The Simple Art of Milling Wheat into Our Daily Bread

Announcing Our 5-Part “Talking Wheat” Video Series

Health Professionals’ Top Misperceptions About Wheat Foods
Last fall, we conducted a survey of medical doctors, registered dietitians and personal trainers to gauge what these important health and fitness professionals know and believe about wheat and wheat foods. The timing of the survey was perfect since it has provided valuable guidance for a long range planning exercise underway within our organization to assess where the Wheat Foods Council needs to focus its resources in the coming years.

Test your own wheat knowledge and see what these professionals told us by reading the article on page eight of this issue. Like us, you might be surprised with some of the findings.

This survey, along with extensive dialog with the wheat industry, has reinforced the importance of additional education for key influencer groups. We are presenting a new strategic plan proposal to our board in January to expand our outreach and address new topics for future programs. We will be excited to share our new plans with you soon. Stay tuned...

Tim O'Connor
President, Wheat Foods Council

When the season ends for Jordy Nelson, who set the Packers’ single-season receiving record last year, he switches his cleats for work boots and heads to his family’s 4,000-acre Kansas farm. Each year, he drives a combine and cuts wheat, sometimes for 12 hours a day, or rounds up some of the family herd.

From an early age, Nelson was driving tractor loads of wheat into town. The Manhattan, KS native says “I probably identify more as a farmer than as a football player. Around here, I’m just the farm kid that they have always known.”

“I really identify more as a farmer than as a football player.”
Few things evoke “home” like the yeasty, warm aroma of baking bread. The original comfort food — bread, scones, muffins, cookies, pastas, pies and cakes — today are either demonized for the carbs they represent, or are praised as a popular, locally sourced standout product in fashionable restaurants. Either way, bread or the flour it originates from, may be the most misunderstood food in one’s daily diet.

Let’s break it down: at its core wheat is milled today as it has been for hundreds of years. Interestingly, much of the equipment used today was invented more than 100 years ago. “But what has changed is efficiency, scale and speed,” says Ted Korolchuk, Senior Director Technical Milling at Ardent Mills. More people on today’s planet of 7.5 billion demand safe, affordable, nutritious, tasty breads. The industrial processes have scaled up the production of flours to keep pace with customer demand, while still adhering to food safety and government-mandated quality standards along with product consistency. “Modern milling processes have enabled people to bite into a bread slice without fear of finding grit from millstones or other unwanted foreign material as was the case more than a century ago. Food safety is at the foundation of modern mills,” said Korolchuk.

Starting with cooperation between wheat breeders and farmers, new varieties are released each year. Consumers then benefit from quality whole grains that in turn, can be milled into ever better and more diverse flours and ultimately, other nutritious finished products. “Whether harvested within regional reach of a mill or locally grown, the grain is first inspected for quality and protein content. Then it is cleaned to remove foreign material such as weed seed, sand, stones, and other grains,” states Korolchuk. At this point, about two percent water is added to the grain, which is held for 24 hours in tempering bins. This allows time for the water to be absorbed into the wheat kernel, or berry, to toughen the bran layer and soften the heart of the wheat—the endosperm. After tempering, milling begins — grinding the grain and separating out the bran from the endosperm, to produce a high quality flour. This is a simple process with a complex flowsheet, a continuous process where series of rollermills, sifters and purifiers reduce the wheat into flour. For the production of whole wheat flour, the entire wheat kernel, including the bran, germ and endosperm, are milled into a flour that retains the full nutritional value of the wheat. “In milling, we blend, clean, temper and mill wheat in a similar process millers used more than 120 years ago and still use today,” states Korolchuk.

Wheat characteristics, like protein content, are important to the kinds of flour produced for end products. There are six wheat classes: hard red winter, hard "The Centers for Disease Control and Prevention (CDC) named fortification of flour with folic acid one of top 10 public health achievements in the first decade of the 21st century."
red spring, soft red winter, hard white, soft white and durum. According to information from the Wheat Foods Council, the harder the wheat, the higher the amount of protein in the flour. Hard wheats are used in flour for breads and quick breads. Soft, low protein wheats are used in flour for cakes, pastries, cookies and Oriental noodles while durum is used in pasta and egg noodles. Enriched flours came into being in the early 1940s when the U.S. government mandated additional vitamins and iron for wheat flour, as it was and continues to be a diet staple. As a direct result, nutritional deficiency diseases like pellagra and beri-beri, then widespread are now rare. In 1998, the latest food fortification program added folic acid, a water-soluble vitamin, to cereal and grain products to help prevent neural tube defects. This effort has also shown dramatic, positive impacts. The Centers for Disease Control and Prevention (CDC) named fortification of flour with folic acid one of top 10 public health achievements in the first decade of the 21st century.

The diversity of wheat products and consumer choice today cannot be understated. Whether one desires a crusty white French-style bread, a chewy, whole grain wheat berry roll, or the nostalgia of the white sandwich bread of yesteryear, each can be found at your local grocery store as a finished product. A myriad of different wheat flours populate the local grocery baking aisle. Consumer taste and texture preferences change rapidly. Consumer demand is driving an exciting new era of flour production – spurring finished foods on a spectrum from indulgent to “healthy for you.” Today’s improvements in the milling process have resulted in a diversity of flours milled using time honored traditions but with a scale, efficiency, safety, quality and purity unmatched by the past.
Experiencing global cuisines has become more common due to the blending of world cultures. This phenomenon, coupled with a generally more adventurous American palate, has greatly influenced the popularity of ethnic foods, including Asian cuisines, according to an IBISWorld report.

That’s particularly true in the U.S., where 76 percent of Americans cite Chinese food as their number one choice among ethnic foods, according to a 2015 Technomic survey. Japanese and Thai food also placed among the top ten. Some consumers are even reaching past these mainstream Asian foods, to try more exotic (and lesser known) Vietnamese and Korean dishes. The common element – Asian noodles.

From simple street food to traditional celebratory meals, Asian noodles are a versatile staple and an essential part of Asian culture. In China, noodles symbolize long life and are served on birthdays and the Chinese New Year. The question of which culture developed the first noodles – Asian, Italian, or Middle Eastern – still remains but new evidence gives the Chinese an edge. The remains of a noodle meal, dating back 4,000 years, was recently discovered in China and may qualify for the title of the world’s oldest noodle meal.

Asian noodles are wildly popular in America. They are a perfect vehicle for the goodness of traditional comfort food and can be coupled with a wide variety of delicious toppings. Once only found in specialty or health food stores, Asian noodles are now stocked in mainstream groceries.

There are many varieties of Asian wheat noodles, “mien” or “mein,” made from wheat flour. Hard red winter and soft white wheat varieties are generally used to make Asian-style noodles, unlike Italian pasta made from durum wheat. Some Italian pasta, like linguini, can be substituted for Asian noodles in most recipes.

Ramen noodles, once the mainstay of poor college students, have undergone a classy makeover. “Technomic’s Take: 2015 Food Trends” predicted this upscaling of spicy ramen noodles, and cities around the globe are now populated with gourmet ramen shops. One of America’s best-known chefs, David Chang, launched his career in 2004 by starting Momofuku Noodle Bar, and ramen noodles moved center stage on the American food scene. Ramen noodles have a springy bite that comes from the mixture of wheat flour, egg, salt, and an alkaline “lye water,” which gives the noodles a yellowish color and firm texture in hot broths.

Despite their common ingredients, Asian wheat noodles vary in taste, texture and chewiness. The popular Lo Mein noodles are thick and dense with a doughy texture when cooked. Commonly used by Chinese restaurants, these noodles work well in heavy, spicy sauces with chunks of meat or vegetables.

Yaka Mien wheat noodles are machine-made and similar to Lo Mein, but they are thicker and chewier. This “Chinese spaghetti” is best used in soups. La Mian is a hand-pulled noodle, usually sold fresh. They are made into long, two-foot strands and symbolize prosperity and longevity.

Chow Mein noodles can have both crispy and soft, chewy textures when cooked. They add crunchiness to Chinese chicken salad and are used to make haystack cookies. Wonton noodles resemble thin, flat linguini, and are named for the Chinese dish they are found in -- wonton soup.

Udon noodles, another Asian noodle, are made from buckwheat flour rather than wheat flour.

Armed with the ABC’s of Asian wheat noodles, try some of the Wheat Foods Council’s Asian-inspired recipes featured in this issue. Proper Asian eating etiquette is to slurp them -- the louder the better!
Ancient and modern diets are based on culturally appropriate combinations that meet the population’s needs through a mix of the food groups to supply the necessary nutrients. Staple foods by definition supply a large fraction of the daily needs for energy and nutrients. In general, such foods grow well in agronomic conditions of the region, are easily stored and are culturally suitable and palatable.

Wheat is a staple for both developed and developing nations because its many varieties allow it to be grown under a range of conditions. Further, wheat’s unique protein complex, gluten, enables greater versatility than other grains because it can be made into so many different products. This gives it greater adaptability than most staples and allows its acceptance into diverse cultural food patterns.

First and foremost, staples like wheat need to address the nutritional needs of the population and help protect it from chronic disease. Looking at studies showing the benefits of such diets, popular books and blogs, even some written by doctors, still state that wheat and grains cause the very diseases they help prevent? What should be communicated is that a good diet emulates a DASH or Mediterranean diet. It omits no food group, it balances calories, and recommends serving sizes and number of servings. It also includes the right mix of grains and whole grains. So, to prevent the very diseases that some misguided authors allege are caused by diets with wheat and grain, enjoy wheat foods as part of a delicious, culturally appropriate and gastronomically interesting and health-promoting diet.

Dr. Jones is a Professor Emerita of food science and nutrition at St. Catherine University. She also serves on the Wheat Foods Council Advisory Board.

Hear from the Experts
Insights from our Advisory Board Member

Wheat – A Staple in Dietary Patterns That Work
By Julie Miller Jones, PhD, LN, CNS

The Dietary Approaches to Stop Hypertension (DASH) diet was originated in the 1990s test whether diet could be used to lower blood pressure. This diet was devised to include all the food groups. For a 2000-calorie diet, the proscribed daily pattern had 4-5 one-half cup servings each of fruit and of vegetables, 2-3 servings of low fat dairy, 2 four-ounce servings of fish, poultry, or lean meats and 7 one-ounce servings of grains and grain products with at least 3 of them as whole grains. The data from the trial astonished the researchers. It showed that for those with hypertension, the diet could lower blood pressure. The trial was so promising, studies on it have continued for nearly 20 years. Another healthy dietary pattern, the Mediterranean diet is similar to DASH with an ethnic twist. It, too, has been shown to have many disease preventing benefits.

Studies continue to demonstrate that the DASH or Mediterranean type diets can play a role in controlling blood glucose and HbA1c and can lower the risk of obesity, diabetes (Type 2), heart disease risk factors, stroke certain cancers, and even depression and dementia. Studies also document that diet followers, compared to a typical diet, have an 11-28% reduced risk of death from all causes.

Isn’t it amazing that with literally thousands of studies in the medical literature documenting the benefits of such diets, popular books and blogs, even some written by doctors, still state that wheat and grains cause the very diseases they help prevent? What should be communicated is that a good diet emulates a DASH or Mediterranean diet. It omits no food group, it balances calories, and recommends serving sizes and number of servings. It also includes the right mix of grains and whole grains. So, to prevent the very diseases that some misguided authors allege are caused by diets with wheat and grain, enjoy wheat foods as part of a delicious, culturally appropriate and gastronomically interesting and health-promoting diet.

1 http://www.fao.org/docrep/u8480e/u8480e07.htm
2 one serving of grain equals a slice of bread, one cup of baked cereal, or ½ cup of pasta
Sesame Shrimp Noodles w/Asian Garlic Bread

**Ingredient List:**
- 8 ounces linguini
- ½ pound (2 cups) shitake mushrooms or button mushrooms, sliced
- 1½ cups sugar snap peas, frozen
- 2 teaspoons sesame oil
- 1 teaspoon minced garlic
- ½ pound large shrimp, peeled and deveined (about 30 shrimp)
- Cooking spray

**Sesame Noodle Sauce:**
- ¼ teaspoon crushed red pepper
- 1 teaspoon dried parsley flakes
- ¼ cup rice vinegar
- 1 teaspoon sesame oil
- 1 teaspoon fresh, peeled and grated or ¼ teaspoon dry ginger
- 2 teaspoons honey
- 2 teaspoons cornstarch
- 1 tablespoon sesame seeds, sprinkle over top of finished dish

**Asian Garlic Bread:**
- 1 loaf French style Bread
- ½ cup butter, softened
- 1½ teaspoons Chinese chili sauce
- 2 teaspoons fresh garlic, minced
- 3 teaspoons fresh chives, minced

**Directions:**
Mix all ingredients for sauce: crushed red pepper, parsley flakes, rice vinegar, sesame oil, grated fresh ginger, honey and cornstarch. Set aside.

Cook linguini according to package directions. While pasta is cooking, spray a sauté pan with cooking spray. Over medium heat, sauté 2 teaspoons sesame oil and minced garlic for 30 seconds; add shrimp and sauté shrimp until they are pink, about 6 minutes.

When pasta is 3 minutes from being finished, add mushrooms and sugar snap peas to the pasta pot. Bring water to a second boil and finish cooking the pasta until al dente.

Add the sauce to the shrimp and heat until thickened. Drain pasta, mushrooms, and peas. Combine pasta and shrimp sauce. Top with sesame seeds before serving.

**Asian Garlic Bread:**
Pre-heat oven to 400°F.
Mix butter, Chinese chili sauce, garlic, and chives. Slice bread and spread butter on one side of each slice. Wrap entire loaf in foil and heat for 20 minutes. Serve warm.

**Nutrition:**
Serving size: ½ cup
- Calories: 395
- Total Fat: 10 g
- Saturated Fat: 1 g
- Cholesterol: 86 mg
- Sodium: 136 mg
- Carbohydrates: 70 g
- Dietary Fiber: 6 g
- Protein: 22 g

Source: Wheat Foods Council
Health Professionals’ Top Misperceptions About Wheat Foods

Perceptions of wheat foods and their contributions to health and nutrition vary widely across audiences. Judging by the books that have been published and articles written about wheat and nutrition, health professionals such as doctors and fitness professionals (personal trainers) appear to have many misperceptions about wheat in general and what nutrients wheat foods do and don’t provide.

In September 2015, the Wheat Foods Council (WFC) wanted to gauge health and fitness professionals’ beliefs and knowledge about wheat and wheat foods. Using an online survey methodology, Wakefield Research asked 100 MDs, 100 personal trainers and 100 RDNs the same series of questions about wheat and wheat foods. We treated the RDN group as the “control” group, since of the three groups they have the highest level of knowledge of food and nutrition in general. Looking across the three groups, some of the knowledge gaps surprised us. But, it also provided ideas about topics that the WFC needs to broach with these audiences.

In general, MDs, RDNs and personal trainers discuss wheat foods with their patients and clients, but personal trainers address them more often and more specifically than do dietitians and doctors. While RDNs and MDs give general information about wheat foods to patients, personal trainers discuss topics like gluten, and enriched and refined grains but unfortunately, also seem to have the most misperceptions! Here are the top nutrition and health misconceptions held by all three audiences:

- Half of health and fitness professionals (including RDNs) don’t think that wheat foods provide iron.
  Truth: Both whole grains and enriched grain foods like cereal, pasta and bread provide iron in the American diet. The two highest food sources of iron for US adults (19 and over) are ready-to-eat cereals (15.1%) and yeast breads and rolls (12.9%). This is higher than other sources including beef (6.9%) and poultry (3.3%). (Source: O’Neil et al)

- While nearly 75% of RDNs know that wheat foods provide folic acid, only 57% of MDs and 39% of personal trainers are aware of the connection between wheat foods and folic acid.
  Truth: Folic acid fortification of wheat flour has decreased neural tube birth defects by 19-32% since 1998 when it was first mandated (Crider et al). Flour in the United States is enriched with 140ug/100g. Folic acid fortification is considered to be one of the single the most successful public health initiatives undertaken in the past 50-75 years.

- While 96% of RDNs understand that fiber is a nutritional benefit of wheat foods, only 73% of personal trainers and 87% of doctors know this.
  Truth: Whole grain and enriched grain foods provide 43.7% (King et al) of fiber in Americans’ diets, with approximately two-thirds of this from enriched grains (Clemens et al). In fact, bread, rolls and tortillas alone contribute 12% of the total daily intake of fiber in the American diet (Hoy et al).

The bottom line: both medical doctors and personal trainers have knowledge gaps about wheat. RDNs and other communicators who are aware of this can help clarify misperceptions about wheat and its role in health by reaching out to these audiences.

The WFC is also strategizing ways to educate all three of these important health influencers. For resources that can be used to educate professional audiences about wheat, visit WheatFoods.org and click on the Resources tab.

[Note: if you’d like more information about the study, please contact Jula Kinnard at jula@kinnairdmangan.com].

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- 65% believe that gluten is unhealthy.
- 61% believe that wheat foods cause weight gain.
- 45% believe that refined wheat is unhealthy.
- 39% believe that wheat causes spikes in blood sugar.
- 32% believe that wheat has low or minimal nutritional value.
- 3% believe that other.

Which of the following wheat foods misconceptions have you ever heard a patient/client state as being true?
Home baking is something to be enjoyed all year long, not just during the holiday season. Bake for Family Fun Month, celebrated annually in February, was created by the Home Baking Association (HBA) to encourage families to explore the world of baking and have fun!

“From toddler to grandparent, baking provides opportunities for families to share and create baking traditions, recipes and family heritage that can be handed down through generations,” said Charlene Patton, executive director, Home Baking Association. “Family pizza night, HBA’s Designer Cookies, and Saturday pancakes are great ways to establish new baking traditions.”

Bake for Family Fun Month celebrates a different theme each week. The first week, “Let’s Get Started Baking,” gets families into the kitchen by providing basic recipes and tips. “Baking for My Valentine,” inspires the celebration of Valentine’s Day with home baked treats. “Baking History” week encourages families to bake old family recipes, using special tools and techniques, and share old or new traditions. Finally, “Bake for Others” week urges families to share their baked goods with friends and others in the community.

Baking is an inexpensive activity that teaches all family members important practical life skills. HBA’s “Why Bake?” illustrates compelling reasons to bake at home, including an average savings of $4,160 per year for a family of four.

Families are busier than ever, and it might seem there’s no time for home baking. However, there are timesaving products and techniques available. The HBA supports using baking mixes, frozen dough, packaged crusts, and other short cuts, giving novice cooks a place to start.

Nevertheless, according to a 2014 Mintel survey, more than 56 percent of respondents said they bake from scratch using fresh rather than premixed ingredients as much as, or more than, a year ago. Home baking allows complete control over which ingredients to use when creating recipes. This is helpful when managing allergies or other dietary constraints. HBA’s Kitchen Science: Baking for Special Needs resource suggests substitutions for ingredients that cannot be consumed due to health reasons, preference or nutritional value. Baking with Whole Wheat Flour 101 offers tips on how to successfully bake using whole wheat flour, including which varieties produce the best baking results and how to adjust amounts and measure properly.

Most of the HBA’s resources are free on their website and beneficial for educators, registered dietitians, and others who advise families about nutrition. Tips for Baking Success with Children suggests ideas for introducing children to home baking, like reading the recipe through with the child first to involve them in making the grocery list. HBA’s Thrill of Skill offers ideas for teaching children as young as 2 years old how to bake, using the Safe Kitchen and the Food Skills Checklists to track new skills achieved. HBA’s award-winning book, “Baking with Friends,” contains recipes, baking vocabulary, trivia and suggested activities to accompany each recipe.

Bake for Family Fun Month encourages families to learn the baking basics together, try new foods, and share baking heritage. The Wheat Foods Council (WFC) is an educational partner of the HBA and is also a great source of delicious recipes to get your family in the kitchen.