

Disclosures

- WebMD
- Board member: True Health Initiative; Cooking Matters
- Contributing editor: Food & Nutrition Magazine
- Consultant: Sabra, Bayer LEAD Network

Facts

- Today, grains provide 50% of global calories
 - <http://www.fao.org/resources/infographics/infographics-details/en/c/240943/>. 6.26.2017.
- Grains have played a major role in human history, and grain agriculture is one of the main advancements that fueled the development of civilization.
- Commonly consumed: wheat, rice and corn



WHEAT

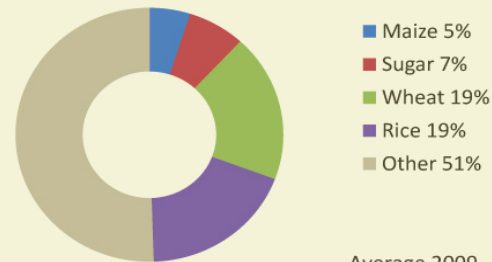
Today, wheat is grown on more land area than any other commercial crop and continues to be the most important food grain source for humans.

WHEAT IS THE LARGEST PRIMARY COMMODITY

GLOBAL PRODUCTION IS APROX. **700 million tonnes**

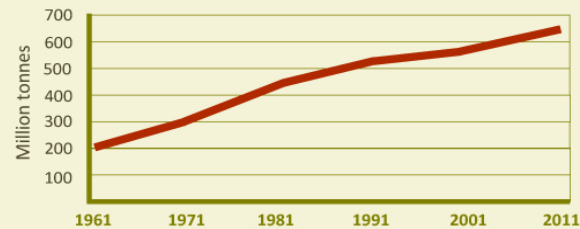


WHEAT PROVIDES **19%** OF OUR TOTAL AVAILABLE CALORIES



Average 2009 - 2011

Global production from 1961 to 2013



TOTAL EXPORT VALUE
46.8 billion US\$

TOP 5 PRODUCERS

Million tonnes in 2013

China	122
India	93.5
USA	58
Russian Federation	52
France	39

TOP 5 IMPORTERS

Million tonnes average 2009 - 2011

Egypt	9.8
Italy	7.1
Algeria	6.1
Brazil	5.8
Japan	5.5

FAOSTAT provides free access to food and agriculture data for 245 countries and 35 regions from 1961

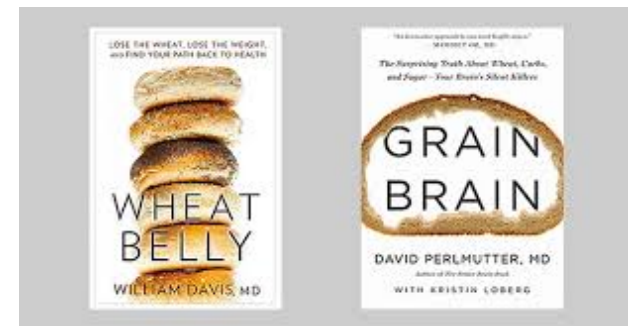
faostat.fao.org



Grain Claims in the Media

- Paleo-style diets eliminate grains entirely
- Not biologically adapted to eat them.
- They make us fat, unhealthy.
- Contain antinutrients like phytates that steal nutrients
- Maligned primarily due to misinformation:
 - Gluten
 - Celebrity curse
 - Autism
 - Inflammation, brain fog

November 2018
#WholeGrains2018



Dietary Guidelines for Americans History



1980



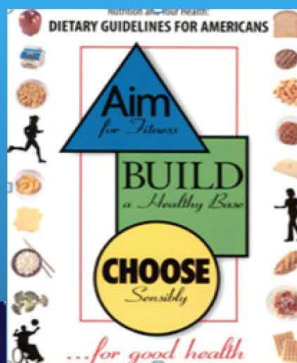
1985



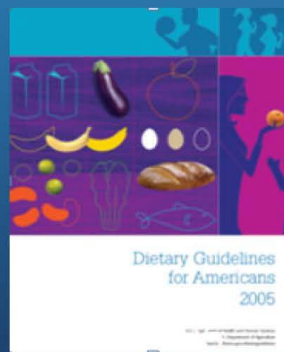
1990



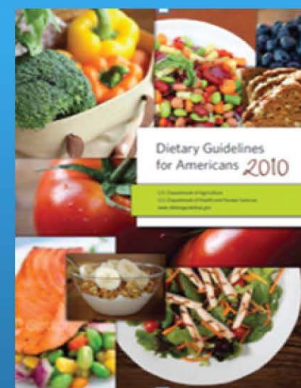
1995



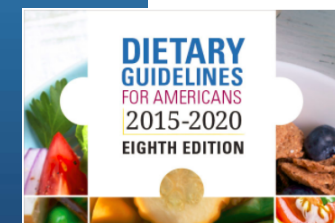
2000



2005



2010



2015

Dietary Guideline Grain Advice

- **1980 & 1985:** Eat Foods with Adequate Starch and Fiber. Select foods that are high in fiber such as whole grains.
- **1990:** Choose a diet with plenty of vegetables, fruits and grains. Six servings of grains with an emphasis on whole grains.
- **1995:** Choose a diet with plenty of grains, vegetables, and fruits. Eat several servings of whole-grain breads and cereals daily, 6-11 servings

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- **2000:** Choose a variety of grains daily, especially whole grains. Aim for at least 6 servings and include several servings of whole grain foods.
 - **2005:** Choose fiber-rich fruits, vegetables, and whole grains often.
 - **2015:** Total diet focus; make half your grains whole

***Make half your grains whole grains
since 2000***

Health Benefits of Whole Grains

- Less inflammation & slower cognitive decline in aging
- Better academic performance
- Lower risk of type 2 diabetes
- Healthier gut microbiome
- Lower BMI, less overweight/obesity
- 14% lower risk of stroke
- 19–22% lower risk of heart disease
- Lower LDL “bad” cholesterol
- 16–18% lower risk of death from all cause
- Reduced colon cancer risk
- ***Hundreds of studies substantiating beneficial effects on health.***

<https://wholegrainscouncil.org/whole-grains-101/health-studies>

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- *‘Replacing refined grains with whole grains globally could reduce the burden of chronic disease more than any other change.’*



- Institute for Health Metrics and Evaluation keynote address at Whole Grain Summit, Vienna, 12.14.17

Whole Grain Sustainability

- Energy dense, easy to grow, transport and store for year long health.
 - 1 bushel of wheat= 60 (24 oz) loaves whole grain bread but only 42 loaves of white bread.
- Compared to produce calories, much more food would have to be grown.
- Plant based grains are sustainable, earth friendly foods to produce and help conserve our planet's resources.

Dispelling Myths: No Evidence

- Whole Grains Cause Inflammation
- All Grains Make Your Blood Sugar Spike
- U.S. wheat is genetically modified
- Wheat and gluten is the reason we're overweight and obese
- Our wheat is toxic, “drenched in glyphosates”
- Eliminating wheat cures diabetes / abnormal glucose tolerance
- Wheat is addictive
- Refined bread is as healthy as whole grain bread

Understanding Gluten

- Gluten is a family of proteins found naturally in wheat (including ancient wheats like einkorn, farro, Kamut, or spelt), barley, and rye.
- They're what help dough stretch and bread rise.



Gluten Free Grains

Most whole grains are naturally gluten-free:

- *Oats are naturally gluten-free, but can be cross-contaminated
- Amaranth
- Buckwheat
- Corn
- Millet
- Quinoa
- Rice
- Sorghum
- Teff
- Wild Rice



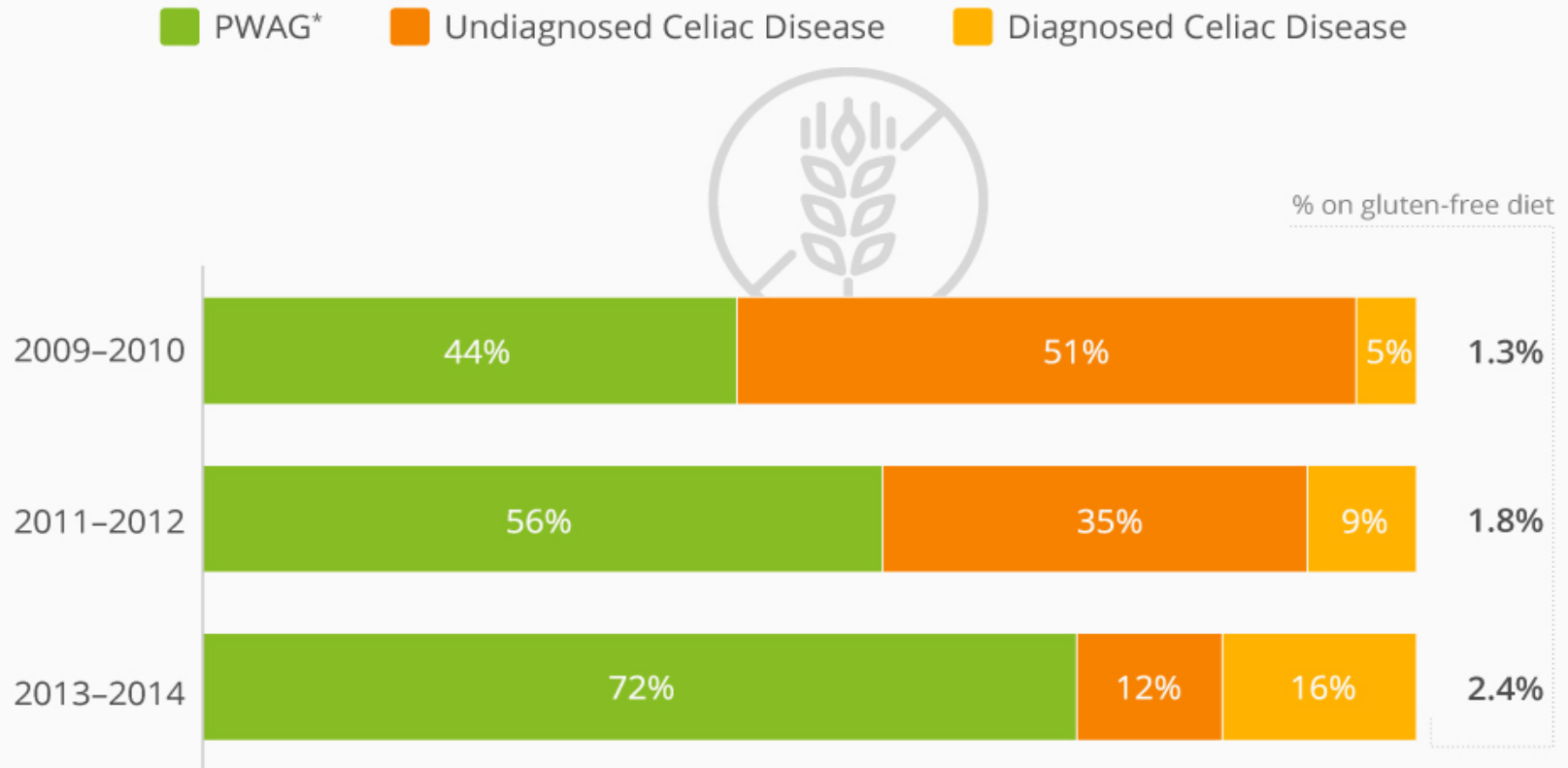
Gluten Free Diet Rx for Celiac Disease

- Celiac disease affects roughly 1-2% US population
- Autoimmune disease that can be diagnosed
- Only medical treatment gluten-free diet.
- Only 1 in 5 people who avoid gluten have a medical diagnosis.



The Rise Of The Gluten-Free Diet

% of Americans on a gluten-free diet with/without celiac disease



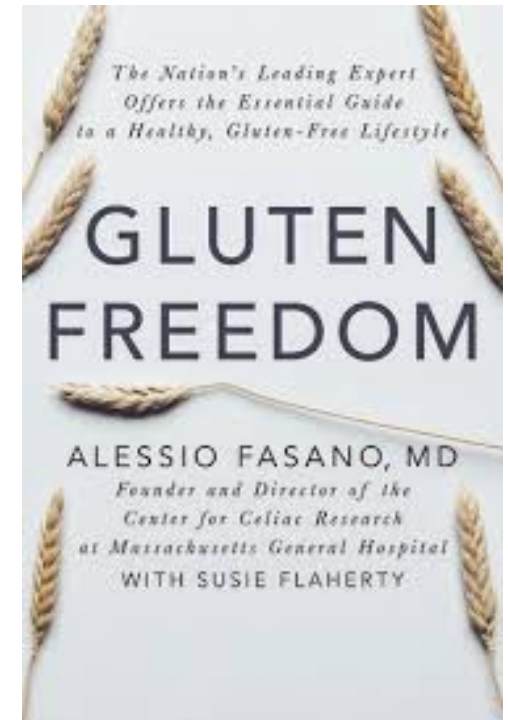
* PWAG = People without celiac disease avoiding gluten

Source: Mayo Clinic



Beyond Celiac Disease

- Non-Celiac Gluten Sensitivity has recently been identified (5-6%)
 - No biomarkers
 - 10 double-blind, placebo-controlled gluten challenge only 16% showed gluten-specific symptoms, and 40% had similar or increased symptoms on the gluten-free control diet.
 - Molina-Infante, J, Clinical and Gastroenterology and Hepatology 15, no. 3 (2017):339-348.



It May Not Be the Gluten

- Another 0.2-0.4% of Americans are allergic to wheat (but not barley or rye).
- Some grains, esp. wheat, are high in FODMAPS
- 2015 report by the NPD Group, found that 29% adult Americans trying to cut back on gluten

FERMENTABLE
OLIGOSACCHARIDES
DISACCHARIDES
MONOSACCHARIDES
AND
POLYOLS



Unintended Consequences: Gluten Free

- *“There’s no reason for someone who feels well to start a gluten-free diet to promote wellness,”* Dr. Benjamin Lebwohl, director, Celiac Disease Center at Columbia University.
- Avoiding gluten can reduce the overall quality of the diet, especially **fiber**.
- In a 25 yr. study of more than 100,000 US adults without celiac disease
 - eating gluten was not related to heart disease risk.
 - avoiding gluten may result in eating fewer whole grains and may increase the risk for heart disease.
 - Lebwohl, B. et al. “Long term gluten consumption in adults without celiac disease and risk of coronary heart disease: prospective cohort study,” BMJ (2017).

Potential Increase in T2D Risk

- Harvard study found people eating less gluten had a higher risk for type 2 diabetes.
 - Potentially because gluten free foods use potato starch and tapioca that can spike blood sugar.
 - Zong, Geng, et al. AHA Epidemiology and Prevention / Lifestyle and Cardiometabolic Health 3.9.2017 Scientific Sessions. Portland, OR.
- When healthy whole grain carbs are eaten, protective against T2D.
 - The Journal of Nutrition. 2018 Sep 1;148(9):1434-1444

Gluten Free, Not Calorie, Sugar Free

- Gluten-free versions of foods have more calories, sodium, and sugar
- Usually more expensive
 - Consumer Reports, Nov. 2014
- Self treatment with a gluten-free diet can cause false negative blood test for celiac disease

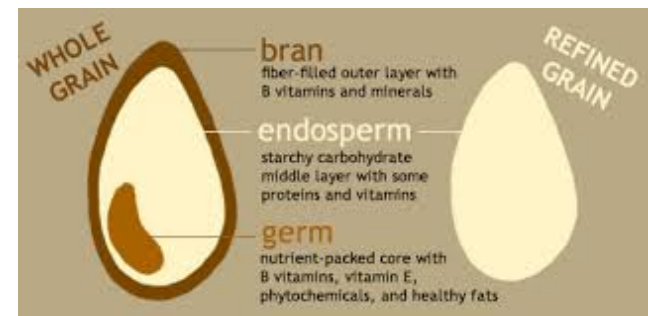


Whole Grain Foods are Best Choice.

- Whole grains: wheat, corn, rice, oats, barley, quinoa, sorghum, spelt, rye – when eaten in their “whole” form. Contain all 3 parts of the kernel.
- Nutritionally: Whole grains tend to be high in fiber, B vitamins, magnesium, iron, phosphorus, manganese, zinc, copper, vitamin A and selenium.
- Refining removes bran & germ, and 25% of grain’s protein and nutrients.
 - Enriched: add back iron, thiamin, riboflavin, niacin and folic acid.

Limitations of Refined Grains

- Usually lower in fiber, protein and more
- Refined carbohydrates are absorbed quickly, increasing blood sugars and potentially crashing when levels drop triggering cravings.
- Numerous studies show eating refined grains can lead to overeating and promote weight gain
- Linked to insulin resistance, type 2 diabetes and heart disease



WG Consumption On The Rise

- 2 out of 3 people make half their grains whole
 - 89% choose them for their health benefits
 - 41% choose them for their taste
 - Most popular grains: whole wheat, oats, corn, brown rice and ancient grains on the rise.
- 8 in 10 consumers know whole grains are healthy, topping the list of components considered to be healthful.



Label Requirements of WG

- Whole, cracked, split or ground.
- Milled into flour for breads, cereals and other processed foods.
- “Whole Grain’ means same % of bran, germ and endosperm as the kernel
- Label guide

Total Carbohydrate	300g	375g
Dietary Fiber	25g	30g

MADE FROM: WHOLE WHEAT FLOUR, WATER, HIGH FRUCTOSE CORN SYRUP, YEAST, SOYBEAN OIL, WHEAT GLUTEN, UNSULPHURED MOLASSES, CONTAINS 2 PERCENT OR LESS OF: OAT FIBER, SALT, SODIUM STEAROYL LACTYLATE (DOUGH CONDITIONER), CITRIC ACID, CALCIUM PROPIONATE AND SORBIC ACID TO RETARD SPOILAGE, MONO AND DIGLYCERIDES, BUTTER (MILK)*, WHEY*, SOY LECITHIN.
*ADDS A TRIVIAL AMOUNT OF CHOLESTEROL.

Ingredients:

Whole Grain Oats, Modified Corn Starch, Corn Starch, Sugar, Salt, Tocopherols, Trisodium Phosphate, Calcium Carbonate, Natural Colour. Contains Wheat Ingredients.

How "whole" is your whole grain?

Panera Labels



Farmstyle Loaf

1.2 whole grain servings/slice

Sprouted Grain Bagel Flat

2.1 whole grain servings/bagel

Sprouted Grain Roll

1.5 whole grain servings/roll

Whole Grain Bagel

2.8 whole grain servings/bagel

Whole Grain Loaf

1.2 whole grain servings/slice

Whole Grain Flatbread

1.1 whole grain servings/flatbread

November 2018
#WholeGrains2018



Importance of Dietary Patterns

- Health problems are almost never the fault of one food; it's total diet and lifestyle.
- Grains have been one of the most important sources of food worldwide for millennia. Part of the Mediterranean Diet
- *'Healthy eating patterns include whole grains and limit the intake of refined grains and products made with refined grains, especially those high in saturated fats, added sugars, and/or sodium, such as cookies, cakes, and some snack foods.'*

Key Messages

- Health benefits of whole grains solved science.
- Don't avoid gluten unless clinically indicated.
- Whole grains belong in healthy dietary patterns, promoting a plant based diet.
- Whole grains are easier, quick and more foolproof to prepare.



Thank you!

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