

Good Carbs, Bad Carbs

If you have diabetes, pre-diabetes, PCOS, Alzheimer's disease, are trying to lose weight or balance your blood lipids, you probably know you should monitor your carbohydrate intake. Different carbohydrate-containing foods affect blood sugar differently, however. These effects can be quantified by measures known as the glycemic index (GI) and glycemic load (GL).

What these numbers measure

The glycemic index (GI) assigns a score to a food based on how sharply it makes your blood sugar rise. Foods are ranked on a scale of 0 to 100, with pure glucose given a value of 100. In general, the more cooked or processed a food, the higher its GI, and the more fiber or fat in a food, the lower its GI.

But the glycemic index tells just part of the story. What it doesn't tell you is how high your blood sugar could go when you actually eat the food. To understand a food's complete effect on blood sugar, you need to know both how quickly it converts into blood glucose (this determines how much insulin your pancreas will secrete in response), and how much glucose it can deliver. A separate measure called the glycemic load (GL) does both — which means the GL gives you a more accurate picture of a food's real-life impact on your blood sugar. Therefore, I use GL rather than GI to select carbohydrate foods.

Bear in mind, however, that these numbers are approximative; different individuals react differently to different foods, so if you experience a sharp rise in blood sugar from a low- or medium-glycemic food, it's best to avoid or minimize it, regardless of its GI/GL ranking.

Low, medium and high: Glycemic Load (GL)

😊😊 **0-10:** This food is likely to have a modest effect on blood sugar and you can eat it liberally

😊 **10-20:** This food has a more significant effect on blood sugar; enjoy in limited quantities

😞 **20+:** This food has a strong glycemic impact and should be avoided (except for occasional treats)

When you *do* eat a high-glycemic food (sometimes it's inevitable), you can lower its glycemic impact by eating only a *modest* serving of it (½ cup cooked rice, 1 slice bread or ½ to 1 cup pasta cooked *al dente*) and accompanying it with:

- **Protein** (e.g., meat, fish),
- **Fat** (e.g., olive oil, Parmesan)
- **Fiber** (e.g., a vegetable or side salad), and
- Something **acidic** (e.g., lemon or vinegar in the salad dressing, lemon or vinegar water)

Combining these with carb-rich foods slows the speed at which the food leaves your stomach and thus slows the conversion of starchy carbohydrates into blood glucose. This can protect you against sharp blood-sugar fluctuations and the secretion of large amounts of insulin. E.g.,

- Rice (carb) with chicken curry (protein, fat) and vegetables drizzled with lemon juice (fiber, acidity)
- Bagel (carb) with cream cheese (fat), lox (protein) and a side-salad (fiber, acidity)
- Oats (carb) with milk/yogurt (protein), nuts (fat) and berries (fiber, acidity)

This table shows the GLs and GIs for more than 100 commonly eaten high-carbohydrate foods. Serving sizes matter, and are indicated in the left-hand column; the larger the serving, the greater its glycemic load.

FOOD	Serving size (grams)	Glycemic load per serving
BAKERY PRODUCTS AND BREADS		
Banana cake, made with sugar	60	14
Sponge cake, plain	63	17
Corn bread	60 (1 slice)	31
Vanilla cake made from packet mix with vanilla frosting (Betty Crocker)	111	24
Apple muffin, made with rolled oats and sugar	60	13
Apple muffin, made with rolled oats and without sugar	60	9
Waffles, Aunt Jemima®	35	10
Bagel, white, frozen	70	25
Baguette, white, plain	60 (1 piece)	29
Coarse barley bread, 80% kernels	30	7
Donut (large, glazed)	75 (1 donut)	24

Hamburger bun	30	9
Kaiser roll	30	12
Pumpernickel bread	30	7
50% cracked wheat kernel bread	30	12
White wheat flour bread, average	30	11
Wonder® bread, average	30	10
Whole wheat bread, average	30	9
Sourdough wheat bread	30	6
Pita bread, white	30	10
Corn tortilla	50	12
Wheat tortilla	50	8
BEVERAGES		
Coca Cola® (US formula)	250 mL/1 cup	16
Fanta®, orange soft drink	250 mL/1 cup	23
Apple juice, unsweetened	250 mL/1 cup	12
Cranberry juice cocktail (Ocean Spray®)	250 mL/1 cup	24
Gatorade, orange flavor (US formula)	250 mL/1 cup	13
Orange juice, unsweetened, average	250 mL/1 cup	12

Tomato juice, canned, no sugar added	250 mL/1 cup	4
BREAKFAST CEREALS AND RELATED PRODUCTS		
All-Bran®, average	30	9
Coco Pops®, average	30	20
Cheerios	30 (1 cup)	13
Cornflakes®, average	30	20
Cream of Wheat®	250	17
Cream of Wheat®, Instant	250	22
Grape-Nuts®	60 (1/2 cup)	31
Muesli, average	30	10
Oats (rolled, traditional), cooked	250	11
Oatmeal, average	250	13
Instant oatmeal, average	250	21
Puffed wheat cereal	30	17
Rice Krispies	30	23
Bran flakes	30	19
Raisin Bran	60 (1 cup)	24
Special K® (US formula)	30	21

GRAINS		
Pearled barley, average	150	11
Sweet corn on the cob	60	14
Couscous	150	9
Quinoa	150	13
Sushi rice, cooked	150	33
White rice, boiled, type non-specified	150	29
Quick cooking white basmati	150	26
Brown rice, steamed	150	16
Parboiled Converted white rice (Uncle Ben's®)	150	14
Sweet corn	150 (1 scant cup)	20
Whole wheat kernels, average	50	15
Bulgur, average	150	12
COOKIES AND CRACKERS		
Graham crackers	25	13
Vanilla wafers	25	14
Shortbread	25	10
Rice cakes, average	25	17

Rye crisps, average	25	11
Soda crackers	25	12
DAIRY PRODUCTS AND ALTERNATIVES		
Ice cream, regular, average	50	8
Ice cream, premium (Sara Lee®)	50	3
Milk, full-fat, average	250 mL (1 cup)	4
Milk, skim, average	250 mL	4
Reduced-fat yogurt with fruit, average	200	11
FRUITS		
Apple, average	120	5
Banana, raw, average	120	11
Dates, dried, average	60	18
Grapefruit	120	3
Grapes, black	120	11
Oranges, raw, average	120	5
Peach, average	120	5
Peach, canned in light syrup	120	9
Pear, raw, average	120	4

Pear, canned in pear juice	120	5
Prunes, pitted	60	10
Raisins	60	28
Watermelon	120	4
BEANS AND NUTS		
Baked beans	150	6
Black-eyed peas	150	15
Black beans	150	7
Chickpeas	150	3
Chickpeas, canned in brine	150	9
Navy beans, average	150	12
Kidney beans, average	150	9
Lentils	150	5
Soy beans, average	150	1
Cashews, salted	50	3
Peanuts	50	1
PASTA and NOODLES		
Fettucini	180	15

Macaroni, average	180	24
Macaroni and Cheese (Kraft®)	180	33
Spaghetti, white, boiled, average	180	22
Spaghetti, white, boiled 20 min	180	26
Spaghetti, whole-grain, boiled	180	17
Rice pasta (gluten free)	180	24
Corn pasta (gluten-free)	180	31
SNACK FOODS		
Corn chips, plain, salted	50	11
Fruit Roll-Ups®	30	24
M & M's®, peanut	30	6
Microwave popcorn, plain, average	20	7
Potato chips, average	50	12
Pretzels, oven-baked	30	16
Snickers Bar®, average	60	18
VEGETABLES		
Green peas	80	4
Carrots, average	80	2

Parsnips	80	4
Baked russet potato	150	33
Boiled white potato, average	150	21
Instant mashed potato, average	150	17
Sweet potato, average	150	22
Yam, average	150	20
MISCELLANEOUS		
Hummus (chickpea salad dip)	30	0
Chicken nuggets, frozen, reheated in microwave oven 5 min	100	7
Pizza, plain baked dough, served with parmesan cheese and tomato sauce	100	22
Pizza, Super Supreme (Pizza Hut®)	100	9
Honey, average	25	13
Maple syrup	25	10
Sugar (sucrose – white)	25	6

The data shown here was obtained at www.glycemicindex.com and [Dr. Sears' Glycemic Guide](#).

The complete list of the glycemic index and glycemic load for more than 1,000 foods can be found in the article "International tables of glycemic index and glycemic load values: 2008" by Fiona S. Atkinson, Kaye Foster-Powell, and Jennie C. Brand-Miller in the December 2008 issue of [Diabetes Care](#), Vol. 31, number 12, pages 2281-2283.

