



WHOLE GRAINS ON YOUR PLATE

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What's the scope on whole grains?

With all the variety available in grocery stores and markets today, it can be difficult to decide which healthy items to purchase. Any diet including whole grains is beneficial, and introducing grains like quinoa (Figure 1), brown rice, and whole-wheat couscous into your diet is easy and nutritious.

What are whole grains?

Whole grains are nutrient-packed because of the three component parts: the bran, the endosperm, the germ (Figure 2). The *endosperm* contains carbohydrates, protein, and small amounts of fiber, vitamins, and minerals. The outer *bran* layer is nutrient-packed with insoluble fiber, vitamins and minerals, and plant substances called phytochemicals. The *germ* contains B vitamins, vitamin E, trace minerals, healthful fats, and a number of health-enhancing compounds [4].

Refined grains, in contrast to whole grains, have been milled and processed to remove both the bran and germ, and left mainly the endosperm portion of the grain. Most refined grains are "enriched", which means these nutrients that were lost during food processing, are added back. Some examples of refined grain products are white rice, white bread and pasta, many crackers and baked goods.

See page 2 and page 3, to read how to find these whole grain super foods in local grocery stores, and incorporate them into your daily diet!

Health benefits of whole grains

The high levels of fiber and additional benefits of proteins, vitamins, and minerals make whole grains a nutrient-rich food. Research has begun to show that whole grains could be influential in preventative nutrition. Studies have shown a strong correlation between regular intake of whole grains and reduced risk of obesity, as well as improved cardiovascular health [2]. Consistently incorporating whole grains into a daily diet has also been linked to the prevention and reduction of several diseases, including type 2 diabetes and cancer [1], [3], [5].

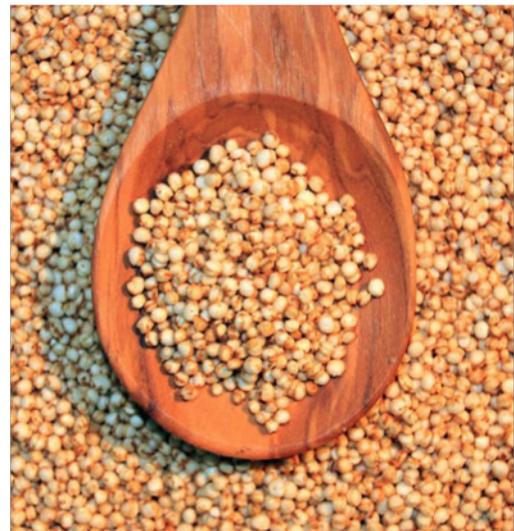


Figure 1. Quinoa grains

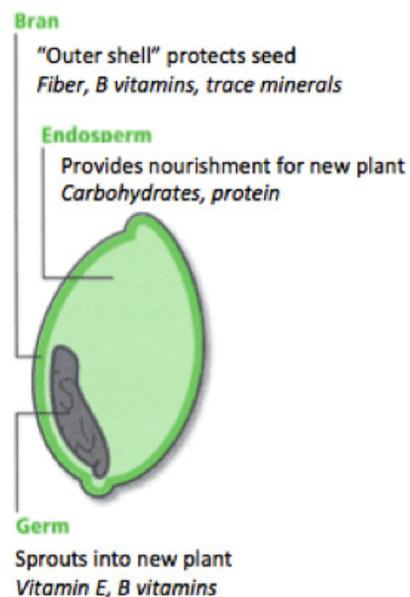


Figure 2. Components of whole grains

Dietary recommendations

Just as meat and vegetables make up a substantial portion of any balanced diet, whole grains should also be included for maximum dietary health. The Dietary Guidelines' recommendation for whole grains is at least half of your grains, or 3 – 4 ounces of whole grains per day for pre-teens, teens, and adults (Table 1). Note: a one-ounce serving is about the amount that fits into the palm of your hand.

Key Consumer Message:

Make at least half of your grains whole grains.

-Healthy Eating Tips-

- Start Slow “If eating more whole grains (high in fiber) is new, introduce it slowly to avoid difficulties with gas or cramps and make sure to accompany it with lots of fluids.”
- Every change you make to improve your diet matter. “Every change you make to improve your diet with whole grains counts. You don’t have to completely eliminate foods you enjoy. Make at least half of your grains whole grains.”

Nutritional breakdown of whole grains

The Institute of Medicine’s Dietary Reference Intake for fiber advises eating 38 grams for adult males and 25 grams

for adult females per day to maintain optimal digestive and overall health. For example, a one-cup serving of quinoa (cooked) can provide 5.2 grams of total dietary fiber—almost 14% and 21% of the recommended daily intake for men and women, respectively [5]. Not only do whole grain foods supply dietary fiber, they also provide essential vitamins and minerals including: thiamin, riboflavin, niacin, calcium, iron, magnesium, phosphorus, potassium, and various other vitamins (Table 2).

How to find which foods are made with whole grains?

To verify that a product is whole grain, consumers should look beyond a product’s name. Foods labeled with the words, “multi-grain”, “100% wheat”, or bran, do not necessarily indicate that a product is whole grain. Also, the brown color of a foods or “high in fiber” claim does not determine whole grain.

Look at the ingredient label:

A 100-percent whole-grain product will always list a whole-grain ingredient first on the label. Look for products that include the various whole grains listed first: brown rice, buckwheat, bulgur, cracked wheat, millet, oatmeal, quinoa, rolled oats, whole grain barley, whole-grain corn, whole-grain sorghum, whole-grain triticale, whole oats, whole rye, whole wheat or wild rice. (Figure 3)

Table 1. How Many Grain Foods Are Needed Daily [<http://www.choosemyplate.gov/>] [5]

		Daily recommendation*	Daily minimum amount of whole grains
Children	2-3 years old	3 ounce equivalents**	1 ½ ounce equivalents**
	4-8 years old	5 ounce equivalents**	2 ½ ounce equivalents**
Girls	9-13 years old	5 ounce equivalents**	3 ounce equivalents**
	14-18 years old	6 ounce equivalents**	3 ounce equivalents**
Boys	9-13 years old	6 ounce equivalents**	3 ounce equivalents**
	14-18 years old	8 ounce equivalents**	4 ounce equivalents**
Women	19-30 years old	6 ounce equivalents**	3 ounce equivalents**
	31-50 years old	6 ounce equivalents**	3 ounce equivalents**
	51+ years old	5 ounce equivalents**	3 ounce equivalents**
Men	19-30 years old	8 ounce equivalents**	4 ounce equivalents**
	31-50 years old	7 ounce equivalents**	3 ½ ounce equivalents**
	51+ years old	6 ounce equivalents**	3 ounce equivalents**

* These amounts are appropriate for individuals who get less than 30 minutes per day of moderate physical activity, beyond normal daily activities. Those who are more physically active may be able to consume more while staying within calorie needs.

Table 2. Nutrients in 1 cup of cooked whole grains (National Nutrient Database for Standard Reference [6])

Nutrients in 1 cup of three whole grains (cooked)			
	Quinoa	Brown Rice	Whole wheat couscous
Calories	222	216	176
Protein	8.14 g	5.03 g	5.95 g
Carbohydrate	39.40 g	44.77 g	36.46 g
Fiber (total dietary)	5.2 g	3.5 g	2.2 g
Total fat	3.55 g	1.76 g	0.25 g
Sugars (total)	1.61 g	0.68 g	0.16 g
Cholesterol	0 g	0 g	0 g
Vitamins & Minerals			
Thiamin	0.198 mg	0.187 mg	0.099 mg
Riboflavin	0.2004 mg	0.049 mg	0.042 mg
Niacin	0.762 mg	2.987 mg	1.543 mg
Vitamin B-6	0.228 mg	0.283 mg	0.080 mg
Calcium	31 mg	20 mg	13 mg
Iron	2.76 mg	0.82 mg	0.60 mg
Magnesium	118 mg	84 mg	13 mg
Phosphorus	281 mg	162 mg	35 mg
Potassium	318 mg	84 mg	91 mg

Whole Grain Tortillas

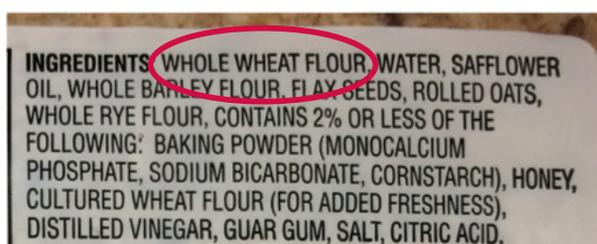


Figure 3. Ingredient Label

Look for the Whole Grain Stamp printed on the bags, boxes or containers:

The Whole Grain Council has developed a whole grain stamp (Figure 4) to denote whole grain products and make them easy to spot for consumers. The stamp lists the number of grams of whole grain per serving, and if all of the grain is whole grain, the stamp also includes '100%'.

Look for products that include the various whole grain labels!



Figure 4. Whole grain stamps. Whole Grains Council, <http://wholegrainscouncil.org/>

How to enjoy more whole grains in your diet?

By simply choosing a whole grain option of common staples, such as brown rice and quinoa, you can improve dietary nutrients and reap numerous health benefits. Try these whole grain alternatives to common refined grain choices in recipes used in typical American diets!

Cheesy Parmesan Whole Wheat Couscous

Ingredients (makes 4 servings):

- 1 cup whole wheat couscous, dry
- 1 1/3 cups water
- 1 tablespoon extra-virgin olive oil
- 1/2 cup reduced fat Parmesan cheese, grated
- (Optional) 1 tablespoon garlic powder



Directions:

1. Place water and extra virgin olive oil in a pot. Bring the pot to a boil.
2. Add the whole wheat couscous carefully to the slightly boiling pot. Quickly cover the pot with the whole wheat couscous in it, and let it sit (untouched) for about 5-7 minutes.
3. Carefully lift the lid (steam will be hot from the pot!) and use a fork to fluff the whole wheat couscous.
4. Either transfer the whole wheat couscous to a mixing/serving bowl, or keep it in the pot. Add the Parmesan cheese. You can also add seasonings such as a tablespoon of garlic powder, Italian seasoning, or other spices on hand.
5. Serve warm and enjoy! Some ingredients will be left over for next time, as well.

Per Serving:

Calories 235 kcal; Carbohydrate 35g; Protein 9g; Total fat 6g; Fiber 4g; Calcium 140mg; Sodium 177mg; Cholesterol 7mg

Total cost: \$3

Spiced Brown Rice

Ingredients (makes 4 servings):

- 1 cup brown rice, dry
- 2 cups water
- 1 tablespoon extra-virgin olive oil
- Spices and/or herbs on hand (see instructions for ideas)



Directions:

1. Place water, extra virgin olive oil, and brown rice in a boiling pot on the stove. Bring to a boil.
2. Reduce heat to a slight simmer and let stand (covered, but be careful not to burn the bottom of the rice) for 45-50 minutes. Test the brown rice to make sure it has the texture desired, but be careful—it's hot!
3. Transfer the brown rice into a mixing bowl. This is where the creativity comes in! Add one of the following spice mixtures to the brown rice, or create your own:
 - 1 tablespoon Italian seasoning, 1 tablespoon garlic powder,
 - 1 tablespoon chili powder, 1/2 tablespoon crushed red peppers, 1/2 tablespoon cumin, or
 - For a Mediterranean style brown rice, add half to 1 more tablespoon extra-virgin olive oil, small fresh tomatoes (halved), 1 tablespoon minced fresh basil, 1 teaspoon Italian seasoning, and 1/2 cup grated mozzarella cheese. (Nutritional information and cost for this variation are not shown)
4. Serve warm and enjoy! Some ingredients will be left over for next time, as well.

Per Serving:

Calories 201 kcal; Carbohydrate 36g; Protein 3.7g; Total fat 4.7g; Fiber 1.6g; Calcium 14.2mg; Sodium 11mg; Cholesterol 0mg

Total cost: \$3

Quinoa "Fried Rice"

Ingredients (makes 6 servings):

- 1 1/2 cups quinoa, dry
- 3 cups water
- 1 tablespoon extra-virgin olive oil
- 3 cloves garlic, minced
- 1 cup onion, diced
- 1/2 cup scallions, chopped
- 1 cup frozen peas and carrots
- 2 eggs
- 3 tablespoons reduced sodium soy sauce
- 2 tablespoons teriyaki sauce
- 1 teaspoon sesame oil
- (Optional) 1 teaspoon Chinese 5 Spice



Directions:

1. Place quinoa and water in a pot on the stove. Gently boil for 15 minutes, and then remove from heat, cover, and let stand for 5 minutes. Fluff with a fork and put aside.

- Now, place the extra-virgin olive oil, garlic, onion, and scallions in a large skillet pan. Sauté the vegetables on medium heat for about five minutes (until the onions begin to turn translucent).
- While the vegetables are cooking, unthaw the frozen peas and carrots in the microwave.
- Add the peas and carrots to the garlic, onions, and scallions, and heat for another 2-3 minutes.
- In a smaller pan, scramble the eggs.
- Add the cooked quinoa and cooked to the vegetables in the large skillet pan. While still on medium-low heat, mix the vegetables and quinoa together until combined.
- Mix together the soy sauce, teriyaki sauce, and sesame oil, and add to the quinoa and vegetable mixture. Continue heating for a minute or two.
- Add the scrambled eggs and mix everything together until combine.
- Serve warm and enjoy!

Per Serving:

Calories, 368 kcal; Carbohydrate, 56g; Protein 14.6g; Total fat 11g; Fiber 5.7g; Calcium 86.8mg; Sodium, 804mg; Cholesterol, 70.5mg

Total cost: \$4

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Abstract

Studies have shown the integration of whole grains into daily diet correlates with a reduced risk of many chronic diseases such as type 2 diabetes, coronary heart disease, and cancer. This article outlines the daily dietary nutritional benefits of whole grains, as well as the positive long-term health effects associated with consistent whole grain intake in diet. Also, this article provides how to find, prepare, and utilize whole grains in everyday dietary choices. Whole grain alternative cooking recipes are introduced using relatively new whole grains (examples, quinoa, whole wheat couscous) in typical American diets.



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