



Kernels

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You Most Likely Aren't Getting Enough... Fiber

Discover America's Favorite Wheat Foods

AIB International - Where Baking Science Happens



Message from the President

In the last issue of Kernels we introduced our new strategy of educating Personal Trainers (PTs) about wheat foods and the addition of Nancy Clark, MS, RD, CSSD to our advisory board.

In this issue, I am very pleased to announce the appointment of Travis Thomas, PhD, RDN, CSSD, to the Wheat Foods Council Advisory Board. Dr. Thomas is Assistant Professor of Clinical and Sports Nutrition at the University of Kentucky. Dr. Thomas is a Board Certified Specialist in Sports Dietetics (CSSD). He is a co-author of the joint position paper on sports nutrition published by the Academy of Nutrition and Dietetics (AND), the Dietitians of Canada (DC), as well as the American College of Sports Medicine (ACSM). Travis is highly credentialed and will provide us with great input to help shape our PT program, write publications and make presentations. We are very excited to add Travis to our expert team and look forward to working closely with him and Nancy.

Tim O'Connor
President, Wheat Foods Council

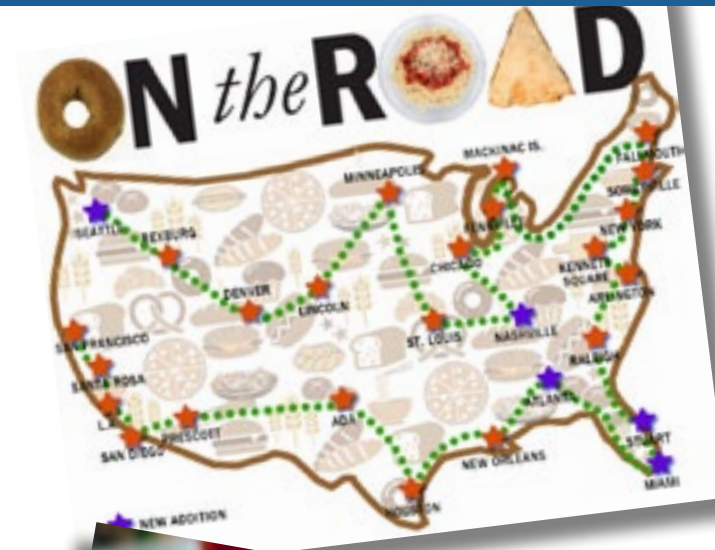


Discover *America's* Favorite Wheat Foods

The Wheat Foods Council (WFC) launched an exciting micro website in April inviting food fans to join us on a culinary journey to discover delicious foods. The "On the Road with Wheat Foods" website at <http://ontheroadwith-wheatfoods.com/> features a virtual bus tour of American foods, restaurants, and recipes highlighting an inspiring collection of wheat foods from around the country. From the best bagels in San Francisco to Mackinac Island Mac and Cheese to award-winning recipes from the Festival of Bread and more, there's something for everyone who climbs on the WFC bus looking for mouthwatering adventures.

While foodies, in particular, have long been interested in the "story" behind the foods they eat, more people in general are becoming curious, according to Food Technology's Top 10 Predictions for 2016. This burgeoning interest is attributed to new technologies and social media platforms that allow every day consumers to connect with their favorite foods and discover how they are prepared. The WFC's "On the Road" site acknowledges the hungry public's "need to know" and highlights great food stories on a "virtual" journey around the country via the web.

The tour showcases unique stops like Dough in New York and Gnarly Knots in Chicago. Also Crane's Pie Pantry in Fennville, MI, is a family-owned fruit farm that evolved from selling fruit and cider into a mecca for delicious pies, breads, sandwiches and other specialty food items. The booming business was inspired by customers simply asking for pie to go with their cider.





One in three cooking enthusiasts get their recipes from social media, and 77 percent of internet users 18 and over, used Facebook as a recipe source followed by Pinterest and YouTube, according to Mintel's "Cooking Enthusiasts 2015" report. Online inspiration for recipes was found to be as significant as recommendations from friends. The "On the Road" site includes recipes like "Wild Maine Blueberry Banana Nut Bread," by Ellie Sapat from Falmouth, ME, the Youth Grand Prize Winner at the 2015 Festival of Breads competition sponsored by the Kansas Wheat Commission.



More and more people love to share favorite food finds in an increasingly digital world. Use of smart phones and other handheld devices have put the world of food at the fingertips of every consumer. This interaction and the use of social media has shifted food culture and changed how people eat today, according to the Hartman Group's "Digital Food Life Report."

Since the launch of "On the Road," the WFC has promoted the site through social media and email campaigns. The ongoing project will continue to feature the best tasting, most interesting, and in some cases, award-winning foods and recipes from around the country.



To participate in the "On the Road" campaign, send your videos, recipes, and ideas. To learn more, visit the [website](#) or [download our PDF here](#). Come be part of the tastiest virtual road trip you will ever experience!



The 2015 Dietary Guidelines for Americans (DGA) lists dietary fiber as a nutrient of concern because of Americans' failure – adults as well as children – to consume sufficient amounts for optimal health. The average adult only eats 15 grams of fiber per day. The recommendations for women are 25 grams per day, and for men 38 grams per day, according to the Institute of Medicine.

Eating a diet high in fiber has many potential health benefits. Studies have shown a decreased risk for heart disease, stroke, type 2 diabetes and certain types of cancers, and that fiber aids in the digestion process.

What is fiber? Fiber is found only in plant-based foods and is a substance that is not digested or absorbed in the intestines. Wheat bran, the outer layer of the wheat kernel, is an excellent example of dietary fiber. There are different types of fiber, but as long as you eat a variety of foods, you'll be getting the different types (soluble and insoluble.) Dietary fiber is the sum of all soluble and insoluble fiber. Here are some tips targeted to specific age groups to easily, and deliciously, eat more fiber.

Fiber for Kids

Eating well-balanced, fiber-rich meals may help children develop life-long healthy habits and reduce the risk of developing heart disease and some types of cancer later in life. The Food and Nutrition Board of the Institute of Medicine has estimated the adequate intake of fiber for children based on factors such as age or gender.

Your child's individual fiber needs may differ: 1-3 years, 19 grams; 4-8 years, 25 grams; 9-13 years, females 26 grams, males 31 grams; 14-18 years, females 26 grams, males 38 grams.

TIPS

1. Make funny-faced sandwiches using whole wheat pita bread stuffed with veggies. Use parsley for hair, radishes and black olives for eyes and nose, and a slice of red pepper for the mouth.

2. Top a base of broccoli, cauliflower, carrots, celery and cucumbers with whole grain bread croutons. Add their favorite low-fat dressing.

3. 100 % whole grain cereal makes a quick take-along snack most kids will eat without a fuss. For a "fiberful" sidekick, pack a piece of fruit, berries or nuts.

4. Take one scoop of frozen yogurt, add a sliced banana and garnish with strawberries and sprinkle with crushed 100% whole grain or bran cereal.



3. Toss broccoli, spinach or sweet peppers into your favorite Asian noodle recipe or make cold pasta salads with fresh fruits or raw vegetables.

4. Satisfy snack attacks with fresh fruit plus low-fat crackers, whole wheat crackers or fig bars.

Fiber for Seniors

To get enough fiber, the National Institute on Aging recommends eating three servings of whole-grain products, three servings of vegetables and two servings of fruit each day. By eating a balanced diet based on MyPlate, and getting regular exercise and enough fluids you probably won't need fiber supplements. Be sure to consult your doctor on your specific fiber needs.

TIPS

1. Begin your day with a bowl of fruit and/or nut topped, whole grain or bran cereal and a slice of whole grain toast or a 100 % whole grain bagel with all-fruit spread.

2. Add whole wheat bread or cracker crumbs, crushed bran cereal or bulgur to your favorite meatloaf recipe.

3. Add wheat berries, beans or whole-wheat crackers to soups or have a whole grain roll or a slice of whole grain bread on the side.

4. Drink up. You need plenty of fluids to aid the flow of fiber through your digestive track.

Note: While most American's may benefit from adding fiber to their diet, your health-care provider is the best source of information for questions and concerns related to your medical condition. There are certain medical conditions where adding fiber is not recommended.



Fiber for Adults

Choosing foods with soluble fiber, such as white bread, bagels and pasta, may help lower blood cholesterol, while foods with lots of insoluble fiber like whole grains, fruits, vegetables and legumes, keep your digestive system operating smoothly. Fiber-rich foods may also help control your weight when substituted for high-fat, lower fiber foods



TIPS

1. Add bite-sized turkey or chicken breast pieces, cantaloupe, grapes, low-fat mayonnaise, raisins and a few cashews to whole wheat pasta for a lighter version of a tasty pasta salad.

2. Serve poultry, fish or lean meat on a bed of whole wheat couscous, bulgur or wheat berries. Garnish with sliced oranges, raisins, parsley or a sprinkle of pecans.



Hear from the Experts

Insights from our Advisory Board Member

The Truth about Wheat Lies in the Seed

By Brett Carver, PhD

The best way to learn the truth about our food is to go straight to its source. Plant-based foods typically originate with the seed, which may exist in various forms such as a fruit or tuber. Getting to know foods made from wheat means knowing how the wheat seed is developed. And, that is where the knowledge train often jumps the tracks.

The straightest path to the truth about wheat foods is through the developer of the seed, that is, the wheat breeder. As a practicing wheat breeder in Oklahoma, I can affirm that the wheat today is as natural and naturally open to public inquiry as it ever has been. This may seem contrary to information disseminated from peripheral sources and through the popular press.

While much of plant breeding in the U.S. or abroad is privatized today, this is not the case when it comes to wheat. The vast majority of the wheat produced in the U.S. still comes from public land-grant universities, or from the federal research equivalent in USDA called the Agricultural Research Service (ARS).

What does that mean for the wheat consumer?

Chances are 75% or greater that the flour in your pantry came from a wheat variety developed by a land-grant university near you. This marks a key distinction, relative to other major food crops such as corn and soybeans, in the way wheat breeding research is conducted (with transparency), how research priorities are established (with local farmers), and the fundamental mechanism by which seed is converted to food (not for profit). Universities which develop wheat varieties are located in the same states where wheat production occurs, assuring what is developed is locally adapted. To name just a few from representative regions, think of Washington State University, North Dakota State University, Kansas State University, and Virginia Tech.

So much for who is behind wheat variety development. How is a new variety produced?

Wheat varieties are developed much as they were when wheat breeding began in the U.S. in the 1920s.

First, locally adapted varieties are inter-pollinated to produce new genetic combinations, not new genes, in the offspring. Plants are then selected for slightly improved yield potential relative to the parents and quality characteristics suitable for the intended food product.

A second strategy (but not mutually exclusive) is to cross adapted varieties with ancestral or species related to wheat – often what is called "ancient wheat" – and thus re-incorporate ancestral genes which often prove essential to preserving disease and insect resistance and climatic stress tolerance. Odd as it may seem, ancestral species provide the coping strategy for today's wheat. (As a side-note, both breeding strategies employ manual crossing, not genetic engineering.)

Ancestral wheat, or ancient wheat, with its deep genetic reservoir is not only used to breed today's wheat, it forms its backbone. Species often used by wheat breeders are *Triticum tauschii*, one of the three direct progenitors of wheat today, and those with a more familiar and common name such as emmer and einkorn. It should not then come as a surprise to learn that today's wheat, with its vast family tree and rich heritage, represents a huge melting pot of genetics across the millennia. One cannot simply draw a line between today's wheat and ancient wheat, because one is molded into the other.

What does that say about the makeup of wheat seed?

The protein and starch in a kernel of wheat have the same fundamental components as they did in heirloom varieties or even in ancient wheat relatives, because they all have the same genetic origin. The two primary components of wheat protein, glutenins and gliadins, are present in ancient wheat and indeed other cereals such as barley and rye. In fact, any given wheat plant may produce more than 100 glutenin or gliadin molecules. The relative amounts may vary from one species to another, or among varieties of the same species, or among environments in which the same variety may be grown. It is this same genetic and environmental diversity which enables wheat to be used as a principle ingredient in foods as diverse as baguettes and angel food cake.

If you want to know more about wheat and what is in the seed, visit with a wheat researcher or breeder at your local land-grant university, especially if you live in a state where wheat is widely grown. There is no mystery to breeding new varieties of wheat, a period yet to exceed even 100 years. The real mystery lies in how three grassy weed species defied biological odds to converge over a period of 10,000 years to produce an extraordinary grain so entrenched and celebrated in human civilization.

Dr. Brett Carver holds the Wheat Genetics Chair in Agriculture at Oklahoma State University, Stillwater, OK. He also serves on the Wheat Foods Council Advisory Board.

Savor the Flavor

Staying ahead of flavor trends is vital for keeping a fickle public interested in food today. Three-fourths of consumers report that if they like a food with innovative flavor, they are more likely to have it again, according to Technomic's Flavor Consumer Trend Report. Food manufacturers, suppliers and restaurants must constantly reinvent traditional favorites with new and unusual surprises.



For the baking industry, flavor innovations are playing an important role in driving consumer choices. When asked what motivates a person to try new flavors, American consumers cited "curiosity" and a "positive sampling experience," according to Tom Vierhile, Innovation Insights Director, Canadean Progressive Digital Media Group. Recommendations by friends and family, brand trust and loss of interest with current flavors were other motivators.

Many of today's consumers are increasingly driven to try the next new thing. Spicy flavors continue to be a hit, with Technomic reporting 54 percent prefer hot or spicy foods. Sweet flavors pair well with most other flavors, including savory, sour, smoky or spicy. "Old World" flavors with a twist have gained popularity, especially ingredients from the Middle East and flavors from Korea, Japan and Southeast Asia, according to Whole Foods Market's Top 10 Food Trends for 2016.

Overall flavors in the baking industry reflect these flavor trends. New flavors in sandwich rolls include spicy Buffalo chicken, and also tomato basil, and brioche, according to data from the International Dairy-Deli-Bakery Association (IDDBA). Middle Eastern and North African flavors like harissa, a Tunisian hot chili pepper paste, and zaatar, a mixture of sumac, sesame seed and herbs, are also finding their way into breads. Specialty wine breads made from grapeseed and grape skin flours in flavors like Merlot, Cabernet, and Chardonnay are being offered as well.

Also for breads, sweet and dessert flavors are trending, especially maple, according to data from Canadean. The baking industry is experimenting with an assortment of dessert flavors including red velvet and apple pie. Pretzel flavor



and the addition of seeds are two other flavor innovations for breads that are popular. McCormick's Flavor Forecast for 2016 reports that good-for-you ingredient blends of herbs, spices and seeds, like Chia, are favorites among increasingly health-conscious consumers.

"Loaf bread in particular is seeing a lot of focus on seeds as an ingredient," said Mr. Vierhile.

Maple is also a consumer favorite in other baked goods. In addition to selected dessert flavors, sea salt caramel is a flavor crossing all food formats, according to Canadean.

Despite the demand for a health halo and clean ingredients, desserts are still a once a week indulgence for 63 percent of consumers, according to Technomic's Dessert Trends Report. Today's most requested desserts are brownies, apple pie and chocolate cake. The report encourages combining the classics with innovation, and mini desserts are the rage as they appeal to those who want smaller portions for a lower-calorie treat. Caramel, carrot and vanilla are the fastest-growing flavors of baked goods, according to the report.

Savory, smoked, and hybrid desserts ranked among the top 10 in the National Restaurant Association's "What's Hot" 2016 Culinary Forecast for the dessert category. Fruit cobblers and pies, lemon-flavors and classic pastries like profiteroles also ranked in the top 10. Technomic similarly reports that burned is the way to go for foods. Desserts with charred fruits or burnt-sugar toppings are increasingly popular menu items.



Keep Your *Cool* with Summer Pasta Salads

When the thermometer starts climbing, dinner is just a “toss” away with these easy summer salads from Wheat Foods Council member National Pasta Association.

Strawberry, Lemon and Basil...



...Chicken Pasta Salad

Ingredients:

4 oz. farfalle
12 oz. boneless skinless chicken breasts
3 tbsp. olive oil, divided
1/2 tsp. paprika
1 clove garlic, minced
1/2 tsp. each salt and pepper, divided
3 tbsp. balsamic glaze
2 tsp. finely grated lemon zest
2 tbsp. lemon juice
6 cups/6 oz. baby spinach
1 cup/4 oz. sliced strawberries
1/4 cup thinly sliced fresh basil

Directions:

Cook pasta according to package directions. Drain and set aside. Meanwhile, pre-heat grill to medium-high heat; grease grate well. Toss chicken with 1 tbsp. oil, paprika, garlic and half of the salt and pepper. Grill for 5 to 7 minutes per side or until cooked through; let stand for 5 minutes. Slice thinly. Whisk together remaining oil, balsamic glaze, lemon zest, lemon juice and remaining salt and pepper. In large bowl, combine pasta, spinach, strawberries and basil; divide among 4 bowls. Top with sliced chicken. Add freshly grated Parmesan cheese to this salad if desired.

Servings: 4 (1 cup)

Nutrition: Per serving: 383 calories, 13 g total fat, 2 g saturated fat, 48 g carbohydrate, 22 g protein, 3 g dietary fiber, 25 gm sugar, 471 mg sodium, 49 mg cholesterol.

The Perfect Summer Pasta

Ingredients:

3 oz. cavatappi
1/2 cup/4 oz. low-fat Greek yogurt
1/2 cup/4 oz. reduced fat sour cream
1 Tbsp. red wine vinegar
2 tsp. honey
2 Tbsp. finely chopped dill
2 Tbsp. finely chopped parsley
1/2 cup/2 oz. red onion
3 cups/6 oz. thinly sliced red or green cabbage
2 cups/4 oz. grated carrot
1/4 cup/2 oz. raisins

Directions:

Bring a large pot of salted water to a boil. Cook the cavatappi according to package directions. Drain and reserve. In a large bowl, whisk together the yogurt, sour cream, vinegar, honey, dill and parsley. Season with salt and pepper. Add the onion, cabbage, carrot, raisins and cavatappi. Toss together, adjust seasoning, and serve.

Servings: 8

Nutrition: Per serving: 109 calories, 2 g total fat, 1 g saturated fat, 20 g carbohydrate, 4 g protein, 2 g dietary fiber, 8 gm sugar, 42 mg sodium, 8 mg cholesterol.



Grilled Chicken Pasta Salad with Cucumber and Onion



Ingredients:

20 oz. boneless, skinless chicken breasts
2 tsp. vegetable oil
4 oz. tubetti
1/2 cup/2 oz. finely chopped red onion
1/4 cup/1/4 oz. finely chopped dill
1/2 cup/4 oz. low-fat Greek yogurt
1 1/2 cups/6 oz. cucumber, preferably hothouse, small dice
2 tsp. lemon juice

Directions:

Heat a grill pan or outdoor grill over medium high heat. Brush the vegetable oil on both sides of the chicken. Season with salt and pepper. Place the chicken on the grill and cook until nicely charred, flip and repeat on the second side. Depending on thickness, 4 to 5 minutes per side should cook the chicken through. When cool enough to handle, chop the chicken into 1/2" chunks. While the chicken is cooking, bring a large pot of salted water to a boil. Cook the tubetti according to package directions. Drain and reserve. In a large bowl, stir together the red onion, dill, yogurt, cucumber, and lemon juice. Season with salt and pepper. Stir in the chicken and yogurt. Taste and adjust seasoning. Divide between 6 bowls.

Servings: 6 (1 cup)

Nutrition: Per serving: 238 calories, 5 g total fat, 1 g saturated fat, 17 g carbohydrate, 26 g protein, 1 g dietary fiber, 2 gm sugar, 252 mg sodium, 58 mg cholesterol.



AIB International – *Where Baking Science Happens*

“Putting science to work for the baker” was the original mission of the American Institute of Baking (AIB International), established in 1919 as a networking resource for bakers and food processors to share new technology and information. Today, AIB has expanded globally, empowering clients to elevate their food safety and production process capabilities by developing and delivering targeted programs, products and services.

“We are known for our efforts with food safety all over the world, as we perform audits and inspections for the baking industry,” said Debi Rogers, Ph.D., director of Baking Services, AIB International, Manhattan, KS.

AIB International staff includes experts in the fields of baking production, experimental baking, cereal science, nutrition, food safety and hygiene. Members, participating companies and baking industry professionals are provided with Information and support on baking regulations; ingredients, equipment, and product evaluations; food safety and baking education; and education, career, and professional development opportunities.

AIB International offers a wide variety of seminars to help industry professionals better understand ingredients and processes, so they can continue to produce consistent products for their consumers. Dr. Rogers, incoming chair of the Wheat Foods Council (WFC), oversees a team of baking professionals responsible for much of the training focused on ingredient functionality.

“Bakers or ingredient suppliers come to AIB International here in Manhattan, or we visit companies onsite to provide baking and food technical services training, research lab analysis and research data on baking science for all sorts of bakers,” said Dr. Rogers.



Focused specifically on grain-based foods, AIB International’s food safety support is centered around food and beverage manufacturing, distributing, and packaging. Training for product labeling and analysis of the Nutrition Facts Panel are also conducted by the organization’s professional staff, assisting companies comply with Food & Drug Administration and US Department of Agriculture regulations to make sure they meet labeling laws, specifically the newly-adopted Food Safety Modernization Act (FSMA).

Not only is AIB International there for the milling and grain industry, and bakers, they are committed to offering modern learning tools. Their newest lineup of online baking courses available at LearningLab@AIB includes a series on bread manufacturing.

“This type of learning directly targets our objective of designing self-paced training tools and provides a fundamental knowledge base,” said Susan Hancock, vice president of Innovation and Product Development, AIB International.

The sharing of new information and the latest science and technology with its members and the entire baking industry continues to be the centerpiece of AIB International’s mission. To learn more about these services, visit www.aibonline.org.



Japanese Study Points to Role of Diet in Longevity

Michele Tuttle, MS, RDN, MPH

Life expectancy in Japan has steadily increased over the past few decades and is one of the longest in the world, with Japanese living an average of 84.7 years. By comparison, Americans can expect to live an average of 79.6 years (source: CIA World Fact Book: <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2102rank.html>).

Many lifestyle factors play into longer life expectancy but in Japan's case, it could be largely due to diet according to a recent

study published in the British Medical Journal (BMJ). The study looked at the diets of 36,624 men and 42,970 women aged 45-75 who had no history of cancer, stroke, ischemic heart disease, or chronic liver disease. Food frequency survey data was initially collected in 1993 and participants were followed until 2012. Researchers

analyzed the participants' life spans and correlated this to how well they adhered to their national dietary food guidance system, the Spinning Top (see figure 1). Japan's Spinning Top recommends a daily diet based on 5-7 servings of grain foods (rice, bread, noodles and, pasta), 5-6 servings of vegetables, 3-5 servings of meat and fish, with 2 servings each of fruits and milk foods. In addition, the Spinning Top encourages daily exercise, drinking water and tea regularly, and eating snacks and confections moderately.

The BMJ study found that

a higher score on the Japanese Food Guide Spinning Top was associated with a lower rate of total mortality over 15 years of follow-up in both men and women, particularly from cardiovascular diseases. People who had the highest food guide scores had a 16% lower rate of mortality from cardiovascular disease

"People who had the highest food guide scores had a 16% lower rate of mortality and cardiovascular disease."

compared with the lowest scores. This association was partly explained by a higher intake of vegetable dishes and fruits, and an adequate intake of fish and meat. These two dietary factors can significantly decrease the risk of mortality from cardiovascular disease as shown in this study and numerous others. Although the researchers did not highlight the impact of grain foods, other studies have shown that whole grains can dramatically reduce the risk of cardiovascular disease.

The authors' conclusion: "Our findings suggest that balanced consumption of energy, grains, vegetables, fruits, meat, fish, eggs, soy products, dairy products, confectionaries, and alcoholic beverages can contribute to longevity by decreasing the risk of death, predominantly from cardiovascular disease, in the Japanese population."

What's interesting is that the Japanese Spinning Top is very similar to guidance advised by MyPlate (Figure 2), which is based on the US Dietary Guidelines. The difference is that fewer than 5% of people in the US actually adhere to these guidelines whereas people in Japan do tend to follow the pattern outlined by the Spinning Top. According to the NPD group, Americans follow MyPlate less than 7 days in a given year (Source: https://www.npd.com/wps/portal/npd/us/news/press-releases/pr_111213b/)

Perhaps if Americans ate more like the Japanese in terms of their grain, vegetable and meat or fish intake, or simply followed the advice of the US Dietary Guidelines, we, too, would experience the longer life spans enjoyed by the Japanese.

"What's interesting is that the Japanese Spinning Top is very similar to guidance advised by MyPlate..."

"Japan's Spinning Top recommends a daily diet based on 5-7 servings of grain foods..."

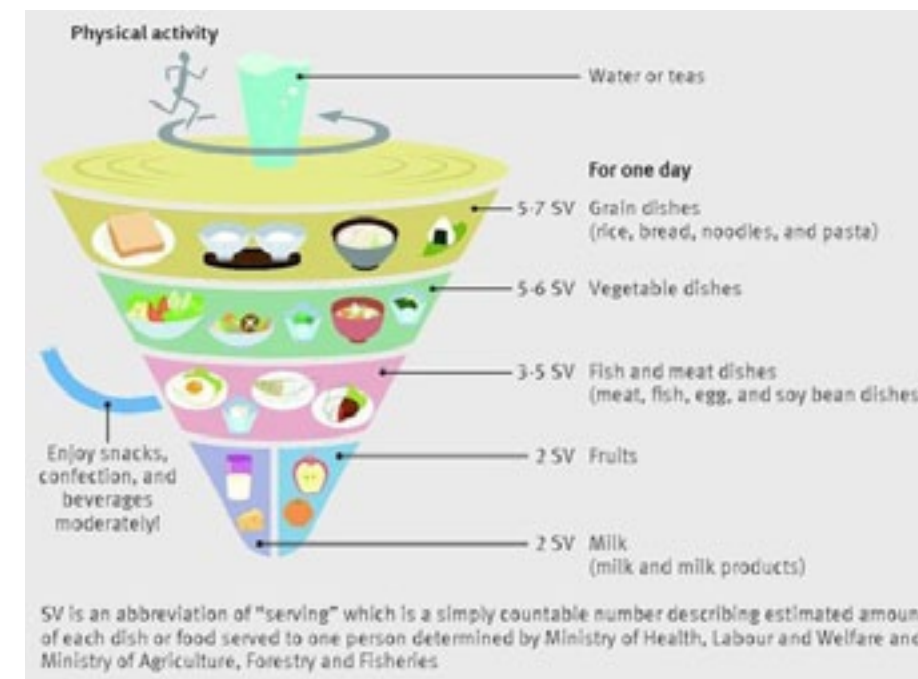


Figure 1: (Left)

Figure 2: (Below) MyPlate Dietary Guidance based on the US Dietary Guidelines for Americans



More Info/Access the Study: <http://www.bmj.com/content/352/bmj.i1209>