

# Breaking Barriers, Busting Myths



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# WHOLE GRAINS: BREAKING BARRIERS CONFERENCE

*November 9-11, 2014, Boston, MA*

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## **BREAKING BARRIERS, BUSTING MYTHS**

Momentum for whole grains has been strong in recent years, with increases in consumption and product availability. At the same time, however, misinformation and pseudoscience have caused some people to become wary of grains, a staple of worldwide diets since the beginning of civilization. In this section you'll find:

### **Whole Grain Momentum**

Whole grains continue to rank high in polls of consumers and restaurants. See just a few of the trends here.

### **Myths Busted**

Solid science backs up the health benefits of whole grains, and refutes many of the most widely-circulated myths regarding these healthy foods. We've debunked eight of these myths, with concise comebacks that help set the record straight. Help us spread the word!

### **Education Changes Everything**

Education continues to be essential to breaking barriers and busting myths. We've gathered some of the Whole Grains Council's most popular and useful resources in one place, so you can put your fingers on them every time you need them. Resources include:

1. Whole Grains Cooking Chart
2. Differences between whole, refined and enriched grains
3. Which grain is healthiest? Nutrients in different grains – and why we need them.
4. Easy Ways to Make the Switch
5. 10 Tips for Introducing Kids to Whole Grains
6. How to Identify a Whole Grain
7. Recipes available for reprint with hi-res photos



# WHOLE GRAIN MOMENTUM

News stories and national surveys continue to document the incredible momentum of whole grains. Here are just a few examples.

## **72% of Consumers Seeking More Whole Grains**

When the International Food Information Council (IFIC) conducted its 2014 Food & Health Survey, it asked 1,005 Americans which dietary changes they were making. 24% said they had begun eating more foods with whole grains in the past year, while another 49% said they have been seeking more grains for more than a year. That adds up to almost three-quarters of those surveyed seeking more whole grains. This squares with a later question in the survey, where 24% said they “try to limit or avoid entirely” refined grains.

*IFIC 2014 Food & Health Survey*

## **Gluten Low on Priority List**

In the same IFIC survey, consumers were asked whether the presence or absence of 18 different food components had affected their buying decisions in the past year. Gluten was 13<sup>th</sup> out of 18, with twenty percent of consumers mentioning it (below “food colors,” “stevia,” “probiotics,” “potassium” and eight other choices).

*IFIC 2014 Food & Health Survey*

## **Quinoa on More Menus**

In 2013, 3.6 percent of U.S. restaurant menus contained the word “quinoa,” compared with just 0.7 percent five years ago.

*Dataessential, quoted on Bloomberg.com, March 10, 2014 “Hippie Grains Thrive...”*

## **Four in Ten Consumers Ate Specialty Grains**

Four in 10 consumers ate specialty grains in 2013; 30% had couscous and/or barley, 25% quinoa, 23% millet/spelt, 22% bulgur wheat, and 21% buckwheat.

*Mintel, quoted on IFT.org, October 2014, Volume 68, No. 10 “Restaurants Reposition for Growth”*

## **Grains Making a Comeback**

Technomic ranked grain carbohydrates as one of its 10 trends for 2014. “Starches are staging a comeback—from ramen to buckwheat noodles to pasta made with unusual ingredients. Rice bowls (and jasmine rice, basmati rice, brown rice) will be big, in part because of continued fascination with Asian fare and in part because of an association with healthfulness. Look for more in the way of flatbreads, wraps and all kinds of artisan breads, including healthy whole-grain varieties.”

*Technomic’s Take: 10 Trends for 2014 (Nov. 13, 2013)*

## **Consumers Like the Taste of Whole Grains**

“Technomic tells us that 45 percent of consumers believe that dishes featuring 100 percent whole grains are more flavorful than other menu items. Flavor, then, holds the key to success here. With so many grains offering blank canvases, it’s up to the chef to cook and hold the grains properly, pairing them with flavors that move them into the coveted craveable category.”

*Flavor & The Menu (getflavor.com) “Grains Making Big Gains”*

### **Whole Grains Feature Strongly in 2014 Menu Trends**

Each year, the National Restaurant Association surveys more than 1000 chefs for their thoughts on the 200 top hot trends for the coming year. For 2014, whole grains figured in many of the top trends including #8 – Non-Wheat Noodles/Pasta (such as quinoa, rice, buckwheat, #12 – Whole grain items in kids; meals, #15 – Ancient Grains (e.g. Kamut, spelt, amaranth), #22 – Non-Wheat Flour (including millet, barley, rice), #24 – Quinoa, #29 – Ethnic Flour (including teff), #31 – Black/Forbidden Rice, #49 – Red Rice.

*Annual NRA “What’s Hot” Survey for 2014, December 2013*

### **2014 Trend: Drinkable Grains**

According to a new list from the Sterling-Rice Group, a consumer-insights firm, drinkable grains are one of the top ten natural and organic trends for 2014. Sterling-Rice Group culinary director Kara Nielsen observes that this trend is in line with consumers’ preferences for high fiber products. Drinkable grains include novel beverages such as quinoa smoothies and oat drinks.

*Sterling-Rice Group, quoted in FoodProductionDaily.com, June 10, 2014 “Consumer Tastes Shape Natural Food Trends”*

### **Shoppers Seek Health Foods**

A recent report from the Food Marketing Institute shows that over the past six years, shoppers have increasingly been seeking foods that are more healthful and minimally processed. In 2013, 28% of shoppers reported looking for minimally processed foods, compared to only 19% in 2007. Similarly, 25% of shoppers are seeking foods with a short ingredient list and 26% look for foods with only recognizable ingredients, up from 11% and 17% respectively in 2007. Retailers are responding to these changing preferences by increasing their lineup of natural, organic, and whole grain products.

*FMI, quoted on WashingtonPost.com, August 28, 2014, “How We Shop for Food...”*

### **Whole Grains are a Top Functional Food Trend in 2014**

In April 2014 the Institute of Food Technologists released a report on functional food trends, which found that ingredients higher in nutrients (specifically mentioning whole grains) were a top attribute that made a food product good for health and wellness. The report found that “For the first time, added fiber/whole grain, more natural/organic, and real fruit/fruit health benefits, outpaced reduced-fat and fortified nutrient claims.” In fact, “Even commercial weight management programs are focusing on added health-promoting ingredients (e.g., whole grains, good fats, and real sweeteners) vs subtracting them.” Similarly, “whole grains, fiber, and vitamin D topped the list of ingredients that two-thirds of those trying to manage their weight added to their diet last year.” However, whole grains aren’t just for dieters. The authors also report that “About one-third of moms are making a strong effort to increase fresh/unprocessed foods, vitamins/minerals, whole grains, and calcium in their child’s diet.” Additionally, as an increasing number of families enjoy meatless meals on occasion (now up to 80%), protein packed whole grains, such as quinoa, are a popular addition.

*IFT, on ift.org, April 2014*

# GRAIN MYTHS BUSTED

Misinformation about grains and whole grains abounds. We've included eight of the most pervasive myths here – with the facts that set the science straight.

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## **MYTH #1: U.S. WHEAT IS GENETICALLY MODIFIED. (NO!)**

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**The Facts:** No, there is no GMO wheat commercially available in the U.S.

**The Details:** The book *Wheat Belly* (and many other sources) attest that wheat in the U.S. food supply has been genetically modified. In fact, there is no GMO wheat commercially available – in large part because U.S. farmers have fought hard against GMO wheat, out of concern that it would put a damper on the export market for U.S.-grown wheat.

Source: "U.S. Wheat Supply," United States Department of Agriculture Economic Research Service, last updated October 29, 2013, accessed September 11, 2014, <http://www.ers.usda.gov/topics/crops/wheat/background.aspx#supply>.

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## **MYTH #2: MODERN WHEAT'S BEEN BRED TO HAVE MORE GLUTEN. (NO!)**

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**The Facts:** No, today's wheat has similar levels of gluten to older wheat. However, many of us are eating more gluten as an additive in processed foods – and wheat breeding has increased the levels of pest-resistant compounds, to which some people may be sensitive. Keep in mind that nearly all food crops, including broccoli and apples, are the product of plant breeding and bear little resemblance to their ancestors.

**The Details:** Donald Kasarda, PhD, a scientist with USDA's Agricultural Research Service, investigated this allegation in a paper that appeared in the *Journal of Agricultural and Food Chemistry* in early 2013. He surveyed data from the 20th and 21st centuries and concluded that gluten content in wheat has not in fact increased. In a speech at the International Celiac Disease Symposium in Chicago in September, 2013, Dr. Kasarda also stated that dwarf wheat is a natural cultivar and that the genes for dwarfism and for gluten are not associated in the genetic makeup of modern wheat.

Two caveats here. Kasarda's data *do* show that average consumption of gluten *is* rising, especially in the last 15-20 years. That's because gluten is being added as an isolated ingredient in so many processed foods. (Not an issue, if you eat your foods more on the intact / minimally processed end of the scale.) Research also shows that wheat has been bred to increase its pest resistance -- a worthy goal to save the environment through use of fewer pesticides. Some people are sensitive to these compounds (ATIs, or amylase tripsin inhibitors), however.

Source: Donald D. Kasarda, "Can an Increase in Celiac Disease Be Attributed to an Increase in the Gluten Content of Wheat as a Consequence of Wheat Breeding?," *Journal of Agricultural and Food Chemistry*, 61, no. 6 (January 2013):1155-1159, doi:10.1021/jf305122s

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### **MYTH #3: ELIMINATING GRAINS OR CARBOHYDRATES MAKES YOU LOSE WEIGHT. (NO!)**

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**The Facts:** No, eliminating grains or carbohydrates is not a sustainable path to lasting weight loss. In fact, research shows that low carbohydrate diets do not result in greater weight loss over time, and often result in more dropouts than other, less restricted diet types. The best approach to eating includes all three macronutrient groups (carbohydrates, fats and protein) with an emphasis on quality choices in all three categories.

**The Details:** Weight problems are almost never the fault of one food; it's total diet and lifestyle that matter. Additionally, as Dr. David Katz of Yale's Prevention Research Center reminds us, "all plant food is a carbohydrate source. A truly "low-carb" diet is, of necessity, low in all plant foods -- including vegetables, fruits, nuts, seeds, beans, and lentils along with whole grains. This is directly at odds with everything we know about diet and health across the lifespan."

Experts agree that healthy carbohydrates (such as whole grains) are the backbone of a healthy diet. The Harvard School of Public Health, through their Healthy Eating Plate, "recommends filling most of your plate with healthy carbohydrates – with vegetables (except potatoes) and fruits taking up about half of your plate, and whole grains filling up about one fourth of your plate." Research supports this recommendation. In a Canadian study, researchers examined the diets of 4,451 healthy free-living Canadians and found that those consuming less than 47% of their calories as carbohydrates were more likely to be overweight or obese. This finding supports existing evidence that carbohydrates (including healthy whole grains) play an important role in weight management.

Lastly, note that glucose is the preferred energy source for your brain, and by depriving your body of carbohydrates (which are broken down into glucose inside the body), you are depriving your most important organ of its primary energy source. So go ahead and enjoy your whole grains, especially in their intact and traditional minimally processed forms, in the context of a diet overflowing with fruits, vegetables, legumes, fish, olive oil, and other health foods.

Sources:

Michael L. Dansinger et al., "Comparison of the Atkins, Ornish, Weight Watchers, and Zone Diets for Weight Loss and Heart Disease Risk Reduction: A Randomized Trial," *Journal of the American Medical Association* 293, no. 1 (January 2005):43-53, doi: 10.1001/jama.293.1.43.

David Katz, "Diet Research, Stuck in the Stone Age," Huffington Post, September 2, 2014, [http://www.huffingtonpost.com/david-katz-md/post\\_8304\\_b\\_5752160.html](http://www.huffingtonpost.com/david-katz-md/post_8304_b_5752160.html).

"Carbohydrates," Harvard School of Public Health, <http://www.hsph.harvard.edu/nutritionsource/carbohydrates/>.

M. Kristensen et al., "Whole grain compared with refined wheat decreases the percentage of body fat following a 12-week, energy-restricted dietary intervention in postmenopausal women," *Journal of Nutrition* 142, no. 4 (April 2012): 710-716, doi: 10.3945/jn.111.142315.

Anwar T. Merchant et al., "Carbohydrate Intake and Overweight and Obesity among Healthy Adults," *Journal of the Academy of Nutrition and Dietetics* 109, no. 7 (July 2009): 1165-1172, doi:10.1016/j.jada.2009.04.002

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**MYTH #4: ELIMINATING WHEAT CURES DIABETES/ABNORMAL GLUCOSE TOLERANCE. (NO!)**

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**The Facts:** No, eliminating wheat will not cure diabetes or abnormal glucose tolerance. In fact, evidence continually shows that a high intake of whole grains (including whole wheat) reduces the risk of type 2 diabetes as much as 21-30%.

**The Details:** Overeating any type of food can cause weight gain and blood glucose abnormalities, whether or not wheat is a part of your diet. The best outcomes come from following nutrition recommendations from physicians and dietitians.

Researchers conducting a 2013 meta-analysis of 16 studies exploring the association between whole grain intake and type 2 diabetes concluded that “a high whole grain intake, but not refined grains, is associated with reduced type 2 diabetes risk.” They suggest the consumption of at least two servings daily of whole grains to reduce type 2 diabetes risk. More recent research suggests a relationship between whole grain intake and insulin action.

In a study in Italy, 53 adults (40-65 years old) with metabolic syndrome followed one of two different 12-week diets. One group consumed their standard diet, but replacing all grains with whole grains, and one group consumed their standard diet, but choosing only refined cereals. Researchers found that the whole grain group had significantly lower levels of post-meal insulin (29%) and triglyceride levels (43%) than before the 12-week test period, thus reducing the risk for heart disease and type 2 diabetes. Based on these findings, the researchers suggest that “the whole-grain diet was able to improve insulin action” after meals, thus providing clues about how whole grain diets reduce the risk of chronic disease.

Sources:

R. Giacco et al., “A whole-grain cereal-based diet lowers postprandial plasma insulin and triglyceride levels in individuals with metabolic syndrome,” *Nutrition, Metabolism and Cardiovascular Diseases* 24, no. 8 (August 2014):837-844, doi: 10.1016/j.numecd.2014.01.007.

D. Aune et al., “Whole grain and refined grain consumption and the risk of type 2 diabetes: a systematic review and dose-response meta-analysis of cohort studies,” *European Journal of Epidemiology* 28, no. 11 (November 2013):845-858, doi: 10.1007/s10654-013-9852-5.

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**MYTH #5: WHEAT IS ADDICTIVE. (NO!)**

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**The Facts:** No, wheat has no special addictive properties. While wheat can produce peptides, called gliadorphins, that may interact with opioid receptors in the brain, these same peptides are found in milk, rice, and even spinach. And spinach addiction certainly isn't a problem!

**The Details:** Extreme dieters preach avoiding wheat for its addictive properties. As ammunition, they say that wheat proteins, called gliadins, can stimulate opioid receptors, thus paving the way for addiction. However, as mentioned above, these peptides are found in all kinds of foods, not just wheat. Additionally, these studies investigating foods' opioid potential were done in vitro or by feeding preformed peptides, not actual food.

In a recent study in the *Journal of Cereal Science*, Fred Brouns confirms that “there are no studies in which gliadorphin has been shown to be absorbed in intact form by the intestine



and no evidence that gliadin either stimulates appetite or induces addiction-like withdrawal effects." Additionally, some studies have actually found these peptides to be *beneficial* to health, with the potential to improve both blood pressure and learning performance.

Sources:

Niels Peter Moller et al., "Bioactive peptides and proteins from foods: indication for health effects," *European Journal of Nutrition* 47, no. 4 (June 2008):171-182, doi: 10.1007/s00394-008-0710-2.

H. Teschemacher, "Opioid receptor ligands derived from food proteins," *Current Pharmaceutical Design* 9, no. 16 (2003): 1331-1344, <http://www.ncbi.nlm.nih.gov/pubmed/12769741>.

Fred J.P.H. Brouns, Vincent J. van Buul, and Peter R. Shewry, "Does wheat make us fat and sick?," *Journal of Cereal Science* 58, no. 2 (September 2013): 211, doi: 10.1016/j.jcs.2013.06.002.

C. Guang, and R. D. Phillips, "Plant food-derived Angiotensin I converting enzyme inhibitory peptides," *Journal of Agriculture and Food Chemistry* 57, no. 12 (June 2009):5113-5120, doi: 10.1021/jf900494d.

M. Yoshikawa, M. Takahashi, and S. Yang, "Delta opioid peptides derived from plant proteins," *Current Pharmaceutical Design* 9, no. 16 (2003):1325-1329, <http://www.ncbi.nlm.nih.gov/pubmed/12769740>.

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## **MYTH #6: GRAINS CAUSE INFLAMMATION. (NO!)**

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**The Facts:** No, whole grains are part of the solution, not the problem, when it comes to inflammation.

**The Details:** Research increasingly shows that systemic inflammation may fuel many diseases, from allergies to heart disease to cancer. In a recent clinical trial, researchers at the University of Nebraska showed that eating a cup of whole grain barley or brown rice (or a combination of the two) for as little as four weeks can increase the "good" bacteria in your gut that fight inflammation.

In another randomized controlled trial, this time in Iran, overweight girls were divided into two groups, one eating mostly refined grains and one eating mostly whole grains. There was a significant reduction in inflammation markers among those eating whole grains. This effect of eating whole grains in adolescence can also affect your health later on. In a prospective study in Germany, researchers found that eating fewer whole grains and more high Glycemic Index carbohydrates during puberty is predictive of higher inflammation markers in adulthood.

Sources:

Jens Walter, Ines Martinez, and Devin J. Rose, "Holobiont nutrition: Considering the role of the gastrointestinal microbiota in the health benefits of whole grains," *Gut Microbes* 4, no. 4 (April 2013): 340-346, accessed September 12, 2014, doi: 10.4161/gmic.24707

Parisa Hajihashemi et al., “Whole-grain intake favorably affects markers of systemic inflammation in obese children: a randomized controlled crossover clinical trial,” *Molecular Nutrition and Food Research* 58, no. 6 (June 2014):1301-1308, doi: 10.1002/mnfr.201300582.

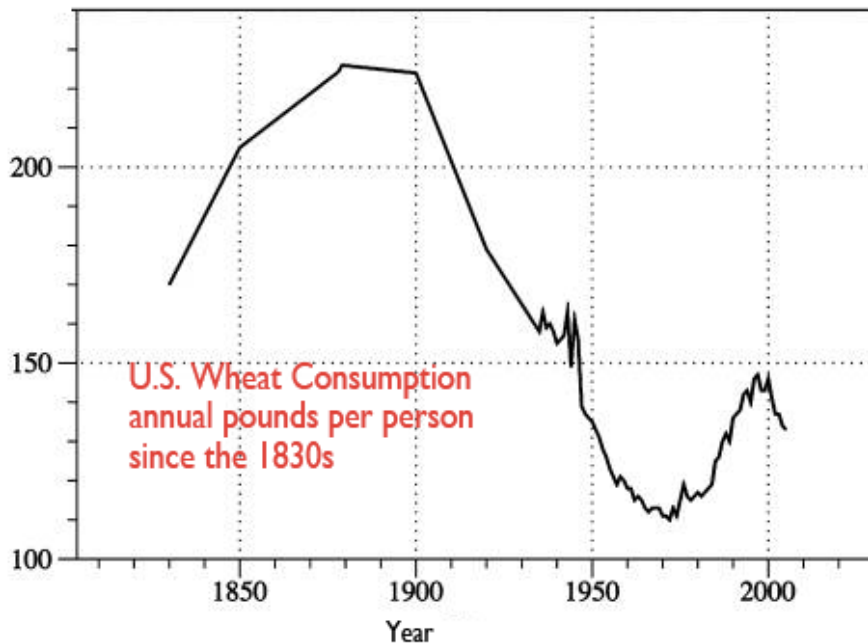
Janina Goletzke et al., “Increased Intake of Carbohydrates from Sources with a Higher Glycemic Index and Lower Consumption of Whole Grain during Puberty Are Prospectively Associated with Higher IL-6 Concentrations in Younger Adulthood among Healthy Individuals,” *Journal of Nutrition* (July 2014), [Epub ahead of print], <http://www.ncbi.nlm.nih.gov/pubmed/25080538>.

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**MYTH #7: WE’RE EATING MORE WHEAT THAN EVER BEFORE. (NO!)**

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**The Facts:** Not so. US wheat consumption hit a peak in the 1870s of almost 230 pounds per person per year. Currently, US wheat consumption is at about half its all-time peak.



**The Details:** After wheat consumption peaked in the late 19<sup>th</sup> century, it then dropped steadily until the early 1970s, when it rose once again, as fast food restaurants and supermarkets made a wider variety of wheat-based foods more readily available. In the last decade, wheat has once again dipped – and is now at about half its all-time peak.

That being said, we recommend you change out some of the wheat in your life for other grains. When our doctor says “eat more vegetables” we don’t simply eat carrots and leave it at that, as healthy as carrots are; we understand instinctively that it’s important to eat a variety of vegetables to get a range of nutrients, textures and tastes. The same thing goes for grains: Wheat’s just fine, but change it up for optimum health!

Source: “Wheat’s Role in the U.S. Diet,” United States Department of Agriculture Economic Research Service, last updated June 19, 2013, <http://www.ers.usda.gov/topics/crops/wheat/wheats-role-in-the-us-diet.aspx#.VBdMMkjB0xY>.

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**MYTH #8: EVERYTHING WILL BE GREAT IF WE JUST STOP EATING ALL GRAINS. (NO!)**

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**The Facts:** Grains are the most important source of food worldwide, providing nearly 50% of the calories eaten, and are some of the least intensive foods to produce. Suddenly replacing grains with other foods (such as meat) is a shift the earth is not ready for.

**The Details:** Grains have been at the core of traditional diets for millennia, and as scientists assess the risks and benefits of different food production systems, it is easy to see why. Fruits and vegetables, while very nutritious, aren't as energy dense as grains and are harder to grow, transport and store for year-round enjoyment. So to make up the necessary calories in fruits and vegetables, much more food would have to be grown. Similarly, raising animals for meat production requires a substantial amount of land and water. For example, beef production uses 10.19 liters of water to produce 1 calorie of food, compared to only 2.09 liters per calorie of fruits, 1.34 liters per calorie of vegetables, and 0.51 liters per calorie of grains. Shifting diets away from grains and towards more energy intensive foods puts an irresponsible burden on our planet's precious resources.

Sources:

"Wheat – the largest primary commodity," Food and Agriculture Organization of the United Nations, last updated August 14, 2014, [http://www.fao.org/resources/infographics/infographics-details/en/c/240943/?utm\\_source=facebook&utm\\_medium=social+media&utm\\_campaign=fao+facebook](http://www.fao.org/resources/infographics/infographics-details/en/c/240943/?utm_source=facebook&utm_medium=social+media&utm_campaign=fao+facebook).

Mesfin M. Mekonnen and Arjen Y. Hoekstra, "A Global Assessment of the Water Footprint of Farm Animal Products," *Ecosystems* 15 (2012):401-415, doi: 10.1007/s10021-011-9517-8

# EDUCATION CHANGES EVERYTHING!

## WHOLE GRAIN REFERENCE MATERIALS

Education continues to be essential to breaking barriers and busting myths. We've gathered some of the Whole Grains Council's most popular and useful resources in one place, so you can put your fingers on them every time you need them.

### How do I cook whole grains?

Cooking whole grains is easier than you may think. In general, you throw some uncooked grain in a pot, add at least twice as much water or broth, bring the grain to a boil, then simmer. After awhile, taste the grain. If it's soft enough for you, the grain is done. Remove it from the heat and drain off any excess water. If it's not soft enough for you, but the water is all absorbed, add a bit more water and keep on cooking. It's as easy as that.

The chart below may help, but keep in mind this is not an exact science. Grains are real foods from real plants, and can vary, so just taste as you go, and enjoy!

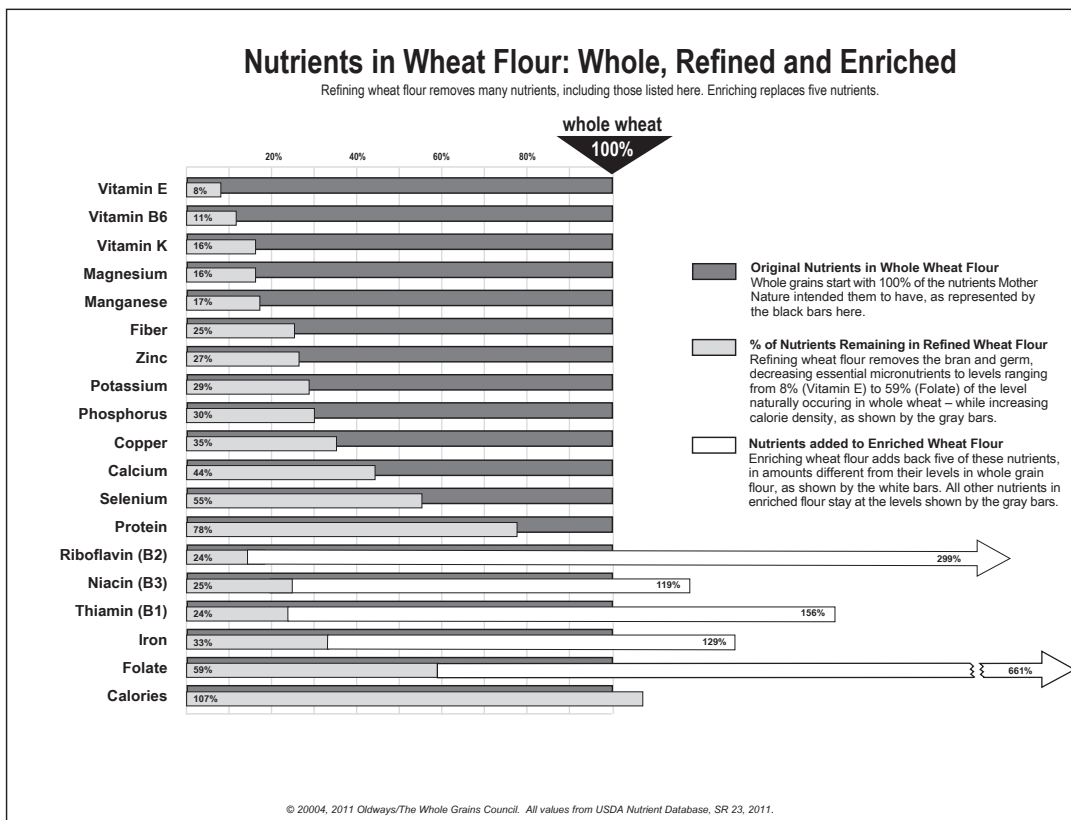
### WHOLE GRAINS COOKING CHART

To 1 cup of grain	Add this much water or broth	Bring to a boil, then simmer:	Cooked Amount
Amaranth	2 cups	20-25 minutes	3 ½ cups
Barley, hulled	3 cups	45-60 minutes	3 ½ cups
Buckwheat	2 cups	20 minutes	4 cups
Bulgur	1 ½ cups	10-12 minutes, with heat off	2 cups
Couscous, whole wheat	2 cups	10 minutes, with heat off	3 cups
Millet, hulled	2 ½ cups	25-35 minutes	4 cups
Oats, steel cut	4 cups	20 minutes	4 cups
Polenta	4 cups	25-30 minutes	2 ½ cups
Quinoa	2 cups	12-15 minutes	3-4 cups
Rice, brown or colored	2 ½ cups	25-45 minutes	3-4 cups
Sorghum	4 cups	25-40 minutes	3 cups
Wheat berries (all varieties including farro, freekeh, rye)	4 cups	Soak for up to 8 hours before, then cook 25-45 minutes	3 cups
Wild rice	3 cups	45-55 minutes	3 ½ cups

Some people prefer to use a rice cooker instead of a stove-top pot. Many modern rice cookers intuitively cook your grains – all whole grains, not just rice – until the water has been fully absorbed. These cookers then switch automatically to “warm” mode, leaving you free to cook the rest of your meal without giving a thought to your grains.

## What's the difference between whole, refined and enriched grains?

All grains start life, growing in a field, as whole grains. In modern times, most grains have been *refined* – usually by having their bran and germ removed to make them easier to bake into bread, or milder in taste, or to give them a longer shelf life. But what's missing when this happens? And does enriching add back what's been taken out?



Whole grains contain all three original edible parts of the kernel. Refining normally removes the bran and the germ, leaving only the starchy endosperm. **Without the bran and germ, about 25% of a grain's protein is lost, along with at least seventeen key nutrients.** Processors add back some vitamins and minerals to enrich refined grains, so refined products still contribute some valuable nutrients. But **whole grains are healthier**, providing more protein, more fiber and up to 2 to 3 times more of many important vitamins and minerals.

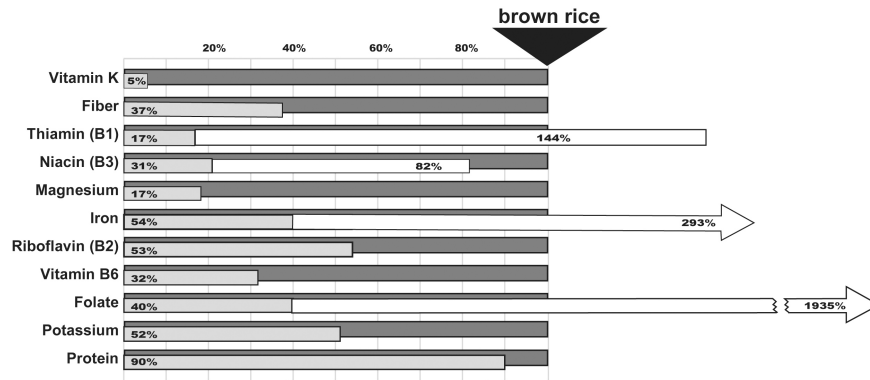
The graphic above shows what's lost when wheat is refined, and details the five nutrients that are added back -- only a few components, and not in their original proportions -- when grains are enriched.

This example uses whole wheat flour, but the principles – and nutrient losses – are similar with other grains. Check out a similar chart on the next page showing the difference between brown rice, white rice and enriched rice.

## Nutrients in Rice: Whole, Refined and Enriched

Refining rice removes many nutrients, including those listed here. Enriching replaces four nutrients.

- Brown rice starts with 100% of the nutrients Mother Nature intended it to have, as represented by the dark bars here.
- Refined White Rice, missing the bran & germ, loses almost all (Vitamin K) or much of certain nutrients.
- Enriched Rice adds back just four of these nutrients, in amounts different from their original levels.



© 2011 Oldways/The Whole Grains Council. All values from USDA Nutrient Database, SR 23.

Brown rice is an example of an *intact whole grain*, while whole wheat flour has been milled. Whether a grain is still intact or has been cracked, split, or ground, it's will considered a whole grain as long as all three of its original edible parts – the bran, the germ, and the endosperm – are still present in their original proportions.

## Which grain is the healthiest?

Ah, now that's an impossible question to answer. It's like asking, "Which vegetable is healthier, carrots or broccoli?" Like vegetables, different whole grains contain different important nutrients in different amounts, as you'll see in the chart below. They're all good, in their own ways, so the best answer (as with vegetables) is to eat a variety of different ones to cover all your bases – and to enjoy different tastes and textures.

< 10% of Daily Value   
  ≥ 10% of DV (good source)   
  ≥ 20% of DV (excellent source)

≥ 50% of Daily Value   
  ≥ 100% of Daily Value

	Amaranth	Buckwheat	Cornmeal	Millet	Oats	Quinoa	Brown rice	Sorghum	Teff	Wild rice
Protein	■	■				■		■		■
Fiber	■	■			■	■		■		■
Iron	■				■	■			■	
Magnesium	■	■				■		■		■
Phosphorus	■	■				■		■		■
Copper	■	■				■			■	■
Manganese	▤	■			▤	■	▤	■	▤	
Selenium	■				■		■	■		
Thiamin (B1)							■		■	
Riboflavin (B2)		■								
Niacin (B3)		■		■			■			■
Pyridoxine (B6)	■						■	■		
Folic Acid (B9)						■			NA	■

	Bulgur	Kamut®	Spelt	Wheat, durum	Wheat, red	Wheat, white	Barley	Rye	Triticale
Protein	■	■							■
Fiber	■	■	■	■	■	■	■	■	■
Iron									
Magnesium	■	■					■	■	■
Phosphorus	■	■		■					■
Copper	■	■					■		■
Manganese	▤	▤	▤	▤	▤	▤	■	▤	▤
Selenium		▤		▤			■	■	
Thiamin (B1)		■					■		■
Riboflavin (B2)									
Niacin (B3)	■	■					■		■
Pyridoxine (B6)				■					
Folic Acid (B9)		NA							

## Why Our Bodies Need The Nutrients in Whole Grains

We eat *food*, not *nutrients*; Oldways and the Whole Grains Council recommend that everyone eat whole, real, minimally processed food rather than become too concerned with how many milligrams of this nutrient or that are in each different grain.

That said, the tables on the previous page and the descriptions here may help you understand why eating whole grains benefits our health in so many ways.

**Protein.** Surprised to learn that many whole grains are a good source of protein? The proteins in grains mesh with those in beans and other plants to form complete proteins. Your body can't store protein, so you need to eat some every day.

**Fiber.** Dietary fiber helps you feel full faster and longer; it also aids digestion and helps prevent constipation. Fiber comes only from plant foods (fruits, vegetables, beans, whole grains), and grain fiber is thought to protect against digestive cancers more than other forms of fiber.

**Iron.** Iron helps our bodies make hemoglobin (for red blood cells) and myoglobin (for muscles), both of which help carry and store oxygen. Iron also plays a role in many other routine bodily functions.

**Magnesium.** An essential mineral required for hundreds of biochemical reactions, including transmission of nerve impulses, converting food into energy, body temperature regulation and maintaining a strong immune system. Magnesium also helps us absorb calcium, for healthy bones and teeth.

**Phosphorus.** Another essential mineral, phosphorus is present in every cell in your body, making up 1% of your body weight. It's main function is the formation of bones and teeth, but it's also key to the synthesis of protein for cell repair, growth, and maintenance; for heartbeat regularity; and nerve conduction.

**Copper.** Copper (another mineral) helps us absorb iron, and also helps regulate blood pressure and heart rate. Copper is also needed for the production of melanin, which colors our hair and skin.

**Manganese.** The mineral manganese helps us handle oxidative stress. It activates many important enzymes in the body that are crucial to metabolism of carbohydrates, amino acids, and cholesterol. Manganese is also essential to the formation of healthy cartilage and bone.

**Selenium.** Selenium is a trace mineral. Although we only need small amounts of it, it's essential to helping prevent cellular damage from free radicals, to regulate thyroid function, and for a healthy immune system.

**B Vitamins.** The many B vitamins help with metabolism, the process your body uses to make energy from the food you eat. While each has its own functions, in general they also help maintain healthy skin, hair and muscles; form red blood cells; and promote healthy immune and nervous system function. Some research shows that B vitamins also prevent mood swings.



## It's Easy to Make the Switch

According to the 2015 Dietary Guidelines Advisory Committee, Americans get only about 15% of the recommended whole grains – while consuming about twice as many refined grains as recommended. Here are some easy ways to make the switch to more whole grains in your daily meals and snacks:

<b>Swap This</b>	<b>For a Whole Grain Option:</b>
White Rice	Brown Rice, Bulgur, or Quinoa
White Pasta	Whole Grain Pasta
Muffin	Slice of 100% Whole Grain Toast
Traditional Pizza Dough	Whole Wheat Pita
1 cup of white flour	½ cup white + ½ cup whole wheat flour

### More easy substitutions:

- Substitute half the white flour with whole wheat flour in your regular recipes for cookies, muffins, quick breads and pancakes. Or be bold and add up to 20% of another whole grain flour such as sorghum.
- Replace one third of the flour in a recipe with quick oats or old-fashioned oats.
- Add half a cup of cooked bulgur, wild rice, or barley to bread stuffing.
- Add half a cup of cooked wheat or rye berries, wild rice, brown rice, sorghum or barley to your favorite canned or home-made soup.
- Use whole corn meal for corn cakes, corn breads and corn muffins.
- Add three-quarters of a cup of uncooked oats for each pound of ground beef or turkey when you make meatballs, burgers or meatloaf.
- Stir a handful of rolled oats in your yogurt, for quick crunch with no cooking necessary.

## 10 Tips for introducing Kids to Whole Grains

1. Start them with whole grains from the beginning!
2. Set an example, by eating whole grains yourself.
3. Ease into it. Gradually substitute more and more of the white flour with whole wheat flour in your regular recipes for cookies, muffins, quick breads and pancakes.
4. Try milder, lighter-colored whole white wheat.
5. When they like something that's whole grain (such as popcorn), remind them they're enjoying a whole grain. They'll be more open to the next whole grain.
6. Kids need to try new foods 6-15 times before they'll accept them.
7. Say, "Maybe you're just too young. You'll like that when you're older." Kids love to feel more grown up!
8. Make whole grain versions of foods they already like, such as grilled cheese sandwiches or tacos.
9. Have your child help you make whole wheat bread from scratch—no child can resist bread fresh from the oven.
10. Let kids create their own pizza on a whole grain pita or whole grain English muffin.

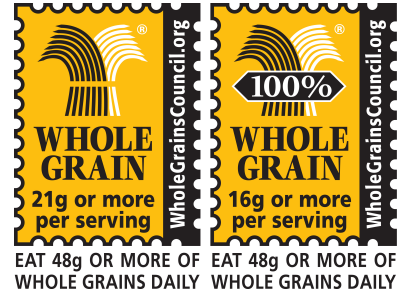
## How to Identify a Whole Grain

Once you realize that whole grains are both healthy and nutritious, the only barrier to getting more may lie in making sense of all the choices in your local supermarket. Here's our advice, in a nutshell, for making sure you're getting the whole grains you want.

### Look for the Whole Grain Stamp

In 2005, the Whole Grains Council created an official packaging symbol called the Whole Grain Stamp that helps consumers find real whole grain products.

It comes in two versions, shown here. The 100% Stamp (on right) is used on foods where *all* the grain is whole grain. The Basic Stamp (on left) is on foods made with a mix of whole and refined grains. Each Stamp also includes the number of grams of whole grain content per serving, and a reminder of our daily needs.



With the Whole Grain Stamp, finding your recommended three servings of whole grains is easy: Pick three foods with the 100% Stamp or six foods with ANY Whole Grain Stamp.

**If there is no stamp, read the ingredients.** First, check the package label. Many whole grain products will list the grams of whole grain somewhere on the package, or say something like "100% whole wheat." You can trust these statements. But be skeptical if you see the words "whole grain" without more details, such as "crackers made with whole grain." The product may contain only miniscule amounts of whole grains.

Words you may see on packages	What they mean
<ul style="list-style-type: none"> <li>• whole grain [name of grain]</li> <li>• whole wheat</li> <li>• whole [name of grain]</li> <li>• stoneground whole [name of grain]</li> <li>• brown rice</li> <li>• oats, oatmeal (including steel-cut, regular, quick and instant oatmeal)</li> <li>• [name of grain] berries</li> <li>• [name of grain] groats</li> <li>• sprouted [name of grain]</li> </ul>	<p><b>YES</b></p> <p>Contains all parts of the grain, so you're getting the nutrients of the whole grain</p>
<ul style="list-style-type: none"> <li>• wheat, or wheat flour</li> <li>• semolina</li> <li>• durum wheat</li> <li>• organic flour</li> <li>• stoneground</li> <li>• multigrain (may be several whole grains or several refined grains or a mix of both)</li> </ul>	<p><b>MAYBE</b></p> <p>These words are accurate descriptions of the package contents, but because some parts of the grain <i>MAY</i> be missing, you are likely missing the benefits of whole grains. When in doubt, don't trust these words.</p>
<ul style="list-style-type: none"> <li>• enriched flour</li> <li>• degermed (on corn meal)</li> <li>• bran</li> <li>• wheat germ</li> </ul>	<p><b>NO</b></p> <p>These words never describe whole grains.</p>

## Recipes Available for Reprint with Hi Res Photos

Looking for a recipe you can share in your article or on your website? We have hundreds. Here are just a few, for which we have the best high-resolution photos available. (Other recipes have web-resolution photos.) All of these – and more – are available for reprint, with credit to the original source. If you are interested in reprinting any of these recipes, email Kelly Touns at [Kelly@oldwayspt.org](mailto:Kelly@oldwayspt.org), and we can send you what you need.

Barley	<b>Bacon-Sauteed Barley with Arugula</b> ( <i>Kathryn Conrad</i> )
Buckwheat	<b>Buttermilk-Buckwheat Pancakes</b> ( <i>Oldways / Karen Mansur</i> )
Bulgur	<b>Bulgur Black-Bean Veggie Burger</b> ( <i>Oldways / Karen Mansur</i> )
Corn	<b>Whole Grain Corn Muffins</b> ( <i>Bob's Red Mill</i> ) <b>Whole Wheat Cornmeal Pizza Crust</b> ( <i>Bob's Red Mill</i> )
Farro	<b>Farro Dried Fruit Garbanzo Salad</b> ( <i>Paul Lynch</i> ) <b>Gingered Farro &amp; Wild Rice Salad</b> ( <i>Natl. Proc. Red Raspberry Council</i> )
Kamut	<b>Kamut Cranberry Walnut Scones</b> ( <i>Kamut International</i> ) <b>Orange Walnut Bread Scones</b> ( <i>Kamut International</i> ) <b>Warm Kamut Salad with Caramelized Squash and Cranberry</b> ( <i>InHarvest</i> )
Oats	<b>Oat-y-licious Wheat Bread</b> ( <i>Bob's Red Mill</i> )
Quinoa	<b>Baja Fish Tacos with Quinoa</b> ( <i>InHarvest</i> ) <b>Grilled Quinoa Cakes</b> ( <i>Kathryn Conrad</i> )
Rice, Brown	<b>Jollof Rice</b> ( <i>Oldways / Cynthia Harriman</i> )
Sorghum	<b>Milo (Sorghum) Salad</b> ( <i>Jesse Cool</i> )
Spelt	<b>Simple Spelt Pancakes</b> ( <i>King Arthur Flour</i> ) <b>Spelt and Shrimp in Spicy Coconut Broth</b> ( <i>Kathryn Conrad</i> )
Whole Wheat	<b>Penne with Pesto and Cherry Tomatoes</b> ( <i>Oldways / Georgia Orcutt</i> ) <b>Black Forest Cake</b> ( <i>King Arthur Flour</i> ) <b>Blonde Brownies</b> ( <i>Heartland Brands</i> ) <b>On-the-Fence Brownies</b> ( <i>King Arthur Flour</i> ) <b>Peach Melba Jelly Roll</b> ( <i>King Arthur Flour</i> ) <b>Sour Cream Muffins</b> ( <i>King Arthur Flour</i> ) <b>Wheat Bran Cranberry Quickbread</b> ( <i>Bob's Red Mill</i> ) <b>Whole Wheat Flax Buns</b> ( <i>Bob's Red Mill</i> )
Wild Rice	<b>Wild Rice Crepes with Chili Lime Shrimp</b> ( <i>CA Wild Rice Adv. Board</i> ) <b>Wild Rice Hash</b> ( <i>CA Wild Rice Adv. Board</i> ) <b>Wild Rice Seafood Stew</b> ( <i>CA Wild Rice Adv. Board</i> ) <b>Wild Rice, Arugula, Grapefruit, Pecan Salad</b> ( <i>CA Wild Rice Adv. Board</i> ) <b>Portobello Mushroom Stuffed with Wild Rice</b> ( <i>CA Wild Rice Adv. Board</i> )
Mixed Grains	<b>Whole Grains with Cranberries, Squash, and Pecans</b> ( <i>InHarvest</i> ) <b>Lobster Tower with Whole Grains &amp; Lemon-Basil Olive Oil</b> ( <i>InHarvest</i> )