



SUGAR IN CHILDREN'S CEREALS: POPULAR BRANDS PACK MORE SUGAR THAN SNACK CAKES AND COOKIES

by Paul Pestano, M.S., EWG Research Analyst, Etan Yeshua, J.D.,
Stabile Law Fellow, and Jane Houlihan, M.S.C.E., EWG Senior
Vice President for Research

Most parents say no to dessert for
breakfast, but many children's cereals have
just as much sugar as a dessert — or more.



**ENVIRONMENTAL
WORKING
GROUP**

Acknowledgements

For reviewing the findings of this study, we thank Andrew Weil, MD, founder and director of the integrative medicine program at the University of Arizona College of Medicine and Professor of Medicine and Public Health; as well as Margo Wootan, D.Sc., Director, Nutrition Policy, and Bethany Pokress, M.S., Nutrition Policy Associate, both of the Center for Science in the Public Interest. Contributors to the study included EWG's Sonya Lunder, M.P.H., Senior Scientist; Dawn Undurraga, R.D., Nutritionist; and David Andrews, Ph.D., Senior Scientist. The report was designed by Aman Anderson, and the accompanying website was designed by Taylan "Ty" Yalniz, EWG Web Designers. Special thanks to EWG's Elaine Shannon, Editor-in-Chief and Publisher, and Nils Bruzelius, Executive Editor and Vice President of Publications. Lastly, thanks also go to Katie Ellsworth for the photographs of children's cereals, snack cakes and desserts.

EWG's [Sugar in Children's Cereal](#) report was made possible through the generosity of many private charitable foundations and EWG's community of online supporters and individual donors (<http://www.ewg.org/about/funding>).

The opinions expressed in this report are those of EWG and do not necessarily reflect the views of reviewers and supporters listed above. EWG is responsible for any errors of fact or interpretation contained in this report.

Copyright © December 2011 by Environmental Working Group. All rights reserved.



ENVIRONMENTAL WORKING GROUP

| www.ewg.org

EWG is a nonprofit research and advocacy organization with offices in Washington, DC; Oakland, Calif.; and Ames, Iowa. EWG uses the power of information to educate the public and decision-makers about a wide range of environmental issues, especially those affecting public health.

Table of Contents

Summary – Sugar in children’s cereals4

EWG’s Healthy Breakfast Tips5

Section 1 – Study findings9

Section 2 – The politics of nutrition and children’s food13

Section 3 – The science of sugary breakfasts15

Section 4 – Study methodology16

Table – 84 children’s cereals assessed against government and industry nutrition guidelines19

References22

Summary – Sugar in Children’s Cereals

Parents have good reason to worry about the sugar content of children’s breakfast cereals, according to an Environmental Working Group review of 84 popular brands.

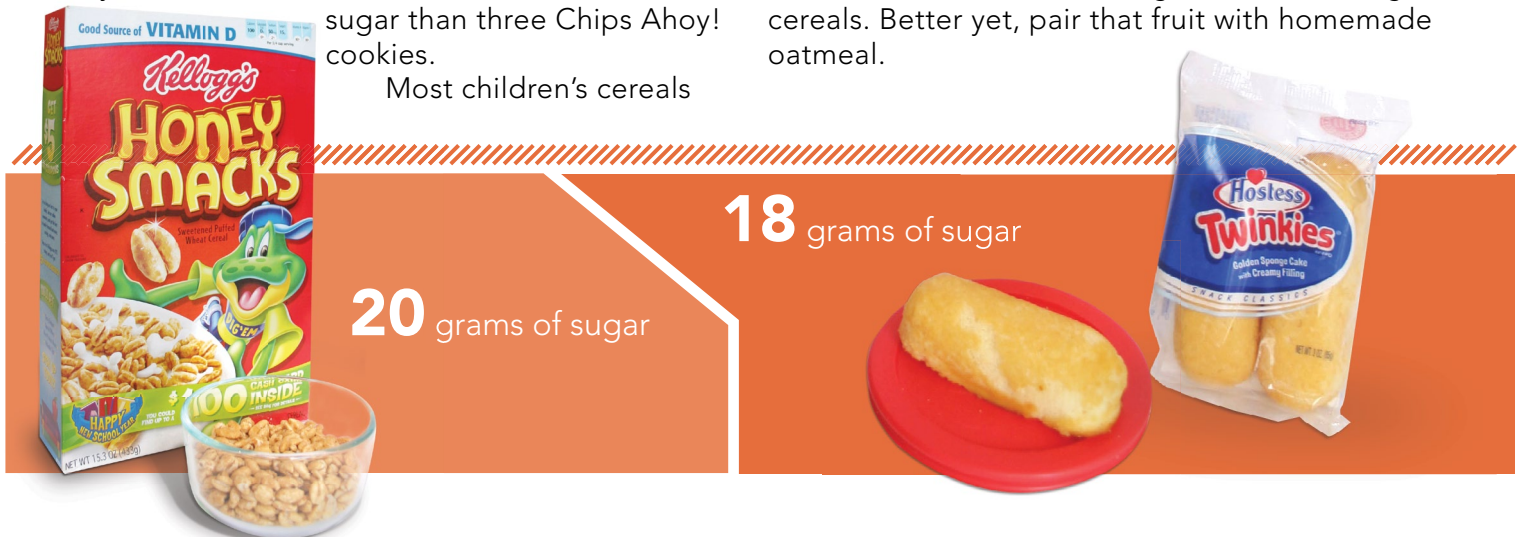
Kellogg’s Honey Smacks, at nearly 56 percent sugar by weight, leads the list of high-sugar cereals, according to EWG’s analysis.

A one-cup serving of Honey Smacks packs more sugar than a Hostess Twinkie, and one cup of any of 44 other children’s cereals has more sugar than three Chips Ahoy! cookies.

Most children’s cereals

fail to meet the federal government’s proposed voluntary guidelines for foods nutritious enough to be marketed to children. Sugar is the top problem, but many also contain too much sodium or fat or not enough whole grain.

The bottom line: Most parents say no to dessert for breakfast, but many children’s cereals have just as much sugar as a dessert – or more. Simple-to-prepare, healthy breakfasts for children can include fresh fruit and high-fiber, lower-sugar cereals. Better yet, pair that fruit with homemade oatmeal.



More sugar than a Twinkie

One cup of any of three popular children’s cereals contains more sugar than a Twinkie: Kellogg’s Honey Smacks, Post Golden Crisp, and General Mills Wheaties Fuel.



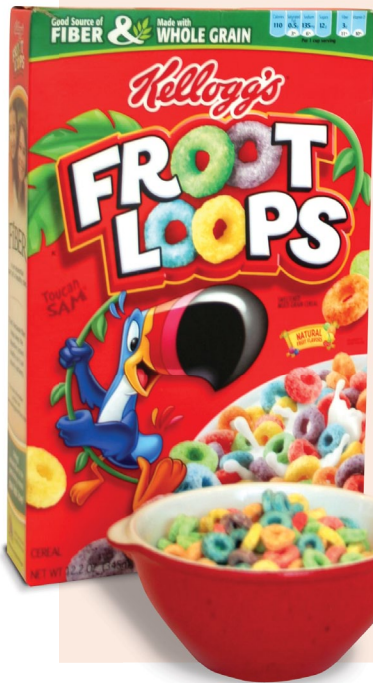
More sugar than Chips Ahoy!

One cup of any of 44 children’s cereals – including Honey Nut Cheerios, Apple Jacks, and Cap’n Crunch – contains more sugar than 3 Chips Ahoy! cookies.

Source: EWG analysis of product nutrition labels.

EWG's Healthy Breakfast Tips

1 Avoid cereals that don't meet nutrition guidelines



10 Worst Children's Cereals

Based on percent sugar by weight

	Percent sugar by weight
1 Kellogg's Honey Smacks	55.6%
2 Post Golden Crisp	51.9%
3 Kellogg's Froot Loops Marshmallow	48.3%
4 Quaker Oats Cap'n Crunch's OOPS! All Berries	46.9%
5 Quaker Oats Cap'n Crunch Original	44.4%
6 Quaker Oats Oh!s	44.4%
7 Kellogg's Smorz	43.3%
8 Kellogg's Apple Jacks	42.9%
9 Quaker Oats Cap'n Crunch's Crunch Berries	42.3%
10 Kellogg's Froot Loops Original	41.4%

See page 19 for a full list of cereals that do not meet the proposed federal guidelines.

Source: EWG analysis of nutrition labels for 84 children's cereals.

2 Choose healthy cereals

Cereals: Best and Good

All cereals on this list pass proposed federal guidelines* on sugar, sodium, fat and whole-grain content. They are free of artificial flavors, colors and artificial sweeteners such as aspartame and sucralose.

Best Cereals

These cereals are also free of pesticides and genetically modified ingredients:

- Ambrosial Granola: Athenian Harvest Muesli
- Go Raw: Live Granola, Live Chocolate Granola, and Simple Granola
- Grandy Oats: Mainely Maple Granola, Cashew Raisin Granola, and Swiss Style Muesli
- Kaia Foods: Buckwheat Granola Dates & Spices and Buckwheat Granola Raisin Cinnamon
- Laughing Giraffe: Cranberry Orange Granola
- Lydia's Organics: Apricot Sun, Berry Good, Grainless Apple, Sprouted Cinnamon, and Vanilla Crunch.
- Nature's Path Organic: Optimum Banana Almond, Optimum Cranberry Ginger, Corn Puffs, Kamut Puffs, Millet Puffs, and Rice Puffs.

EWG's Healthy Breakfast Tips *continued*

6 Good Big-Brand Children's Cereals

These meet nutrition guidelines* and are easy to find but may include ingredients that are genetically modified or grown with pesticides:

- Kellogg's Mini-Wheats: Unfrosted Bite-Size, Frosted Big Bite, Frosted Bite-Size, Frosted Little Bite
- General Mills Cheerios Original**
- General Mills Kix Original**

Other Alternatives

While not considered children's cereals, these cereals meet the federal government's nutrition guidelines* and are good options for the breakfast table. They may contain genetically modified grains and ingredients grown with pesticides.

- Post Shredded Wheat (all varieties)
- Post Grape-Nuts Flakes**
- Quaker Oats Oatmeal Squares Cinnamon**
- Post Bran Flakes**
- Post Honey Bunches of Oats with Vanilla Bunches**

Source: EWG analysis of nutrition labels for 84 children's cereals.

* The federal Interagency Working Group proposed voluntary guidelines for sugar, sodium, saturated fat and whole grain content (IWG 2011).

** These meet the Interagency Working Group's interim 2016 sodium guideline but not the final guideline scheduled to take effect in 2021 (IWG 2011).

3 Look for three things on cereal labels

Some cereals are better than others. When selecting cereals, nutrition expert Marion Nestle recommends parents look for:

- Cereals with a short ingredient list (added vitamins and minerals are okay).
- Cereals high in fiber.
- Cereals with few or no added sugars, including honey, molasses, fruit juice concentrate, brown sugar, corn sweetener, sucrose, lactose, glucose, high-fructose corn syrup and malt syrup (USDA 2006a).

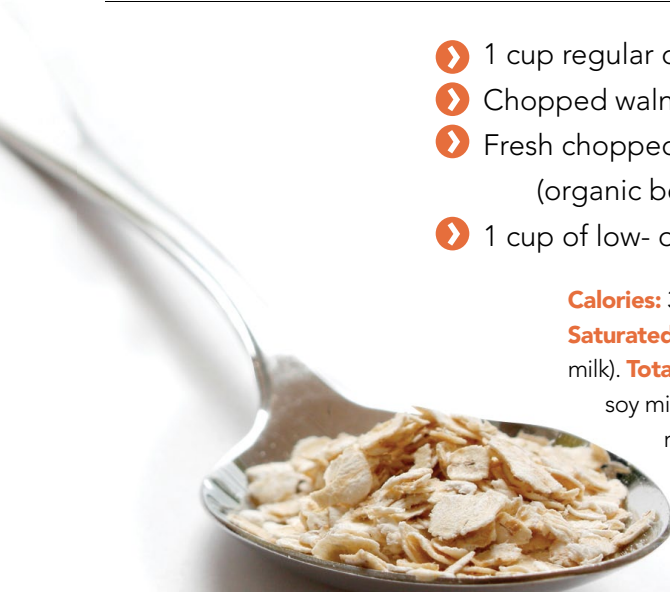
Cereals that meet these criteria can usually be found on the top shelves of the cereal aisle. They are harder to reach and not at eye level but often less expensive (Nestle 2006).



4 Make a good breakfast at home*

EWG recommends other quick, delicious and nutritious ways to start your child's day right, including:


Recipe 1 Hot oatmeal (not instant, cooked without salt)

- 
- 1 cup regular oatmeal
 - Chopped walnuts (about 7)
 - Fresh chopped fruit
(organic berries or half an apple, depending on the season, are perfect)
 - 1 cup of low- or non-fat milk or dairy-free calcium-fortified milk

Calories: 376 (24 percent of daily requirement). **Protein:** 17 g (grams)
Saturated Fat: 2.8 g. **Fiber:** 6 g. **Sugar:** 0 g of added sugar; 22 g of total sugar (fruit and milk). **Total sugar content will vary depending on the type of milk used** (unsweetened soy milk = 1 g, 1 percent low fat milk = 12 g). **Calcium:** 332 mg (26 percent of daily requirement). **Sodium:** 386 mg.

Time-saving tips: Make oatmeal in advance, refrigerate and heat it up in the morning. Or prepare oatmeal in the microwave -- mix ½ cup old-fashioned oats, ½ cup milk ½ cup water; microwave for 2-3 minutes on high; let cool; add fresh chopped fruit and nuts.

Recipe 2 Smoothie with a twist

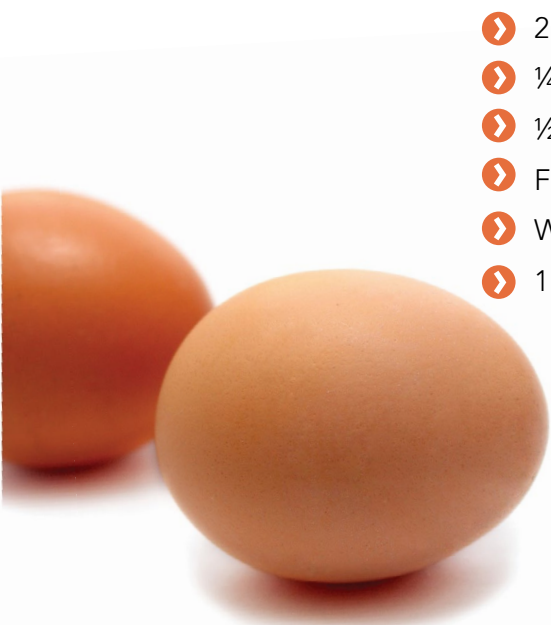
- 
- 1 medium banana
 - 1/2 cup frozen berries
 - 1/4 cup old-fashioned rolled oats (adds nutrients and fiber and keeps your child fuller longer)
 - 1 cup unsweetened soy milk

- Celery with unsalted nut or seed butter (peanut, almond, sunflower or tahini)
Give celery a try for breakfast. Time-saving tip: Ask children to fill their own celery while you make dinner the night before. Kids often enjoy helping out in the kitchen and are more likely to eat something they made themselves.

Calories: 380 (21 percent of daily requirement). **Protein:** 16 g. **Saturated Fat:** 3.6 g.
Fiber: 8 g. **Sugar:** 1 g of added sugar; 18 g of total sugar (fruit). **Calcium:** 333 mg (25 percent of daily requirement). **Sodium:** 196 mg.

EWG's Healthy Breakfast Tips *continued*

Recipe 3 Scrambled egg and veggies wrap



- 2 medium eggs, scrambled
- ¼ cup chopped fresh tomatoes
- ½ cup chopped spinach or chopped broccoli
- Fresh shredded Swiss cheese
- Wrap in a corn or whole wheat tortilla
- 1 medium apple on the side

Calories: 306 (19 percent of daily requirement). **Protein:** 17 g. **Saturated Fat:** 5.6 g. **Fiber:** 5 g. **Sugar:** 0 g of added sugar; 3.3 g of total sugar. **Calcium:** 247 mg (19 percent of daily requirement). **Sodium:** 235 mg.

*EWG's recommendations include eggs, nuts and nut butters, which are among the food groups that provide a meaningful contribution to a healthful diet according to "Principle A" of the federal Interagency Working Group's proposed voluntary guidelines. The saturated fat, sodium and sugar content of these foods are naturally occurring ("intrinsic"); the limits for added fats, sugars and sodium in the federal proposed guidelines are not applicable (IWG 2011). Nutritional content for these recommendations are from the USDA MyPyramid Tracker and Nutrient Data Laboratory (USDA 2011a and USDA 2011b).

5 Follow four steps for a healthy morning

- 1 Foods with fiber or protein will sustain your child until the next meal or snack.
- 2 Include a serving of seasonal fresh fruit or vegetables (frozen works as well).
- 3 Skip the fruit juice—just eat the fruit!
- 4 Don't be afraid of "dinner for breakfast." Many cultures include hearty options on breakfast menus.



Section 1 – Study Findings

1. Summary of findings

Many children's breakfast cereals aren't healthy enough to be marketed to children under the federal government's proposed nutrition guidelines, according to an Environmental Working Group review of 84 popular brands.

EWG assessed children's cereals manufactured by Kellogg's, Post, General Mills and Quaker Oats, including iconic favorites such as Froot Loops, Cap'n Crunch, and Apple Jacks.

Overall, only one in four children's cereals meets the voluntary guidelines proposed earlier this year by the federal Interagency Working Group on Food Marketed to Children[#], a panel of federal nutrition scientists and marketing experts convened by Congress in response to the childhood obesity epidemic.

These guidelines would cover all foods marketed to children. For ready-to-eat cereals, the guidelines recommend no more than 26 percent added sugar by weight.

Studies suggest that children who eat high-sugar breakfasts have more problems at school. They become more frustrated and have a harder time

working independently than kids who eat lower-sugar breakfasts. By lunchtime they have less energy, are hungrier, show attention deficits and make more mistakes on their work (Warren 2003, Ingwersen 2007, Benton 2007).

Laboratory studies suggest that sugar is habit-forming, stimulating the same brain responses as opiates (Avena 2008). A case can be made that sugar acts as a drug, enticing kids to eat more and more. Healthy breakfasts for kids do not include cereals with copious amounts of added sugar.

Cereal makers and other food, beverage, and entertainment companies are lobbying to kill the panel's proposal. In an attempt to counter the federal panel's efforts to improve the nutritional value of foods marketed to children, the food industry has come up with its own so-called standards, and unsurprisingly, they give most kids' cereals a pass. The big cereal makers don't take even these "standards" seriously. Cases in point: Apple Jacks and Froot Loops, which Kellogg's markets aggressively to children, contain more sugar than the industry's recommended 38 percent limit.⁺

Fully 21 children's cereals contain more sugar than the limit recommended by the industry's own nutrition initiative (CFBAI 2011a).

Children's cereals fail proposed government nutrition guidelines*

What's in a serving? Of 84 children's cereals assessed by EWG....

- **Sugar** – 56 cereals contain more than 24 to 26 percent sugar by weight**
- **Sodium** (interim 2016 guideline) – 10 cereals contain more than 210 milligrams
- **Sodium** (final 2021 guideline) – 71 cereals contain more than 140 milligrams
- **Saturated fat** – 7 cereals have more than 1 gram
- **Whole grain** – At least 26 cereals are not predominantly whole-grain***

Source: EWG analysis of nutrition labels for 84 children's cereals.

*Proposed government guidelines (IWG 2011) specify limits per 50 grams for lighter cereal and 55 grams for denser cereals, except for the 2016 sodium limit, which is based on the exact serving size listed on the product label (serving sizes range from 26 to 59 grams for the cereals assessed by EWG). All limits would be effective in 2016 except for the 2021 sodium limit. The IWG limit for sugar is 13 grams, which equates to 24-26 percent of the product by weight.

**Nutrition labels list total sugar content – added plus intrinsic. For the purposes of this study, EWG assumed negligible intrinsic sugar in cereals that were assessed, based on: 1) a review of label ingredients that identified no ingredients with substantial intrinsic sugar; and 2) USDA ready-to-eat cereal testing showing that 99-to-100 percent of the sugar in corn and oat cereals was added, not intrinsic. (USDA 2006b).

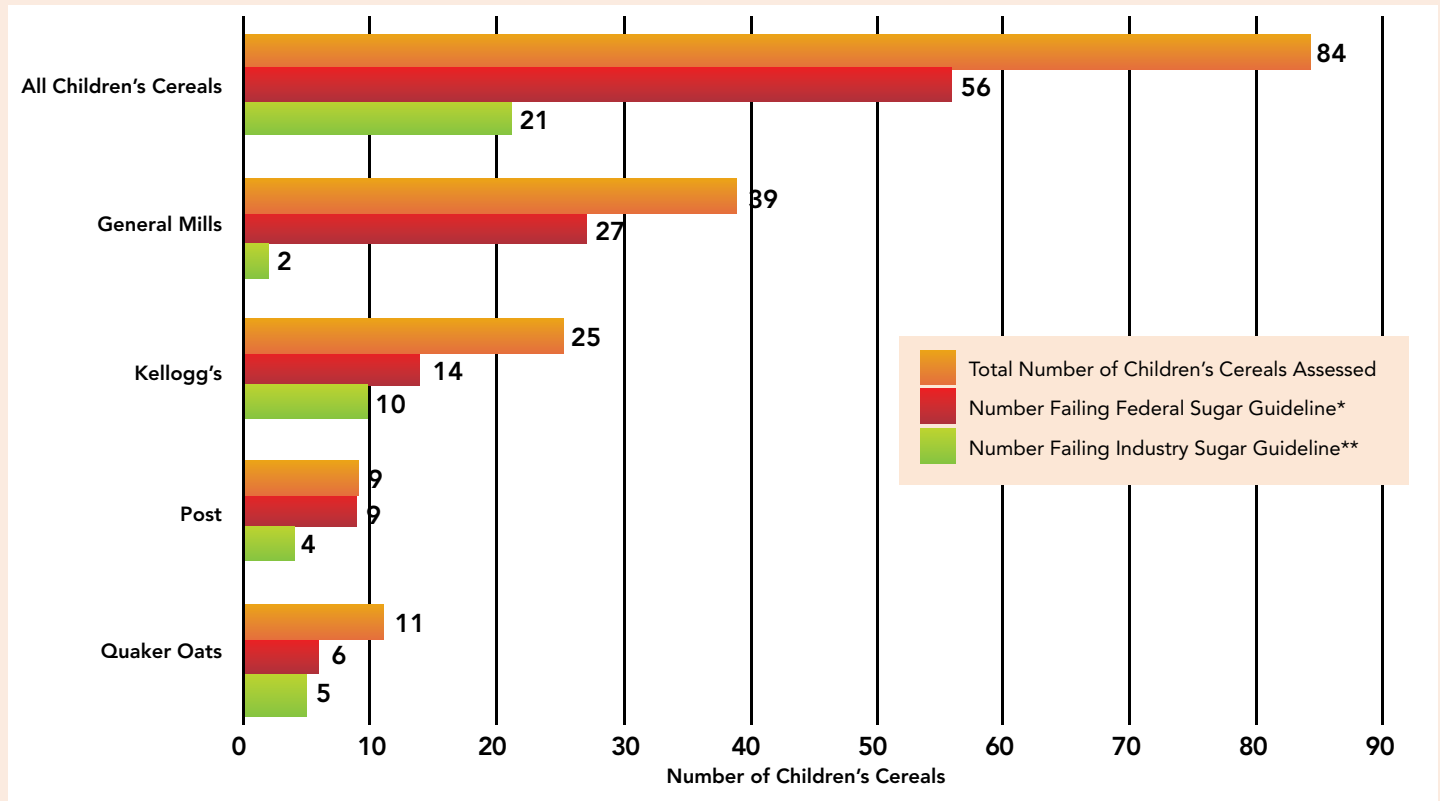
***Whole grain content is not listed on labels. Twenty-six cereals assessed by EWG do not list whole grain as the first ingredient and thus fail the "greater than 50 percent whole grain" IWG criteria, per FDA's food labeling guidance (FDA 2006). Other cereals may also fail, but the data are not publicly available.

[#]One in four children's cereals meets proposed IWG interim guidelines effective in 2016.

⁺Industry's recommended sugar limits are published by the Better Business Bureau's Children's Food and Beverage Advertising Initiative (CFBAI 2011). These guidelines allow 10 grams of sugar per serving size listed on the label, which can be as little as 26 grams for children's cereal. This translates to a maximum allowable sugar content of 38 percent by weight.

Too much sugar. Children's cereals exceed recommended limits.

Many children's cereals fail to meet the government's proposed sugar limit* (up to 26 percent by weight) as well as the even weaker industry guidelines** (up to 38 percent by weight).



Source: EWG analysis of nutrition labels for 84 children's cereals.

* Interagency Working Group on Food Marketed to Children (IWG 2011). Guidelines allow 13 grams of sugar per 50-55 gram serving of cereal, or up to 26 percent sugar by weight.

** Better Business Bureau's Children's Food and Beverage Advertising Initiative (CFBAI 2011a). Guidelines allow 10 grams of sugar per serving size listed on the label, which is as small as 26 grams for children's cereal. This translates to an allowable 38 percent sugar by weight.

The federal Interagency Working Group's guidelines could be stronger. For instance, they should limit sugar content in cereal to no more than 15 percent, a bar already met by a number of children's cereals, not the 26 percent cap currently proposed. They should be mandatory, not voluntary. Cereal makers should strive to meet the guidelines instead of lobbying to weaken or kill them.

Few parents would agree that a cereal that is

one-quarter sugar by weight is the best that cereal makers can do for children.

2. Study methodology

The Environmental Working Group assessed nutrition label facts for 84 cereals sold by General Mills, Post, Kellogg's and Quaker Oats, plus several that are marketed more widely but are likely to be eaten by children, such as Cheerios and Frosted

Mini-Wheats. EWG obtained label data from the manufacturers' official websites.

EWG analysts compared the information on labels with the federal Interagency Working Group's proposed guidelines for foods nutritious enough to be marketed to children (IWG 2011) and with the weaker, voluntary guidelines developed by the Better Business Bureau's Children's Food and Beverage Advertising Initiative, which will go into effect on January 1, 2014 (CFBAI 2011a).

In nearly three dozen popular children's cereals, sugar makes up more than one-third of the product by weight. Fully three-fourths of the 84 cereals EWG assessed fail the proposed federal guidelines for determining what foods are suitable for marketing to children. Fifty-six children's cereals are more than 26 percent sugar by weight – the recommended maximum. Many also contain more sodium than the guidelines recommend. The proposed federal guidelines are more

restrictive than those of the food industry, but they should be strengthened and made mandatory

3. Five top problems in children's cereals

1. Too much sugar – a big problem

The proposed federal guidelines cover five factors – added sugar, sodium, saturated fat, trans-fat and "Principle A," which, in the case of cereal, means whole grain content.

Two-thirds of the children's cereals assessed by EWG contain more sugar than the federal guidelines consider acceptable. The bar is low: the guidelines permit as much as one-quarter of

the cereal by weight to be sugar.

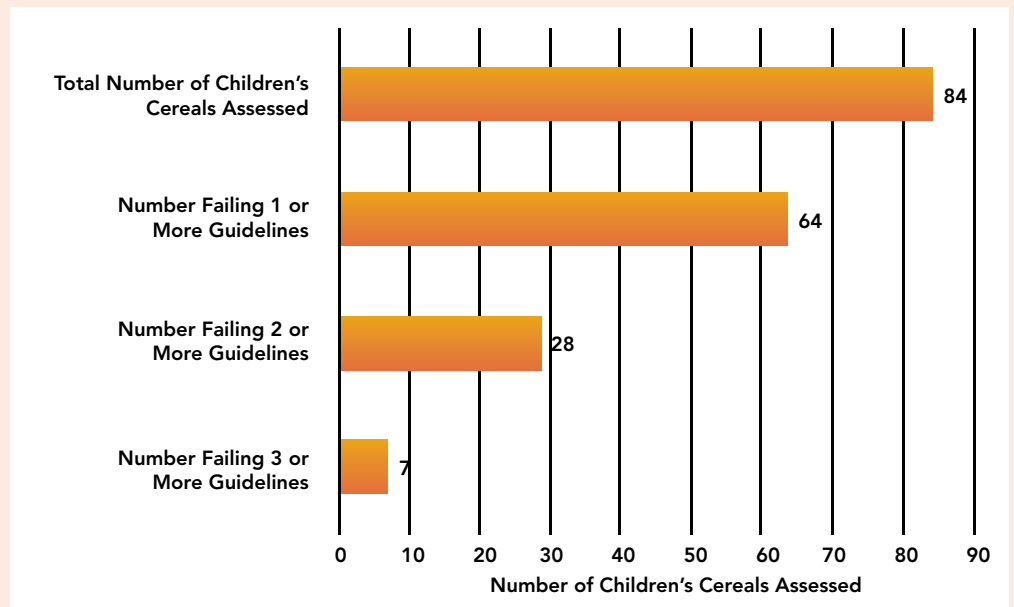
One in eight cereals contains more sodium than the proposed federal guidelines' target for 2016, and nine in 10 exceed the final sodium target that would take effect in 2021.

2. Seven cereals fail three nutrition guidelines

Seven children's cereals perform especially poorly against the proposed federal nutritional guidelines effective in 2016, EWG's analysis found. Each fails on three criteria: too much sugar and saturated fat, and too little whole grain content. They are: Kellogg's Cocoa Krispies, Post Cocoa Pebbles and Fruity Pebbles, three varieties of Quaker Oats Cap'n Crunch (Original, Crunch Berry and Peanut Butter Crunch), and Quaker Oats Oh!s. By 2021, when the stricter sodium guideline becomes effective, these same

Too much sugar, sodium and fat – children's cereals exceed recommended limits

Many exceed nutrition criteria in proposed federal guidelines*



Source: EWG analysis of nutrition labels for 84 children's cereals.

*Interagency Working Group on Food Marketed to Children (IWG 2011), proposed limits for sugar, sodium (interim guideline), saturated and trans fat and whole grains, effective 2016.

cereals would fail four criteria altogether.

3. Cereal companies fight proposed federal guidelines

More than three-quarters of children's cereals do not meet the federal Interagency Working Group's proposed nutrition guidelines for 2016. Far more meet the industry's standards for foods nutritious enough to be marketed to children.

Eighty-two percent of General Mills children's cereals don't meet the federal guidelines, but only 5 percent fail to meet the industry's standards.

Not surprisingly, General Mills has joined other food, media, and entertainment companies in calling to replace the government proposal with industry's more lenient guidelines.

But major cereal makers don't even take their own industry's targets seriously; one-fourth of children's cereals contain too much sugar.

4. More sugar than junk-food desserts

EWG compared the sugar content of children's cereals with the amounts in several well-known junk food desserts. The results are startling:

- One cup of each of three popular children's cereals (Kellogg's Honey Smacks, Post Golden Crisp and General Mills Wheaties Fuel) has more sugar (18.7 to 20 grams) than a Hostess Twinkie (17.5 grams).



- One cup of any of 44 children's cereals, including Honey Nut Cheerios, has more sugar than three Chips Ahoy! cookies (11 grams).
- One cup of 56 different children's cereals, including Froot Loops, has more sugar than two Oreo cookies (9.3 grams).

Children's cereals compared poorly with some homemade desserts. A typical batch of 30 sugar cookies contains about a cup of sugar, while Post Golden Crisp packs more than one cup of sugar into a 15-serving box.

5. Not all Cheerios are alike

EWG found a wide range in sugar content for eight brands:

- **General Mills Cheerios** – Cheerios Original is 3.6 percent sugar. Apple Cinnamon Cheerios, Chocolate Cheerios, Fruity Cheerios are 33 percent sugar.
- **Kellogg's Rice Krispies** – Gluten Free variety is 3.3 percent sugar. Frosted Krispies is 40 percent sugar.
- **General Mills Chex** – Rice Chex is 7 percent sugar. Honey Nut Chex is 28 percent sugar.
- **Kellogg's Mini-Wheats** – Unfrosted Bite-Size is 1.7 percent sugar. Frosted Mini-Wheats Maple & Brown Sugar is 25 percent sugar.
- **General Mills Kix** – Kix Original is 10 percent sugar. Berry Berry Kix is 21 percent sugar.
- **Quaker Oats Cap'n Crunch** – Peanut Butter Crunch is 33 percent sugar. OOPS! All Berries contains 47 percent sugar.
- **General Mills Wheaties** – Wheaties Original is 15 percent sugar. Wheaties Fuel is 25 percent sugar.

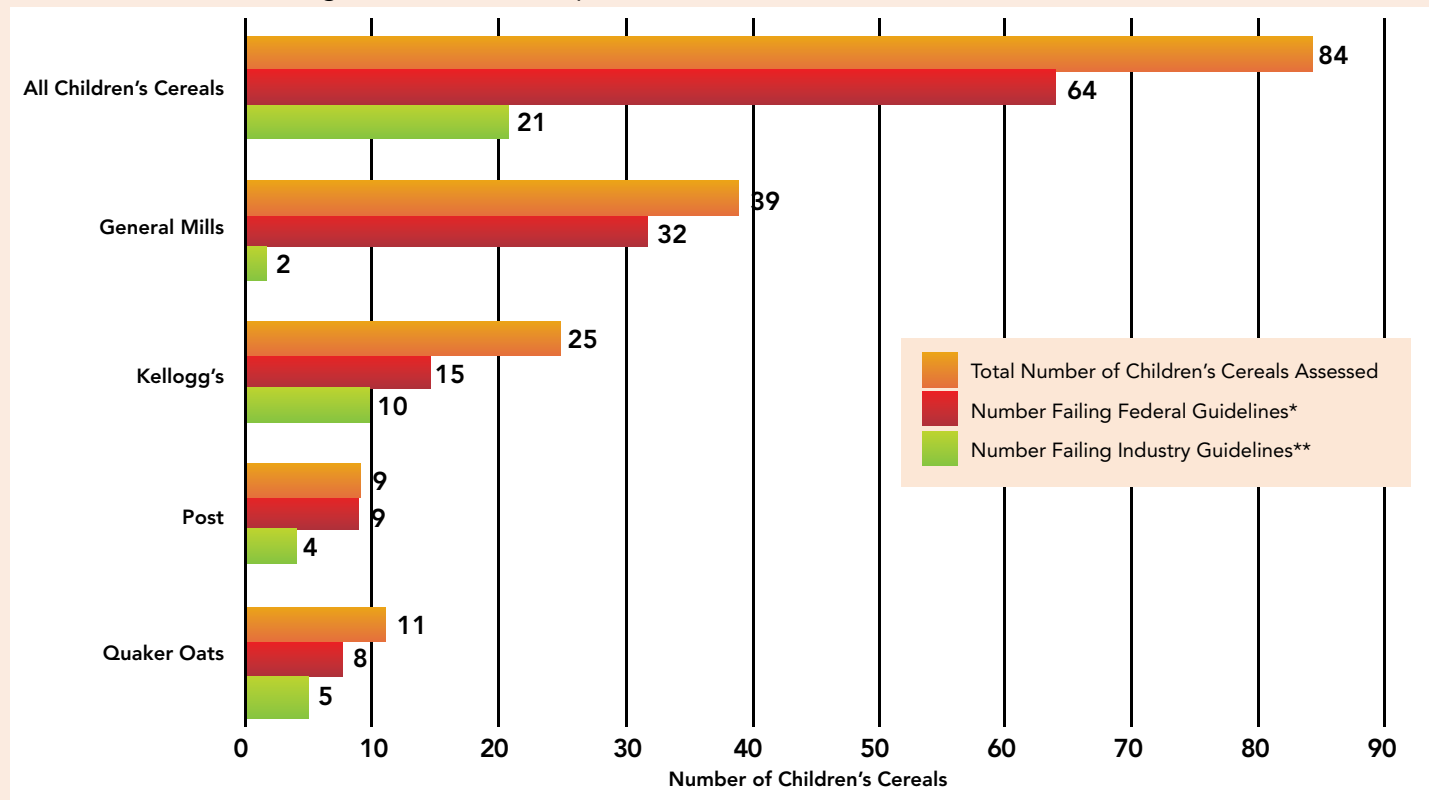
More sugar than sugary desserts

A box of Post Golden Crisp has more than one cup of sugar for 15 servings. A batch of 30 homemade sugar cookies only requires one cup of sugar.

Source: EWG analysis of product nutrition labels.

Few children's cereals meet all 5 nutrition criteria for foods healthy enough to be marketed to children*

Many children's cereals that don't meet the proposed federal guidelines do meet industry standards, which cereal makers want the government to adopt.



Source: EWG analysis of nutrition labels for 84 children's cereals.

* Interagency Working Group on Food Marketed to Children (IWG 2011), proposed limits for sugar, sodium (interim guideline), saturated and trans fat, and whole grains.

** Industry guidelines: Better Business Bureau's Children's Food and Beverage Advertising Initiative (CFBAI 2011a).

- **Kellogg's Frosted Flakes** – Reduced Sugar variety is 27 percent sugar. Original variety is 37 percent sugar.

Section 2 - The politics of nutrition and children's food

American children need help. Fewer than one in five children eat five or more fruits and vegetables a day (Lorson 2010), and the latest federal nutrition guidelines no longer consider five a day to be sufficient (CDC 2011). Foods high in sugar, saturated fat, and salt, including pizza, soda, potato chips, French fries and desserts like cookies and ice cream account for 25 percent of the calories consumed

by children between the ages of 4 and 8 (NIH 2010). Teenagers get 33 percent of their calories from those same fatty, salty and sugary foods (NIH 2010).

In the 1970's, alarmed by growing rates of childhood obesity, consumer protection groups, including the Center for Science in the Public Interest and Consumers Union, petitioned the federal government to regulate food marketing to children (FTC 1978, FTC 1981). The Federal Trade Commission published proposed restrictions on child-targeted advertising in 1978 (FTC 1978).

Over the next three years, advocates and industry battled it out, filing 60,000 pages of public comments with the FTC (Westen 2006). In 1980, after aggressive lobbying by the food and advertising industries,

Food industry spokesman to Congress: Why we oppose the government's voluntary guidelines

"... Congress would now be on record as saying that the vast majority of all of the advertising of all of these companies, the restaurant industry, the beverage industry, the food industry was doing was inappropriate and unhealthy for children... and that clearly was going to put all sorts of different pressures on us..."

— Dan Jaffe (*Sensible Food Policy Coalition/Assoc. of National Advertisers*), testifying at Congressional hearing 10/11/11.

Congress passed a law that effectively stripped the FTC of its authority to regulate children's advertising (Westen 2006, FTC Improvements Act 1980). As a result, the FTC abandoned its efforts in 1981 (FTC 1981).

For the next two decades, childhood obesity rates climbed while advertisers found new ways to reach youth markets. The U.S. Surgeon General issued a call to action on childhood obesity in 2001 (DHHS 2001). In 2003, an expert panel convened by the World Health Organization and the Food and Agriculture Organization – both branches of the United Nations – recommended that people avoid eating food high in sugar and limit added sugar to no more than 10 percent of total calories (WHO 2003). The international bodies acted on the basis of "considerable evidence that sucrose and other free sugars contribute to the global epidemic of obesity" (Mann 2004). The sugar and processed food industries strenuously objected.

Also in 2003, Congress requested additional research into the effects of advertising on children's health. The resulting study from the Institute of Medicine linked food and beverage advertising to overweight and obesity in children and teens. It said that if voluntary efforts by industry failed to stimulate advertising for healthier foods for children, Congress should mandate such a shift. The report concluded: "Marketing works" (IOM 2006).

In 2005, amid calls for congressional and executive action, Sens. Tom Harkin (D-Iowa), and Sam Brownback (R-Kan.) convened major food companies,

public health advocates and regulatory agencies. Harkin warned that "where corporate responsibility is absent, federal regulation of food marketing directed at children will be necessary" (Harkin 2005).

The food industry responded by proposing the Children's Food and Beverage Advertising Initiative (CFBAI 2006), an effort at voluntary self-regulation. It allowed each company to set its own nutrition and advertising standards. The industry plan lacked uniformity and ultimately disappointed child advocacy groups that hoped for more effective measures. By 2007, food and beverage companies were spending an estimated \$2.0 billion a year on advertising to children on television, in movies, online and via social media (FTC 2008), and childhood obesity rates had more than tripled since 1980 (Nihiser 2007).

In 2008, urged by advocacy groups, Harkin and Brownback inserted language into the fiscal 2009 appropriations bill instructing the U.S. Food and Drug Administration, the Centers for Disease Control and Prevention, the Department of Agriculture and the Federal Trade Commission to form the Interagency Working Group to recommend standards for the marketing of food and beverages to children (Appropriations Act 2009).

The Interagency Working Group assessed the growing body of scientific literature suggesting that food and beverage advertising plays a central role in childhood obesity.

While the IWG study progressed, the American Heart Association recommended that people limit consumption of added sugars, citing evidence of links between sugar consumption and insulin resistance, obesity, hypertension, dyslipidemia and type 2 diabetes (Johnson 2009). The USDA also recommended that people limit their intake of added sugars, suggesting that calories from added sugar and solid fat account for no more than 14 percent of daily calories (USDA and DHHS 2010).

In April 2011, the Interagency Working Group published a draft of its report to Congress and requested comments from the public and interested stakeholders (IWG 2011). The report proposed that food companies voluntarily limit their advertising to children to those foods that make a meaningful contribution to a healthful diet and contain only moderate amounts of fat, sugar and sodium. It set target dates for implementation of 2016 and

2021 to allow food manufacturers time to make gradual product reformulations. Medical groups and public health advocates expressed support for the guidelines and provided feedback about making them more effective (FTC 2011).

Food, beverage and media companies, on the other hand, citing their own self-imposed advertising guidelines, opposed the proposal (FTC 2011). The Children's Food and Beverage Advertising Initiative released a new set of uniform guidelines that its member companies agreed to follow (CFBAI 2011b). The industry-backed standards would allow nearly 50 percent more sugar than the Interagency Working Group's proposed guidelines.

Section 3 – The science of sugary breakfasts

There is ample evidence that skipping breakfast is not healthy for children or adults (Deshmukh-Taskar 2010). Children who eat breakfast consume more calories overall but are less likely to be overweight than those who skip breakfast (Rampersaud 2005). But not all breakfasts are equal.

Some laboratory studies suggest that sugar is habit-forming, stimulating the same brain responses as opiates (e.g., Avena 2008). If so, sugar could act as a drug, enticing kids to eat more.

Studies also suggest that children who eat high-sugar breakfasts have more problems at school (Benton 2007). They become more frustrated during the day and have a harder time working independently (Benton 2007). By lunchtime they have less energy, are hungrier, show attention deficits and make more mistakes on their work (Warren 2003, Ingwersen 2007, Benton 2007). They also eat more, for both breakfast and lunch (Warren 2003).

Cereal giants fund and publicize research showing that children who eat cereal for breakfast have a lower Body Mass Index, on average, than kids who skip breakfast or eat other foods, even for cereals with significant amounts of added sugar (Albertson 2011, Kosti 2007).

This may seem reassuring

for families with sugary cereals in the pantry, but a closer look suggests otherwise. Whatever benefits result from eating high-sugar cereal may be due to the cereal's whole-grain content, not to the empty calories provided by unnecessary sugar (Kosti 2010). A disturbing reality of the American food supply is that, as EWG's analysis shows, if you're eating grains from cereals, you're probably also eating a lot of added sugar.

The research teams conducting industry-backed studies did not differentiate between children regularly eating high-sugar cereal (one-third to more than one-half sugar) and those eating similar amounts of moderately or lightly sweetened cereals. These are very different foods.

Several studies have found benefits from eating low-sugar or high-fiber cereals or other foods for breakfast. These foods provide sustained energy, help avoid a "blood sugar crash" and are healthier for diabetics (Warren 2003, Ingwersen 2007, Benton 2007, Silva 2011).

Overall, cereals marketed to children are less healthy than others. A 2006 study led by Yale University researchers found that "compared to non-children's cereals, children's cereals were denser in energy, sugar and sodium but were less dense in fiber and protein" (Schwartz 2008).

Collectively, the scientific literature demonstrates the benefits of eating breakfast and whole grains but does not support adding copious amounts of sugar to children's cereals.



Section 4 – Study Methodology

EWG obtained nutrition information for 84 ready-to-eat breakfast cereals for children, including flavors and varieties of products, from the official websites of the four major cereal brands: General Mills, Kellogg's, Post Cereals and Quaker Oats. The nutrition facts for Cap'n Crunch cereals, a Quaker Oats brand, were found on a separate Cap'n Crunch website.

For the purposes of this study, EWG considered a cereal to be for children if it met one or more criteria from a 2006 study by Yale University's Rudd Center for Food Policy and Obesity: the use of a licensed character or a cartoon drawing on the cereal box, and the company's own categorization of a cereal as a children's food on its website (Schwartz 2008). EWG included among its 84 children's cereals a few additional brands commonly marketed with commercials featuring

children, or marketed more broadly but likely to be eaten by children, such as Cheerios and Frosted Mini-Wheats.

EWG assessed the children's cereals against two systems of nutrition guidelines for foods marketed to children: the Children's Food and Beverage Advertising Initiative's uniform nutrition criteria (an industry-backed initiative of the Better Business Bureau); and the governmental Interagency Working Group's proposed voluntary guidelines.

Summary of the Interagency Working Group (IWG) Proposed Guidelines for Food Marketed to Children

The Interagency Working Group on Food Marketed to Children, composed of representatives from the Federal Trade Commission, the Centers for Disease Control and Prevention, the Food and Drug Administration and the United States Department of

Industry and Government-Proposed Criteria for Cereals Marketed to Children

Guideline	Cereal type*	Measure	Nutrition Component to Maximize	Nutrients to Limit				
				Calories	Sugars (grams)	Sodium (milli-grams)***	Saturated Fat (grams)	Trans Fat (grams)
CFBAI (industry)	Lighter cereals	Per labeled serving size	≥ 50% whole grain by weight (encouraged) or ≥ 10% Daily Value of any essential nutrient (calcium, fiber, potassium, iron, or vitamins D, A, or C)	≤ 150	≤ 10 (total sugars)	≤ 290	≤ 1.5	N/A
CFBAI (industry)	Denser cereals	Per labeled serving size	Same as above	> 150 – 200	≤ 12 (total sugars)	≤ 360	≤ 2	N/A
IWG (gov't)	Lighter cereals	Per 50 g	≥ 50% whole grain by weight	N/A	≤ 13 (added sugars)	≤ 210 (2016)**; ≤ 140 (2021)	≤ 1 and ≤ 15% of calories from saturated Fat	0
IWG (gov't)	Denser cereals	Per 55 g	Same as above	N/A	Same as above	Same as above	Same as above	Same as above

Source: EWG analysis of criteria listed in IWG (2011) and CFBAI (2011a).

**Cereal type* reflects the distinction between lighter and denser cereals specified by the Food and Drug Administration, which under its RACC (Reference Amount Customarily Consumed) criteria considers lighter cereals to be those that weigh between 20 and 43 grams per cup and denser cereals to be those that weigh more than that per cup (FDA 2001).

***The 2016 IWG interim guideline for sodium is measured per labeled serving size.

EWG estimates that the industry guidelines allow up to four times more sodium in lighter children's cereals than the IWG government guidelines, and three times more sodium for denser cereals. These estimates are based on the final IWG sodium criterion and EWG's review of serving sizes listed on children's cereals, which were as low as 26 grams per serving (General Mills Cookie Crisp). Using this minimum serving size, we calculate that the industry guidelines allow up to 558 milligrams of sodium per 50 gram serving.

Agriculture, was convened by Congress to develop a set of nutrition recommendations and media definitions to guide industry in determining what foods are appropriate to market to children. The IWG's proposed guidelines are based on two principles: foods marketed to children must make a meaningful contribution to a healthful diet (Principle A) and must minimize the amounts of nutrients that could have a negative impact on health or weight (Principle B).

The IWG's proposed guidelines focus on ten categories of food products that are most commonly marketed to children and adolescents, which include breakfast cereals.

Nutrition Principle A: Meaningful Contribution to a Healthful Diet

Foods marketed to children should include a significant amount of at least one of the following food groups: fruit, vegetable, whole grain, fat-free or low-fat milk products, fish, extra lean meat or poultry, eggs, nuts and seeds, or beans. Ready-to-eat breakfast cereals may contribute to a healthful diet as whole grains.

IWG has proposed two approaches by which food manufacturers may meet Principle A.

- Option 1: Food marketed to children should contain at least 50 percent by weight of one or more of the food groups listed above.
- Option 2: Specific minimum contributions for each of the food groups. For individual foods, the product should contain the specified amount of at least one, or a proportionate combination of more than one, of the listed food groups per FDA's Reference Amount Customarily Consumed (RACC). The specified amount for whole grains is 0.75 ounces of 100 percent whole grain.

For EWG's analysis, children's cereals were assessed against Principle A using Option 1. Cereal nutrition labels do not provide the whole grain content, but any cereal listing a whole grain as the first ingredient was assumed to meet the IWG criteria; this assumption likely overestimates the number of cereals that meet the criteria.

Nutrition Principle B: Nutrients to Limit

This principle limits the amount of sodium, saturated fat, trans-fat and added sugars in foods

marketed to children. The amounts of these nutrients are limited per FDA's Reference Amounts Customarily Consumed (RACC), not the serving size listed on the nutrition label. Ready-to-eat breakfast cereals that weigh between 20 grams and 43 grams per cup have a RACC of 30 grams. Denser breakfast cereals that weigh more than 43 grams per cup have a RACC of 55 grams (FDA 2001).

IWG's criteria are as follows:

- Saturated fat: 1 gram or less per RACC and 15 percent or less of calories from saturated fat
- Trans-fat: 0 (<0.5) grams per RACC
- Added sugars: 13 grams or less per RACC
 - EWG assumed that the "Sugars" listed on the nutrition label are added sugars. This assumption is based on a review of label ingredients that identified no ingredients with substantial intrinsic sugar, as well as USDA data demonstrating that there is little to no difference between added and total sugars in breakfast cereals (USDA 2006).
- Sodium: 210 milligrams or less per labeled serving size
 - The amount listed above is the interim goal to be met by 2016.
 - Final targets for sodium are 140 milligrams or less per RACC.

For foods with RACCs of 30 grams or less, such as most ready-to-eat breakfast cereals, the IWG applies its specified limits for 50 grams of food.

Summary of the Children's Food and Beverage Advertising Initiative Category –Specific Uniform Nutrition Criteria

The Children's Food and Beverage Advertising Initiative of the Council of Better Business Bureaus released its own nutrition guidelines for foods marketed to children. The criteria are similar to IWG's proposed guidelines in encouraging specific nutrition components, such as whole grains for cereals, and limiting nutrients such as sugars, sodium and saturated fat. The main difference is that CFBAI's criteria for limiting nutrients are based on the serving size listed on the nutrition label, allowing substantially more sugar and sodium than the government's guidelines.

To meet the Nutrition Components to Encourage

criteria, half a serving or more of ready-to-eat breakfast cereals must be either fruit, vegetable, dairy product or whole grains. An alternative measure requires that the food provide more than 10 percent of the Daily Value of any of the following essential nutrients: calcium, fiber, potassium, iron, or vitamins D, A, or C (CFBAI 2011a).

For the Nutrients to Limit criteria, CFBAI created subcategories with varying limits for ready-to-eat breakfast cereals: lighter cereals with RACCs of 30 grams or less should not exceed 150 calories, 1.5 grams of saturated fat, 290 milligrams of sodium, and 10 grams of total sugars per labeled serving size; for denser cereals, each serving size must not exceed 200 calories, 2 grams of saturated fat, 360 milligrams of sodium, and 12 grams of total sugars (CFBAI 2011a).

84 Children's Cereals Assessed Against Government and Industry Nutrition Guidelines

Legend:

✗ - Fails industry guidelines**

✗ - Fails federal guidelines to take effect in 2016*

✗ - Fails final federal sodium guideline to take effect in 2021 (but meets the guidelines to take effect in 2016)

✓ - Meets federal guidelines to take effect in 2016

✓✓ - Meets stricter federal guidelines to take effect in 2021 (stricter sodium limit)

Children's Cereal Products		Labeled Serving Size (grams)	First (Predominant) Ingredient ¹	Sugar (grams per serving) ²	Sugar (percent by weight)	Sodium (milligrams per serving) ³	Saturated Fat (grams per serving) ^{4,5}
General Mills							
1	Boo Berry	33	Whole Grain Corn	10 ✗	30.3	190 ✗	0
Cheerios							
2	Cheerios Original ✓	28	Whole Grain Oats	1	3.6	160 ✗	0
3	Apple Cinnamon Cheerios	30	Whole Grain Oats	10 ✗	33.3	115 ✗	0
4	Banana Nut Cheerios	28	Whole Grain Corn	9 ✗	32.1	160 ✗	0
5	Chocolate Cheerios	27	Whole Grain Corn	9 ✗	33.3	170 ✗	0
6	Cinnamon Burst Cheerios	33	Whole Grain Corn	9 ✗	27.3	130 ✗	0
7	Frosted Cheerios	28	Whole Grain Oats	9 ✗	32.1	170 ✗	0
8	Fruity Cheerios	27	Whole Grain Corn	9 ✗	33.3	135 ✗	0
9	Honey Nut Cheerios	28	Whole Grain Oats	9 ✗	32.1	160 ✗	0
10	Multi-Grain Cheerios ✓	29	Whole Grain Corn	6	20.7	120 ✗	0
11	Oat Cluster Cheerios Crunch	27	Whole Grain Oats	8 ✗	29.6	130 ✗	0
12	Yogurt Burst Cheerios Strawberry	30	Whole Grain Oats	9 ✗	30.0	170 ✗	0.5
Chex							
13	Chex Wheat	47	Whole Grain Wheat	5	10.6	270 ✗	0
14	Chocolate Chex	32	Whole Grain Rice	8	25.0	240 ✗	0
15	Cinnamon Chex	30	Whole Grain Rice	8 ✗	26.7	180 ✗	0
16	Corn Chex	31	Whole Grain Corn	3	9.7	240 ✗	0
17	Honey Nut Chex	32	Whole Grain Corn	9 ✗	28.1	200 ✗	0
18	Multi-Bran Chex	47	Whole Grain Corn	10	21.3	270 ✗	0
19	Rice Chex	27	Whole Grain Rice	2	7.4	240 ✗	0
20	Cinnamon Toast Crunch	31	Whole Grain Wheat	10 ✗	32.3	220 ✗	0.5
Cocoa Puffs							
21	Cocoa Puffs Original	27	Whole Grain Corn	10 ✗	37.0	150 ✗	0
22	Cocoa Puffs Brownie Crunch	27	Whole Grain Corn	9 ✗	33.3	130 ✗	0
23	Cocoa Puffs Combos Chocolate and Vanilla	27	Whole Grain Corn	10 ✗	37.0	160 ✗	0
Cookie Crisp							
24	Cookie Crisp Original	26	Whole Grain Corn	9 ✗	34.6	120 ✗	0
25	Sprinkle Cookie Crisp	27	Whole Grain Corn	9 ✗	33.3	120 ✗	0

Children's Cereal Products		Serving Size (grams)	First (Predominant) Ingredient ¹	Sugar (grams per serving) ²	Sugar (percent by weight)	Sodium (milligrams per serving) ³	Saturated Fat (grams per serving) ^{4,5}
26	Count Chocula	27	Whole Grain Corn	10 ✖	37.0	160 ✖	0
27	Dora the Explorer ✓	27	Whole Grain Corn	6	22.2	150 ✖	0
28	Franken Berry	33	Whole Grain Corn	10 ✖	30.3	190 ✖	0
29	Golden Grahams	31	Whole Grain Wheat	10 ✖	32.3	240 ✖	0
30	Honey Nut Clusters	57	Whole Grain Wheat	14 ✖✖	24.6	290 ✖	0
Kix							
31	Kix Original ✓	30	Whole Grain Corn	3	10.0	180 ✖	0
32	Berry Berry Kix ✓	33	Whole Grain Corn	7	21.2	170 ✖	0
33	Honey Kix ✓	33	Whole Grain Corn	6	18.2	190 ✖	0
Lucky Charms							
34	Lucky Charms Original	27	Whole Grain Oats	10 ✖	37.0	170 ✖	0
35	Chocolate Lucky Charms	28	Whole Grain Corn	10 ✖	35.7	160 ✖	0
36	Reese's Puffs	29	Whole Grain Corn	10 ✖	34.5	160 ✖	0.5
37	Trix	32	Whole Grain Corn	10 ✖	31.3	180 ✖	0
Wheaties							
38	Wheaties Original ✓	27	Whole Grain Wheat	4	14.8	190 ✖	0
39	Wheaties Fuel	55	Whole Grain Wheat	14 ✖✖	25.5	140	0
Kellogg's							
40	Apple Jacks	28	Sugar ✖	12 ✖✖	42.9	130 ✖	0
41	Corn Pops	32	Milled Corn ✖	10 ✖	31.3	125 ✖	0
42	Disney-Pixar Cars 2	28	Whole Oat Flour	10 ✖	35.7	200 ✖	0
43	Eggo Cereal Maple Syrup	31	Whole Wheat Flour	12 ✖✖	38.7	150 ✖	0.5
Froot Loops							
44	Froot Loops Original	29	Sugar ✖	12 ✖✖	41.4	135 ✖	0.5
45	Froot Loops Marshmallow	29	Sugar ✖	14 ✖✖	48.3	110 ✖	0
Frosted Flakes							
46	Frosted Flakes Original	30	Milled Corn ✖	11 ✖✖	36.7	140 ✖	0
47	Frosted Flakes Reduced Sugar	30	Milled Corn ✖	8 ✖	26.7	160 ✖	0
48	Honey Smacks	27	Sugar ✖	15 ✖✖	55.6	50	0
Mini-Wheats							
49	Mini-Wheats Unfrosted Bite-Size ✓✓	59	Whole Grain Wheat	1	1.7	10	0
50	Frosted Mini-Wheats Big Bite ✓✓	51	Whole Grain Wheat	10	19.6	5	0
51	Frosted Mini-Wheats Bite-Size ✓✓	59	Whole Grain Wheat	12	20.3	5	0
52	Frosted Mini-Wheats Little Bites Original ✓✓	55	Whole Grain Wheat	12	21.8	0	0
53	Frosted Mini-Wheats Blueberry Muffin ✓✓	52	Whole Grain Wheat	12	23.1	0	0
54	Frosted Mini-Wheats Cinnamon Streusel ✓✓	52	Whole Grain Wheat	12	23.1	0	0
55	Frosted Mini-Wheats Little Bites Chocolate ✓	55	Whole Grain Wheat	12	21.8	200 ✖	1

Children's Cereal Products		Serving Size (grams)	First (Predominant) Ingredient ¹	Sugar (grams per serving) ²	Sugar (percent by weight)	Sodium (milligrams per serving) ³	Saturated Fat (grams per serving) ^{4,5}
56	Frosted Mini-Wheats Maple & Brown Sugar	52	Whole Grain Wheat	13 ✖✖	25.0	0	0
57	Frosted Mini-Wheats Strawberry Delight ✓✓	52	Whole Grain Wheat	12	23.1	0	0
58	Frosted Mini-Wheats Touch of Fruit in the Middle Mixed Berry ✓✓	55	Whole Grain Wheat	10	18.2	10	0
Rice Krispies							
59	Rice Krispies Original	33	Rice ✖	4	12.1	190 ✖	0
60	Cocoa Krispies	39	Rice ✖	15 ✖✖	38.5	170 ✖	1 ✖
61	Frosted Krispies	30	Rice ✖	12 ✖✖	40.0	110 ✖	0
62	Rice Krispies Gluten Free ✓	30	Whole Grain Brown Rice	1	3.3	170 ✖	0
63	Rice Krispies Treats	30	Rice ✖	9 ✖	30.0	170 ✖	0
64	Smorz	30	Corn Flour ✖	13 ✖✖	43.3	135 ✖	0.5
Post							
65	Alpha-Bits	28	Whole Grain Oat Flour	10 ✖	35.7	180 ✖	0
66	Golden Crisp	27	Sugar ✖	14 ✖✖	51.9	25	0
Honeycomb							
67	Honeycomb Original	32	Corn Flour ✖	10 ✖	31.3	180 ✖	0
68	Honeycomb Cinnagraham	32	Whole Grain Corn Flour	10 ✖	31.3	190 ✖	0.5
Pebbles							
69	Cocoa Pebbles	30	Rice ✖	11 ✖✖	36.7	190 ✖	1 ✖
70	Fruity Pebbles	30	Rice ✖	11 ✖✖	36.7	190 ✖	1 ✖
71	Marshmallow Pebbles	27	Rice ✖	10 ✖	37.0	180 ✖	0.5
72	Pebbles Boulders	27	Whole Grain Corn Flour	8 ✖	29.6	75	0
73	Waffle Crisp	30	Sugar ✖	12 ✖✖	40.0	115 ✖	0
Quaker Oats							
Cap'n Crunch							
74	Cap'n Crunch Original	27	Corn Flour ✖	12 ✖✖	44.4	200 ✖	1 ✖
75	Cap'n Crunch's Chocolatey Crunch	27	Corn Flour ✖	11 ✖✖	40.7	125 ✖	0.5
76	Cap'n Crunch's Crunch Berries	26	Corn Flour ✖	11 ✖✖	42.3	190 ✖	1 ✖
77	Cap'n Crunch's OOPS! All Berries	32	Corn Flour ✖	15 ✖✖	46.9	210 ✖	0.5
78	Cap'n Crunch's Peanut Butter Crunch	27	Corn Flour ✖	9 ✖	33.3	200 ✖	1 ✖
79	Crunchy Corn Bran	27	Corn Flour ✖	6	22.2	240 ✖	0.5
80	King Vitamin	31	Corn Flour ✖	6	19.4	260 ✖	0.5
Life							
81	Life Original ✓	32	Whole Grain Oat Flour	6	18.8	160 ✖	0
82	Life Cinnamon ✓	32	Whole Grain Oat Flour	8	25.0	150 ✖	0
83	Life Maple & Brown Sugar ✓	32	Whole Grain Oat Flour	8	25.0	150 ✖	0
84	Oh!s	27	Corn Flour ✖	12 ✖✖	44.4	170 ✖	1.5 ✖

Table footnotes

* Interagency Working Group on Food Marketed to Children (IWG 2011), proposed limits for sugar, sodium (interim guideline), saturated and trans fat, and whole grains.

** Industry guidelines: Better Business Bureau's Children's Food and Beverage Advertising Initiative (CFBAI 2011a).

¹ Under proposed voluntary federal guidelines (IWG 2011), cereals should contain at least 50 percent whole grains by weight. Industry guidelines (CFBAI 2011a) recommend at least 50 percent whole grains by weight or 10 percent Daily Value or more of any essential nutrient, such as calcium, fiber, potassium, iron, vitamin D, vitamin A, or vitamin C.

² Proposed voluntary federal guidelines (IWG 2011) allow up to 13 grams of sugar per 50 grams for light cereals and per 55 grams for dense cereals. Industry guidelines (CFBAI 2011a) allow up to 10 and 12 grams of sugar per labeled serving size, in light and dense cereals, respectively.

³ Interim federal guideline for sodium, effective in 2016, (IWG 2011) allows up to 210 milligrams per labeled serving size. Final guidelines, scheduled to take effect in 2021, allow up to 140 milligrams per 50 grams for light cereals and per 55 grams for dense cereals. Industry guidelines (CFBAI 2011a) allow up to 290 and 360 milligrams of sodium per labeled serving size, in light and dense cereals, respectively.

⁴ Federal guideline for saturated fat (IWG 2011) allows no more than 1 gram per 50 for light cereals and per 55 grams for dense cereals. Industry guidelines (CFBAI 2011a) allow either 1.5 and 2 grams per labeled serving size, in light and dense cereals, respectively.

⁵ Proposed federal guidelines (IWG 2011) propose limits for trans-fat content, but none of the cereals assessed by EWG contain trans-fat.

References

Albertson AM, Thompson DR, Franko DL, Holschuh NM. 2011. Weight indicators and nutrient intake in children and adolescents do not vary by sugar content in ready-to-eat cereal: results from National Health and Nutrition Examination Survey 2001-2006. *Nutr Res* 31(3): 229-36.

Appropriations Act 2009. Omnibus Appropriations Act 2009 (H.R. 1105), Financial Services and General Government, Explanatory Statement, Title V, Independent Agencies, 983-84.

Avena NM, Rada P and Hoebe BG. 2008. Evidence for sugar addiction: Behavioral and neurochemical effects of intermittent, excessive sugar intake. *Neurosci Biobehav Rev* 32(1): 20-39.

Benton D, Maconie A, Williams C. 2007. The influence of the glycaemic load of breakfast on the behaviour of children in school. *Physiology & Behavior* 92(4): 717-24.

Cap'n Crunch. 2011. Products. Available: <http://capncrunch.com/#product?s=original> [Accessed Oct 11, 2011].

CDC (Centers for Disease Control and Prevention). 2011. Eat a variety of fruits and vegetables every day. [Accessed Dec. 1, 2011 at <http://www.fruitsandveggiesmatter.gov/index.html>].

CFBAI (Children's Food and Beverage Advertising Initiative). 2006. Press Release: New Food, Beverage Initiative to Focus Kids' Ads on Healthy Choices; Revised Guidelines Strengthen CARU's Guidance to Food Advertisers – November 14, 2006. Better Business Bureau. Available: <http://www.bbb.org/us/article/new-food-beverage-initiative-to-focus-kids-ads-on-healthy-choices-revised-guidelines-strengthen-caru-guidance-to-food-advertisers-672> [Accessed Oct 13 2011].

CFBAI (Children's Food and Beverage Advertising Initiative). 2011a. Category-Specific Uniform Nutrition Criteria. Children's Food and Beverage Advertising Initiative. Better Business Bureau. Available: <http://www.bbb.org/us/storage/16/documents/cfbai/CFBAI-Category-Specific-Uniform-Nutrition-Criteria.pdf> [accessed October 7, 2011].

CFBAI (Children's Food and Beverage Advertising Initiative). 2011b. Press Release: Council of Better Business Bureaus Announces Groundbreaking Agreement on Child-Directed Food Advertising – July 14, 2011. Better Business Bureau. Available: <http://www.bbb.org/us/article/council-of-better-business-bureaus-announces-groundbreaking-agreement-on-child-directed-food-advertising-28325> [Accessed October 13, 2011].

Cornucopia (Cornucopia Institute). 2011. Organic Cereal Scorecard. Available: <http://cornucopia.org/cereal-scorecard/> [Accessed November 7, 2011].

Deshmukh-Taskar PR, Nicklas TA, O'Neil CE, Keast DR, Radcliffe JD, Cho S. 2010. The relationship of breakfast skipping and type of breakfast consumption with nutrient intake and weight status in children and adolescents: the National Health and Nutrition Examination Survey 1999-2006. *J Am Diet Assoc* 110(6): 869-78.

DHHS (US Department of Health and Human Services). 2001. The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity. United States Department of Health and Human Services, Public Health Service, Office of the Surgeon General. Available: <http://www.surgeongeneral.gov/topics/obesity/> [Accessed October 13, 2011].

FDA. 2001. Food Labeling: Reference amounts customarily consumed per eating occasion. Code of Federal Regulations: Food and Drug Administration, Department of Health and Human Services. Available: http://edocket.access.gpo.gov/cfr_2001/aprqr/pdf/21cfr101.12.pdf [Accessed September 28, 2011].

FDA. 2006. Food Labeling: Food; designation of ingredients. Code of Federal Regulations: Food and Drug Administration, Department of Health and Human Services. Available: http://edocket.access.gpo.gov/cfr_2006/aprqr/pdf/21cfr101.4.pdf [Accessed October 10, 2011].

FTC (Federal Trade Commission). 1978. Notice of Proposed Rulemaking, Children's Advertising, Federal Trade Commission 43 Fed. Reg. 17967 (4/27/1978).

FTC (Federal Trade Commission). 1981. Termination of Rulemaking Proceeding, Children's Advertising, 46 Fed. Reg. 48710 (10/2/1981).

FTC (Federal Trade Commission). 2008. Marketing Food to Children and Adolescents: A Review of Industry Expenditures, Activities, and Self-Regulation. Federal Trade Commission. Available: <http://www.ftc.gov/os/2008/07/P064504foodmktin-greport.pdf> [Accessed October 13, 2011] (\$1,618,600,000 in traditional, Internet, in-store, and promotional advertising, plus \$360,000,000 in toys distributed by restaurants with children's meals).

FTC (Federal Trade Commission). 2011. Interagency Working Group on Food Marketed to Children to Hold Forum for Comment on Proposed Voluntary Principles on May 24, FTC File No. P094513: Public Comments. Available: <http://www.ftc.gov/os/comments/foodmarketedchildren/> [Accessed October 13, 2011].

FTC Improvements Act 1980. Pub. L. No. 96-252, 94 Stat. 374, 378 (codified in part at 15 U.S.C. §57A(h)).

General Mills. 2011. Big G Product List. Available: <http://generalmills.com/Home/>

Brands/Cereals/Big%20G%20Cereals/Brand%20Product%20List%20Page.aspx [accessed September 29, 2011].

Harkin T. 2005. Press Release: Remarks by Senator Tom Harkin (D-IA) At the FTC/HHC Workshop on Marketing, Self-Regulation, and Childhood Obesity – July 14, 2005. Available: <http://harkin.senate.gov/press/release.cfm?i=240635> [Accessed October 13, 2011].

Ingwersen J, De'feyter MA, Kennedy DO, Wesnes KA, Scholey AB. 2007. A low glycaemic index breakfast cereal preferentially prevents children's cognitive performance from declining throughout the morning. *Appetite* 49(1): 240-44.

IOM (Institute of Medicine). 2006. Food Marketing to Children and Youth: Threat or Opportunity? Institute of Medicine of the National Academies. Ed: McGinnis M, Gootman JA, Kraak VI. The National Academies Press, Washington, DC.

IWG (Interagency Working Group on Food Marketed to Children). 2011. Preliminary Proposed Nutrition Principles to Guide Industry Self-Regulation Efforts—Request for Comments. Federal Trade Commission, Centers for Disease Control and Prevention, Food and Drug Administration, and United States Department of Agriculture. Available: <http://www.ftc.gov/os/2011/04/110428foodmarketproposeguide.pdf> [Accessed October 13, 2011].

Johnson RK, Appel LJ, Brands M, Howard BV, Lefevre M, Lustig RH, Sacks F, Steffen LM, Wylie-Rosett J. 2009. Dietary Sugars Intake and Cardiovascular Health. The American Heart Association Committee of the Council on Nutrition, Physical Activity, and Metabolism and the Council on Epidemiology and Prevention. *Circulation* 120: 1011-1020.

Kellogg's. 2011. Find Products – Cereal. Available: <http://www2.kelloggs.com/ProductSearch.aspx?filter=Cereal> [Accessed September 30, 2011].

Lorson BA. 2009. Correlates of fruit and vegetable intakes in US children. *J Am Diet Assoc*. 109: 474-478

Mann J. 2004. Free sugars and human health: sufficient evidence for action? *The Lancet* 363 (9414): 1068-1070.

Nestle M. 2006. What to Eat. North Point Press, New York, NY.

Nihiser AJ, Lee SM, Wechsler H, McKenna M, Odom E, Reinold C, Thompson D, Grummer-Strawn L. 2007. Body Mass Index Measurement in Schools. *J Sch Health* 77:651-671.

NIH (U.S. National Institutes of Health). 2010. Sources of Energy among the US Population, 2005–06. Risk Factor Monitoring and Methods. National Cancer Institute Applied Research Program. Available: <http://riskfactor.cancer.gov/diet/foodsources/energy/> [Accessed October 13, 2011].

Post Cereals. 2011. Our Brands. Available: <http://www.postcereals.com/cereals/> [Accessed October 4, 2011].

Quaker Oats. 2011. Products. Available: <http://www.quakeroats.com/products.aspx> [Accessed October 5, 2011].

Rampersaud GC, Pereira MA, Girard BL, Adams J, Metz J. 2005. Breakfast Habits, Nutritional Status, Body Weight, and Academic Performance in Children and Adolescents. *J Am Diet Assoc* 105(5): 743-60.

Schwartz MB, Vartanian LR, Wharton CM, Brownell KD. 2008. Examining the nutritional quality of breakfast cereals marketed to children. *J Am Diet Assoc* 108(4): 702-5.

Silva FM, et al. 2011. High dietary glycemic index and low fiber content are associated with metabolic syndrome in patients with type 2 diabetes. *J Am Coll Nutr*. 30(2):141-8.

USDA and DHHS (US Department of Agriculture and US Department of Health and Human Services). 2010. Dietary Guidelines for Americans 2010. United States Department of Agriculture and United States Department of Health and Human Services. Available: <http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/PolicyDoc/PolicyDoc.pdf> [Accessed October 27, 2011].

USDA (US Department of Agriculture). 2006a. Added Dietary Sugars Are Now Easily Identified. United States Department of Agriculture Agricultural Research Service. Available: <http://www.ars.usda.gov/is/pr/2006/060227.htm> [Accessed October 11, 2011].

USDA (US Department of Agriculture). 2006b. USDA Database for the Added Sugars Content of Selected Foods. United States Department of Agriculture Agricultural Research Service. Available: http://www.ars.usda.gov/SP2UserFiles/Place/12354500/Data/Add_Sug/addsug01.pdf [Accessed October 11, 2011].

USDA (US Department of Agriculture). 2011a. MyPyramid Tracker. United States Department of Agriculture Center for Nutrition Policy and Promotion. Available: <http://www.mypyramidtracker.gov/> [Accessed October 7, 2011].

USDA (US Department of Agriculture). 2011b. Nutrient Data Laboratory. United States Department of Agriculture Agricultural Research Service. Available: <http://www.nal.usda.gov/fnic/foodcomp/search/> [Accessed October 7, 2011].

Warren JM, Henry CJ, Simonite V. 2003. Low glycemic index breakfasts and reduced food intake in preadolescent children. *Pediatrics* 112(5): e414.

Westen T. 2006. Government Regulation of Food Marketing to Children: The Federal Trade Commission and the Kid-Vid Controversy. *Loyola of Los Angeles Law Review* 39: 79-92.

WHO (World Health Organization). 2003. Diet, Nutrition and the Prevention of Chronic Diseases. Report of a Joint WHO/FAO Expert Consultation. World Health Organization and Food and Agriculture Organization. Available: http://whqlibdoc.who.int/trs/who_trs_916.pdf [Accessed Oct 27 2011].