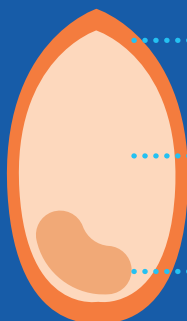


Health & Nutrition Sciences

The “Whole” Picture: Nutritional Aspects of Whole Grains

What is a whole grain?

A whole grain consists of the intact, ground, cracked, or flaked fruit of the grain with the presence of all three principal components: the bran, endosperm, and germ. Whole grain foods may undergo processing but must offer the same proportions of the bran, endosperm, and germ as naturally occurs in the original grain.¹



- BRAN**
The grain kernel's protective outer layer. Contains B-vitamins, minerals, antioxidants, and fiber.²
- ENDOSPERM**
The largest component of the whole grain kernel. Contains 50-75% starch (carbohydrate), some protein, and few vitamins and minerals compared to the other kernel components.²
- GERM**
The grain kernel's innermost component. Contains B-vitamins, minerals, some protein, and lipids (fats).²



Whole grains are an important source of essential nutrients³

- ✓ **B-vitamins**
Thiamin, niacin, riboflavin, pantothenic acid, vitamin B6, folate
- ✓ **Minerals**
Magnesium, phosphorus, manganese, zinc, selenium, copper, and iron
- ✓ **Dietary Fiber**

Potential health benefits of consuming whole grains



HEART HEALTH

Several systematic review and meta-analyses have found inverse associations or risk reductions between whole grain consumption and outcomes of cardiovascular health.^{4,5} The U.S. FDA allows the use of the approved health claim that a diet rich in whole grain foods may help reduce the risk of heart disease.⁶



BODY WEIGHT

Several observational studies and a few randomized controlled trials suggest a relationship between increased whole grain consumption and changes in body weight. More mechanistic research is needed to better understand emerging associations between consumption of whole grains and outcomes on body weight, body composition, energy intake, and hunger and satiety.^{9,10,11}



CANCER

A recent systematic review and meta-analysis evaluating the scope of the evidence on carbohydrate quality and human health suggests that higher intakes of dietary fiber and whole grains may reduce risk of certain cancers, particularly colorectal and breast cancers.⁵



TYPE 2 DIABETES

The 2020 Dietary Guidelines Advisory Committee concluded there is moderate scientific evidence to support a healthy dietary pattern that includes higher intakes of whole grains reduces the risk of developing type 2 diabetes.⁷ A recent umbrella review including four meta-analyses of prospective cohort studies concluded that high intakes of whole grains consistently showed a reduced risk for the development of type 2 diabetes.⁸

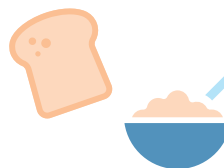
EMERGING SCIENCE

Health & Nutrition Sciences

Recommended vs. current intakes of whole grains in America¹²

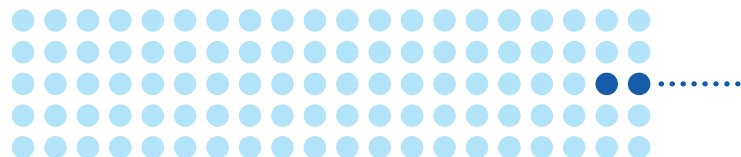
As part of a healthy dietary pattern, the Dietary Guidelines for Americans recommend adults generally consume 6-10 ounce equivalents of grains per day.

At least half of total grains consumed per day,* or 3-5 ounce equivalents, should be from whole grain sources.



What is an ounce equivalent?

1 ounce equivalent = 1 medium slice of bread, tortilla, or flatbread; 1 cup of ready-to-eat cereal; or ½ cup of cooked rice, pasta, or cereal. 1 slice of 100% whole grain bread contains approximately 16 grams of whole grain.



Most Americans consume enough grains overall. However, **only 2% of Americans** consume the recommended 3-5 ounce equivalents of whole grains per day.

AT LEAST HALF OF TOTAL GRAINS CONSUMED PER DAY SHOULD BE WHOLE GRAINS

* Daily recommendations for total and whole grain intakes differ based on gender, age, and level of physical activity and can be found at MyPlate.gov



Identifying whole grain foods

LOOK FOR THESE WORDS ON THE LABEL:

- WHOLE GRAIN [name of grain] such as 'WHOLE GRAIN CORN'
- WHOLE [name of grain] such as 'WHOLE WHEAT'
- BROWN RICE
- OATS, OATMEAL
- WHEATBERRIES



INGREDIENTS: WHOLE CORN, SUNFLOWER AND/OR CANOLA OIL, WHOLE WHEAT, BROWN RICE FLOUR, WHOLE OAT FLOUR, SUGAR, SALT, NATURAL FLAVOR, AND MALTODEXTRIN (MADE FROM CORN). CONTAINS WHEAT INGREDIENTS.

Certain PepsiCo products can help contribute to daily whole grain intake goals — examples include:



AMOUNT OF WHOLE GRAIN PER SERVING:

- Quaker Old-Fashioned Oats: 40g
- Quaker Instant Oatmeal (classic flavors): >=27g
- Quaker Oatmeal Squares: 46g
- Sun Chips Original: 19g
- Life Cereal: >=24g

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