 120 calories.

	<b>Serving Size</b>
Milk, acidophilus milk, Lactaid	1 cup
Yogurt, plain	2/3 cup (6 oz)

#### **Whole Milk and Yogurt**

Each serving from this list contains 6 grams carbohydrate, 4 grams protein, 4 grams fat and 80 calories.

	<b>Serving Size</b>
Milk, buttermilk, goat's milk	1/2 cup
Evaporated milk	1/4 cup
Yogurt, plain	4 oz

#### **Dairy-Like Foods**

Exact nutrient proportions vary, but these may be considered as milk substitutes containing approximately 100 calories.

	<b>Serving Size</b>
Smoothies, flavored, regular	10 oz
Soy milk, regular, plain	1 cup
Yogurt-juice blends, low-fat	1 cup
Yogurt-fruit blends, low-fat	2/3 cup (6 oz)

## FATS

Each serving from this list contains 0 grams carbohydrate, 0 grams protein, 5 grams fat, and 45 calories. Monounsaturated and polyunsaturated fats are more heart-healthy; select them whenever possible.

In general, a single serving of fat is:

- 1 teaspoon of regular margarine, vegetable oil or butter.
- 1 tablespoon of regular salad dressing.

### SERVING CHOICES

<b>Monounsaturated Fats</b>	<b>Serving Size</b>	<b>Polyunsaturated Fats</b>	<b>Serving Size</b>	<b>Saturated Fats</b>	<b>Serving Size</b>
Avocado, medium	2 Tbsp (1 oz)	Margarine		Butter, stick	1 tsp
Nut butters (trans-fat free)	1.5 tsp	Lower-fat spread	1 Tbsp	Cream, half and half	2 Tbsp
Nuts		Stick, tub or squeeze	1 tsp	Cream cheese	
Almonds, cashews	6 nuts	Mayonnaise		Reduced-fat	1.5 Tbsp (3/4 oz)
Macadamia	3 nuts	Reduced-fat	1 Tbsp	Regular	1 Tbsp (1/2 oz)
Peanuts	10 nuts	Regular	1 tsp	Sour cream	
Pecans	4 halves	Oil—Corn, cottonseed, flaxseed,		Reduced-fat or light	3 Tbsp
Oil—Canola, olive, peanut	1 tsp	grape seed, safflower, soybean,		Regular	2 Tbsp
Olives, black (ripe)	8 large	sunflower	1 tsp		
Olives, green (stuffed)	10 large	Salad dressing			
		Reduced-fat	2 Tbsp		
		Regular	1 Tbsp		

## COMBINATION FOODS

Combination foods contain items from more than one food list. While this prevents them from being a simple substitution with other items listed here, with the help of the package label, online resources, smartphone apps, or a dietician, they can be incorporated into your meal plan. The ratio of various components can become confusing when trying to match these foods to items on simple food exchange lists. When in doubt, let calories be the deciding factor. But also note the food group exchanges listed. Each of these items count as a serving of multiple groups, so you'll probably get a smaller total amount of food to eat whenever you choose these foods.

Obviously, there are too many possibilities to list here, and calorie counts vary broadly by brand or recipe, but some representative examples are given.

◆ Foods marked with ◆ contain 480 mg or more of sodium per serving. The less sodium you get, the better. Many pre-packaged combination foods are high in sodium unless they are specifically marked "low sodium."

### SERVING CHOICES

Casseroles/Single-Dish	Serving Size	Soups	Serving Size	Miscellaneous	Serving Size
Lasagna, frozen single-serving	1	Chicken noodle soup, canned	1 cup	Burrito, frozen, beef and bean	1
◆ Count as 2 starch, 2 meat, 2 fat	(340 cal)	◆ Count as 1 starch, 1 meat	(120 cal)	◆ Count as 2 starch, 1 meat, 2 fat	(290 cal)
Macaroni and cheese, boxed, prepared with skim milk	1 cup	Chili with beans, canned	1 cup	Pizza, frozen, 12"	1/8 pizza
◆ Count as 3 starch, 1 milk	(300 cal)	◆ Count as 2 starch, 1 meat, 1 fat	(250 cal)	◆ Count as 2 starch, 1 meat, 1 fat	(240 cal)
Tuna noodle casserole	1 cup	Tomato soup, canned	1 cup	Taco, hard with cheese	1
◆ Count as 2 starch, 2 meat, 1 fat	(300 cal)	◆ Count as 2 starch, 1 vegetable	(180 cal)	◆ Count as 1 starch, 1 meat, 1 fat	(170 cal)

## SWEETS AND DESSERTS

Many sweets and desserts are also combination foods, containing items from more than one food list, but since people think of them differently from entrees, it is helpful to list them separately. As with other combination foods, it is hard to directly swap them with other items on these substitution lists, so you'll need to turn to the package label, online resources, smartphone apps, or a dietician for guidance. If you have difficulty matching nutritional components to the food lists above, let calories be your guide to determine how they can fit into your daily meal plan. But also note the food group exchanges listed. Each of these items count as a serving of multiple groups, so you'll probably get a smaller total amount of food to eat whenever you choose these foods.

Obviously, there are too many possibilities to list here, and calorie counts vary broadly by brand or recipe, but some representative examples are given.

### SERVING CHOICES

<b>Food</b>	<b>Serving Size</b>				
Brownie, unfrosted	1.25" square (1 oz)	Count as 2 starch	(160 cal)	Pudding, regular	1/2 cup
Count as 1 starch, 1 fat	(110 cal)	Fruit juice bars, frozen	1 bar (3 oz)	(made with reduced-fat milk)	
Cake, frosted	2" square (1 oz)	Count as 1 starch	(80 cal)	Count as 2 starch	(150 cal)
Count as 2 starch, 1 fat	(105 cal)	Gelatin, regular	1/2 cup	Pudding, sugar and fat-free	1/2 cup
Cake, frosted	2" square (1 oz)	Count as 1 starch	(80 cal)	(made with fat-free milk)	
Count as 1 starch, 1 fat	(75 cal)	Granola or snack bar	1 bar (1 oz)	Count as 1 starch	(80 cal)
Candy bar, chocolate/peanut	2 "fun size" (1 oz)	Count as 1.5 starch	(120 cal)	Sugar	1 Tbsp
Count as 1.5 starch, 1.5 fat	(160 cal)	Hot cocoa mix, regular	1 envelope	Count as 1/2 starch	(45 cal)
Candy, hard	3 pieces	Count as 1 starch, 1 fat	(120 cal)	Syrup, regular pancake	1/4 cup
Count as 1 starch	(70 cal)	Ice cream, light no sugar added	1/2 cup	Count as 2.5 starch	(210 cal)
Cookies, chocolate chip, 2.25"	2	Count as 1 starch, 1 fat	(110 cal)	Syrup, regular pancake	2 TBSP
Count as 1 starch, 2 fat	(170 cal)	Ice cream, regular	1/2 cup	Count as 1.5 starch	(105 cal)
Cookies, vanilla wafer	5	Count as 1 starch, 2 fat	(150 cal)	Syrup, light pancake	1/4 cup
Count as 1 starch, 1 fat	(110 cal)	Jam or jelly, regular	1 Tbsp	Count as 1 starch	(100 cal)
Doughnut, cake, plain	1 medium (1.5 oz)	Count as 1 starch	(50 cal)	Syrup, light pancake	2 TBSP
Count as 1.5 starch, 2 fat	(210 cal)	Muffin, blueberry (8-muffin mix)	1	Count as 1/2 starch	(50 cal)
Flan (caramel custard)	1/2 cup	Count as 2 starch, 2 fat	(240 cal)	Yogurt, frozen, fat-free	1/2 cup
		Pie, fruit, 2 crust	1/8 of 9" pie	Count as 1 milk	(90 cal)
		Count as 3 starch, 2 fat	(320 cal)		

## ALCOHOL

If you choose to drink alcohol, do not exceed 1 drink per day for females or 2 drinks per day for males. In general, 1 serving of alcohol is 100 calories, so you will need to reduce your daily food intake by this amount. This approximately 1 starch plus 1/2 fruit or 1 vegetable.

1 serving alcohol = 12 oz beer = 1.5 oz distilled spirits = 5 oz wine.