

Diabetic Exchange

Starch List

Each item on this list contains approximately 15 grams of carbohydrate, 3 grams of protein, a trace of fat and 80 calories. Whole grain products average about 2 grams of fiber per serving.

As a general rule, 1 1/2 cup of cereal, grain or pasta and 1 ounce of a bread product equals one serving.

Dried Beans/Peas/Lentils

Beans and peas, cooked (such as kidney, white, split, black-eyed)1/2 cup
Lentils, cooked1/2 cup
Lima beans2/3 cup

Starchy Vegetables

Corn 1/2 cup
Corn on the cob, 6-inch1 cob
Peas, green1/2 cup
Potato, baked or boiled.....1 small (3 oz)
Potato, mashed.....1/2 cup
Squash, winter (acorn or butternut) ..1 cup
Yam, sweet potato, plain1/2 cup
Baked beans.....1/3 cup

Cereals/Grains/Pasta

Bran cereals1/2 cup
Bulgur.....1 1/2 cup
Cooked cereal1/2 cup
Cornmeal, dry.....3 tbsp
Grape-Nuts®.....1/4 cup
Grits, cooked.....1/2 cup
Cereals, ready-to-eat unsweetened3/4 cup
Cereals, sugar-frosted1/2 cup
Pasta, cooked1/2 cup
Puffed cereal1 1/2 cup
Rice, white or brown (cooked)1/3 cup
Shredded wheat. 1/2 cup
Wheat germ.....3 tbsp
Bread Bagel.....1/2 (1 oz)
Bread, reduced-calorie 2 slices
Bread-white, wheat, rye1 slice (1 oz)
Bread sticks,
crisp 4 in long, 1/2 in. thick2 (2/3 oz)
English muffin 1/2
Frankfurter or hamburger bun. 1/2 (1 oz)
Pita. 6 inches across1/2
Plain roll, small..... 1 (1 oz)
Raisin, unfrosted1 slice (1 oz)
Tortilla, 6 inches1

Crackers/Snacks

Animal crackers8
Graham crackers. 2 1/2 inches.....3
Matzoth.....3/4 oz
Melba toast 4 slices
Oyster crackers.....24
Popcorn (popped, no fat added)3 cups
Pretzels3/4 oz
Rice Cakes, 4 inches across2
Saltine-type crackers.....6
Whole wheat crackers(no fat added).....2-5 (3/4 oz)

Starchy Foods Prepared With Fat

(Count as 1 starch/bread serving plus 1 fat serving)

Biscuit, 2 1/2 inches across.....1
Chow mien noodles1/2 cup
Corn bread, 2 inch cube1 (2 oz)
Cracker, round butter type6
Croutons..... 1 cup
French fried potatoes16-25 (3 oz)
Granola1/4 cup
Muffin, plain, small.....1
Pancake, 4 inches across2
Stuffing, bread (prepared)1/3 cup
Taco shell, 6 inches across.....2
Waffle, 4 1/2 inches square1
Whole wheat crackers (fat added) . 4-6 (1 oz)
Popcorn, microwave.....3 cups
Sandwich crackers,
cheese/peanut butter 3

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Fruit List

Each item on this list contains about 15 grams of carbohydrate and 100 calories. Fresh, frozen and dry fruits have about 2 grams of fiber per serving» Fruit juice; contain very little dietary fiber.

Use fresh fruits or fruits frozen or canned without added sugar. Unless stated otherwise, the serving size for one fruit exchange may include one of the following:

- 1/2 cup of fresh fruit, or fruit juice
- 1/4 cup of dried fruit

Apple (raw, 2 inches across)	1 apple
Applesauce (unsweetened).....	1/2 cup
Apricots (medium, raw).....	4 apricots
Apricots (canned)	1/2 cup
Banana (small)	1 banana
Blackberries (raw)	3/4 cup
Blueberries (raw)	3/4 cup
Cantaloupe (5 inches across)	1/3 melon
(cubes)	1 cup
Cherries (large, raw)	12 cherries
Cherries (canned)	1/2 cup
Figs (raw)	1 1/2 large
or	
2 medium Fruit cocktail (canned)	1/2 cup
Grapefruit (large)	1/2 fruit
Grapefruit, segments	3/4 cup
Grapes (small)	17 grapes
Honeydew (medium)	1 slice(10 oz)
(cubes)	1 cup
Kiwi (large)	1 fruit
Mandarin oranges	3/4 cup
Mango (small)	1/2 mango
or	
1/2 cup Nectarine (small)	1 nectarine
Orange (small)	1 orange
Peach (medium)	1 peach
3/4 cup Peaches (canned) 1/2 cup or 2 halves	
Pear	1/2 large
Pears (canned).....	1/2 cup
2 halves	
Pineapple (raw)	3/4 cup
Pineapple (canned)	1/2 cup
Plums (small)	2 plums
Raspberries (raw)	1 cup
Strawberries (raw, whole)	1 1/4 cup
Tangerine (small)	2 fruits
Watermelon, cubes.....	1 1/4 cup

Dried Fruit

Apples	4 rings
Apricots	8 halves
Dates	medium
Figs	1 1/2
Prunes.....	3 medium
Raisins	2 tbsp

Fruit Juices

Apple juice/cider	1/2 cup
Cranberry juice cocktail	1/3 cup
Cranberry juice cocktail, reduced-calorie .	1 cup
Grapefruit juice	1/2 cup
Grape juice	1/3 cup
Orange juice	1/2 cup
Pineapple juice	1/2 cup
Prune juice	1/3 cup
Fruit juice blends, 100% juice	1/3 cup

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Milk List

Each serving of milk or milk product on this list contains about 12 grams of carbohydrate and 8 grams

of protein. Calories vary depending on the amount of fat in the kind of milk you choose. The list is divided into skim/very low fat milk, low fat milk and whole milk.

Skim and Very Low fat Milk

(One exchange contains 12 grams of carbohydrate, 8 grams of protein, 0-3 grams of fat and 90 calories.)

Skim milk	1 cup
1/2% milk	1 cup
1% milk	1 cup
Nonfat or low fat buttermilk	1 cup
Evaporated skim milk	1/2 cup
Dry nonfat milk	1/3 cup
Plain nonfat yogurt	3/4 cup
Nonfat or low fat fruit-flavored yogurt with aspartame or non-nutritive sweetener	1 cup

Low fat Milk

(One exchange contains 12 grams of carbohydrate, 8 grams of protein, 5 grams of fat and 120 calories.)

2% milk	1 cup
Plain lowfat yogurt	3/4 cup

Whole Milk

(One exchange contains 12 grams of carbohydrate, 8 grams of protein, 8 grams of fat and 150 calories.) Limit choices from the whole milk category as much as possible.

Whole milk	1 cup
Evaporated whole milk	1/2 cup
Goat's milk	1 cup

Foods in this list can be substituted for foods from the starch, fruit or milk lists. Some will also count as one or more fat exchanges.

Food	Serving size	Exchanges Per Serving
Angel food cake, unfrosted.....	1/12 cake	2 carbohydrates
Brownie, small, unfrosted	2" square	1 carbohydrate, 1 fat
Cake, unfrosted	2" square	1 carbohydrate, 1 fat
Cake, frosted.....	2" square	2 carbohydrates, 1 fat
Cookie	2 small	1 carbohydrate, 1 fat
Cookie, fat free.....	2 small	1 carbohydrate
Doughnut, plain cake.....	1 medium	1 1/2 carbohydrates, 2 fats
Doughnut, glazed.....	1 (3 3/4" across).....	2 carbohydrates, 2 fats
Fruit spreads, 100% fruit	1	2 carbohydrates
Gelatin, regular.....	1/2 cup	1 carbohydrate
Granola bar	1 bar	1 carbohydrate, 1 fat
Ice cream	1/2 cup	1 carbohydrate, 2 fats
Ice cream, light	1/2 cup	1 carbohydrate, 1 fat
Ice cream, fat-free, no sugar added	1/2 cup	1 carbohydrate
Pie, fruit, 2 crusts	1/6 pie	3 carbohydrates, 2 fats
Pie, pumpkin or custard	1/8 pie	1 carbohydrate, 2 fats
Pudding, regular, with lowfat milk	1/2 cup	2 carbohydrates
Pudding, sugar-free, lowfat milk	1/2 cup	1 carbohydrate
Snack chips	1 oz	1 carbohydrate, 2 fats
Sherbet, sorbet	1/2 cup	2 carbohydrates
Spaghetti sauce, canned	1/2 cup	1 carbohydrate, 1 fat
Sweet roll	1 (2 1/2 oz)	2 carbohydrates, 2 fats
Syrup, regular	1 tbsp	1 carbohydrate
Yogurt, frozen, lowfat, fat-free	1/3 cup	1 carbohydrate, 0-1 fat
Yogurt, lowfat with fruit	1 cup	3 carbohydrates, 0-1 fat

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Vegetable List

Each vegetable on this list contains about 5 grams of carbohydrate, 2 grams of protein, 0 grams of fat and 25 calories. Vegetables contain 2-3 grams of dietary fiber. Unless stated otherwise, one vegetable • exchange is as follows:

- 1/2 cup of cooked vegetable or vegetable juice
- 1 cup of raw vegetables

Artichoke, Artichoke hearts, Asparagus
Beans {green, wax, Italian}, Beansprouts
Beets Broccoli, Brussels sprouts, Cabbage,
Carrots, Cauliflower, Celery, Cucumber, Eggplant,
Greens {collard, kale, mustard, turnip}, Green
onions, Kohlrabi, Leeks, Mixed vegetables (without
corn, peas, or pasta), Mushrooms (cooked), Okra,
Onions, Pea pods, Peppers (all varieties), Radishes,
Salad greens, Sauerkraut, Spinach, Summer
squash, Tomato, Tomato sauce, Tomato/vegetable
juice, Turnips, Water chestnuts, Watercress,
Zucchini

Meat and Meat Substitute List

Each serving of meat and substitute on this list contains about 7 grams of protein. The amount of fat and calories varies, depending on the choice. The list is divided into very lean meat, lean meat, medium-fat meat and high-fat meat. One meat exchange is as follows:

- 1 ounce of meat, poultry, fish or cheese
- 1/2 cup dried beans

Very Lean Meat and Substitutes List

(One exchange has 7 grams of protein, 0-1 gram fat and 35 calories and equals any one of the following items.)

Poultry: Chicken or turkey (white meat no skin).
Cornish hen (no skin) 1 oz
Fish: Fresh or frozen cod, flounder, haddock,
halibut, trout: tuna. fresh or canned in water 1 oz
Shellfish: Clams, crab, lobster, scallops.
shrimp. imitation shellfish 1 oz
Game: Duck or pheasant (no skin), venison,
buffalo, ostrich 1 oz
Cheese with 1 gram or less fat per ounce:
Nonfat or low-fat cottage cheese 1/4 cup
Fat-free cheese 1 oz
Other: Processed sandwich meats with 1 gram or

less fat per ounce, such as deli thin, shaved meats,
chipped beef. turkey ham 1 oz
Egg whites. 2
Egg substitutes, plain. 1/4 cup
Hot dogs with 1 gram or less fat per ounce 1 oz
Kidney (high cholesterol) 1 oz
Sausage with 1 gram or less fat per ounce... 1 oz
Count as one very lean meat and one starch
exchange: Dried beans, peas. lentils (cooked) 1/2 cup

Lean Meat and Substitutes

(One exchange has 7 grams of protein, 0-1 grams of fat, 35 calories and equals any one of the following items.)

Beef: USDA Select or Ct1oice grades of trimmed lean
round, sirloin, and flank steak: tenderloin; and
roast (rib, chuck, rump);steak (t-bone, porter house,
cubed);ground round 1 oz
Pork: Lean pork such as fresh ham; canned, cured, or
boiled ham; Canadian bacon, tenderloin; center loin
chop 1 oz
Lamb: Roast, chop, leg 1 oz
Veal: Lean chop, roast. 1 oz
Poultry: Chicken (white meat with skin),
chicken (dark meat, no skin), turkey (dark meat, no
skin),
domestic duck or goose (well drained
of fat, no skin) 1 oz
Fish: Oysters 6 medium
Tuna (canned in oil, drained) 1 oz
Herring 1 oz
Salmon {fresh or canned}, catfish 1 oz
Sardines (canned) 2 medium
Wild Game: Goose {without skin}, rabbit 1 oz
Cheese: Cottage cheese (4.5% fat) 1/4 cup
Grated parmesan 2 tbspc Diet
cheeses (3 grams fat or less) 1 oz
Other: Hotdogs with 3 grams or less fat/ounce 1 1/2
oz luncheon meat with 3 grams or less
fat/ounce 1 oz

Medium-Fat Meats

(One exchange has 7 grams of protein. 5 grams of fat. 75 calories and equals any one of the following items:

Beef: Most beef products fall into this category.
Examples are ground beef, meatloaf, and corned
beef short ribs, prime grades of meat trimmed of
fat such as prime rib 1 oz
Pork: Chops, top loin, Boston butt, cutlets 1 oz
Lamb: Rib, roast, ground 1 oz
Veal: Cutlet (unbreaded) 1 oz
Poultry: Chicken (dark meat with skin),
Ground turkey or ground chicken,
Fried chicken (with skin) 1 oz
Fish: Any fried fish product 1 oz
Cheese: With 5 grams of fat or less fat per
ounce Ricotta 2 oz
Mozzarella 1 oz

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Feta	1 oz
Egg (limit to 3 per week).....	1
Tofu (2 1/2 inches x 2 3/4 inches x 1 inch) 4 oz	
Or.....	1/2 cup
Sausage with 5 grams or less Fat/oz	1 oz
Soy milk	1 cup

High-Fat Meats

(One exchange has 7 grams of protein, 8 grams of fat. 100 calories and is equal to any one of the following items.)

Pork: Spareribs. Ground pork, Sausage .. 1 oz

Cheese:

All regular cheeses, such as American, Cheddar, Swiss, Monterey Jack	1 oz
other: Luncheon meat with 8 grams or less fat per ounce, such as bologna, pimento loaf, salami	1 oz
Sausage, such as Polish, Italian	1 oz
Frankfurter (turkey or chicken)	1
Bacon	3 slices

Count as one high-fat meat exchange plus one fat exchange:

Frankfurter (beef or pork)	1
Peanut butter	2 tbsp

Fats List

Fats are divided into monounsaturated. Poly-unsaturated, and saturated fats. Each serving on the fat list contains 5 grams of fat and 45 calories. Items on this list should be used sparingly.

Monounsaturated Fats

Avocado, medium	1/8 (1 oz)
Oil (canola, olive, peanut).....	1 tsp
Olives: ripe (black)	8
Green, stuffed	10
Nuts:	
Almonds, cashews	6 nuts
Mixed (50% peanuts)	6 nuts
peanuts	10 nuts
Pecans	4 halves
Peanut butter, smooth or crunchy ..	2 tsp
Sesame seeds.....	1 tbsp

Polyunsaturated Fats

Margarine, (stick, tub, and squeeze)	1 tsp
Margarine, reduced-fat	1 tbsp
Mayonnaise, regular	1 tsp
Mayonnaise. Reduced-fat	1 tbsp
Miracle Whip, regular	2 tsp
Miracle Whip, light	1 tbsp
Oil (corn. safflower, soybean)	1 tsp
Salad dressings, regular	1 tbsp
Salad dressings, reduced-fat.....	2 tbsp
Seeds, pumpkin or sunflower	1 tbsp

Saturated Fats

Butter, stick	1 tsp
Whipped	2 tsp
Butter, reduced fat	1 tbsp
Bacon	1 slice
Chitterlings	1/2 oz
Coconut shredded	2 tbsp
Cream, light or half and half	2 tbsp
Cream, sour, regular	2 tbsp
Cream, sour, reduced fat	3 tbsp
Cream, heavy, whipping	1 tbsp
Cream cheese, regular	1 tbsp
Cream cheese, reduced fat	2 tbsp
Salt pork	1/4 oz
Shortening or lard	1 tsp

Free Foods

A free food is any food or drink that contains less than 20 calories or less than 5 grams of carbohydrate per serving. Use as much as you want for those items that have no serving size specified. Items that have a Specific Serving size should be limited to one serving per day.

Fat-free or Reduced-fat Foods

Cream cheese. Fat-free	1 tbsp
Creamers, nondairy, liquid	1 tbsp
Creamers, nondairy, powdered	2 tsp
Mayonnaise, fat-free	1 tbsp
Mayonnaise. Reduced-fat	1 tsp
Margarine, fat-free	4 tbsp
Margarine, reduced-fat	1 tsp
Non-stick cooking spray,	
Salad dressing,	
Mayonnaise-type. Fat free	1 tbsp
Salad dressing,	
Mayonnaise-type, Reduced fat	1 tsp
Salad dressing, fat free	1 tbsp
Salad dressing, fat-free, Italian	2 tbsp
Salsa	1/4 cup
Sour cream, fat free	1 tbsp
Whipped topping	2 tbsp

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Sugar-free or Low-sugar Foods

Candy, hard, sugar-free	1 candy
Gelatin, sugar-free	
Gum, sugar-free	
Jam/jelly, sugar-free	2 tsp
Pancake syrup, sugar-free	2 tbsp
Sugar substitute	

Drinks

Bouillon or broth without fat Bouillon, low-sodium
 carbonated drinks, sugar-free Club soda, Sugar-free

Tonic water, sugar-free. Coffee/tea Drink mixes. Cocoa
 powder, unsweetened

Condiments

Catsup	1 tbsp
Horseradish	
Lemon or lime juice	
Mustard	
Pickles, unsweetened	1 1/2 large
Soy sauce	
Taco sauce	1 tbsp
Vinegar	

Combination Foods

Many foods we eat are combinations of foods that do not fit into only one exchange list. This list gives average values for some typical combination foods and can help you fit these foods into your meal plan.

Food	Amount	Exchange
Casseroles, homemade	1 cup (8 oz)	2 carbohydrates, 2 medium-fat meats
Cheese pizza, thin crust	1/4 of 10"	2 carbohydrates, 2 medium-fat meats, 1 fat
Pizza, meat topping, thin crust	1/4 of 10"	2 carbohydrates, 2 medium-fat meats, 2 fat
Macaroni and cheese, beans	1 cup (8 oz)	2 carbohydrates, 2 medium-fat meats
Bean	1 cup (8 oz)	1 carbohydrates, 1 very lean meat
Bean made with water	1 cup (8 oz)	1 carbohydrate, 1 fat
Split pea made with water.	1/2 cup (4 oz)	1 carbohydrate
Vegetable, beef, or chicken noodle	1 cup (8 oz).....	1 carbohydrate

A diabetic's meal plan is flexible and can be adjusted for varying needs, likes and dislikes

Reference: *Exchange Lists for Meal Planning*, The American Diabetes Association and the American Dietetic Association, 1995.

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Dietary Recommendations For Gestational Diabetes

Diabetes diagnosed during pregnancy is called gestational diabetes. Gestational diabetes occurs in about 7 percent of all pregnancies. It usually arises in the second half of pregnancy and goes away as soon as the baby is born. However, if gestational diabetes is not treated, you may experience complications.

The first step in treating gestational diabetes is to modify your diet to help keep your blood sugar level in the normal range, while still eating a healthy diet. Most women with well-controlled blood sugar deliver healthy babies without any complications.

One way of keeping your blood sugar levels in normal range is by monitoring the amount of carbohydrates in your diet. Carbohydrate foods digest and turn into blood glucose (a type of sugar). Glucose in the blood is necessary because it is the fuel for your body and nourishment your baby receives from you. However, it's important that glucose levels stay within target.

Carbohydrates are found in the following foods:

- Milk and yogurt
- Fruits and juices
- Rice, grains, cereals and pasta
- Breads, tortillas, crackers, bagels and rolls
- Dried beans, split peas and lentils
- Potatoes, corn, yams, peas and winter squash

Sweets and desserts, such as sugar, honey, syrups, pastries, cookies, soda and candy also typically have large amounts of carbohydrate.

Carbohydrates in foods are measured in units called grams. You can count how many carbohydrates are in foods by reading food labels and learning the exchange lists. The two most important pieces of information on food labels for a carbohydrate-controlled diet is the serving size and grams of total carbohydrate in each serving.

Dietary Recommendations

It is important to meet with a registered dietitian to have your diet assessed. The dietitian will calculate the amount of carbohydrates that you need at meals and snacks. You will also be taught how to count carbohydrates.

The following are dietary recommendations that will help you maintain safe blood sugar levels:

Distribute your foods between three meals and two or three snacks each day.

Eating too much at one time can cause your blood sugar to rise too much. It is very important that you do not skip meals. During pregnancy, you have increased nutritional needs and your baby requires balanced nutrition.

Eat reasonable portions of starch

Starchy foods eventually turn into glucose so it's important not to be excessive. However, starch should be included in every meal. A reasonable portion is about one cup of total starch per meal, or two pieces of bread.

Drink one cup of milk at a time

Milk is a healthy food and an important source of calcium. However, milk is a liquid form of carbohydrate and drinking too much at one time can raise your blood sugar.

Limit fruit portions

Fruit is a healthy food, but it is high in natural sugars. You may eat one to three portions of fruit per day, but only eat one at a time. A portion of fruit is either one very small piece of fruit, half of a large piece of fruit, or about one-half cup of mixed fruit. Do not eat fruit that has been canned in syrup.

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Breakfast matters

Blood sugar can be difficult to control in the morning because of normal fluctuations in hormone levels.

Refined cereals, fruits and even milk may not be well tolerated in your morning meal. If your post-breakfast blood sugar level increases too much after having these foods, then you should not eat them for your breakfast. A breakfast that consists of starch plus protein is usually tolerated the best

Avoid fruit juice

It takes several fruits to make a glass of juice. Juice is a concentrated source of carbohydrate. Because it is liquid, juice can raise blood sugar quickly.

Strictly limit sweets and desserts

Cakes, cookies, candies and pastries tend to have excessive amounts of carbohydrate. These foods often contain large amounts of fat and offer very little in terms of nutrition. Additionally, avoid all regular sodas and sugar-sweetened beverages.

Stay away from added sugars

Don't add sugar, honey or syrup to your foods.

Use artificial sweeteners instead of added sugars

The following sweeteners have been approved as safe to eat during pregnancy:

- Aspartame, which includes Equal, Nutrasweet, NatraTaste
- Acesulfame K, which includes Sunett
- Sucralose, which includes Splenda

When a product says it's "sugar free," take a closer look

Products containing sugar-alcohols are often labeled "sugar-free," but they may still contain significant amounts of total carbohydrate. Look at the food label to see the grams of total carbohydrate contained.

Sugar alcohols may have a laxative effect or cause gas and bloating. The following are examples of sugar-alcohols:

Mannitol

Maltitol

Sorbital

Xylitol

Isomalt

Hydrogenated starch hydrolysate

Some products labeled "sugar-free" are indeed carbohydrate-free and will not affect your blood sugar, including diet sodas and sugar-free Jell-o.

Keep food records

Be sure to record all of the foods and the amount that you eat each day, which will help you monitor your carbohydrate intake. Also, use measuring cups for accuracy when possible.

Reviewed by health care specialists at UCSF Medical Center.

This information is for educational purposes only and is not intended to replace the advice of your doctor or health care provider. We encourage you to discuss with your doctor any questions or concerns you may have.