



Whole Grain Foods for Every Meal of the Day

Participant Handout

What is a Whole Grain?

A grain is simply the seed of a plant. Whole grains consist of three parts: the bran, the endosperm, and the germ. Products labeled “whole grain” contain all three parts of the grain kernel in their original proportions. The bran is the outer skin of the kernel and contains B vitamins fiber. The endosperm is the largest part of the kernel. It contains the highest amount of carbohydrate and the least amounts of vitamins and minerals. The germ, the inner most part of the grain, contains protein, healthy fats, and minerals.

Grains can undergo a process called refinement in which the bran and germ are typically removed leaving only the starchy endosperm. This extends the shelf life of the product and changes its flavor and texture. However, the refining process strips the grain of most of its oils, fiber, vitamins, minerals, and other compounds that have important health benefits. Extensive research shows that whole grains provide significant health benefits compared to refined grains. (See poster on page 2.)

What are the Health Benefits?

Key Nutrients: Whole grains contain starch, protein, and healthy oils. They are sources of a large variety of vitamins and minerals, including thiamin, riboflavin, folate, niacin, vitamin B6, vitamin E, potassium, phosphorus, magnesium, iron, zinc, copper, chromium, and selenium. Whole grains also provide a significant amount of dietary fiber.

Recommendation: “Make at least half your grains whole grains.” Refer to www.choosemyplate.gov for daily recommended servings of grain for age, gender, and activity level.

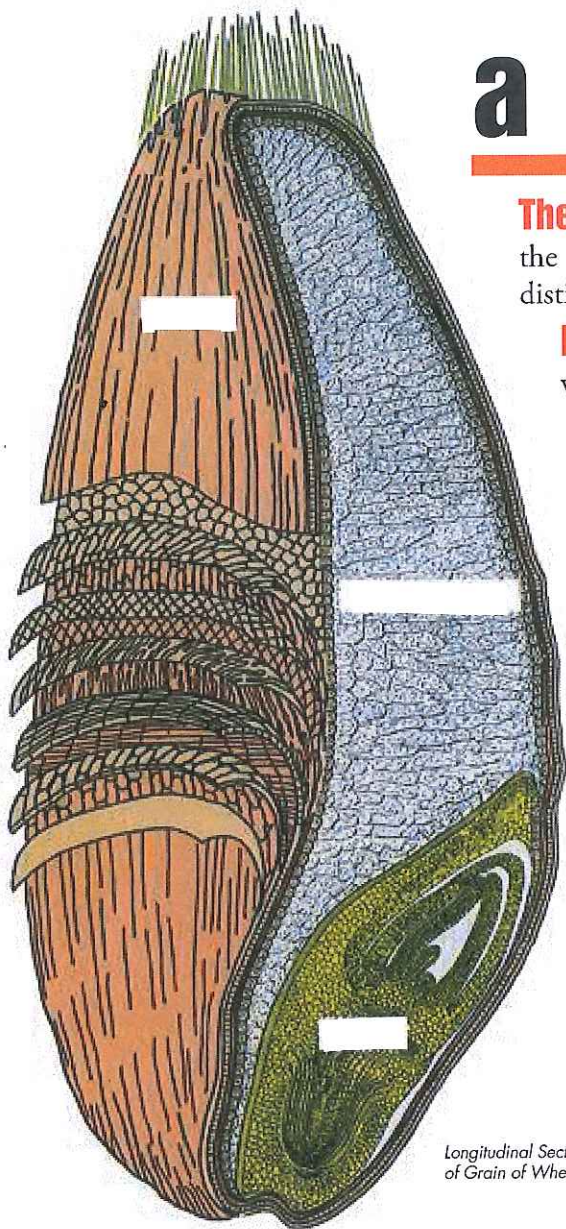
Health Benefits: Whole grains have been shown to have a number of health benefits. People who consume whole grains regularly tend to have decreased risk at developing cancer, diabetes, and heart disease. Since whole grains are high in fiber, they help provide a feeling of fullness and satisfaction that may decrease the total amount of calories eaten. Regular consumption of whole grains reduces the risk of obesity. There has been significant evidence that fiber alone is not responsible for all of the health benefits of whole grains. Rather, nutrients in whole grains work together to promote health and prevent disease.

While benefits are most pronounced for those eating at least 3 whole grain servings a day, studies have shown that even one serving a day reduces risk of chronic disease and obesity.

Write in 3 chronic diseases that eating whole grains can help reduce the risk of.

1) _____ 2) _____ 3) _____

a Kernel of Wheat



Longitudinal Section
of Grain of Wheat

The Kernel of Wheat...sometimes called the wheat berry, the kernel is the seed from which the wheat plant grows. Each tiny seed contains three distinct parts that are separated during the milling process to produce flour.

Endosperm...about 83 percent of the kernel weight and the source of white flour.

Bran...about 14 1/2 percent of the kernel weight. Bran is included in whole wheat flour and can also be bought separately.

Germ...about 2 1/2 percent of the kernel weight. The germ is the embryo or sprouting section of the seed, often separated from flour in milling because the fat content limits flour's shelf-life.

Whole Grains...whole grain products are made with the whole kernel of grain. The bran (outer layer) contains the largest amount of fiber (insoluble), B vitamins, trace minerals and a small amount of protein; the endosperm (middle layer) contains mostly protein and carbohydrates along with small amounts of B vitamins, iron and soluble fiber; and the germ (inner part) is a rich source of trace minerals, unsaturated fats, B vitamins, antioxidants, phytochemicals and a minimal amount of high quality protein.

Enriched Grains...enriched white flour is the finely ground endosperm of the kernel. Some of the nutrients that are milled out are replaced through enrichment. Slice for slice, enriched white bread as well as other enriched grain products, are a good source of iron and or B vitamins (thiamin, riboflavin, niacin and folic acid) as well as complex carbohydrates. Enriched grain products have over twice the amount of folic acid as whole wheat. Compare a slice of enriched white bread with 37mcg to a slice of whole grain bread at 17.5mcg.

Grain-based Foods...provide complex carbohydrates – the best fuel for our bodies. These foods are often low in fat and contain fiber. Grain foods provide vitamins – especially the four key B vitamins (thiamin, riboflavin, niacin and folic acid) and iron. During the milling process, white flour is produced by removing the bran and germ portions of the wheat. Most (95%) products made from white flour are enriched. Whole grain foods are made with flour that contains all three parts of the kernel. Nutrition experts recommend that at least half of our daily grains come from whole grain products. The total number needed each day depends on age, gender and activity level. Visit www.choosemyplate.gov/food-groups/grains-amount.html to determine the appropriate amount of grains needed.

Wheat Foods Council

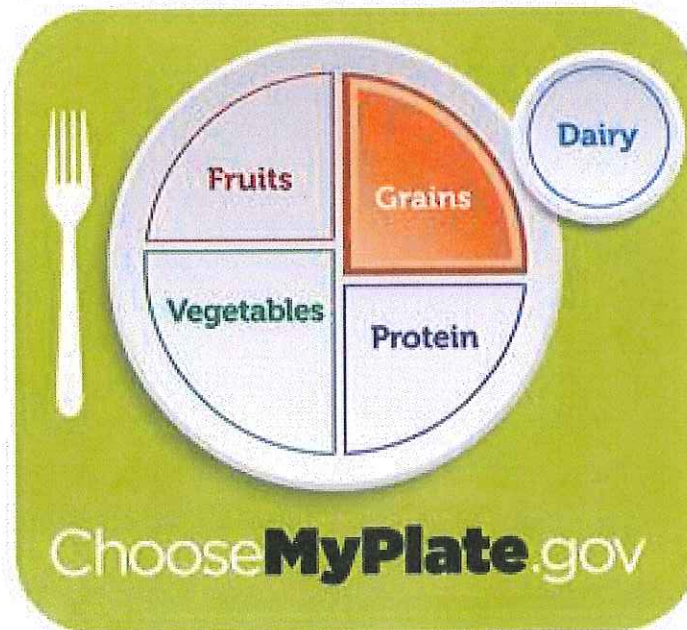
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Whole Grain Food Varieties

The following grains are organized by size and texture. You can substitute any grain in a recipe with a similar grain that is in the same category. For example, a dish that calls for barley can be made with a different porridge-type grain such as amaranth, or a bulgur salad can be made with another delicate, small grain such as quinoa. Some examples of each type of grain are as follows:

Porridge-type Grains:



Amaranth:

The ancient Aztecs relied on this tiny grain as a staple and used it in religious rituals. It is still used in the Mexican Dia de Los Muertos celebrations. It is high in cholesterol-lowering fiber and bone-building calcium. This little powerhouse remains crunchy on the outside and softens inside when cooked. Experts recommend cooking in ample amounts of water and then draining.



Barley:

More than 10,000 years ago Egyptians buried mummies wearing necklaces of this ancient grain. Today in the US, more than half of this grain grown is used for animal feed, the other half used for sweeteners and syrups. Beyond beef stew, this grain makes a great pilaf. Although it is not gluten-free, this grain is especially high in fiber when hulled rather than pearled.



Cornmeal/Polenta:

This grain has become the most cultivated grain crop in the world. It provides 10 times more vitamin A than any other grain, which is important for eye health. This gluten-free grain is a staple for those who are intolerant to gluten. This grain can be enjoyed coarsely ground as a porridge or rustic quick bread. When finely ground it can be made into flour to make tortillas or muffins.



Oats:

Before being consumed as food, this grain was used as medicine because of its anti-inflammatory properties. This grain is most well-known for lowering LDL “bad cholesterol” and may help reduce the risk of heart disease because it contains more soluble fiber than any other grain. This grain itself does not contain gluten but risk of cross-contamination is high. Look for packages labeled as gluten-free if desired.



Brown Rice:

This grain was one of the earliest domesticated grains, first cultivated in China. It has been a staple food of more than half the world’s population. The many varieties offer a wide range of textures for different uses. Short grains tend to be “sticky” because they contain more starch and are used to make risottos and sushi. Long grains are better when making pilafs.

Small, Delicate Grains:



Bulgur:

This wheat derivative is a staple in Middle Eastern and Mediterranean regions. It is made from wheat kernels that have been parboiled, dried and cracked. It is quick-cooking and is a wonderful base for salads and pilafs. It has a nutty flavor and is perfect for savory dishes and breads. Because it is a whole grain it has a healthy balance of fat, fiber and protein.



Millet:

India is the largest producer of this variety of grains where it is ground into flour to make flat bread. This small, yellow grain is gluten-free with a mild, sweet flavor and quick cooking time. Toast grains in a dry pan before cooking in water for a fluffier result. Add grains to a small amount of oil in a heavy pot to “pop” like popcorn.



Quinoa:

Researcher Philip White said of this grain, “While no single food can supply all the essential life sustaining nutrients, this grain comes as close as any other in the plant or animal kingdom.” Its earthy flavor makes this grain great for making soups, salads or pilafs. It is important to rinse this grain before cooking to wash away bitter saponins that coat the surface.



Sorghum:

This grain made its way across the eastern world likely through the silk trade routes before making it to the Americas in the 19th century. This unfamiliar grain is gaining popularity due to the increase in gluten free diets; it is a popular substitute for wheat flour. It is also easy to pop in the microwave or stove top instead of popcorn.

Larger, Firmer Grains:



Buckwheat:

This late-blooming grain crop is not related to wheat and does not contain gluten. It is higher in immune-boosting zinc than any of the other cereal grains as well as a healthy dose of potassium to help balance sodium in cells and tissues. Most commonly found in Japanese soba noodles and pancakes, this grain can also make a nutty pilaf. Experts advise coating grains in egg or oil before cooking.



Rye Berries:

This cousin of wheat is a staple crop of Eastern Europe and Russia due to its ability to germinate at low temperatures. It is often mistaken for moldy grain due to its sage green color. It is rich in protein, including gluten, and has high antioxidant activity. Most of us are accustomed to finding this grain in breads baked with caraway seeds.



Whole Wheat Couscous:

Often mistaken for a grain itself, this is actually a wheat product similar to pasta. Made the same way but extruded into tiny pieces. When purchased in the whole grain form it offers the same nutritional benefits as whole wheat, including a high fiber and high protein content.

Cooking & Eating Whole Grains

You can add whole grains to your meals without cooking, simply by choosing breads, breakfast cereals, and other prepared whole grain foods. If you'd like to enjoy delicious whole grains at home as a side dish, however, here are some guidelines for cooking them from scratch.

PLAIN GRAINS, GENERAL DIRECTIONS

Cooking most grains is very similar to cooking rice. You put the dry grain in a pan with water or broth, bring it to a boil, then simmer until the liquid is absorbed. Pasta is generally cooked in a larger amount of water; the excess is drained away after cooking. Don't be intimidated!

GRAIN PILAF, GENERAL DIRECTIONS

Brown small bits of onion, mushroom and garlic in a little oil in a saucepan. Add grain and cook briefly, coating the grains in oil. Then add broth in the amount specified below, and cook until liquid is absorbed.

IMPORTANT: TIME VARIES

Grains can vary in cooking time depending on the age of the grain, the variety, and the pans you're using to cook. When you decide they're tender and tasty, they're done! If the grain is not as tender as you like when "time is up," simply add more water and continue cooking. Or, if everything seems fine before the liquid is all absorbed, simply drain the excess.

SHORTCUTS

If you want to cook grains more quickly, let them sit in the allotted amount of water for a few hours before cooking. Just before dinner, add extra water if necessary, then cook. You'll find that cooking time is much shorter with a little pre-soaking.

Another shortcut is to cook whole grains in big batches. Grains keep 3-4 days in your fridge and take just minutes to warm up with a little added water or broth. You can also use the leftovers for cold salads (just toss with chopped veggies, dressing, and anything else that suits your fancy), or toss a few handfuls in some canned soup. Cook once, then take it easy.

There are also many quick-cooking grain side-dishes on the market, even including 90-second brown rice. These grains have been pre-cooked so you only need to cook them briefly or simply warm them through in the microwave.

STICKY BOTTOMS

If whole grains are sticking to the bottom of the pan, turn off the heat, add a very small amount of liquid, stick a lid on the pan, and let it sit a few minutes. The grain will loosen, easing serving and cleanup.

See next page, for a handy table detailing cooking times for various grains →

COOKING WHOLE GRAINS

To 1 cup of this grain...	Add this much water or broth:	Bring to a boil, then simmer for:	Amount after cooking
Amaranth	2 cups	20-25 minutes	3 1/2 cups
Barley, hulled	3 cups	45-60 minutes	3 1/2 cups
Buckwheat	2 cups	20 minutes	4 cups
Bulgur	2 cups	10-12 minutes	3 cups
Cornmeal (polenta)	4 cups	25-30 minutes	2 1/2 cups
Couscous, whole wheat	2 cups	10 min. (heat off)	3 cups
Kamut® grain	4 cups	Soak overnight, then cook 45-60 minutes	3 cups
Millet, hulled	2 1/2 cups	25-35 minutes	4 cups
Oats, steel cut	4 cups	20 minutes	4 cups
Pasta, whole wheat	6 cups	8-12 minutes (varies by size)	Varies
Quinoa	2 cups	12-15 minutes	3+ cups
Rice, brown	2 1/2 cups	25-45 minutes (varies by variety)	3-4 cups
Rye berries	4 cups	Soak overnight, then cook 45-60 minutes	3 cups
Sorghum	4 cups	25-40 minutes	3 cups
Spelt berries	4 cups	Soak overnight, then cook 45-60 minutes	3 cups
Wheat berries	4 cups	Soak overnight, then cook 45-60 minutes	3 cups
Wild rice	3 cups	45-55 minutes	3 1/2 cups

NUTTIER, FULLER FLAVOR

Whole grains are generally chewier than refined grains and have a nuttier, fuller flavor. You and your family may find this unfamiliar at first. But after a month or two, refined grains may start to taste very plain and uninteresting by contrast. Stick with it until your palate adjusts, and reap the health benefits.

Selecting and Purchasing

- **Buy Grains in Bulk:** Buying bulk grains typically costs less than prepackaged grains and it also allows you to purchase only what you need. Try to purchase your grains from stores with high turnover to ensure freshness. Whole grains will spoil more quickly than refined grains due to their higher oil content. *Note: It is recommended to use your grains within 2-3 months of purchasing.*
- **Read the Ingredients List:** When purchasing prepackaged whole grain look for the word “whole” in front of the flour or grain. For example, breads containing “whole wheat flour” contain whole grains, but bread that lists “wheat flour” may only contain refined grains. Some exceptions to this rule include brown rice, oats, and wheat berries, which are whole grains and generally do not list the word “whole” on the label. The Whole Grains Council has also created a whole grains stamp that can be helpful in identifying a whole grain food.

Storing Dry, Uncooked Grains

- Place dry grains in the freezer for a few days, then store in airtight containers.
- Shelf life of grains varies depending on the oil content. Oily whole grains, such as quinoa and cornmeal, last only one to three months if kept in a dark, cool location. Drier grains, such as oatmeal and millet, however, can last up to one year in proper storage containers.
- Store dry grains in a refrigerator to extend shelf life.

Storing Cooked Grains

- Larger, firmer whole grains can be cooked in large batches then stored in freezer bags for several months. To thaw frozen grains place them in a sieve or colander; run cold water over them while gently breaking apart the grains with your fingers or a spatula. Drain well, then reheat or eat cold.
- Smaller, more delicate grains do not freeze as well as the grains tend to break down and become mushy. It is best to avoid freezing them and simply cook ahead and refrigerate if cooking large batches to be added later to soups, stews or salads. *Note: Use cooked grains within one week.*
- Porridge-cooked grains do not freeze as well as the others because they take a very long time to thaw. These grains are best refrigerated and reheated in a heavy covered pan with a little extra water. *Note: Use cooked grains within one week.*

Tips for Using Whole Grain Foods for Every Meal of the Day

Here are some nutritious, delicious, and convenient ways to fit whole grains into your daily routine:

Breakfast

- Cook a batch of whole grain muffins loaded with fruit and nuts on the weekend for a healthy grab-n-go breakfast option.
- Whole grain pancakes and waffles can be frozen and toasted quickly in the morning. Instead of syrup, try spreading on fruit sauce, peanut butter or your favorite jam.
- Fix a large pot of whole grain porridge and store in the refrigerator. In the mornings simply scoop out a bowl full and reheat with a bit of milk. Top with fresh or frozen berries and chopped nuts. Enjoy with plain, low-fat Greek yogurt to make a complete meal.

Lunch

- Make your favorite sandwich on whole grain bread. Look for the word “whole” as the first ingredient.
- Add whole grains to broth-based soups to make them more filling as an entrée while adding nutrition to your meal.
- Create a delicious grain-based salad or sprinkle whole grains, such as wild rice or quinoa.

Dinner

- Give whole wheat pasta a try. If you aren't used to the chewy texture yet, mix half whole wheat pasta with your usual pasta.
- Experiment with different grains in your favorite side dish recipes.
- Whole grains make wonderful casseroles. Use larger, firmer grains for nutritious comfort food.

Dessert

- Use whole oats as a topping over fruit for a tasty crisp.
- Make ice cream sandwiches with Graham crackers.

Summary

Whole grain foods contain all three parts of the grain; the fibrous bran, the starchy endosperm, and the oily germ. All three parts offer us many health benefits including lowering risk of cancer, heart disease, diabetes, and obesity. Whole grains are healthful foods that offer these benefits when eaten daily. Increased benefits can be had if at least half the grains eaten all day are whole grains.

The possibilities of cooking and eating whole grain foods are endless with the wide variety of grains available to us. Try a new whole grain in your favorite grain-based recipes. Eating whole grain foods at every meal of the day is easy, delicious and nutritious.

For More Information see the following resources:

Visit <http://www.choosemyplate.gov/healthy-eating-tips/ten-tips.html>

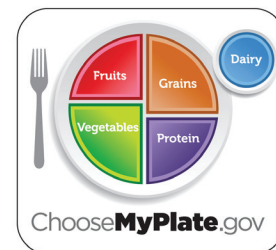
Visit www.FoodHero.org

Visit www.BobsRedMill.com

Visit www.wheatfoods.org

Krissoff, Liana. (2012) Whole Grains For a New Generation. New York, NY: Stewart, Tabori & Chang
Greene, Bert. (1988) The Grains Cookbook. New York, NY: Workman Publishing

make half your grains whole



10 tips to help you eat whole grains

Any food made from wheat, rice, oats, cornmeal, barley, or another cereal grain is a grain product. Bread, pasta, oatmeal, breakfast cereals, tortillas, and grits are examples. Grains are divided into two subgroups, **whole grains** and **refined grains**. Whole grains contain the entire grain kernel—the bran, germ, and endosperm. People who eat whole grains as part of a healthy diet have a reduced risk of some chronic diseases.

1 make simple switches

To make half your grains whole grains, substitute a whole-grain product for a refined-grain product. For example, eat 100% whole-wheat bread or bagels instead of white bread or bagels, or brown rice instead of white rice.



2 whole grains can be healthy snacks

Popcorn, a whole grain, can be a healthy snack. Make it with little or no added salt or butter. Also, try 100% whole-wheat or rye crackers.



3 save some time

Cook extra bulgur or barley when you have time. Freeze half to heat and serve later as a quick side dish.

4 mix it up with whole grains

Use whole grains in mixed dishes, such as barley in vegetable soups or stews and bulgur wheat in casseroles or stir-fries. Try a quinoa salad or pilaf.

5 try whole-wheat versions

For a change, try brown rice or whole-wheat pasta. Try brown rice stuffing in baked green peppers or tomatoes, and whole-wheat macaroni in macaroni and cheese.



6 bake up some whole-grain goodness

Experiment by substituting buckwheat, millet, or oat flour for up to half of the flour in pancake, waffle, muffin, or other flour-based recipes. They may need a bit more leavening in order to rise.

7 be a good role model for children

Set a good example for children by serving and eating whole grains every day with meals or as snacks.

8 check the label for fiber

Use the Nutrition Facts label to check the fiber content of whole-grain foods. Good sources of fiber contain 10% to 19% of the Daily Value; excellent sources contain 20% or more.

9 know what to look for on the ingredients list

Read the ingredients list and choose products that name a whole-grain ingredient **first** on the list. Look for "whole wheat," "brown rice," "bulgur," "buckwheat," "oatmeal," "whole-grain cornmeal," "whole oats," "whole rye," or "wild rice."



10 be a smart shopper

The color of a food is not an indication that it is a whole-grain food. Foods labeled as "multi-grain," "stone-ground," "100% wheat," "cracked wheat," "seven-grain," or "bran" are usually not 100% whole-grain products, and may not contain **any** whole grain.



haga que la mitad de los granos que consume sean integrales



10 consejos para ayudarlo a consumir granos integrales

Los alimentos hechos con trigo, arroz, avena, maíz, cebada o cualquier otro grano de cereal son productos de granos. El pan, los fideos y tallarines, la avena, los cereales para el desayuno, las tortillas de harina y la sémola son ejemplos de estos productos. Los granos se dividen en 2 subgrupos: **granos integrales** y **granos refinados**. Los granos integrales contienen el grano completo; es decir, la cáscara, el germen y el saco embrional. Las personas que consumen granos integrales como parte de una dieta saludable tienen menos riesgo de presentar algunas enfermedades crónicas.

1 haga cambios sencillos

Para que la mitad de los granos que consume sean integrales, sustituya un producto de granos refinados con uno de granos integrales. Por ejemplo, coma pan o rosas de pan de 100% trigo en lugar de pan o rosas de pan blanco, o bien coma arroz integral en lugar de arroz blanco.



2 los granos integrales son bocadillos sanos

Las palomitas de maíz son hechas de granos integrales y por lo tanto son bocadillos sanos. Prepárelas sin o con poca sal o mantequilla.



Pruebe también galletas 100% de trigo integral o centeno.

3 ahorre tiempo

Cocine cantidades adicionales de trigo burgol o cebada cuando tenga tiempo. Congele la mitad para calentar y servir más adelante como complemento rápido.

4 mézclelo con granos integrales

Use granos integrales en platos mixtos, como la cebada en sopas o guisados de vegetales y el trigo burgol en platos salteados o cazuelas. Pruebe ensaladas o platos de quinua.

5 pruebe versiones de trigo integral

Para variar, pruebe el arroz integral o fideos y tallarines de trigo integral. Pruebe tomates o pimientos verdes horneados rellenos de arroz integral y macarrones de trigo integral en platos de macarrones con queso.



6 hornee antojitos con granos integrales

Experimente y reemplace con trigo sarraceno, mijo o harina de avena hasta la mitad del contenido de harina de los panqueques, waffles, molletes y otras recetas con contenido de harina. Tal vez necesite un poco más de levadura para que leuden.

7 de buen ejemplo a los niños

De buen ejemplo a los niños al servir y consumir granos integrales todos los días con las comidas o como bocadillos.

8 verifique el contenido de fibra

Use la etiqueta de datos de nutrición para verificar el contenido de fibra de los productos de granos integrales. Las buenas fuentes de fibra contienen 10% a 19% del valor diario. Las fuentes excelentes contienen un 20% o más.



9 sepa qué buscar en las listas de ingredientes

Lea las listas de ingredientes y elija productos que incluyan granos integrales como el **primer** ingrediente de la lista. Busque “trigo integral,” “arroz integral,” “burgol,” “alforón,” “avena,” “harina de maíz integral,” “avena de grano integral,” “centeno integral,” o “arroz silvestre” (busque “whole grain”).

10 sea un comprador instruido

El color de un alimento no indica que se trate de un alimento de granos integrales. Por lo general, los alimentos con etiquetas que dicen “multigrano”, “molido a piedra”, “100% trigo”, “trigo partido”, “siete granos” o “salvado” no son productos 100% de granos integrales, y es posible que no contengan ningún grano integral.