



General Mills: Committed To Whole Grain

Susan J. Crockett, Ph. D., R.D.
Senior Director of
Health and Nutrition





ALL General Mills Big G Cereals Are Now Made with Whole Grain!



Look For This  On All Of Our Brands



General Mills Commitment to Whole Grains

General Mills
Introduces
Cheeri Oats –
now Cheerios
1941

General Mills
Supports
Whole Grain
Research &
Education
1980's - 1990's

All General
Mills Big G
cereals are
made with
Whole Grain
2005

1920

1940

1960

1980

2000

1924
General Mills
Introduces
Whole Grain
Wheaties

1961
General Mills
Introduces
Whole Grain
Total

1999
General Mills
submits and
receives FDA
approval for a
Whole Grain
health claim



Whole Grains are a Health Focus

2005 Dietary Guidelines Report Includes Recommendations for Whole Grains

“Consuming **at least three servings of whole grains** (equal to 3 ounces) per day can reduce the risk of diabetes and coronary heart disease and may help with weight maintenance. Thus, daily intake of three or more servings of whole grains per day is recommended





Whole Grains are a Health Focus

USDA recently issued guidance to encourage increasing the offerings of Whole Grains in school meal programs in response to:

- Congress' Provision in Child Nutrition and WIC Reauthorization Act of 2004
- Recommendations in current and revised Dietary Guidelines for Americans.





Americans are Missing Out

9 out of 10 Americans are **NOT** getting the recommended 3 servings of whole grains each day!



Not Getting Enough Whole Grain

Getting the Recommended 3 Servings of Whole Grain/Day



Major Sources of Whole Grain in The American Diet

Grain Based Snacks	41%
Ready-to-Eat Cereal *	23%
Yeast Breads	16%
Hot Cereal	11%
Quick Breads	3%
Rice & Pasta	3%
Miscellaneous	3%

*RTE Cereal is main source of whole grain for children



Current Consumption of Whole Grain is Low

- Americans consume less than 1 serving per day of whole grain
- Only 2.5% of total energy intake is from whole grain foods



Whole Grain Confusion

Consumers Think They're
Already Getting Enough
Whole Grain

71% of consumers think
they're getting enough



Consumers Say They Want Whole Grain

71% of consumers claim they make "some" effort to consume whole grains



**Why Are Consumers
Missing Out???**

**Whole Grain
Confusion!!**





Consumers Know Whole Grains are Healthy

Consumers generally view whole grains as
"healthy/good for you."

Pirro Research, 1997; WG Event Platform Exploratory 2000

Whole Grain is the #5 "food eaten to
reduce risk of disease"

1. Orange juice (63%)
2. Broccoli (61%),
3. Fish (59%)
4. Tomato products (59%)
5. **Whole Grain (58%)**

Health Focus, 2003



Consumers Mistakenly Identify Foods as “Whole Grain”

- **80%** of consumers believe that “**many cereals** provide good and/or excellent sources of whole grains”

Consumers have a hard time identifying whole grain cereals and often mistakenly assume all or most cereals are whole grain.

- **90%** think they know what whole grain means



Consumer Definitions of Whole Grains are Rooted in Misperceptions

Consumers think whole grain is...

- Brown
- Only wheat
- Only fiber
- The same as multigrain
- Only found in adult foods/cereals
- Bad-tasting (if it's sweet, it cannot be whole grain)



How Do We Educate Consumers????



What Messages Motivate Consumers?

- **Made with 100% whole grain.**
 - **Provides an excellent source of whole grain.**
 - **Made with whole grain.**
 - **Provides a good source of whole grain.**
-
- Significant source of whole grain.
 - Rich in whole grain.
 - Provides all the nutrients of the whole grain.
 - Provides the goodness of whole grain.
 - Whole grain in every bite.
 - Made from a healthier grain - the whole grain.
 - Whole grain. The better grain choice.
 - Made from the entire grain.



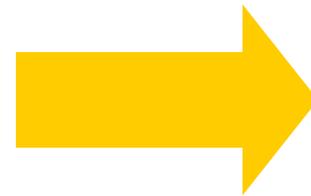
Help Consumers Beat the Whole Grain Confusion!

Pique consumer interest and provide compelling messages for whole grain.

1. Health Benefits

2. Credible Sources

3. Bust the Myths

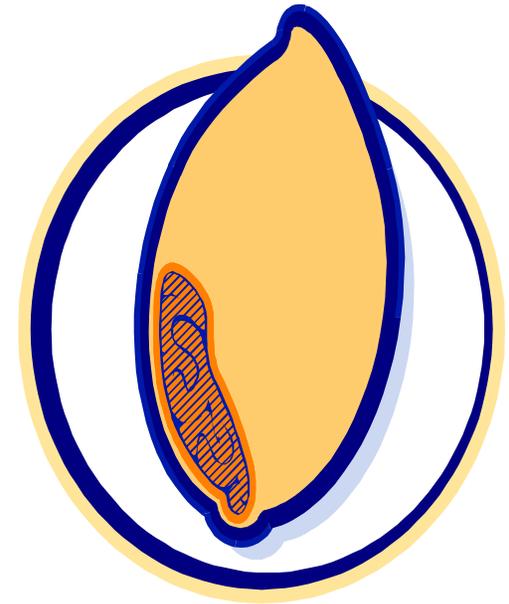


Consumer
Whole Grain
Understanding





Health Benefits of Whole Grains





What is a Whole Grain?

Bran

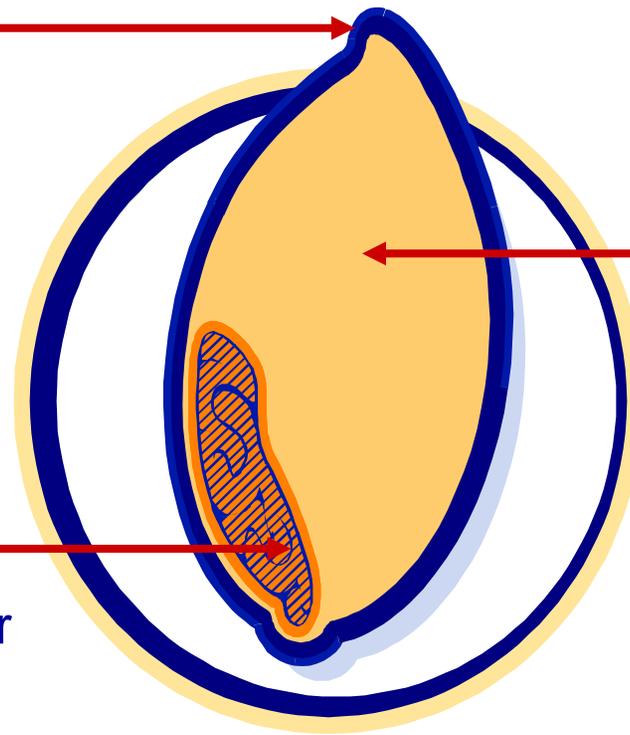
“Outer shell”
protects seed

- Fiber
- B Vitamins
- Trace Minerals

Germ

Nourishment for
the seed

- B Vitamins
- Vitamin E
- Trace Minerals
- Phytochemicals



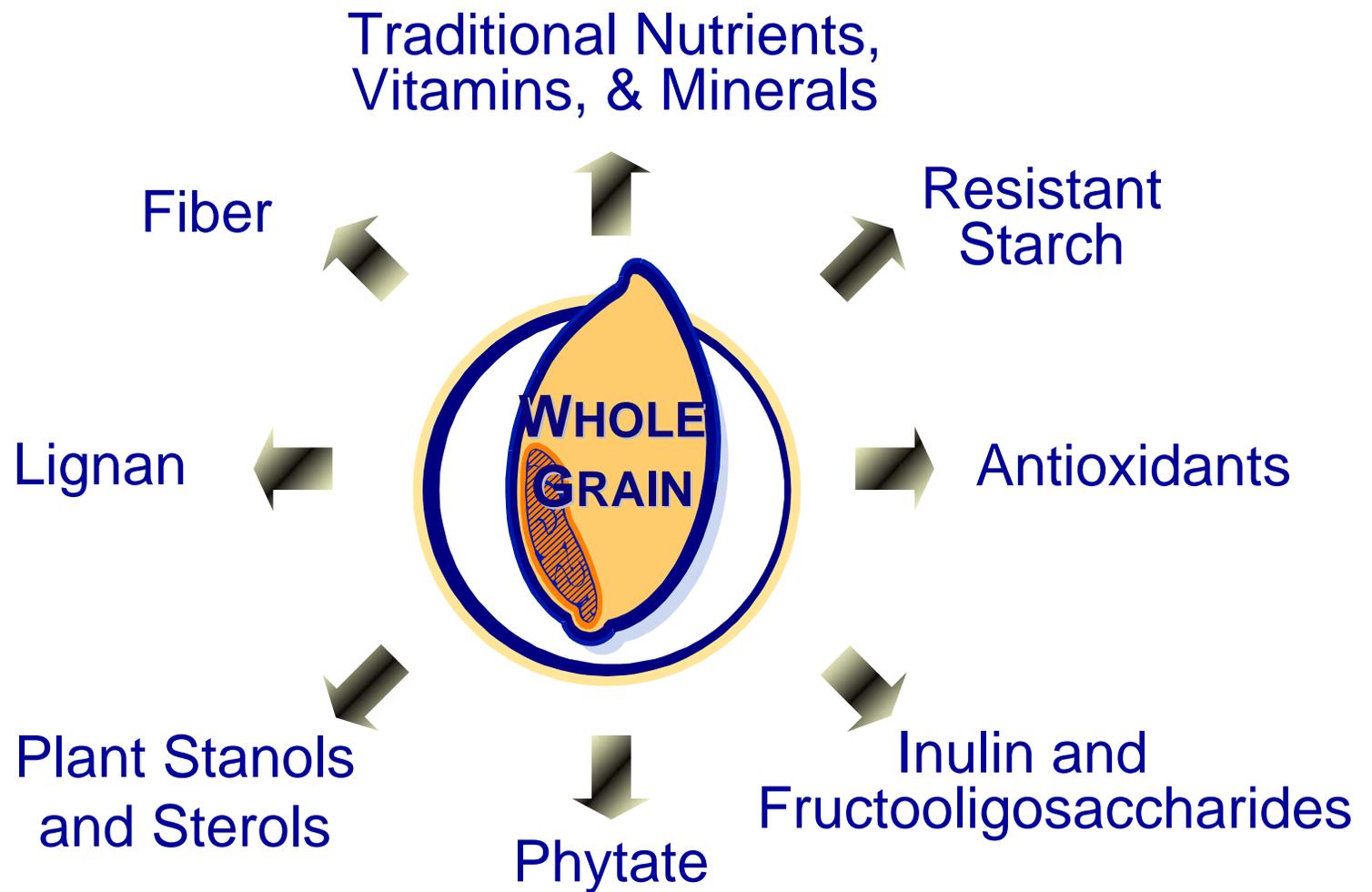
Endosperm

Provides energy

- Carbohydrate
- Protein
- Some B Vitamins



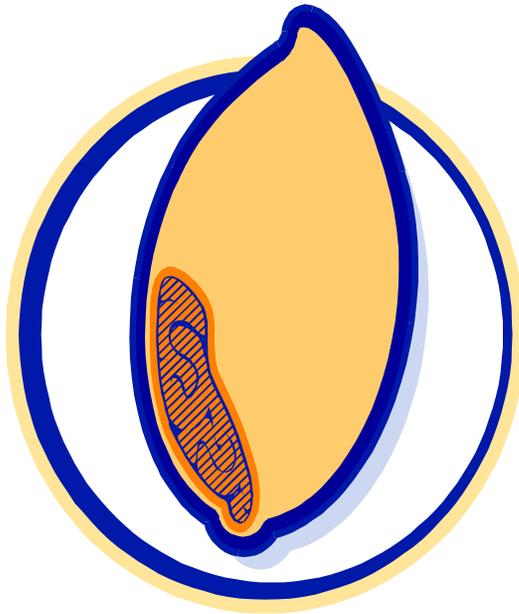
Whole Grains Have Benefits Beyond Fiber



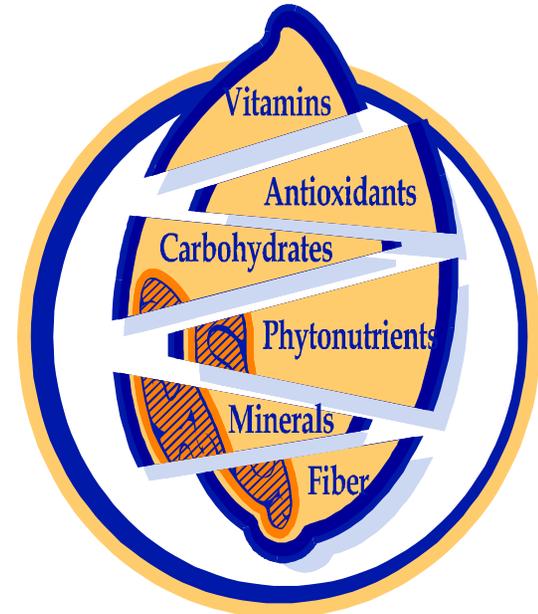


Synergy Between Components

The Whole Grain Bonus!



Whole is
Greater Than
the Sum of
the Parts





Whole Grain Link to Chronic Disease

- Cardiovascular Health
- Obesity
- Diabetes
- Cancer
- All-cause mortality





Whole Grains & Heart Disease: Epidemiological Studies

- ARIC Study (15,792 men and women) (Steffen et al, 2003)

3 servings of whole
grain food/day



28% ↓ risk
of CAD

- Iowa Women's Health Study (34,000 women) (Jacobs et al., 1999)

≥ 1 serving of
whole grain
food/day



30 - 36% ↓ risk
of ischemic heart
disease

- Harvard Nurses' Health Study (75,000 women) (Liu et al., 1999)

≈ 3 servings of
whole grain
food/day



25% ↓ risk of
coronary heart
disease



Whole Grains & Obesity: Epidemiological Studies

- Harvard Nurses' Health Study (75,000 women)
(Liu et al., 2003)
 - Women who consumed **more whole grains** consistently **weighed less** than women who consumed fewer whole grains
 - At baseline, women in highest quintile of whole grain intake weighed less than did women in the lowest quintile
 - Increases in whole grain intake associated with significantly less weight gain over time
 - Refined grain intake was linked to increased risk of weight gain



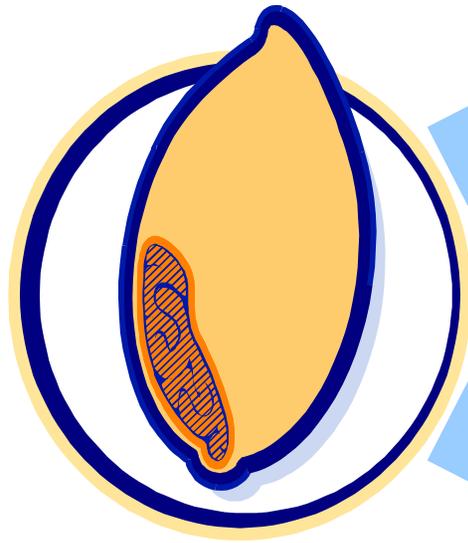
Whole Grains & Obesity: Epidemiological Studies

- Continuing Survey of Food Intakes by Individuals, 1994-96
 - Whole grain intake inversely associated with BMI

	Lowest Whole Grain Intake	Highest Whole Grain Intake	P for trend
BMI Women	26.4	24.2	.0005
BMI Men	26.3	25.7	.062



Whole Grains & Type 2 Diabetes: Epidemiological Studies



Data from the Iowa
Women's Health Study

**21% risk
reduction**

Data from the
Nurses' Health Study

**27% risk
reduction**

**About 3 servings
of whole grains
daily**

Meyer, et al., *AJCN*, Apr. 2000

Liu, et al., *AJPH*, Sept. 2000



Whole Grains & Type 2 Diabetes: Prevention

Reviews/Commentaries/Position Statements

Evidence-Based Nutrition Principles and Recommendations for the Treatment and Prevention of Diabetes and Related Complications

MARION J. FRANK, RD, CDE, C-Clin¹
JOHN P. BANTLE, MS, C-Clin²
CHRISTINE A. REBE, RD, CDE³
JOHN D. BRUNDAGE, MD⁴
JOHN LOUIS CRENSON, MD⁵
ARHANTU GARG, MD⁶

LEA ANN HOLZMEISTER, RD, CDE⁷
BRYAN HOOVER, MS⁸
ELIZABETH MAYER-DAVIS, PhD, RD⁹
ARBAH D. MOORJAMAN, MD¹⁰
JONATHAN C. POWELL, MD¹¹
MARILYN WHEELER, RD, CDE¹²

Historically, nutrition principles and recommendations for diabetes and related complications have been based on scientific evidence and diabetes knowledge when available and, when evidence was not available, on clinical experience and expert consensus. Often it has been difficult to discern the level of evidence used to construct the nutrition principles and recommendations. Furthermore, in clinical practice, many nutrition recommendations that have no scientific supporting evidence have been and are still being given to individuals with diabetes. To address these problems and to incorporate the research done in the past 8 years, this 2002 technical review provides principles and recommendations classified according to the level of

evidence available. It reviews the evidence from randomized, controlled trials; cohort and case-control studies; and observational studies, which can also provide valuable evidence (1,2), and takes into account the number of studies that have provided consistent outcomes of support. In this review, nutrition principles are graded into four categories based on the available evidence: those with strong supporting evidence, those with some supporting evidence, those with limited supporting evidence and those based on expert consensus.

Evidence-based nutrition recommendations attempt to translate research data and clinically applicable evidence into nutrition care. However, the best available evidence must still be moderated by

individual circumstances and preferences. The goal of evidence-based recommendations is to improve the quality of clinical judgments and facilitate cost-effective care by increasing the awareness of clinicians and patients with diabetes of the evidence supporting nutrition services and the strength of that evidence, both in quality and quantity.

Before 1994, the American Diabetes Association's (ADA's) nutrition principles and recommendations attempted to define an "ideal" nutrition prescription that would apply to everyone with diabetes (3-5). Although individualization was a major principle of all recommendations, it was usually done within defined limits for recommended energy intake and macronutrient composition. The 1994 nutrition recommendations shifted this focus to one that emphasized effects of nutrition therapy on metabolic control (6,7). The nutrition prescription is determined considering treatment goals and lifestyle changes the diabetic patient is willing and able to make, rather than predetermined energy levels and percentages of carbohydrate, protein, and fat. The goal of nutrition intervention is to assist and facilitate individual lifestyle and behavior changes that will lead to improved metabolic control. This focus continues with the 2002 nutrition principles and recommendations.

Medical nutrition therapy (MNT) is an integral component of diabetes management (8,9) and diabetes self-management education (10). (Medical nutrition therapy is the preferred term and should replace other terms, such as diet, diet therapy, and dietary management.) MNT for diabetes includes the process and the system by which nutrition care is provided for diabetic individuals and the specific lifestyle recommendations for that care. However, recommendations should not only be based on scientific evidence but should also take into consideration lifestyle changes the factors for many substances.

Recommendations For Whole Grains

Included in 2002 American Diabetes Association evidence-based recommendations for diabetes prevention

Liu et al., Am J Public Health 90:1409, 2000
Meyer et al., Am J Clin Nutr 71:921, 2000
Fung et al., Am J Clin Nutr 76:535, 2002

Salmeron et al. Diabetes Care 20:245,, 1997
Salmeron et al., JAMA 277:472, 1997
Pereira et al. Am J Clin Nut 75:846, 2002



Whole Grains & Cancer: Epidemiological Studies

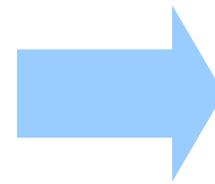
- Gastrointestinal cancers
 - A meta-analysis of 40 studies (Jacobs et al., 1998)
 - **21 - 43% lower risk** for cancer with high intakes of whole grains
 - Iowa Women's Health Study (35,000 women) (Kasum, et al., 2002)
 - **RR = 0.53** in the highest tertile of whole grains
- Hormone-dependent cancers
 - Research is preliminary
 - One meta-analysis showed a **10 - 40% risk reduction** with the highest intake of whole grain food (Chatenoud et al., 1998)



Whole Grains & Total Mortality: Epidemiological Studies

Harvard Male Health Professionals (86,000)

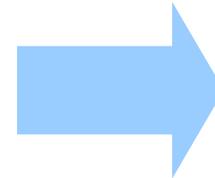
1 or more serving/day
of whole grain cereal
(compared to none)



Mortality
RR 0.83

Iowa Women's Health Study (34,333)

3 or more servings/day
of whole grain foods



Hazard
RR 0.86



Conclusions: Whole Grains and Health

- **Cardiovascular Disease**
 - Magnitude of risk reduction 27-37% - larger than reductions in cholesterol alone
- **Obesity**
 - Higher intake of whole grains = lower BMI and lower risk of major weight gain





Conclusions: Whole Grains and Health

- **Diabetes**
 - 21 – 27% risk reduction eating 3 servings daily
 - Whole grain intakes associated with improved insulin sensitivity
 - Consumption of whole grains included in recommendations for diabetes prevention
- **Cancer**
 - Meta-analysis of GI cancers = 21 - 43% lower risk
 - Meta-analysis of hormone dependent cancers = 10 - 40% risk reduction
- **Total Mortality**
 - >1 serving/day inversely associated with total and CVD-specific mortality



Will the Whole Grain Please Stand Up?

Words like "multi-grain", "100% wheat", or "bran" may indicate important health benefits, but do not necessarily mean a product is whole grain.





Break Down Myths: Know the Facts

- Whole grain is more than fiber or bran
- Whole grain comes from a variety of grains (oats, rice, corn)
- Processed foods (cereals, crackers) **can** still be whole grain
 - Not all whole grains provide a “nutty” flavor and texture to foods
- Color is not a good indication of whole grain
 - Some whole grain foods are not brown





Current Ways to Find Whole Grain Foods

Look for:

1. The word “whole” before the first or second ingredient in the ingredient listings. For example, “whole wheat” or “whole oats.”





Current Ways to Find Whole Grain Foods

Look for:

2. FDA-Authorized Whole Grain Health Claim

Claim Criteria:

- Must include 51% whole grain flour by weight

**IN A LOW-FAT DIET, WHOLE GRAIN FOODS LIKE
TOTAL MAY REDUCE THE RISKS OF
HEART DISEASE and SOME CANCERS**



Rationale Behind General Mills Citizen's Petition on Whole Grain

- ✓ Give consumers a tool to accurately identify whole grain products
- ✓ Translates Dietary Recommendations to grocery aisle
- ✓ Levels based on USDA Food Guide Pyramid Servings and scientific data

USDA Whole Grain serving



16g of Whole Grain flour per grain serving

Scientific Recommendation
3 servings/day for health and disease prevention



16g x 3 servings/d =
48g Whole Grain



WG Content Descriptors for “Good” and “Excellent” Source

Excellent source=16g or more =1 WG serving

Good source= 8g or more = $\frac{1}{2}$ WG serving

Made with/Contains= 8g or more = $\frac{1}{2}$ WG serving



Meets recommended
3 servings of WG



Meets recommended
3 servings of WG



Consumers Look to Labels to Find Whole Grains

- 44% consider “whole grains” extremely important on labels
- 72% find content (good or excellent source) claims extremely or very important on labels

Extremely/Very Important on Labels	2002
Good source of calcium	46%
Whole grain	44%
Low in saturated fat	43%
Cholesterol free	41%
Good source of antioxidants	39%
Low fat	39%
High fiber	39%
Fat free	38%
Low calorie	35%
Lower in sugar	35%
Sugar free	32%
Low sodium	32%
High protein	30%
Low carbohydrate	26%

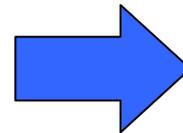


Whole Grains Vary in Fiber Content

Whole grain does not mean high fiber

Type of Grain (100g)	Fiber
Whole wheat	12.2g
Whole oats	10.3g
Whole corn meal	7.3g
Brown rice	1.8g

Source: USDA National Nutrient Database for Standard Reference



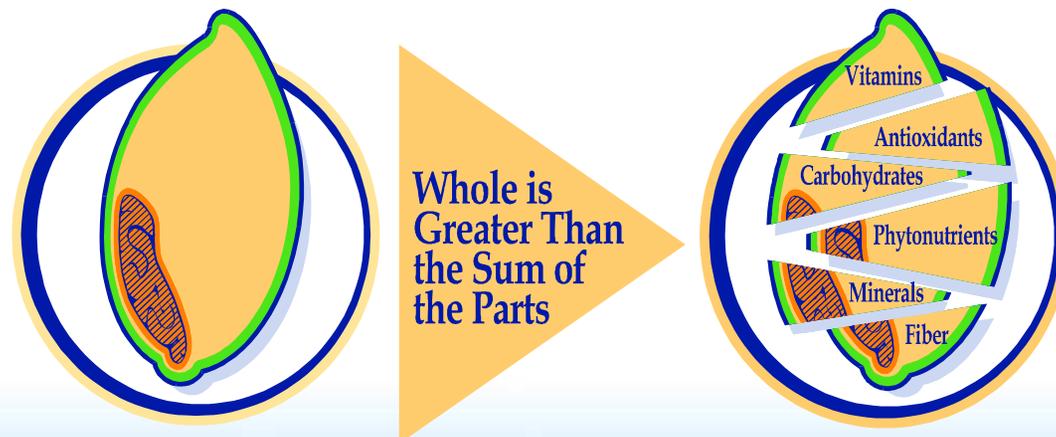
Food*	Serving	Fiber
Brown rice	30g	0.5g
Whole wheat bread	50g	3-4g
Corn Chips	30g	1g
Whole grain cereal	30g 55g	3g 4-5g

* 100% of grain in food is whole grain



Whole Grain is More Than Just Fiber

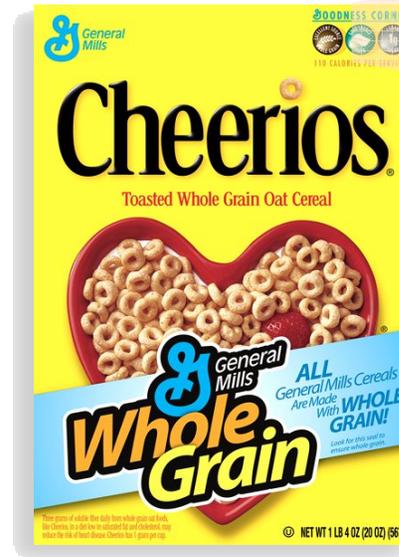
- Fiber containing foods like fruits, vegetables and grains can help reduce the risk of chronic disease
- Fiber is one of many functional components of whole grain
- The health benefits of whole grain remain, even after controlling for the effects of fiber





General Mills is Making Whole Grain a Priority

ALL General Mills Big G cereals are a "Good" or "Excellent" source of Whole Grain





Print, TV, and Internet Ads Ran in January

9 OUT OF 10 LACKING WHOLE GRAIN IN DIET

Are you getting enough whole grain in your diet? Chances are, you're not. Recent studies show nine out of 10 Americans fall short of getting the recommended three servings of whole grain each day.

Whole grain offers a host of health benefits. Research shows that people who consume diets rich in whole grain tend to have a healthier body weight than those who don't. Additionally, as part of a healthy diet, whole grain foods may

reduce the risk of some cancers and heart disease.

There are many convenient sources of whole grain, like ready-to-eat breakfast cereals. General Mills, for example, now makes all its cereals with whole grain, making it easier than ever to find whole grain. When looking for whole grain foods, first check the ingredient list. For example, look for "whole wheat," "whole grain corn," or "brown rice." Start getting more whole grain today!





Print, TV, and Internet Ads Ran in January

Studies show whole grain is good for the heart

Heart disease is the number one killer of American adults, according to the American Heart Association. But experts say there's good news: You can take charge of your heart health by eating more whole grain.

The 2005 Dietary Guidelines Advisory Committee found that consuming at least three servings of whole grains per day can reduce the risk of coronary heart disease. Whole grain contains vitamins, minerals, antioxidants and fiber, as well as hundreds of phytonutrients. These compounds work together to play an important role in helping to reduce the risk of heart





Bringing Whole Grain and Great Taste to Consumers!



Look For This  On All Of Our Brands



Thank you!





WG Studies Which Controlled for the Effects of Dietary Fiber

1. Liu S, Willett WC, Manson JE, Hu FB, Rosner B, Colditz G. Relation between changes in intakes of dietary fiber and grain products and changes in weight and development of obesity among middle-aged women. *Am J Clin Nutr.* 2003 Nov;78(5):920-7.
2. Fung TT, Hu FB, Pereira MA, Liu S, Stampfer MJ, Colditz GA, Willett WC. Whole-grain intake and the risk of type 2 diabetes: a prospective study in men. *Am J Clin Nutr.* 2002 Sep;76(3):535-40.
3. Liu S, Manson JE, Stampfer MJ, Hu FB, Giovannucci E, Colditz GA, Hennekens CH, Willett WC. A prospective study of whole-grain intake and risk of type 2 diabetes mellitus in US women. *Am J Public Health.* 2000 Sep;90(9):1409-15.
4. Liu S, Stampfer MJ, Hu FB, Giovannucci E, Rimm E, Manson JE, Hennekens CH, Willett WC. Whole-grain consumption and risk of coronary heart disease: results from the Nurses' Health Study. *Am J Clin Nutr.* 1999 Sep;70(3):412-9.
5. Good, C, et al. The relationship between whole grain consumption and body mass index in adult men and women: data from the USDA's 1994-96 Continuing Survey of Food Intakes by Individuals, Pyramid Servings Data. *FASEB J.* 2004;18:A114.
6. Kasum CM, Jacobs DR Jr, Nicodemus K, Folsom AR. Dietary risk factors for upper aerodigestive tract cancers. *Int J Cancer.* 2002 May 10;99(2):267-72.
7. Jacobs DR Jr, Meyer KA, Kushi LH, Folsom AR. Whole-grain intake may reduce the risk of ischemic heart disease death in postmenopausal women: the Iowa Women's Health Study. *Am J Clin Nutr.* 1998 Aug;68(2):248-57.



Studies Not Controlling for the Effect of Dietary Fiber

1. Steffen LM, Jacobs DR Jr, Stevens J, Shahar E, Carithers T, Folsom AR. Associations of whole-grain, refined-grain, and fruit and vegetable consumption with risks of all-cause mortality and incident coronary artery disease and ischemic stroke: the Atherosclerosis Risk in Communities (ARIC) Study. *Am J Clin Nutr.* 2003 Sep;78(3):383-90.
2. Jacobs DR Jr, Meyer KA, Kushi LH, Folsom AR. Is whole grain intake associated with reduced total and cause-specific death rates in older women? The Iowa Women's Health Study. *Am J Public Health.* 1999 Mar;89(3):322-9.
3. Liu S, Sesso HD, Manson JE, Willett WC, Buring JE. Is intake of breakfast cereals related to total and cause-specific mortality in men? *Am J Clin Nutr.* 2003 Mar;77(3):594-9.
4. Meyer KA, Kushi LH, Jacobs DR Jr, Slavin J, Sellers TA, Folsom AR. Carbohydrates, dietary fiber, and incident type 2 diabetes in older women. *Am J Clin Nutr.* 2000 Apr;71(4):921-30
5. Chatenoud L, Tavani A, La Vecchia C, Jacobs DR Jr, Negri E, Levi F, Franceschi S. Whole grain food intake and cancer risk. *Int J Cancer.* 1998 Jul 3;77(1):24-8.
6. Jacobs DR Jr, Marquart L, Slavin J, Kushi LH. Whole-grain intake and cancer: an expanded review and meta-analysis. *Nutr Cancer.* 1998;30(2):85-96
7. Liu S, Manson JE, Stampfer MJ, Rexrode KM, Hu FB, Rimm EB, Willett WC. Whole grain consumption and risk of ischemic stroke in women: A prospective study. *JAMA.* 2000 Sep 27;284(12):1534-40.