5.1 How Many Carbs a Day Do You Need?

1. **Circle your personal 50% carb diet factor for your sex and typical activity level:**

	Male	Female
• **Very sedentary** – slow walking, mostly sitting	1.62	1.44
• **Sedentary** – walking, bowling, fishing or similar activities	1.75	1.56
• **Moderately active** – dancing, 18 hole golf, pleasure swimming, etc	1.88	1.69
• **Active –** 20+ min. of jogging, swimming, etc. 3+ times a week	2.00	1.81
• **Super active** – one hour or more of vigorous activity 4 or more days a week, such as football, weight training, full court basketball	2.12	1.94

2. **Multiply your desired weight by your carb diet factor to find the daily grams of carbs you need for a 50% carb diet: :**

_____ lbs X _____ = _____ grams of carb/day
weight carb diet factor carb grams in 50% carb diet

USDA Dietary Guidelines recommend that in a healthy diet 45% to 65% of calories come from mostly complex carbs. Scan for BMI and daily calorie intake recommendations to maintain current weight at www.nal.usda.gov/human-nutrition-and-food-safety/dri-calculator

5.2 Bolus Doses for Meal Sizes with a betterTDD				
betterTDD Units	**Carb Bolus Units/Day**	**Small Meal**	**Medium Meal**	**Large Meal**
20 u	9.0 u	1.5 u	3.0 u	4.5 u
22 u	9.9 u	1.6 u	3.3 u	4.9 u
24 u	10.8 u	1.8 u	3.6 u	5.4 u
26 u	11.7 u	1.9 u	4 u	5.8 u
28 u	12.6 u	2.1 u	4.2 u	6.3 u
30 u	13.5 u	2.2 u	4.5 u	6.7 u
32 u	14.4 u	2.4 u	4.8 u	7.2 u
34 u	15.3 u	2.5 u	5.1 u	7.6 u
36 u	16.2 u	2.7 u	5.4 u	8.1 u
38 u	17.1 u	2.8 u	5.7 u	8.5 u
40 u	18.0 u	3.0 u	6.0 u	9.0 u
42 u	18.9 u	3.1 u	6.3 u	9.4 u
44 u	19.8 u	3.3 u	6.6 u	9.9 u
46 u	20.7 u	3.4 u	6.9 u	10.3 u
48 u	21.6 u	3.6 u	7.2 u	10.8 u
50 u	22.5 u	3.7 u	7.5 u	11.2 u
52 u	23.4 u	4 u	7.8 u	11.7 u
54 u	24.3 u	4.0 u	8.1 u	12.1 u
56 u	25.2 u	4.2 u	8.4 u	12.6 u
58 u	26.1 u	4.3 u	8.7 u	13.0 u
60 u	27.0 u	4.5 u	9.0 u	13.5 u
62 u	27.9 u	4.6 u	9.3 u	14 u
64 u	28.8 u	4.8 u	9.6 u	14.4 u
66 u	29.7 u	4.9 u	9.9 u	14.8 u
68 u	30.6 u	5.1 u	10.2 u	15.3 u
70 u	31.5 u	5.2 u	10.5 u	15.7 u
72 u	32.4 u	5.4 u	10.8 u	16.2 u
76 u	34.2 u	5.7 u	11.4 u	17.1 u
78 u	35.1 u	5.8 u	11.7 u	17.5 u
80 u	36.0 u	6.0 u	12.0 u	18.0 u
82 u	36.9 u	6.1 u	12.3 u	18.4 u
84 u	37.8 u	6.3 u	12.6 u	18.9 u
86 u	38.7 u	6.4 u	12.9 u	19.3 u
88 u	39.6 u	6.6 u	13.2 u	19.8 u
90 u	40.5 u	6.7 u	13.5 u	20.2 u
92 u	41.4 u	6.9 u	13.8 u	20.7 u
94 u	42.3 u	7.0 u	14.1 u	21.1 u
96 u	43.2 u	7.2 u	14.4 u	21.6 u
98 u	44.1 u	7.3 u	14.7 u	22.0 u
100 u	45.0 u	7.5 u	15.0 u	22.5 u

5.3 Metric Conversions

Imperial units		Metric units
1/2 oz	=	14 grams
1 oz	=	28.4 grams
2 oz	=	57 grams
3 1/2 oz	=	100 grams
1 fl. oz	=	30 ml
1 cup (8 fl oz)	=	240 ml
33 fl. oz	=	1 liter

By design, 30 ml of water fits in one cubic centimeter of space and equals 30 grams.

5.4 Use Food Labels to Count Carbs

Let's say you want to eat 2 cups of yogurt as part of your meal.

1. Look at the Nutrition Facts label from a yogurt container shown here. The label shows a serving size as 1 cup.
2. A one-cup serving has 18 grams of carbs. Multiply 18 grams by 2 servings to get the total grams of carb you will eat:

18 grams per cup x 2 cups = 36 grams

Nutrition Facts

8 Servings Per Container

Serving Size 1 cup (8 oz)

Amount Per Serving

Calories 130

	% Daily Value
Total Fat 0 g	0%
Saturated Fat 0 g	0%
Cholesterol 0 mg	0%
Sodium 0 mg	0%
Total Carbohydrates 18 g	6%
Dietary Fiber 0 g	0%
Sugars 3 g	
Protein 4 g	

5.5 Use a Gram Scale to Count the Carbs in Cooked Spaghetti

With a standard gram scale and the carb percentage from Appendix A:

Appendix A lists a variety of carb foods with the typical percentage of their weight from carbs. Simply weigh that food on a gram scale and multiply its weight by its carb percentage to determine how many grams of carb you will eat.

1. Place a plate on a scale and press the tare or on/off button to zero out the plate's weight. Then, place the amount of cooked spaghetti you want to eat onto the plate.
2. Appendix A shows that cooked plain spaghetti is 26 percent carbs compared to 74% carbs for dry spaghetti. If your cooked spaghetti portion weighs 200 grams on the scale, multiply this weight by 26% or 0.26.

Example

200 g	x	0.26	=	52 g
weight of spaghetti		carb %		total carbs in portion

3. To cover 200 grams of cooked spaghetti with a bolus, enter 52 grams of carb into your bolus calculator to obtain the bolus you need for these carbs.

With a computer gram scale:

Computerized gram scales contain the nutritional breakdowns for various foods. Just enter the code for that food or scroll to find it in the scale's database. Then, weigh it to find your portion's carbs, calories, fat, and protein.

1. Computerized gram scales contain information about the nutrition content of spaghetti and many other foods.
2. Tare (zero out) your plate on the scale.
3. Enter the food code for spaghetti into the scale.
4. Place the amount of spaghetti you want to eat onto your plate.
5. Press the carb key on the scale to determine how many grams of carbohydrates are in the spaghetti.

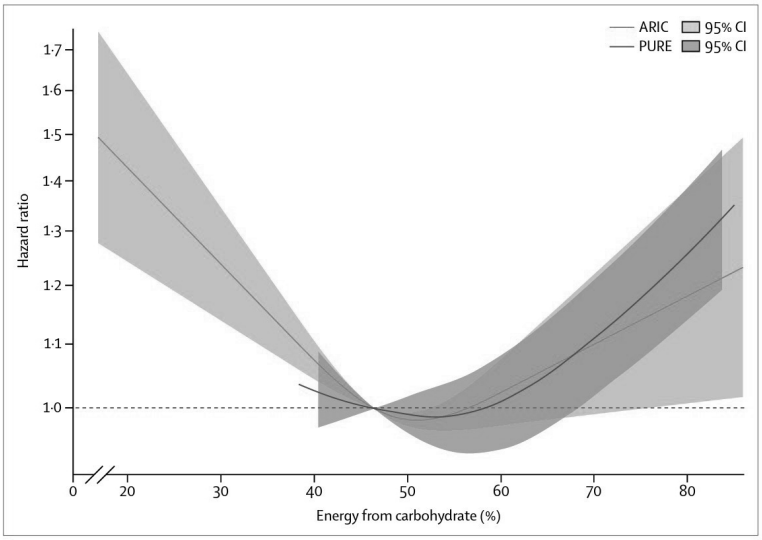
Gram scales are available online and at most kitchen supply stores.

5.6 Sample Values for Combination Foods

Below are estimated carbs per portion size for various home cooked and combination foods.

Food	Cals	Fat	Carbs
Beef Stroganoff, 5 oz	195	13	7
Beef Stroganoff with 4 oz noodles	350	14	36
Chicken Lasagna, 1 piece	300	11	32
Chicken Chop Suey with 4 oz rice	245	4	37
Deep Dish Burrito, 7 oz	265	13	20
Ground Beef Casser., 2 scoop, 6 oz	245	13	17
Ital. Meat Sauce (5 oz) for Spaghetti	150	9	9
with 5 oz Spaghetti	350	10	49
Lasagna, 1 piece	275	11	25
Meatloaf, 3 oz	205	13	4
Ranch Beans, 2 scoops, 6 oz	350	11	45
Red Beans & Rice, 7 oz	280	9	37
Scalloped Pot./Ham, 2 scoop, 6 oz	160	6	20
Stuffed Shells in Sauce (1)	105	3	17
Swedish Meatballs (3)	205	12	9
Sweet & Sour Pork/Rice, 9 oz	240	3	40
Swiss Steak, Mushroom Gravy, 5 oz	280	11	4
Tator Tot Casserole, 2 scoops, 6 oz	260	15	20
Tenderloin Tips Gravy, 5 oz	210	13	3
w 5 oz noodles	395	15	38
Tuna Noodle Casser., 2 scoop, 6 oz	180	6	17
Turkey Tetrazzini, 2 scoop, 6 oz	195	7	17
Vegetable Lasagna, 1 piece	250	13	21

5.7 Low Carb Diets Increase Mortality



This U-shaped graph shows the association between all-cause mortality for people without diabetes on the left and the percentage of energy from carbohydrates on the bottom. The initial survey among 15,428 adults aged 45-64 years living in four U.S. communities in light grey was conducted between 1987 and 1989 for the Atherosclerosis Risk in Communities (ARIC) cohort.[57] Mortality was determined 25 years later. The dark grey area shows similar results from a study conducted in Japan.58

The mortality risk is compared to people getting 50% of their energy from carbohydrates. Results are adjusted for age, sex, race, test center, total calories, diabetes, smoking, physical activity, income, and education. Lowest mortality occurs with a diet containing 50 to 55% of calories coming from carbs. Low-carb diets have a significant association with higher mortality.

5.8 Glycemic Index

Foods are compared to glucose, which ranks 100. Higher numbers indicate faster absorption and a faster rise in the glucose, while lower numbers indicate a slower rise.

Cereals		Snacks		Fruit	
All Bran™	51	chocolate bar	49	apple	38
Bran Buds +psyll	45	corn chips	72	apricots	57
Bran Flakes™	74	croissant	67	banana	56
Cheerios™	74	doughnut	76	cantaloupe	65
Corn Chex™	83	Graham crackers	74	cherries	22
Cornflakes™	83	jelly beans	80	dates	103
Cream of Wheat	66	Life Savers™	70	grapefruit	25
Frosted Flakes™	55	oatmeal cookie	57	grapes	46
Grapenuts™	67	pizza, cheese & tom.	60	kiwi	52
Life™	66	Pizza Hut™, supreme	33	mango	55
muesli, natural	54	popcorn, light micro	55	orange	43
Nutri-grain™	66	potato chips	56	papaya	58
oatmeal, old fash	48	pound cake	54	peach	42
Puffed Wheat™	67	Power Bars™	58	pear	58
Raisin Bran™	73	pretzels	83	pineapple	66
Rice Chex™	89	rice cakes	82	plums	39
Rice Krispies™	82	saltine crackers	74	prunes	15
Shredded Wheat™	67	shortbread cookies	64	raisins	64
Special K™	54	Snickers™ bar	41	watermelon	72
Total™	76	strawberry jam	51	**Pasta**	
Root Crops		vanilla wafers	77	cheese tortellini	50
french fries	75	**Crackers**		fettucini	32
potato, new, boiled	59	Graham	74	linguini	50
potato, red, baked	93	rice cakes	80	macaroni	46
potato, sweet	52	rye	68	spaghetti, 5m boil	33
potato, wht, boiled	63	soda	72	spaghetti, 15m boil	44
potato, wht, mash	70	water	78	spaghetti, prot enriched	28
yam	54	Wheat Thins™	67	vermicelli	35

5.8 Glycemic Index - continued

Breads		Beans		Soups/Vegetables	
bagel, plain	72	baked	44	beets, canned	64
banana bread	47	black beans, boil	30	black bean soup	64
baguette, French	95	butter, boiled	33	carrots, fresh, boiled	49
croissant	67	cannellini beans	31	corn, sweet	56
dark rye	76	garbanzo, boiled	34	green pea soup	66
hamburger bun	61	kidney, boiled	29	green pea, frozen	47
muffins		kidney, canned	52	lentil soup	44
apple, cinnamon	44	lentils, gr or br	30	parsnips, boiled	97
blueberry	59	lima, boiled or frozen	32	peas, fresh, boiled	48
oat & raisin	54	navy	38	split pea and ham	66
pita	57	pinto, boiled	39	tomato soup	38
pizza, cheese	60	red lentils, boiled	27	**Cereal Grains**	
pumpernickel	49	soy, boiled	16	barley	25
sourdough	54	**Milk Products**		basmati white rice	58
rye	64	chocolate milk	35	bulgar	48
white	70	custard	43	couscous	65
wheat	68	ice cream, vanilla	60	cornmeal	68
Drinks		ice milk, vanilla	50	millet	71
apple juice	40	skim milk	32	**Sugars**	
colas	65	soy milk	31	fructose	22
Gatorade™	78	tofu frozen dessert	115	honey	62
grapefruit juice	48	whole milk	30	maltose	105
orange juice	46	yogurt, fruit	36	sucrose	61
pineapple juice	46	yogurt, plain	14	table sugar	64