

CALCULATING DIABETIC EXCHANGES

The following chart presents information from the American Diabetes Association, Inc., and The American Dietetic Association. It shows the amount of nutrients in one exchange from each exchange category.

Groups/Lists	Carbohydrate (grams)	Protein (grams)	Fat (grams)	Calories
Carbohydrate Group				
1 Starch Exchange =	15	3	1 or less	80
1 Fruit Exchange =	15	--	--	60
1 Milk Exchange =	12	8	0-3	90
1 Other Carbohydrate Exchange =	15	Varies	Varies	Varies (70)
1 Vegetables Exchange =	5	2	--	25
Meat and Meat substitute Group				
1 Very Lean Meat Exchange =	--	7	0-1	35
1 Lean Meat Exchange =	--	7	3	55
Fat Group				
1 Fat Exchange =	--	--	5	45

Following are examples of calculations:

Starch Example

1 cup (195 g) Long Grain Brown Rice-Cooked = 216 Calories
44.9 g carbohydrate

Method:

There are two ways to determine a starch exchange:

- Using the calorie value per starch exchange:
Divide total calories by 80
 $216 / 80 = 2.7$
- Using the carbohydrate grams per starch exchange:
Divide the total carbohydrate grams by 15 grams per starch exchange
 $44.9 \text{ g} / 15 \text{ g} = 2.99$
Test the calorie value by multiplying by 80 calories per starch exchange:
 $2.99 \times 80 = 239 \text{ calories}$
Since we have a total calorie value in excess of the total calories, adjust the starch exchange value to reach the total calorie level
 $(216 / 239) \times 2.99 = 2.7$
Result: 2.7 Starch Exchanges

Fruit Example

1 cup (145 g) Blueberries = 81 Calories
20 g carbohydrate

Method:

- Divide the total carbohydrate grams by 15 grams per fruit exchange:
 $20 \text{ g} / 15 \text{ g} = 1.33$
- Test the calorie value by multiplying by 60 calories per fruit exchange:
 $1.33 \times 60 = 80 \text{ calories}$
- Result: 1.33 Fruit Exchange

Milk Example

1 cup (245 g) Lowfat Dry Milk + Water = 84 Calories
11.9 g carbohydrate

Method:

1. Divide the total carbohydrate grams by 12g per milk exchange:
 $11.9\text{g} / 12\text{g} = 0.991$
2. Test for the calorie value by multiplying by 90 calories per milk exchange:
 $0.991 \times 90 = 89$ calories
3. Since we have a calorie value in excess of the actual calories, adjust the milk exchange value to reach the total calorie level:
 $(84 / 89) \times 0.991 = 0.935$
4. Result: 0.935 Milk Exchanges

Other Carbohydrate Example

1 each (54 g) Chocolate Coated Ice Cream Bar With Nuts = 171 Calories
16.7 g carbohydrate
10.9 g fat

Method:

1. Divide the total carbohydrate grams by 15 grams per other carbohydrate exchange:
 $16.7\text{g} / 15\text{g} = 1.11$
2. Multiply by 70 calories per other carbohydrate exchange:
 $1.11 \times 70 = 78$ calories
3. Divide the total fat grams by 5 grams per fat exchange:
 $10.9\text{g} / 5\text{g} = 2.18$
4. Multiply by 45 calories per fat exchange:
 $2.18 \times 45 = 98.1$ calories
5. Add the starch and fat calorie values:
 $78 + 98 = 176$ total calories
6. Since we have a total calorie value in excess of the actual calories, adjust the fat exchange value to reach the total calorie level:
 $(171 / 176) \times 2.18 = 2.1$
7. Result: 1.11 Other Carbohydrate Exchanges, 2.1 Fat Exchanges

Vegetable Example

½ cup (50 g) Cauliflower, Raw, Chopped = 12.5 Calories
2.61 g carbohydrate

Method:

1. Divide the total carbohydrate grams by 5 grams per vegetable exchange:
 $2.61\text{g} / 5\text{g} = 0.5$
2. Test for the calorie value by multiplying by 25 calories per vegetable exchange:
 $0.5 \times 25 = 12.5$ calories
3. Result: 0.5 Vegetable Exchange

Very Lean Meat Example:

1 each (52g) Skinless Chicken Thigh-Fried = 113 Calories
14.7 g protein
5 g fat

Method:

1. Divide the total protein grams by 7 grams per very lean meat exchange:
 $14.7\text{g} / 7\text{g} = 2.1$
2. Multiply by 35 calories per very lean meat exchange:
 $2.1 \times 35 = 74$ calories
3. Subtract the protein Calories from the total Calories to get the fat Calories.
 $113 - 74 = 39$ Calories
4. Divide the fat Calories by the Calories per fat exchange.
 $39 / 45 = 0.9$
5. Result: 2.1 Very Lean Meat Exchanges, 0.9 Fat Exchanges

Lean Meat Example:

3.5 oz Ground Beef, Regular, Baked = 287 Calories
23 g protein
20.9 g fat

Method:

1. Divide the total protein grams by 7 grams per lean meat exchange:
 $23\text{g} / 7\text{g} = 3.3$
2. Multiply by 55 calories per lean meat exchange:
 $3.3 \times 55 = 181$ calories
3. Subtract the protein Calories from the total Calories to get the fat Calories.
 $287 - 181 = 106$ Calories
4. Divide the fat Calories by the Calories per fat exchange.
 $106 / 45 = 2.3$
5. Result: 3.3 Lean Meat Exchanges, 2.3 Fat Exchanges

Fat Example:

1 tbsp Margarine, Stick = 102.13 Calories
11.4 g fat

Method:

1. Divide the total fat grams by 5 grams per fat exchange:
 $11.4\text{g} / 5\text{g} = 2.28$
2. Test for the calorie value by multiplying by 45 calories per fat exchange:
 $2.28 \times 45 = 102.6$ calories
3. Result: 2.28 Fat Exchanges