

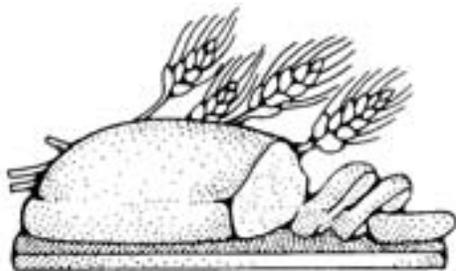
Healthful Whole Grains!

Mary Meck Higgins, Ph.D., R.D., L.D., CDE
Kansas State University



Kansas State University
Agricultural Experiment
Station and Cooperative
Extension Service

Family & Consumer
SCIENCES



Have you been looking for low fat, nutritious foods that satisfy your hunger? Whole grain foods are a great choice. Would you be willing to eat more whole grain foods if they would help reduce your risk for heart disease and cancer? If you are like most people in a recent survey, you would.

Delicious, Easy to Prepare and Affordable

Whole grain products can readily be included in your daily diet. Whole grains have a subtle taste that is often described as “nutty.”

You have many options for adding a delicious whole grain food to each meal without spending a lot of time or money to do so. Whole grain yeast breads, ready-to-eat breakfast cereals, cooked oatmeal, popcorn and whole grain crackers are the most common whole grain foods. The most inexpensive whole grains generally are large containers of store-brand oatmeal, breakfast cereals, popcorn, crackers and breads.

Common Types of Whole Grains

- Brown rice (regular, quick)
- Oatmeal, whole or rolled oats (regular, quick, instant)
- Popcorn
- Whole wheat
- Wild rice

Less Common Types of Whole Grains

- Amaranth
- Buckwheat or kasha, buckwheat groats
- Cracked wheat, also called bulgur (However, in many products, this is not the **first** ingredient.)
- Millet
- Quinoa
- Spelt
- Teff
- Triticale
- Whole grain barley
- Whole grain corn or cornmeal (yellow and white)
- Whole rye

Fact Sheet

Ways to Add Whole Grains to Your Daily Diet

Check (✓) the suggestions that appeal to you.

- Choose a quick and easy ready-to-eat or ready-to-cook whole grain cereal for breakfast. (More than 30 whole grain breakfast cereals are distributed nationally.)
- Pour some dry, bite-size cereals into a bag, or grab a whole grain cereal bar to take along with you as a snack during your busy day.
- Choose whole grain breads, tortillas, bagels, pita pockets and rolls.
- Try whole grain muffins or cornbread made with whole grain corn meal.
- Pop popcorn.
- Enjoy low fat whole grain crackers, baked tortilla chips or a brown rice cake as a snack.
- Add whole grains to mixed dishes. Try adding some pearl barley, wild or brown rice to your favorite soup, stew or casserole.
- Add oats to cookies or other desserts.
- Try substituting whole grain flour for one-fourth to one-half of the white flour called for in recipes.
- Choose whole grain pasta (macaroni, spaghetti, noodles), pancakes or waffles for a change of pace.
- Try a hot or cold whole grain side dish (such as pilaf or stuffing) using brown or wild rice, kasha, bulgur or pearl barley.

Have another idea? Write it here. _____

Serving Sizes of Common Whole Grain Foods

Whole grain cereals = 1/2 cup cooked or 1 ounce of ready-to-eat

Whole grain breads = 1 slice or 1 ounce

Whole grain tortillas, muffins, waffles, pancakes = 1 small

Popcorn = 2 cups

Whole grain crackers = 5 to 7 small crackers or 1 ounce

Whole grain bagel, pita bread = 1/2 or 1 ounce

Brown rice, whole grain pasta = 1/2 cup cooked

The Whole Grain Benefit

There are many kinds of whole grains: whole wheat, oats, cornmeal, popcorn, barley, brown rice, etc. Different whole grains provide different health benefits.

Whole grains provide energy for daily activities and reduce the risk of developing many major diseases.

Each individual part of the grain is healthful. But eating the entire grain allows the beneficial factors of all three parts to work together. Thus, the overall benefits exceed those that come from eating just certain parts.

Identify whole grain foods when you are shopping

- Look for the words “whole grain” in large letters on the package.
- Look for a whole grain health claim on the package. Products that contain 51 percent or more of whole grain ingredients by weight may make the following FDA-approved health claim: “Diets rich in whole grain foods and other plant foods, and low in total fat, saturated fat and cholesterol, may reduce the risk of heart disease and certain cancers.”



100% WHOLE GRAIN

Whole grain oat or psyllium foods may also claim that “soluble fiber, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease.”

- On the list of ingredients shown on the package, the first ingredient listed is present in the highest quantity by weight. Look for the word “whole” in front of a grain to be named first on the label’s ingredient list, such as “whole wheat,” if you want to get a food that is high in whole grains.

INGREDIENTS:

Whole wheat flour, water, high fructose corn syrup, wheat gluten, soybean and/or canola oil, yeast, salt, honey.

- A food’s color is **not** helpful in identifying whether it contains whole grain ingredients. Dark or brown bread is often a whole grain food, but it may just have molasses or caramel food coloring added. Alternatively, whole grain foods may be light in color, such as those made from oats or white wheat.

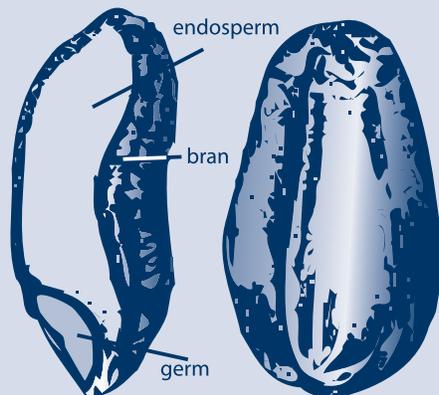
What Are Whole Grains?

Whole grain foods contain all three parts of the grain: the bran, the endosperm and germ.

- The outer bran layer is full of fiber, B vitamins, 50 to 80 percent of the grain's minerals and other health-promoting plant substances called phytochemicals.
- The large endosperm portion is full of complex carbohydrates, protein, and smaller amounts of B vitamins.
- The third part is the germ, which is full of B vitamins, vitamin E, trace minerals, and healthful unsaturated fats, phytochemicals and antioxidants.

If all three parts of the grain are present in processed foods, they are considered whole grain. By comparison, refined grain foods contain only the endosperm. When the germ and bran portions are removed during milling, the nutrient content is reduced by 25 to 90 percent. Most refined grain foods are enriched with some of the nutrients lost in milling.

Diagram of a Whole Grain



Phrases That Do Not Mean Whole Grain

People who want to start eating more whole grain foods are often unsure how to find them. The key is knowing which words to look for and which ones are not helpful.

- **“100% wheat.”** This phrase means that the only grain contained in the product is wheat. The food may **not** contain **whole** wheat.
- **“Multigrain.”** A word that means the product contains more than one kind of grain. The food may **not** contain **whole** grains, however.
- **“Stone ground.”** This term refers to grain that is coarsely ground and may contain the germ, but not the bran. Often, refined flour is the first ingredient, **not whole** grain flour.
- **“Pumpernickel”** is coarse, dark bread made with rye and wheat flours. In the United States, it usually does **not** contain mostly **whole** grain flours.

Dietary Recommendations

The Food Guide Pyramid advises us to eat “six to 11 servings of grain foods a day, with several of these being whole grain.”

Americans have been advised to eat more whole grain foods by at least 17 government, scientific and nonprofit organizations. The 2000 edition of the Dietary Guidelines for Americans recommends that we “choose a variety of grains daily, especially whole grains.”

“To increase the proportion of persons aged 2 years and older, who consume at least six servings a day of grain products, with at least three being whole grains,” is a Healthy People 2010 objective.

Americans typically do eat the recommended six servings of grain foods per day. Most of the grain foods we eat, however, are made with fortified refined grain rather than with the whole grain.

You can enjoy the great taste of whole grains and satisfy your hunger, too. You may be surprised at how easy it is to eat several servings of a variety of whole grain foods each day.

Health Benefits of Whole Grains

Most Americans do not know about the many health benefits of eating just one, two or three extra servings of whole grain foods each day.

You can influence your wellness level by eating a healthful diet. By choosing a variety of whole grain products each day, you will reap

many natural health benefits now, plus reduce your risk of many major chronic diseases in the future. Indeed, eating whole grain foods is associated with a 15 to 25 percent reduction in premature death from all causes.

Choose plenty of healthful whole grains if you want to reduce your risk for:

- Bowel disorders
- Cancer
- Heart disease and high cholesterol
- Stroke
- High blood pressure
- Obesity
- Type 2 diabetes

Whole Grain Nutrients

Eating a variety of whole grains each day will help ensure that you get the nutrients needed to stay healthy.

- All types of grain foods are excellent sources of complex carbohydrates. Nutrition experts recommend that we eat most of our daily calories as carbohydrates, especially complex ones. They supply energy for daily activities.
- Whole grains are low in fat, and because they are from plants they have no cholesterol.
- They are high in fiber, plant protein, vitamins, minerals, phytonutrients, antioxidants, resistant starch, phytate and many other healthful substances.

- Whole grains provide many of the nutrients that are low in America's diet, including fiber, B vitamins, vitamin E, and the minerals selenium, zinc, copper and magnesium.
- There is a long list of other naturally occurring substances in whole grains, besides soluble and insoluble fiber. Some of them are: tocopherols, beta-carotene, vitamin C, folate, glutamine, phytoestrogens, lignans, flavonoids, oligosaccharides, inositol, phenolics, saponins, lectins, and protease and amylase inhibitors. These healthful factors may help prevent diseases from developing, lower blood cholesterol, stabilize blood sugar or improve immune function.

Whole Grains Known for High Fiber

Two kinds of dietary fiber are in whole grains, soluble and insoluble. Oats and barley are high in soluble dietary fiber.

An easy way to increase both types of fiber in your diet is by choosing ready-to-eat or ready-to-cook whole grain breakfast cereals and whole wheat bread.

Whole grain cereals have three to seven times more fiber per serving than refined cereals. Whole wheat breads have about four to six times more fiber per slice than white bread.

Whole Grains Contain Disease-Fighting Phytochemicals

Phytochemicals are naturally occurring plant chemicals found in whole grains, fruits, vegetables, legumes and other plant foods.

Whole grain foods have up to five times more antioxidant activity than do common vegetables, fruits or white bread. Consuming a wide range of antioxidants is important, since each kind protects a different part of the body against cell damage.

Some whole grain antioxidants act as tumor growth suppressants. Another antioxidant, vitamin E, especially the potent form called tocotrienol, is found in large amounts in whole grain oats and barley.

Reducing Health Risks

Bowel Disorders and Colon Cancer

Eating whole grain foods protects against constipation, hemorrhoids and diverticulosis. Whole grains increase stool weight and decrease transit time through the gut. This reduces the length of time the bowels are in contact with waste products. Whole grains improve antioxidant activity and strengthen the surface cells of the colon. They also increase the immune function of the gut.

Cancer

In an analysis of 45 studies of 20 types of cancer, whole grains had a protective effect in 43 of them. Researchers looked at various types of cancer, such as cancer of the colon, rectum, stomach, pancreas,

endometrium, ovaries and prostate.

Heart Disease and Stroke

Eating three servings of whole grains per day, increasing your cereal fiber intake by 10 grams per day, and eating oat cereals five times or more a week have all been shown to reduce heart disease and stroke rates.

Even choosing to eat just one serving of whole grain foods per day, compared to eating them once a week or less often, is beneficial for your heart and circulatory system.

Whole grain foods help decrease cholesterol levels, blood pressure and blood coagulation.

Whole grain oats are especially helpful in lowering cholesterol levels.

Obesity

Whole grains are high in complex carbohydrates and fiber. They help you feel full (satiety) and delay hunger. Choose several servings of whole grain foods each day, eat other healthful foods, and keep active.

Type 2 Diabetes

Eating about three servings a day of whole grain foods reduces the risk of getting Type 2 diabetes and may improve blood sugar control in people who already have diabetes. Soluble fiber delays stomach emptying and nutrient absorption, reducing the rise in glucose and insulin.

Healthful Whole Grains! Participant Survey Questions

Please fill out survey (both sides), detach, and mail to address on back page.

Date _____ Your County _____

Are you: Male ___ Female ___

Your age category: Teen ___ 20-40 yrs. ___ 41-60 yrs. ___ 61 yrs. and older ___

1. Did you learn anything that you did not know or that surprised you?

Yes ___ No ___ Please specify: _____

2. Before today, how important was it to you to eat a variety of grains daily, especially whole grains? (circle one)

Very	Somewhat	Neither	Somewhat	Very
Important	Important	Nor Unimportant	Unimportant	Unimportant

3. After today, how important will it be to you to eat a variety of grains daily, especially whole grains? (circle one)

Very	Somewhat	Neither	Somewhat	Very
Important	Important	Nor Unimportant	Unimportant	Unimportant

4. How many servings of whole grain foods do you generally eat each day? List cups or slices, etc. _____

Summary

Many kinds of foods contain whole grains. By reading the package, you can identify whole grain foods. They are delicious, easy to prepare, affordable and portable. They are healthy, too! You can readily eat a variety of whole grain foods several times a day. For example, have a

whole grain cereal for breakfast, and perhaps choose whole grain breads, pasta or tortillas for lunch or supper. Try a whole grain snack such as popcorn or whole grain crackers. You can make simple changes in your food choices that will satisfy your hunger healthfully.

For More Information About Whole Grains Visit:

<http://www.oznet.ksu.edu/humannutrition/wholegrains.htm> for whole grain recipes, clickable Internet links and a listing of whole grain reference materials.

The author thanks reviewers Julie Miller Jones, Ph.D., L.N., C.N.S., Professor of Nutrition, College of St. Catherine, St. Paul MN; and Marla Reicks, Ph.D., R.D., Associate Professor of Nutrition, University of Minnesota, St. Paul, MN.

Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Mary Meck Higgins, Ph.D., R.D., L.D., CDE,

Healthful Whole Grains!, Kansas State University, September 2002, rev. 2007.

5. What kind of whole grain foods do you eat? (Mark all that apply.)

a. Whole grain yeast bread, such as whole wheat

b. Whole grain breakfast cereal (ready-to-cook or ready-to-eat)

c. Popcorn

d. Whole grain crackers

e. Other. Please specify: _____

f. I do not eat whole grain foods. Please explain: _____

6. Do you intend to eat more whole grain foods in the future? Yes No

Please specify why or why not: _____

Thank you for your time! Please return surveys to: Dr. Mary Meck Higgins,
Department of Human Nutrition, 202 Justin Hall, Manhattan, KS 66506

Brand names appearing in this publication are for product identification purposes only.
No endorsement is intended, nor is criticism implied of similar products not mentioned.

Publications from Kansas State University are available on the World Wide Web at: <http://www.oznet.ksu.edu>

Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Manhattan, Kansas

MF-2560 rev.

October 2007

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, Fred A. Cholick, Director.