

Benefits *of* Cereal





TABLE OF CONTENTS

Cereal and breakfast	1
About breakfast	1
Kids and breakfast	1
Breakfast and weight loss	1
Whole grain	2
Cereal and nutrition	4
Cereal promotes milk and nutrient consumption	4
Cheerios and heart health	5
Simplifying nutrition information	5
Cereal, weight and health	6
Cereal eaters have healthier body weights	6
Cereal and calories	7
Calories per serving	7
Cereal and sugar	8
Sources of total sugar	9
Sweetened cereals and weight	9
Lowering sugar	10
References	12

Cereal & breakfast

Cereal is one of the healthiest breakfast choices you can make. Ready-to-eat cereal has fewer calories than almost any other common breakfast option.

Cereal is also nutrient-dense. Ready-to-eat cereals pack in vitamins, minerals and key essential nutrients – without packing on calories.

Cereal eaters consume less fat, less cholesterol and more fiber than noncereal eaters.¹

Today's cereals are more nutritious than ever. Many leading cereals are made with whole grain, calcium and vitamin D, while reducing sugar and limiting calories.

And cereal is affordable, convenient and tastes good.

Eating breakfast is associated with higher nutrient intakes and weight loss maintenance.¹⁻⁵

About breakfast

- Breakfast eaters tend to have better nutrient intakes.¹⁻⁴
- On average, breakfast contributes less than 20 percent of daily calories, while delivering more than 30 percent of needed calcium, iron and B vitamins.⁶
- People who eat breakfast tend to consume less fat, less cholesterol and more fiber over the course of their day.^{3, 7, 8}
- Nutrients missed at breakfast, namely calcium, fiber, and certain vitamins and minerals, are rarely made up for during the day.⁷⁻⁹
- Kids who eat breakfast tend to perform better in school and have fewer disciplinary problems. Breakfast also tends to help kids stay alert.¹⁰⁻¹²

Kids and breakfast

Compared to children who skip breakfast, a study showed that children who ate breakfast:¹⁰

1
Performed better at school

2
Recorded higher test scores

3
Reduced absenteeism and tardiness

Breakfast and weight loss

Dieters who successfully maintained weight loss of 30 pounds or more confirm that **eating breakfast maximizes the likelihood of maintaining weight loss**, according to National Weight Control Registry data.⁵

90% of these participants eat breakfast at least 5 days a week

80% eat cereal and fruit for breakfast

Whole grain

Ninety-five percent of Americans still aren't eating enough whole grain.¹³ But General Mills is working to change that.

In 2005, we converted our entire line of Big G cereals to include at least 8 grams of whole grain per serving (at least 48 grams recommended daily).

This was the single biggest health-driven product improvement in our history.

Today all Big G cereals have at least 9 grams of whole grain per serving, and more than 20 have at least 16 grams.

Beginning in 2012, all Big G cereals will contain more whole grain than any other single ingredient – a continuation

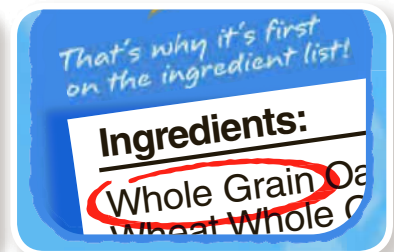
of our efforts to help consumers get whole grain in their diets.

General Mills delivers 38 million whole grain servings per day – a 50 percent increase in whole grain servings since 2004.

Big G cereals are America's No. 1 source of whole grain at breakfast.

All Big G cereals now have more whole grain than any other single ingredient – which means whole grain is the first ingredient listed.

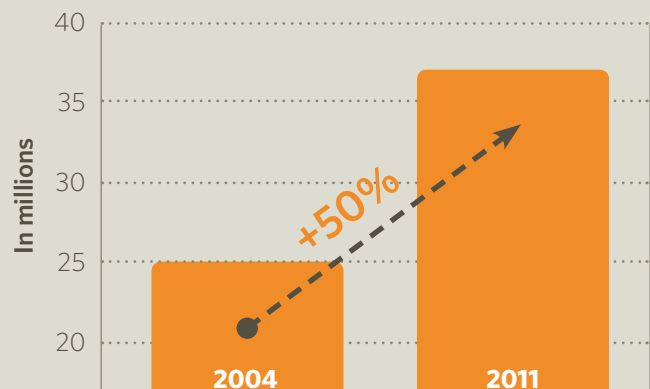
Big G cereals show how many grams of whole grain are in each serving of cereal on the side panel of every box.



*As compared to any single ingredient.

Every General Mills Big G cereal contains at least 9 grams of whole grain per serving, and more than 20 General Mills cereals deliver 16 grams or more (at least 48 grams recommended daily).

Big G cereals are delivering millions of servings of whole grain every day.



Whole grain servings delivered by Big G cereals per day
16 grams of whole grain = 1 serving of whole grain



Extensive research has been done on the health benefits of whole grain. The science shows that eating whole grains as part of a healthy diet may help with:

Heart health

Studies show whole grains may reduce the risk of coronary heart disease.¹⁴

Weight management

People who choose more whole grains have healthier body weights and gain less weight over time.¹⁵⁻¹⁷

Certain cancers

Studies suggest that whole grains may be especially effective in reducing the risk of cancers of the stomach and colon.¹⁸⁻²¹

Diabetes management

Whole grains may help manage healthy blood glucose and insulin levels.²²⁻³⁰

More than half of whole grains are eaten at breakfast.³¹

Why are whole grains so good? They contain **vitamins**, **minerals** and hundreds of other **phytonutrients**.³² They also contain fiber. Each individual nutrient offers important benefits, but together they perform in even more powerful ways than they do individually.³²⁻³³

For these reasons and more, the 2010 Dietary Guidelines for Americans advise that people:

- Eat at least half of all grains as whole grains.¹³
- Choose products that name a whole grain ingredient first on the label.¹³

One recent study found that people who ate several servings of whole grain each day, instead of refined grains, had less “belly fat” – the type of fat linked to higher risk for certain chronic diseases.³⁴

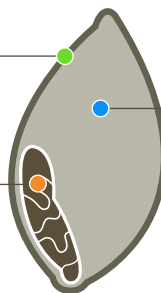
In a 12-year study of more than 70,000 nurses, those who ate more whole grain weighed less than those who ate less whole grain.¹⁵

BRAN

The coarse outer layer of the grain that protects the seed. It contains fiber, B vitamins, phytonutrients and trace minerals.

GERM

The small, nutrient rich core of the grain kernel. It contains antioxidants, vitamin E, B vitamins and healthy fats.



ENDOSPERM

The middle layer that contains carbohydrates and proteins. This is the source of energy for the growing plant.



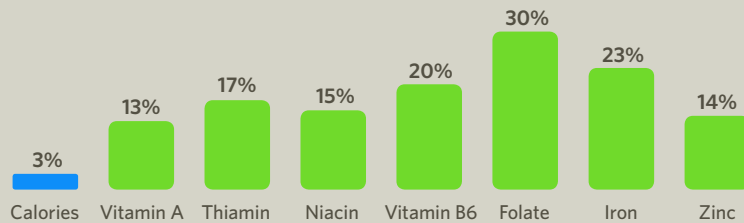
Ready-to-eat cereal is the leading whole grain source for Americans, including children.³⁵⁻³⁷

Cereal & nutrition

Many fortified cereals provide more iron, folic acid, zinc, B vitamins and fiber than conventional noncereal breakfast choices. Many fortified cereals also add vitamin A, thiamin, niacin, calcium, phosphorous, magnesium and/or potassium. When combined with fortified milk, the levels of healthful micronutrients and macronutrients in cereals provide for a nutrient-dense breakfast.

Cereal provides key nutrients for children⁶

Percent of selected nutrients provided by ready-to-eat cereal, children aged 4-12



Cereal promotes milk and nutrient consumption

Eating cereal also has the added benefit of promoting milk consumption in children. Forty-one percent of the milk consumed by 6- to 12-year-olds is consumed with cereal.⁷ The figure is even higher for African-American and Hispanic children.⁶

About half of the milk in African-American and Hispanic kids' diets is consumed with cereal.⁶

Milk contains nutrients like calcium and vitamin D that are critical for developing

strong, healthy bones. Research estimates that only one in 10 American kids gets enough vitamin D, and about six out of 10 kids don't get the recommended amounts of calcium.^{6, 38}

New studies also show that vitamin D may reduce the risk of a number of chronic diseases, including cardiovascular disease and diabetes.³⁹

Vitamin D occurs naturally in many foods such as salmon, beef liver and

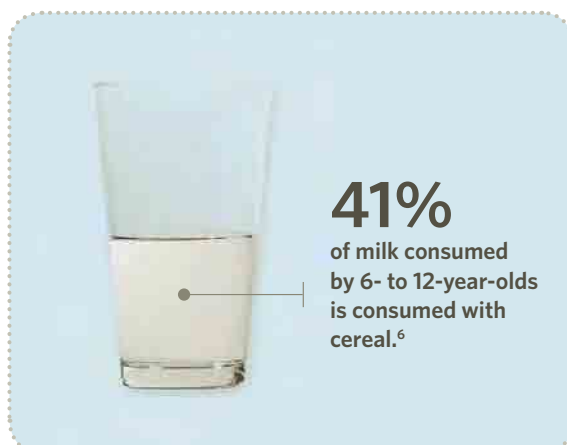
eggs. But it can be difficult to get enough of these foods, especially for kids.

That's where fortified foods can help. General Mills fortifies its entire line of kid cereals with calcium and vitamin D.

For children aged 4 to 12, ready-to-eat cereal with milk delivers 11 percent of their calcium and 24 percent of their vitamin D intakes each day⁶.

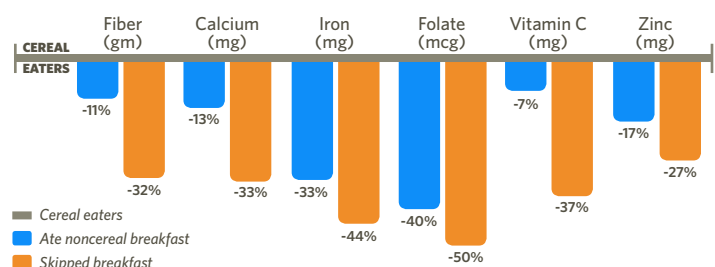
In addition, new research shows that ready-to-eat

cereal is an especially important source of nutrients for children who do not have enough food to eat. For these children, ready-to-eat cereal helps provide iron, B vitamins and milk.⁴⁰



Nutrient gap

People whose breakfast includes ready-to-eat cereal take in more nutrients daily than noncereal breakfast eaters or people who skip breakfast.⁶ This graph shows how many fewer nutrients noncereal breakfast eaters and breakfast skippers get compared to people who eat cereal.



Cheerios & heart health

High blood cholesterol is a major risk factor for coronary heart disease. Cheerios can help.

Cheerios is the only leading ready-to-eat cereal clinically proven to help lower “bad” cholesterol (LDL) when eaten as part of a diet low in saturated fat and cholesterol.

In 1997, the U.S. Food and Drug Administration (FDA) approved a health claim linking the soluble fiber from oats – like that found in Cheerios – to a reduced risk of coronary heart disease.⁴¹

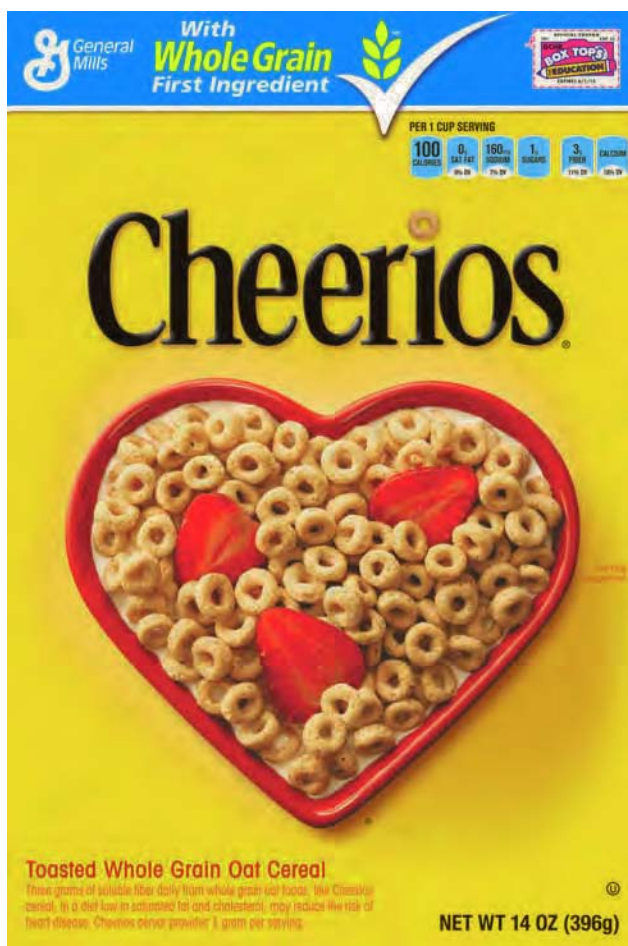
In 1998, a peer-reviewed clinical study showed that eating three cups of

Cheerios daily as part of a diet low in saturated fat and cholesterol can help reduce bad cholesterol levels.⁴²

Whole grain oats are a major ingredient in Cheerios. Cheerios has 1 gram of soluble fiber from oats per serving. And eating 3 grams of soluble fiber daily from

whole grain oat foods – like Cheerios – along with a diet that’s low in saturated fat and cholesterol, may reduce the risk of heart disease.

Simplifying nutrition information



PER 1 CUP SERVING

100
CALORIES

0g
SAT FAT
0% DV

160mg
SODIUM
7% DV

1g
SUGARS

3g
FIBER
11% DV

CALCIUM
10% DV

Nutrition Keys

The **Nutrition Keys** icons, also known as “Facts Up Front,” on each Big G cereal box help consumers quickly view the per serving information about calories, sugar, sodium and saturated fat – as well as key nutrients from the Nutrition Facts panel.

Nutrition Facts

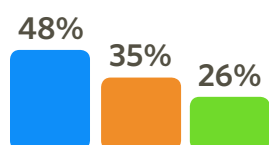
The **Nutrition Facts** panel provides a detailed nutrition breakdown of the cereal inside. It provides another way to see and compare how a particular food might fit into one’s diet.

Nutrition Facts			
Serving Size 1 cup (28g)			
Children Under 4 - ¾ cup (21g)			
Serving Per Container about 14			
Children under 4 - about 19			
Amount Per Serving	Cheerios	with ½ cup skim milk	Cereal for Children under 4
Calories	100	140	80
Calories from Fat	15	15	10
% Daily Value**			
Total Fat 2g*	3%	3%	1.5g
Saturated Fat 0g	0%	0%	0g

100
CALORIES



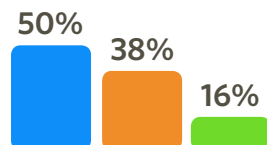
Cereal eaters have healthier body weights^{43, 44}



Percent overweight
AGES 4-6

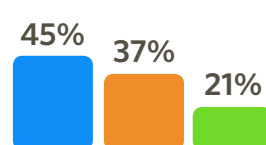
Data published in the Journal of the American Dietetic Association found that:⁴³

- Frequent cereal eaters tend to have healthier body weights overall – including kids.



Percent overweight
AGES 7-9

- Kids who eat four to seven servings of cereal over a 14-day period are less likely to be overweight than kids who eat fewer than four servings of cereal.



Percent overweight
AGES 10-12

- Kids who eat cereal more frequently, or more than seven times in 14 days, are even less likely to be overweight than kids who eat cereal less frequently. This is true for all age groups studied.

Cereal servings

- Fewer than 4 servings in 14 days
- 4 to 7 servings in 14 days
- More than 7 servings in 14 days

Cereal, weight & health

People who eat cereal regularly tend to have healthier body weights, lower cholesterol and higher nutrient intakes

Studies show that cereal consumption is correlated with health benefits for men, women, kids and people of various ethnicities.

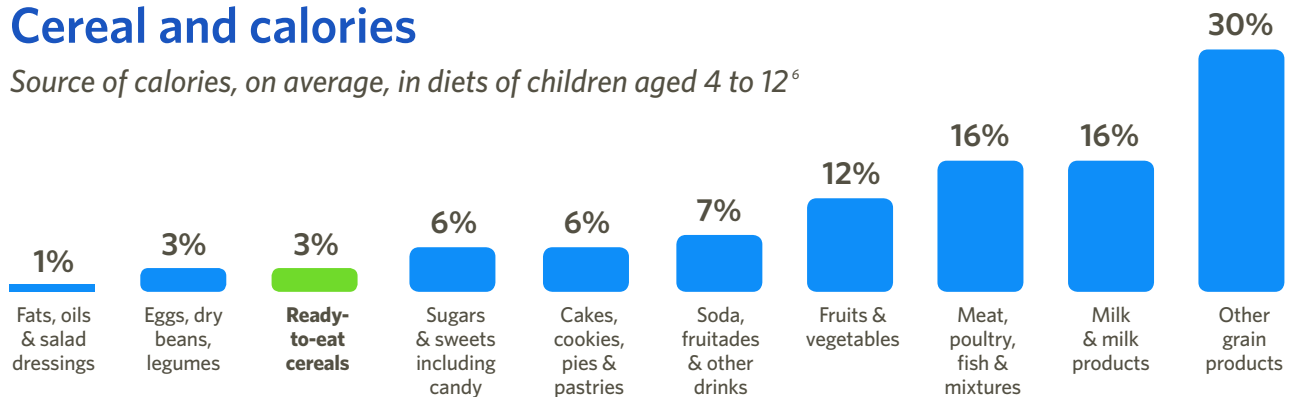
- Children and adolescents who eat a ready-to-eat breakfast have a lower Body Mass Index (BMI) and waist circumference than those who don't eat cereal at breakfast or who skip breakfast.^{1,3,43,45,46}
- People who eat cereal may benefit from positive health benefits related to satiety, body weight and the risk for chronic disease.^{1,3,7,45,47-50}
- People who eat cereal have lower levels of both total blood cholesterol and "bad" cholesterol (LDL) than people who eat cereal less often or not at all.⁴⁷
- Cereal eaten with low-fat fortified milk at breakfast promotes increased intake of calcium, which is associated with healthier body weights.⁵¹
- Eating cereal regularly may protect against cardiovascular disease risk.^{32,45,52}
- Adolescents who eat a healthy breakfast also tend to exercise daily. There's an association between people who eat cereal for breakfast and people who get higher levels of physical activity.⁴⁵
- Girls who eat cereal are less likely to become overweight as young adults than noncereal eaters.³
- Frequent cereal eaters tend to have healthier body weights.^{43,44}

A serving of cereal with milk costs about 50 cents on average.



Cereal and calories

Source of calories, on average, in diets of children aged 4 to 12⁶



General Mills has more than 30 nutritious cereals with 130 calories or less per serving.

Calories per serving (standard serving sizes for example products)⁵³

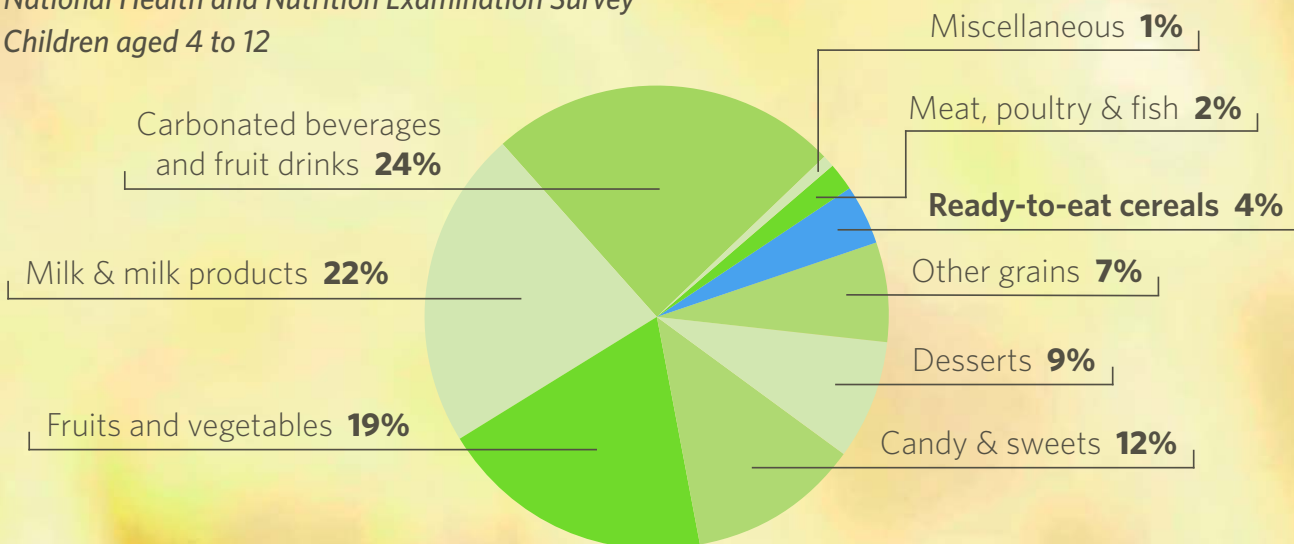


Ready-to-eat cereals account for about 3 percent of total caloric intake, while delivering much higher proportions of a number of important nutrients.⁶

Sources of total sugar⁶

National Health and Nutrition Examination Survey

Children aged 4 to 12



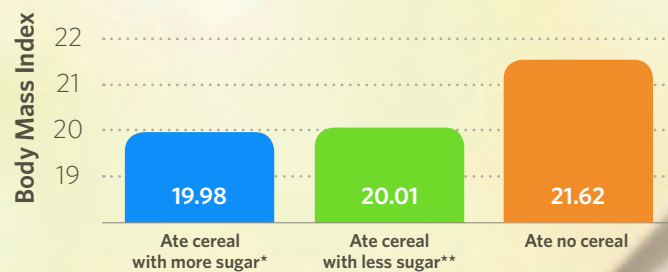
Sweetened cereals and weight

Recent studies of children show that **regardless of sweetness level, cereal eaters have healthier body weights than those who don't eat cereal.**

And they also have significantly higher intakes of fiber, whole grain, folate, calcium, iron, zinc and several other nutrients.^{54, 55}

Children who eat ready-to-eat cereal - regardless of sweetness level - have a lower Body Mass Index⁵⁴

Children aged 6 to 18



* Cereal with more than 33 grams of sugar per 100 grams

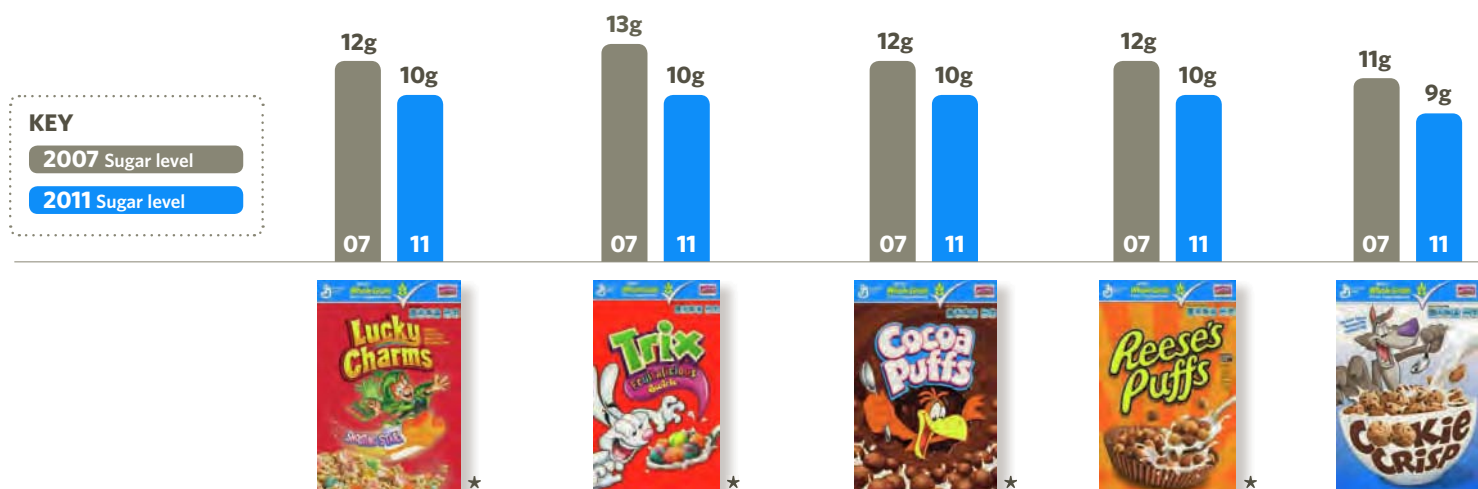
** Cereal with 33 grams or less of sugar per 100 grams

Lowering sugar

We listen to our consumers, and we've been working for years to lower sugar levels in our cereals advertised to children under age 12*.

- Since 2007, we've lowered sugar levels in our Big G kid cereals by more than 14 percent, on average.
- In 2009, we strengthened our commitment by pledging to reduce all of our cereals advertised to children under 12 to single-digit grams of sugar per serving.
- Today, all of our Big G kid cereals are at 10 grams of sugar or less per serving. And we've reduced sugar in many of our other cereals as well.

Progress on reducing sugar



Cereals at single-digit sugar levels



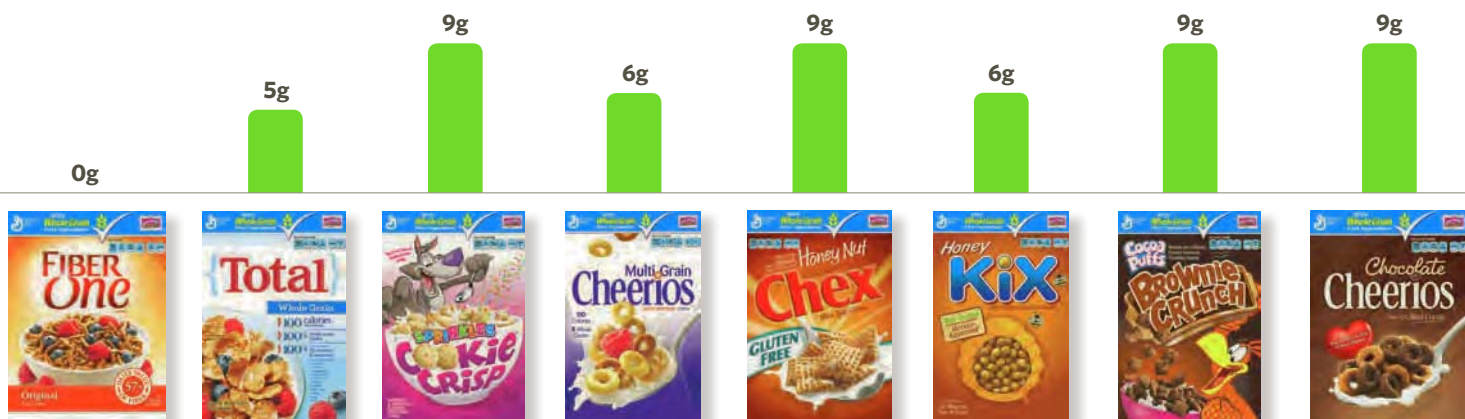
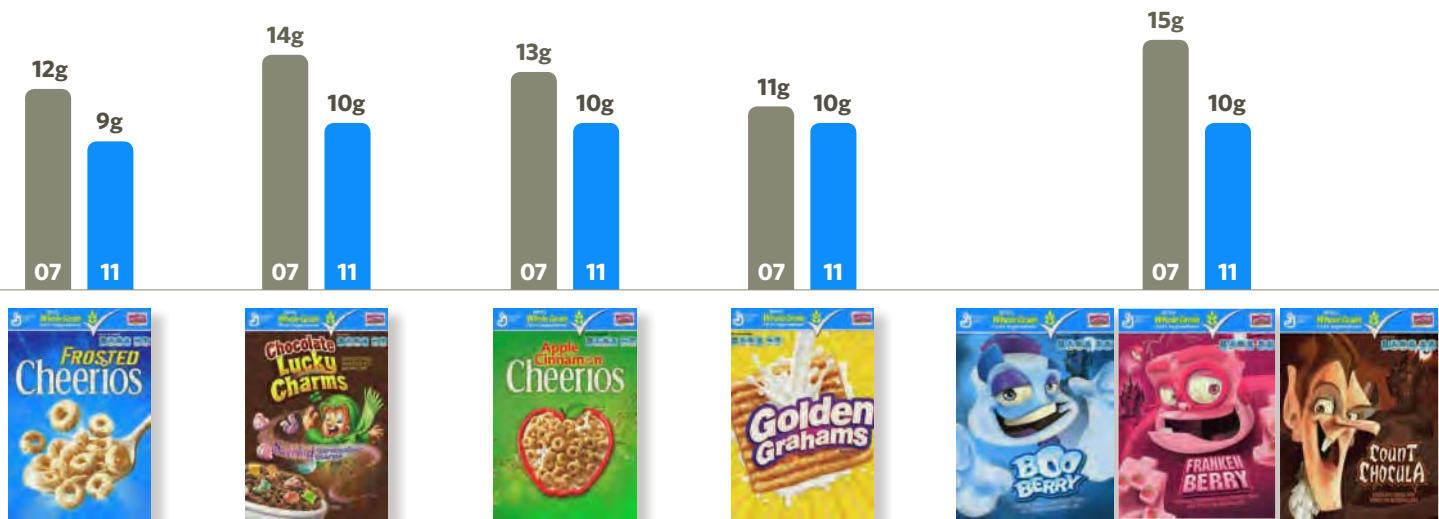
Additional cereals at single-digit grams include:

Wheat Chex (5g), Fiber One Honey Clusters (6g), Dora the Explorer (6g), Chocolate Chex (8g), Cinnamon Chex (8g), Cinnamon Crunch Total (9g), Yogurt Burst Cheerios – Strawberry (9g).

General Mills strives to be the health leader in every food category in which we compete – and we’re committed to continuing to lead the cereal category.

Our research teams are working hard to trim sugar in our cereals while maintaining great taste.

All Big G cereals advertised to kids under age 12 now have 10 grams of sugar or less per serving.



★ Cereals advertised to children: Cinnamon Toast Crunch, Cocoa Puffs, Frosted Toast Crunch, Honey Nut Cheerios, Lucky Charms, Reese’s Puffs, Trix.

References

- 1 Cho S et al. The effect of breakfast type on total daily energy intake and body mass index: Results from the Third National Health and Nutrition Examination Survey (NHANES). *J Am Coll Nutr* 2003;22(4):296-302.
- 2 Timlin et al. Breakfast frequency and quality in the etiology of adult obesity and chronic diseases. *Nutr Rev* 2007;65:268-281.
- 3 Barton BA et al. The relationship of breakfast and cereal consumption to nutrient intake and body mass index: The National Heart, Lung and Blood Institute Growth and Health Study. *J Am Diet Assoc* 2005;105:1383-1389.
- 4 Song WO et al. Is consumption of breakfast associated with Body Mass Index in U.S. adults? *J Am Diet Assoc* 2005;105:1373-1382.
- 5 Wyatt H et al. Long-term weight loss and breakfast in subjects in the national weight control registry. *Obes Res* 2002;10:78-82.
- 6 Centers for Disease Control and Prevention (CDC). National Center for Health Statistics (NCHS). National Health and Nutrition Examination Survey Data. Hyattsville, MD: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, [2007-08][<http://cdc.gov/nchs/nhanes>].
- 7 Rampersaud et al. Breakfast Habits, Nutritional status, body weight and academic performance in children and adolescents. *J Am Diet Assoc* 2005;105:743-760.
- 8 Nicklas TA et al. Nutrient contribution of breakfast, secular trends, and the role of ready-to-eat cereals: A review of data from the Bogalusa Heart Study. *Am J Clin Nutr* 1998;67:757S-63S.
- 9 Morgan KJ et al. The role of breakfast in diet adequacy of U.S. adult population. *J Am Coll Nutr* 1986;5:551-563.
- 10 Murphy JM et al. The Relationship of School Breakfast to Psychosocial and Academic Functioning: Cross-sectional and Longitudinal Observations in an inner-city School Sample. *Arch Pediatr Adolesc Med* 1998;152:899-907.
- 11 Wahlstrom KL and Begalle MS. More than test scores: Results of the universal school breakfast pilot in Minnesota. *Top Clin Nutr* 1999;1(1):17-29.
- 12 Wesnes KA et al. Breakfast reduces declines in attention and memory over the morning in schoolchildren. *Appetite* 2003;41:329-331.
- 13 U.S. Department of Health and Human Services and U.S. Department of Agriculture Dietary Guidelines for Americans, 2010. 7th edition, Washington DC: U.S. Government Printing Office.
- 14 Committee on Diet and Health, National Academy of Sciences, Diet and Health: Implication for Reducing Chronic Disease Risk (1989).
- 15 Liu S et al. 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;78:920-927.
- 16 Koh-Banerjee P et al. Changes in whole-grain, bran, and cereal fiber consumption in relation to 8-yr weight gain among men. *Am J Clin Nutr* 2004;80(5):1237-45.
- 17 Good C K et al. Whole Grain Consumption and Body Mass Index in Adult Women: An Analysis of NHANES 1999-2000 and the USDA Pyramid Servings Database. *J Am Coll Nutr* 2008;27:80-87.
- 18 Jacobs DR Jr et al. Whole-grain intake and cancer: an expanded review and meta-analysis. *Nutr Cancer* 1998;30(2):85-96.
- 19 Haas P, et al. Effectiveness of whole grain consumption in the prevention of colorectal cancer: Meta-analysis of cohort studies. *Intl J Fd Sci Nutr* 2009; Mar 21:1-13. [Epub ahead of print].
- 20 Slattery ML et al. Plant foods, fiber, and rectal cancer. *Am J Clin Nutr* 2004;79:274-281.
- 21 Chatenoud L et al. Whole grain food intake and cancer risk. *Int J Cancer* 1998;77(1):24-28.
- 22 Sahyoun NR et al. Whole-grain intake is inversely associated with the metabolic syndrome and mortality in older adults. *Am J Clin Nutr* 2006;83(1):124-31.
- 23 Esmailzadeh A et al. Whole-grain intake and the prevalence of hypertriglyceridemic waist phenotype in Tehranian adults. *Am J Clin Nutr* 2005;81(1):55-63.
- 24 Esmailzadeh A et al. Whole-grain consumption and the metabolic syndrome: a favorable association in Tehranian adults. *Eur J Clin Nutr* 2005;59(3):353-62.
- 25 McKeown NM et al. Whole grain intake and insulin sensitivity: evidence from observational studies. *Nutr Rev* 2004;62(7 Pt 1):286-91.
- 26 McKeown NM et al. Carbohydrate nutrition, insulin resistance, and the prevalence of the metabolic syndrome in the Framingham Offspring Cohort. *Diabetes Care* 2004;27(2):538-46.
- 27 Montonen J et al. Whole-grain and fiber intake and the incidence of type 2 diabetes. *Am J Clin Nutr* 2003;77(3):622-9.
- 28 deMunter JS et al. Whole grain, bran, and germ intake and risk of type 2 diabetes: a prospective cohort study and systematic review. *PLOS Med* 2007;4(8):e261.
- 29 Meyer KA et al. Carbohydrates, dietary fiber, and incident type 2 diabetes in older women. *Am J Clin Nutr* 2000;71(4):921-30.
- 30 Qi L et al. Whole-grain, bran, and cereal fiber intakes and markers of systemic inflammation in diabetic women. *Diabetes Care* 2006;29(2):207-11.
- 31 NDP Group, Whole Grains by Eating Occasion, 2006-2011; May 2011.
- 32 Lai RH et al. Whole grain phytochemicals and health. *J Cereal Sci* 2007;46:207-219.
- 33 Mellen PB et al. Whole grain intake and cardiovascular disease: a meta-analysis. *Nutr Metab & Cardiovascular Dis* 2008;18:283-290.
- 34 McKeown, NM et al. Whole- and refined-grain intakes are differentially associated with abdominal visceral and subcutaneous adiposity in healthy adults: the Framingham Heart Study. *Am J Clin Nutr* 2010;92 1165-1171.
- 35 Cleveland L et al. Dietary intake of whole grains. *J Am Coll Nutr* 2000;19(3):331S-338S.
- 36 Harnack L et al. Dietary intake and food sources of whole grains among US children and adolescents: Data from the 1994-1996 Continuing Survey of Food Intakes by Individuals. *J Am Diet Assoc* 2003;103:1015-1019.
- 37 Bachman JL et al. Sources of Food Group Intakes among the US Population, 2001-2002. *J Am Diet Assoc* 2008;108:804-814.
- 38 Kumar J et al. Prevalence and Associations of 25-Hydroxyvitamin D Deficiency in US Children: NHANES 2001-2004. *Pediatrics* 2009;124:e362-e370.
- 39 Misra M et al. Vitamin D deficiency in children and its management: review of current knowledge and recommendations. *Pediatrics* 2008;122:398-417.
- 40 Tuttle, C., Thompson D., Franko, D. and Albertson, A., (2010) Cereal intake is associated with an improved nutrient intake profile among food insecure children in the United States: Results from NHANES 2003-08. *FASEB J*. 25, 769.19.
- 41 Federal Register - 73 FR 23947 May 1, 2008: Food Labeling: Health Claims; Soluble Fiber from Certain Foods and Risk of Coronary Heart Disease; Final Rule. Federal Register: May 1, 2008; Volume 73, Number 85; Rules and Regulations; page 23947-23953; From the Federal Register Online via GPO Access [<http://www.access.gpo.gov>] [DOCID:fr01my08-5] <http://www.fda.gov/Food/Labeling/Nutrition/LabelClaims/HealthClaimsMeetingSignificantScientificAgreementSSA/ucm074284.htm>.
- 42 Johnston L et al. Cholesterol-Lowering Benefits of a Whole Grain Oat Ready-to-Eat Cereal. *Nutrition in Clinical Care* 1998;1(1):6-12.
- 43 Albertson AM et al. Ready-to-eat cereal consumption: Its relationship with BMI and nutrient intake of children aged 4 to 12 years. *J Am Diet Assoc* 2003;103:1613-1619.
- 44 Bertrais B et al. Contribution of ready-to-eat cereals to nutrition intakes in French adults and relations with corpulence. *Ann Nutr Metab* 2000;44:249-255.
- 45 Albertson AM et al. Prospective Associations among Cereal Intake in Childhood and Adiposity, Lipid Levels, and Physical Activity during Late Adolescence. *J Am Diet Assoc* 2009;109(10):1775-80.
- 46 Deshmukh-Taskar, PR, et al The Relationship of Breakfast Skipping and Type of Breakfast Consumption with Nutrient Intake and Weight Status in Children and Adolescents. *J Am Diet Assoc*, 2010; 110(6): 869-78.
- 47 Kosti RI et al. The association between consumption of breakfast cereals and BMI in schoolchildren aged 12-17 years: The VYRONAS study. *Public Health Nutrition* 2007;20:1-7.
- 48 Albertson AM et al. The relationship of ready-to-eat cereal consumption to nutrient intake, blood lipids, and body mass index of children as they age through adolescence. *J Am Diet Assoc* 2009;109(9):1557-65.
- 49 Levine AS et al. Effect of breakfast cereals on short-term food intake. *Am J Clin Nutr* 1989;50:1303-7.
- 50 Holt SHA et al.. The effects of high-carbohydrate vs. high-fat breakfasts on feelings of fullness and alertness and subsequent food intake. *Inter J Food Sci Nutr* 1999;50:13-28.
- 51 Albertson AM, Thompson D, et al. Consumption of breakfast cereal is associated with positive health outcomes: evidence from the National Heart, Lung, and Blood Institute Growth and Health Study. *Nutr Research* 2008;28:744-752.
- 52 Franko DL, Albertson AM, et al. Cereal consumption and indicators of cardiovascular risk in adolescent girls. *Public Health Nutr* 2010 Jul 19: 1-7
- 53 U.S. Department of Agriculture. Agricultural Research Service. 2011. USDA National Nutrient Database for Standard Reference. Release 24. <http://www.ars.usda.gov/ba/bhnc.ndl>.
- 54 Albertson AM et al. The Relationship between Ready-to-Eat Cereal Consumption Categorized by Sugar Content and Body Measures in American Children: Results from NHANES 2001-06 *Nutr Research* 2001;31:229-236.
- 55 O'Neil CE et al. Presweetened and Nonpresweetened Ready-to-Eat Cereals at Breakfast Are Associated With Improved Nutrient Intake but Not With Increased Body Weight of Children and Adolescents: NHANES 1999-2002. *Am J of Lifestyle Med* 2011;1-12.





General Mills
Number One General Mills Boulevard
Minneapolis, MN 55426-1347



Printed on recycled paper using soy inks.
Contains 10 percent post-consumer waste.

©2011 General Mills. Published December 2011

