Creating Health & Nutrition
Sprouting the Truth about Sprouted Grains

**Tip**
Compare labels for sprouted-grain food with those for unsprouted grains. Purchase high-quality sprouted products and follow these guidelines to ensure food safety.

**Nutrition Information**
There are many questions surrounding the potential health benefits of sprouted grains, such as are sprouted grains more nutritious than their sproutless cousins? In addition, can a person with diabetes benefit from eating sprouted grains?

**What Is a Sprouted Grain?**
Sprouted grains start with whole grains—the edible seeds of cereal grasses, composed of germ, the starchy endosperm, and the protective outer bran layer, sometimes protected additionally by the tough husk. The germ of the whole grain is actually the embryo; it contains the concentrated oils and nutrients necessary for the grain to burst forth into a sprout, which then uses the starchy endosperm to sustain its growth as it pushes forth into the soil to grow into a plant. When sprouting grains for human consumption, the trick is to stop the growth of the sprout while the sprout is only as long as the grain kernel itself. If grown any longer, the sprout begins to use up the powerhouse of nutrients that were stored in the grain, and the nutrient content declines.

The germination process produces a sprout when temperature and moisture reach the optimal levels, which allows more of the nutrients in the grain to break down to simpler nutrients that are used by the growing sprout.

**What Are Examples?**
Grains that can be sprouted include any viable seed, such as alfalfa, clover, corn, whole-grain wheat, barley, rye, millet, rice, and oats. The plant starch, vitamins, and minerals become more available to the plant through the sprouting process.

**Do Sprouted Grains Have Nutritional Benefits?**
Many believe sprouts are a “health food” since they supply fiber, vitamins, minerals, and bioactive compounds such as antioxidants into the diet. Sprouts are also low in calories, fat, and sodium. Carbohydrates are converted into simple sugars, proteins are broken down into amino acids, and fats are broken into the component fatty acids. These conversions make the food easier for the plant and humans to digest. Research in the 1940s by Clive McKay, a biochemist and nutritionist from Cornell University, uncovered amazing increases in vitamin A (up to 300 percent) and vitamin C (more than 500 percent) in sprouted seeds over the unsprouted seed. Yang et al. in 2001 in the International Journal of Food Science and Nutrition found that the antioxidant vitamins C, E, and beta-carotene increased in germinated wheat versus dry grain over time. A 2012 study in the Journal of the Science of Food and Agriculture found that wheat sprouts had higher levels of fiber, amino acids, and antioxidants after 48 hours of sprouting when compared to unsprouted wheat. In 2008, in research published in the Journal of Nutritional Science and...
Vitaminology, researchers randomly assigned individuals with impaired fasting glucose or type 2 diabetes to eat a diet of sprouted brown rice or white rice. They found the sprouted brown rice diet helped improve blood sugar and cholesterol levels.

While the nutritional value of sprouted grain can be increased in some areas, such as soluble fiber, antioxidants, vitamins, and mineral bioavailability, it may be balanced somewhat by a decrease in total dry matter, proteins, and the insoluble fiber typical of whole grains. Enzymes, those biological warriors engaged in breaking apart molecules for digestion, may be increased with sprouting; however, the biological value of increased enzymatic activity in humans is not clear. Once sprouted, the sprouts may be eaten whole or dried and milled into flour. The debate on whether or not this nutritional difference between sprouted and unsprouted grains is beneficial continues and further research is needed.

**Food Safety Issues**

Sprout production is a science with the need for quality monitoring and cleanliness. The warm, humid conditions required for sprouting are also ideal for bacterial growth of pathogens. If seeds are contaminated, *Salmonella* and *E. coli* O157:H7 bacteria will quickly grow to unsafe levels, leading to foodborne illness. For safety, the Food and Drug Administration recommends that sprouts be fully cooked. Sprouts should not be served raw to vulnerable populations, such as children, pregnant women, the elderly, or those with compromised immune function. Whether produced at home or purchased commercially, it is important to refrigerate raw sprouts. Sprouts can be eaten raw; but if you want to lower the risk of foodborne illness, cook them thoroughly to at least 135°F before eating. Raw sprouts have been linked to more than 40 foodborne illness outbreaks from 1996 to 2016, and sprouts are among the top 10 foods that cause foodborne illness.

**Shopping Tips**

- Purchase high-quality sprouts. Sprouts should be crisp and kept refrigerated. Refrigerate them immediately when you get them home after purchasing them.
- Do not consume sprouts past their shelf-life.
- Cook sprouts to reduce their risk of foodborne illness. Roast them in the oven until crisp and brown or put them into soups, stews, and stir-fries.
- When purchasing products, examine your choices. Behind all the hype is the plain and simple fact that sprouted whole grains are on a roll! Sales of products featuring sprouted grains are predicted to grow to $250 million annually by 2018. New products include sprouted flours and sprouted-grain breads, pizzas, chips, crackers, pretzels, tortillas, and cereals. If you are interested in trying sprouted grains, you can buy sprouted-grain products from your local health food market, online outlets, and grocers. You may be able to order sprouted-grain flour to make your own healthy products.
- If you are interested in sprouting your own grains, use reliable directions from a reputable, peer-reviewed source, such as “Sprouting Seeds for Food,” available from Virginia Cooperative Extension at pub.ext.vt.edu/426/426-419/426-419.html.

**Sources**

Harrison, H. C. “Growing Edible Sprouts at Home.” University of Wisconsin Extension. learningstore.uwex.edu/assets/pdfs/A3385.PDF.


Oldways Whole Grain Council. wholegrainscouncil.org.


Sprouted Brown Rice Vegetable Risotto

Serving size: 8 servings

INGREDIENTS
2 quarts vegetable broth
½ pound asparagus, trimmed and cut into 2-inch pieces
2 tablespoons olive oil
1 cup finely chopped onion
2 cloves garlic, finely chopped
2 cups uncooked sprouted brown rice
2 carrots, trimmed and chopped
2 zucchini, trimmed and chopped
½ cup fresh or frozen and thawed peas
2/3 cup grated Parmesan cheese
1 tablespoon butter
Sea salt and pepper to taste

DIRECTIONS
1. In a medium pot cover broth and bring to a simmer.
2. Heat oil in a medium pot over medium heat. Add onion and garlic and cook, stirring occasionally, until softened, 4 to 5 minutes. Add rice and cook, stirring gently, until toasted and fragrant, 4 to 5 minutes.
3. Add 1 cup of the hot broth and cook, stirring constantly, adjusting the cooking to a simmer until liquid is almost absorbed. Repeat the process, adding about ½ cup of the broth each time, until rice is just beginning to get tender, about 25 minutes. Add asparagus and carrots, continuing the process with the broth.
4. When rice is just al dente and asparagus and carrots are just tender, add zucchini and cook 5 minutes more. (If broth gets low, add water as needed.)
5. Stir peas into rice and cook until hot throughout, 2 to 3 minutes more. Add cheese, butter, salt, and pepper and stir to combine.
6. Add about ½ cup liquid to finished risotto before serving, if necessary for desired texture. Final product should be above 135°F.

NUTRITIONAL FACTS
Per serving: 330 calories, 9g total fat, 2.5g saturated fat, 290mg sodium, 54g carbohydrate, 6g fiber, 10g protein.

Source: Whole Grains Council, wholegrainscouncil.org/recipes/sprouted-brown-rice-vegetable-risotto