

Nestle, Marion,  
What to Eat, 2006



You find the difference between cold and hot potatoes and every-  
thing else about this idea absurdly complicated? Well, so do I, especially  
because if you toss some butter or cheese on those potatoes the  
Glycemic Index will drop (because fat is not a carbohydrate), but the  
calories and saturated fat will go up. Overall, what matters more than  
the Glycemic Index of a food is how much of that food you eat.

Even though I do not use the Glycemic Index, there are some things  
about the concept that I like very much. The Glycemic Index alerts you  
to the good things that happen when you eat foods with a low Glycemic  
Load—fruits, vegetables, and whole grains; lean meats and fish; and  
low-fat dairy products—exactly the foods recommended for good health.  
The Glycemic Index also alerts you to the undesirable effects of eating  
lots of starchy processed foods—crackers, pretzels, cookies, and the like—  
and foods high in added sugars, such as sodas, candies, and desserts.  
Sugary breakfast cereals raise particular concerns because they have

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both rapidly absorbable refined starch  
and added sugars. In anything but  
small amounts, these foods add calories  
that you are unlikely to need (because  
they come with few or no other nutri-  
ents and practically no fiber), and they  
put your metabolism into overdrive to  
deal with the influx of glucose from the  
rapid breakdown of starch and sugars. Such problems are best avoided by  
saving highly processed starchy and sugary foods for special occasions.

## Sugar(s)

**A** couple of weeks after my book *Food Politics* came out in 2002, I  
received an unexpected letter from a Washington, D.C., law  
firm representing the Sugar Association, a group “committed to  
integrity and sound scientific principles in educating consumers and  
professionals about the benefits of pure natural sugar.” The letter said  
that in talking about my book on a radio program, I had made “numer-  
ous false, misleading, disparaging, and defamatory statements about  
sugar,” first among them that I “continuously repeat the false and inac-  
curate statement that soft drinks contain sugar.” The letter went on:

As commonly known by experts in the field of nutrition, soft drinks have  
contained virtually no sugar (sucrose) in more than 20 years. The misuse  
of the word “sugar” to indicate other caloric sweeteners is not only inaccur-  
rate, but is a grave disservice to the thousands of family farmers who grow  
sugar cane and sugar beets . . . [If you do not] cease making misleading or  
false statements regarding sugar or the sugar industry . . . the only re-  
course available to us will be to legally defend our industry and its mem-  
bers against any and all fallacious and harmful allegations.

Oh my. I am not a litigious person and this letter was most disturb-  
ing, not least because the Sugar Association seemed to interpret the

word “sugar” in a most unusual way. The ingredient list of a can of Coca-Cola Classic, for example, says that it contains high fructose corn syrup and/or sucrose. The “and/or” means one or the other, because both do the trick. Chemically, they both are sugars and sweet as can be. But in the self-interested logic of the Sugar Association, sugar means sucrose and sucrose alone.

#### WHAT IS SUGAR, ANYWAY?

To understand how nutritionally silly this is (and why the Sugar Association did not follow up on its threat), you need to know that at least three different sugars are involved in the hairsplitting over “sugar” versus other sweeteners that have calories. The first is sucrose—common “refined” table sugar—the product extracted from sugarcane and sugar beets. When you say “sugar,” the Sugar Association—which represents the growers of sugarcane and sugar beets—wants you to think sucrose. But that would be misleading. Any nutrition or biochemistry book will tell you that “sugar” refers to many kinds of “caloric sweeteners”—caloric, because they have calories. Sucrose itself is a double sugar (disaccharide) composed of two single sugars (monosaccharides), one of them

glucose (blood sugar) and the other fructose (fruit sugar). In sucrose, the glucose and fructose sugars are stuck together. In high fructose corn syrup (HFCS) and other sweeteners made from corn, the glucose and fructose are separate. Be-

cause enzymes in the digestive tract quickly split sucrose into its constituent sugars, your body can hardly tell the difference. The Table on the next page gives the percentages.

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#### Composition of Sucrose Versus HFCS\*

SWEETENER	FRUCTOSE	GLUCOSE
Sucrose	50%	50%
42-HFCS	42%	53%
55-HFCS	55%	42%

\*Source: Corn Refiners Association, [www.corn.org](http://www.corn.org)

Sucrose, fructose, and glucose are sugars. One or another of these sugars, singly or together, also show up in foods as dextrose (another name for the glucose derived from corn), fruit juice concentrates, honey, molasses, and, of course, high fructose corn syrup and other corn sweeteners. All are sugar(s). The parenthetical(s) is the one result of the Sugar Association’s letter. Although this group did not follow up on its threat, I now use the plural form when discussing caloric sweeteners. As Richard Keeler, then the head of the Sugar Association, assured me when we met a few months later, his group is glad that I am now speaking more precisely. I’ll bet.

#### THE UBIQUITOUS CORN SWEETENERS

Let me take up the matter of corn sweeteners—corn syrup with varying proportions of glucose and fructose—because there are so many misunderstandings about them. I view corn sweeteners as an especially inexpensive and ever present form of sugar(s), but nothing more sinister. Corn syrup starts out as cornstarch. Starch, as I explained in the previous chapter, is a complicated gel-like carbohydrate molecule made of enormous numbers of glucose sugars linked together in chains, some straight and some branched. But starch is not sweet. So chemists treat cornstarch with enzymes to break the gel into smaller and smaller pieces. This process ends up as corn syrup, a mixture of glucose and small starches (chains of just a few glucose molecules).

Corn syrup is sweet, but not as sweet as sucrose, and not nearly as sweet as fructose. To make it sweeter, chemists treat corn syrup with other enzymes to convert some of its glucose to fructose—about 42 per-

cent. With further treatment, they can produce syrup that is 55 percent fructose. The sugar percentages in 42-HFCS and 55-HFCS do not add up to 100 percent because some small starches—chains of glucose—still remain.

You metabolize fructose somewhat differently than glucose, leading some scientists to believe that fructose and, therefore, high fructose corn syrup, is the culprit in rising rates of obesity. Perhaps, but nothing so complicated is needed to explain the effects of corn syrup on weight gain. Sucrose and corn sweeteners both end up as glucose and fructose in the body, and both are rapidly absorbed forms of carbohydrate. Also, both are common constituents of junk foods, and add nonnutritious calories to the diet. Whether or not the biochemical differences between corn syrup and sucrose matter, one thing is clear: we eat a lot of corn sweeteners. Corn sweeteners have calories and so do the foods that contain them.

If corn sweeteners have anything to do with obesity, it is surely because processed foods are loaded with them, and lots of people are eating lots more of such foods. As the Sugar Association made clear in its letter to me, the labels on soft drinks may say “high fructose corn syrup and/or sucrose,” but soft drinks have not contained sucrose for years; they contain high fructose corn syrup. In 1980, when rates of obesity were just starting to rise, the U.S. food supply provided an average of 30 gallons of sugary soft drinks per capita, but the amount rose to 35 gallons in 2003. The food supply now provides an average of 200 calories per person per day from the high fructose corn syrup in soft drinks alone.

Corn sweeteners come from corn, obviously, and U.S. farmers grow a lot of this crop. In 2004, they produced 11.8 billion bushels of corn (a bushel is about 35 quarts). Most of this is used to feed animals; only about

6 percent of the corn produced in the United States is used to make corn sweeteners. This small percentage, however, has made a big difference in the food supply. The differences over time are summarized in the Table on the next page.

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Caloric Sweeteners in the U.S. Food Supply (Pounds Per Capita), 1980 to 2004

SWEETENER	1980	2004
Total caloric sweeteners	120	142
Refined sugar (sucrose)	84	61
High fructose corn syrup	35	78
Others (honey, maple syrup, etc.)	1	1.4

Source: USDA, at [www.ers.usda.gov/briefing/sugar/Data/Tables0.xls](http://www.ers.usda.gov/briefing/sugar/Data/Tables0.xls).

In the twenty-four years from 1980 to 2004, caloric sweeteners in the U.S. food supply increased from 120 pounds to 142 pounds. These 142 pounds include sugars from all sources—cane, beet, corn, honey, and maple trees—and is the amount available in the food supply for every man, woman, and child in the country. As the Table shows, the availability of refined (cane and beet) sugar dropped by 23 pounds, but the supply of high fructose corn syrup more than doubled. High fructose corn syrup not only accounts for all of the 22-pound increase in caloric sweeteners in the food supply but has also displaced considerable amounts of sucrose. You can see why the Sugar Association is so worried about protecting the interests of sugarcane and sugar beet producers. You also can see why nutritionists like me are so concerned about sugars in general and corn sweeteners in particular—they have calories.

The 142 pounds of sugars available to every American (even babies) means that your adult share is close to half a pound per day.

And you do not have to look much further than calories from sugar(s) to explain why Americans are gaining weight. The 142 pounds of sugars available to every American (even babies) means that your adult share is close to half a pound per day. This means that average availability is about 700 calories a day from sugars alone, and 200 of them go into soft drinks. But before you become too alarmed, remember that these are supply figures (production plus imports, less exports) and do not necessarily reflect what any one person eats. The USDA estimates that aver-

age daily intake of sugars per person is 31 teaspoons—17 from corn syrups and 14 from sucrose. This works out to about 5 ounces in total and a “mere” 500 calories per day—but still one-quarter of the average daily caloric needs. Whatever the exact figure for consumption of sugars, their calories are high enough to suggest guilt by association. All those calories from sugars—whatever their food source—must surely have something to do with weight gain. How could they not?

Sucrose and corn sweeteners may both be sugars, but the Sugar Association cares deeply about the difference. For one thing, sucrose and

corn syrups are represented by different lobbying groups. Sucrose is more expensive than corn sweeteners and it is safe to assume that its producers like it that way. As a result of decades of highly effective lobbying, the price of both

kinds of sweeteners is supported by the government, but in quite different ways. The government has long protected American growers of sugarcane and sugar beets in two ways: a quota system that restricts the import of cheaper sugar from foreign producers, and a loan program that supports the price of domestic sugar. These methods make the cost of table sugar three times higher than it would be on the free market and means that products made with sucrose are more expensive to produce. You pay a share of those increased costs when you buy foods sweetened with sucrose at the supermarket.

In contrast, corn producers receive subsidies that encourage them to grow even more of this crop than can be sold. This tends to drive down the price. The effect on the wholesale price of this sweetener is remarkable. Early in 2005, a pound of beet sugar (sucrose) cost 24 cents, but a pound of high fructose corn syrup was only about half that amount—13 cents per pound. The low wholesale cost explains why food companies love to put corn sweeteners in their products. The more corn sweeteners in a product, the cheaper the product is to make. If a food product does not cost much, you are more likely to buy it—and to buy it in larger sizes and more often. That is why low prices, wonderful as they are for your food budget, are not so wonderful for your calorie budget: they encourage you to eat more than you should. If corn sweeteners

have any special role in weight gain, it is most likely because they are added to so many food products, and products containing corn sweeteners do not cost much.

## SUGARS IN SUPERMARKETS

I like sweet foods and I am especially fond of raw cane sugar sprinkled on cereal or unsweetened yogurt, but I try to be careful about how much sugar I use. Sugars of any kind provide 4 calories per gram (120 per ounce), but have no other nutritional value. And it is all too easy to eat sweeteners in prodigious amounts, thereby driving healthier foods out of your diet, adding unneeded calories, and forcing your metabolism to go into glycemic overload. Sugars are not poisons, but they are best taken in small doses.

That is why I am astonished by the vast quantities of sugary foods sold in supermarkets. The next time you are at a grocery store, try pacing off the linear feet devoted to sweet foods. Here, for example, is what the Tops Market at the Pyramid Mall in Ithaca looked like just before the Christmas holidays in 2004. Holidays or not, this store shelves candy in sections twenty to thirty feet long in three different aisles, as well as in special displays at the ends of aisles, at the store entrance, and at every checkout counter. In this one medium-size market, an inventory of shelf space devoted to sugary foods—just in the center aisles—produces the list summarized in the Table on the next page.

Measured by shelf space, a quarter of all food products in the center aisles of this store are high in sugar. And this count of linear feet did not include the store’s bakery section, with its cakes, pies, cookies, and doughnuts, or the refrigerators packed with sweetened milk drinks and sodas, or the freezer cases full of ice cream and frozen treats.

But the high percentage alone does not do justice to the way this store pushes sugary foods. In that pre-Christmas season, the store greeted you at the entrance with red-and-green packages of soft drinks stacked like a Christmas tree (twenty feet of shelf space), not far from a special holiday display of candies in red, green, and gold foil wrap (six feet long, five shelves: thirty feet). You collected your shopping cart next to a wall of soft drink packs (fifty feet). At the outside end of one aisle—prime real estate for impulse buys—the store displayed boxes of sugars for holiday

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### Space Allotted to Sugary Foods in One Supermarket's Center Aisles

PRODUCT	LINEAR FEET OF SHELF SPACE
Non-diet sodas	400
Cookies	360
Candy	350
Cereals, sweetened	200
Juice drinks	125
Cake and cookie mixes	120
Snapple and sports drinks	110
Packaged baked goods	70
Jams and jellies	70
Cocoa, lemonade, Kool-Aid mixes	70
Sugar, syrups	65
Toaster pastries	30
Chocolate chips	20
Frosting mixes	15
Total feet of sugary foods	2,005
Total feet of food products	8,000 (rounded off)
Percent sugary foods	25

baking (sixteen feet), and another end section displayed cake, frosting, and candy mixes (twenty-eight feet). At the end of a third aisle you had to navigate around nine bushel baskets full of hard candy, also wrapped in holiday colors.

In case you missed all those chances to add sugary foods to your cart, more awaited you at the cash registers. Five of the store's checkout counters displayed candy and chewing gum on shelves four feet long, nine per section: thirty-six feet each, or another 180 feet of sweets. Although that was the holiday season, only the colors differ; the stores find reasons for similar candy displays all year long. If you find yourself buying more sugary foods than you realized or intended, it is because you cannot avoid them. Consider all of these products as expensive ways to buy sugar.

Sweet is sweet, and candy is candy, and sweet foods have a place in healthy diets. But I cannot help saying what the Sugar Association

chooses to call "disparaging and defamatory" things about sugars—but that I view as facts backed up by plenty of research—when the makers of such foods pretend they are good for you, invoke "science" to argue they are harmless, and lobby as heavy-handedly as anyone in Washington has ever seen to make sure no nutritionist or government agency suggests otherwise.

### MAKING SUGAR(S) LOOK HEALTHY

One summer afternoon, I was called by my university's development officer (the chief fund-raiser) to ask if I would meet with an alumnus who owned a candy company and wanted some nutrition advice. Of course I would. His company makes candies for kids—the inexpensive, brightly colored ones that come in packages you can play with. I loved things like that when I was a kid and, awful as I now think they are, I cannot bring myself to get upset about them as an occasional treat. They are candy and this company is not pretending that its products are anything else. But his question for me was this: Should his company be adding vitamins to its candies? His competitors were doing this, and were promoting their candy as healthier than his. He was worried about market share but also about the ethics of putting vitamins into candy. He *should* be worried about the ethics of that idea; I am too.

I had just done a house-sit for some friends in California and, I must confess, could not help but browse through their kitchen cabinets (with this book in mind, of course). There, I found health-food store gummy bears with added vitamins, herbs, and even dried vegetables (in microscopic amounts). I also found a product I had not seen before: Shark's Fruit Snacks "Made with real fruit juice." I went right to the label. The gummy sharks did indeed start out with fruit juice from concentrate, but the rest of the ingredients were corn syrup, sugar, partially hydrogenated vegetable oil (*trans* fats again), and the usual artificial colors and flavors. I did the math: 52 percent of the calories in this "snack" come from sugars. They may have vitamins, but these are candy, not health foods.

The makers of such products know that you will buy them because they look like they are better for your kids than regular candy. This strategy also works for things you might buy for yourself. Take a look, for ex-

ample, at the ingredient list for Kellogg's Nutri-Grain Honey Oat & Raisin Granola Bars. I've marked the added sugars in bold.

Granola (Rolled Whole Oats, Crisp Rice [Rice, **Sugar**, Salt, **High Fructose Corn Syrup**, Malt Flavoring], **High Fructose Corn Syrup**, **Brown Sugar**, Partially Hydrogenated Soybean Oil, Rolled Whole Wheat), Raisins, **Corn Syrup**, Partially Hydrogenated Vegetable Oil (Soybean, Cottonseed and Palm Kernel Oil), **Sugar**, **Fructose**, **Corn Syrup Solids**, Glycerin, **High Fructose Corn Syrup**, **Honey**, **Dextrose**, Natural and Artificial Flavor, Salt, Fractionated Coconut Oil, Soy Lecithin, Nonfat Dry Milk . . . [the remaining ingredients are seven vitamins and iron].

I did not highlight the raisins on this list, although they are naturally high in sugars. Overall, I would characterize this product as a low-fat cookie with added vitamins. You are supposed to think that adding vitamins makes such products healthier, but are they? This question gets us into the realm of philosophy: Is a vitamin-supplemented junk food better than a regular junk food? Take Kool-Aid, for example—it is nothing but sugar water with added vitamin C.

Like any philosophical question, this one can be argued from multiple points of view. Mine is that food categories should be clearly distinguished from one another, and that adding vitamins confuses them. Cookies, candy, and other sweets are sweet snacks or desserts. So are sweet drinks (which, according to the Center for Science in the Public Interest, are equivalent to candy in liquid form). Adding a few vitamins to desserts could lull you into thinking that it is fine to eat sweets instead of more nutritious foods that naturally contain a much wider range of vitamins and other good things. Adding vitamins to sugary foods blurs the distinctions among food categories, and moves desserts into the nutritional mainstream—everyday foods instead of those best eaten occasionally. This, of course, is just where the makers of vitamin-supplemented, high-sugar products want them positioned. Adding vitamins is an “eat more” strategy; it is not really about your health. If you need more vitamins (and most people do not), you are better off getting them from healthier foods or a multivitamin supplement than from candy or Kool-Aid.

This is why I was not pleased when New York City cut a \$166 million deal with Cadbury Schweppes to make Snapple the exclusive drink sold in the city's 1,200 public schools. This deal, made directly with the mayor's office, was announced soon after food advocacy groups won what had seemed like a major victory: they had gotten the Board of Education to forbid sugary soft drinks to be sold in New York City schools. Cadbury Schweppes moved right in to pour Snapple into that gap. Shortly after I expressed my dismay about this development to a reporter who quoted my remarks in *The New York Observer*, I received a call from the Board of Education's legal counsel asking me why I could possibly have any objections to Snapple drinks. Snapple, he said, was juice—not a soft drink. Really? I asked to see the labels.

A few days later, I received a letter from Steven Jarmon, Snapple's vice president for communications, assuring me that “Snapple 100% Juiced! Beverages meet New York City's nutritional guidelines—some of the strictest and most progressive in the country,” and that the products were “Made with 100% juice . . .” He was kind enough to send me the product labels. The Snapple Fruit Punch made for the New York City schools, for example, indeed was juice at one time, but no more. Its label says it is made from six kinds of fruit concentrates, plus flavor additives, vitamins, and calcium—and no added sugars. You do not need to add sugars to fruit concentrates. To make “juiced” products, food chemists process fruit juice until it is basically fruit-flavored sugar, and then reconstitute it. “Fruit concentrate,” according to the U.S. *Dietary Guidelines*, is a euphemism for sugars.

This Snapple drink has 170 calories in 11.5 ounces, and more sugars than in a 12-ounce Coke. Like other soft drinks, each Snapple contains 40 grams of sugars—well more than an ounce. The amounts matter. Soft drinks account for 40 percent of the sugar(s) intake of children and adolescents, and fruit drinks account for another 12 percent. The percentages are slightly different for adults, but soft drinks and fruit drinks together account for

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more than 40 percent of sugar intake for everyone. Whether you consider Snapple a soda or a fruit drink, children only have to drink one can to reach the upper limit of their recommended sugar allowance for the entire day.

Nutritionally speaking, Snapple, added sugars or not, vitamin-supplemented or not, is a dessert. As soon as you start thinking of soft drinks as desserts, you may find it hard to tolerate their presence in school vending machines or to let children drink them all day long. But the sugar, soft drink, and juice drink industries are determined to do everything they can to make sure that you do not think of soft drinks this way. They do not want you to think bad thoughts about sugar, ever.

### CONFUSING THE SCIENCE

If health authorities actually advised you to “eat less sugar,” you might be inclined to follow their advice. The sugar industry’s job is to convince you and government agencies that there is no reason for anyone to eat less sugar(s), and it is relentless in doing so. The industry argues through its trade associations and lobbyists that science does not find sugar to be harmful, and it uses a scientific review done by the USDA in 2001 to support that view. This review concluded that sugars alone—meaning sugars considered independent of their calories or of the foods that contain them—do not raise the risk of diabetes, heart disease, or obesity. But this is like considering the effects of fire independent of the effects of heat. The effects of sugars cannot be understood in isolation from calories or from the other caloric ingredients in sugary foods.

Attributing a disease to any one food or food component is always problematic because diets contain many foods, and foods contain a great many components that singly and collectively can affect health. Even so, plenty of other research, circumstantial evidence, and direct observations about sugars and health should be enough to convince anyone other than an industry defender that sugary foods add unneeded calories to the diet, cause metabolic problems, and promote weight gain. Common sense tells you that eating ounces of sugars at any one time—without the modulating effects of fiber and other food compo-

nents—will raise blood sugar beyond where it needs to be, add unnecessary calories, and encourage weight gain.

If it makes good sense to cut down on sugars and their principal sources—soft drinks, juice drinks, cookies, cakes, candy, and ice cream—shouldn’t the government say so? Until recently it did say so, but the price of good advice and common sense proved too high in the face of industry pressures. In *Food Politics*, I recounted an episode from the Starr Report to illustrate the extraordinary access of the sugar industry to officials at the highest levels of government. On a federal holiday, said the report, a Florida sugar producer (whose companies just happened to have contributed more than \$1 million to the election campaigns of both Democrat and Republican parties) had no trouble getting a telephone call through to President Bill Clinton while he was otherwise occupied with the White House intern Monica Lewinsky. Sugar industry contributions to political parties and election campaign funds help to explain why federal dietary advice about sugar intake is such a sensitive topic.

You probably have never heard of the *Dietary Guidelines for Americans*, or have only the vaguest idea of what they are. This is because they are meant as a policy statement about diet and health for government agencies, food companies, and nutritionists, rather than as a tool for public education. In contrast, the USDA invented the Pyramid food guide to translate the policy into a dietary action plan for the public. The first edition of the *Dietary Guidelines* appeared in 1980 as a joint project of two federal departments: the USDA and the Department of Health and Human Services. Subsequent editions appeared in 1985 and 1990. In 1990, Congress required the two agencies to revise the guidelines at five-year intervals. If you enjoy language games, you may be amused by what has happened to the sugar guideline over the years, as displayed by the Table on page 330.

In 1980 and 1985, the guideline contained just four words—“Avoid too much sugar”—a clear “eat less” message and still excellent advice. But look at what happens as the guidelines are revised. The number of words increases and the message becomes less direct and more confusing. By 2005, sugar has disappeared as a separate guideline and is now a “key recommendation” in a chapter on carbohydrates. Could politics



have anything to do with this? Because most lobbying goes on behind the scenes, it ordinarily takes deep investigation to attribute such changes to industry interference, but the sugar industry does not bother to hide what it does.

#### Evolution of the U.S. Dietary Guideline for Sugar, 1980 to 2005

YEAR	SUGAR GUIDELINE	NUMBER OF WORDS
1980	Avoid too much sugar	4
1985	Avoid too much sugar	4
1990	Use sugars only in moderation	5
1995	Choose a diet moderate in sugars	6
2000	Choose beverages and foods to moderate your intake of sugars	10
2005	Choose and prepare foods and beverages with little added sugars or caloric sweeteners, such as amounts suggested by the USDA Food Guide and the DASH [Dietary Approaches to Stop Hypertension] Eating Plan	27

For the year 2000 version, the scientific committee developing the guidelines suggested these words: “limit your intake of sugars.” When sugar lobbyists argued that science did not support “limit,” the agencies changed the word to “moderate.” A USDA official told me that it just wasn’t worth taking on the sugar industry to fight about one word. The difference between “limit” and “moderate” may be semantic and not matter much, but this example—and the legal challenge sent to me—illustrate the absurd lengths to which this industry will go to protect sales of cane, beet, and corn sugars.

In many ways, the 2005 sugar guideline is an even better example. The scientific advisory committee developing the basis for the guidelines said these things about sugars (all are direct quotes from the September 2004 committee report):

- The healthiest way to reduce caloric intake is to reduce one’s intake of added sugars . . . they all provide calories, but they do not provide essential nutrients.
- Although more research is needed . . . studies suggest a positive association between the consumption of sugar-sweetened beverages and weight gain.
- Most . . . studies have found that an increased intake of added sugars is associated with increased total energy intakes.
- The preponderance of . . . data available suggest that added sugars (particularly in beverages) are associated with an increase in energy intake. As a result, decreasing the intake of added sugars (particularly in beverages) may help prevent weight gain and may aid in weight loss.

Despite the scientific jargon (“preponderance of data,” “positive association,” and the like), the committee’s message is clear: the more sugars you eat, the more calories you will take in, and the more weight you will gain. You might think that a reasonable guideline based on such statements would say “eat less sugar,” and suggest doing so by cutting down on soft drinks, juice drinks, and other sweet foods. But if the *Dietary Guidelines* said something this direct, the responsible government agencies would be under siege by lobbyists for sugars and every other product whose sales might be jeopardized by that advice. It

To their credit, the agencies edited the *Dietary Guidelines* to distinguish natural from added sugars, to show in a table that soft drinks are the biggest source of sugars in American diets (33 percent of added sugars), and to list the euphemisms under which sugars are hidden on food labels (corn syrup, fruit juice concentrates, invert sugar).

cannot be a coincidence that in the 2005 guidelines, the agencies chose to sandwich advice about sugars between uncontroversial recommendations to choose fiber-rich foods and practice good oral hygiene. To their credit, the agencies edited the *Dietary Guidelines* to distinguish natural from added sugars, to show in a Table that soft drinks are the biggest source of sugars in American diets (33 percent of added sugars), and to list the euphemisms under which sugars are hidden on food labels (corn syrup, fruit juice concentrates, invert sugar). But they left it up to you to figure out how to use the USDA Food Guide and DASH Eating Plan,



assuming that you even know what they are. Such are the realities of dietary advice.

I cannot resist pointing out that the concern about too much sugar in the American diet is not new. In 1942, a committee of the American Medical Association saw fit to comment on what it viewed as an alarming eleven-fold increase in sugars in American diets since 1821—to 108 pounds per capita per year (just 60 percent of present levels). The committee was especially concerned about the rapid increase in the per capita supply of soft drinks to three 6-ounce bottles—remember those?—per week. It said:

Indiscriminate and uncontrolled supply of poor food for between-meal eating cannot be condoned with impunity anywhere . . . Restrictions in the use of sugar will help improve the nutritive quality of American diets. From the health point of view it is desirable especially to have restriction of . . . consumption of sweetened carbonated beverages and forms of candy which are of low nutritional value. The Council believes it would be in the interest of the public health for all practical means to be taken to limit consumption of sugar in any form in which it fails to be combined with significant proportions of other foods of high nutritive quality.

Ah for the good old days. This advice made sense in 1942, and it still does.

## SELLING SUGAR(S)

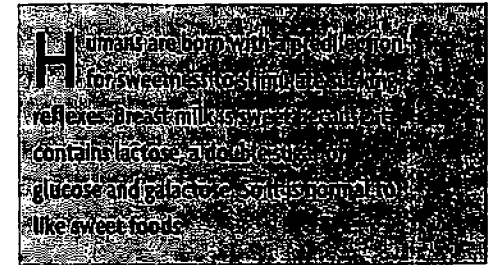
If you cannot help liking sweet foods, it is for a good reason. Humans are born with a predilection for sweetness to stimulate sucking reflexes. Breast milk is sweet because it contains lactose, a double sugar of glucose and galactose. So it is normal to like sweet foods.

But marketers encourage supermarket displays of sugary foods with advertising expenditures large enough (or so it seems) to end world poverty. In 2004, for example, PepsiCo spent \$212 million on media advertising for soft drinks; it spent an additional \$142 million for Gatorade (which is basically sugar water with a little salt). Coca-Cola spent \$246 million to promote Coke products and \$45 million for Sprite. Mars

spent \$73 million to advertise Snickers bars, and Altria's Kraft Foods allotted \$50 million for Jell-O, \$21 million for Kool-Aid, and \$11 million for Crème Savers Candy. These figures are only for measurable media advertising. The USDA estimates that for every dollar the companies spend that way, they spend another two dollars on marketing strategies like coupons, slotting fees, trade shows, and direct mail; if so, you have to multiply all those numbers by three to get the big picture.

Late in 2004, Coca-Cola said it would “return to world-class marketing” and spend an additional \$400 million a year to boost flagging sales of its products, but market analysts thought that amount would not be nearly enough and that \$600 million would be needed to accomplish that task. I have trouble getting a feel for amounts of money that large. If you take just the \$11 million Kraft/Altria spent advertising Crème Savers—one candy product among thousands on supermarket shelves—it still amounts to more than five times the largest amount of money ever spent by the U.S. government on the Five-a-Day for Better Health campaign to encourage people to eat more fruits and vegetables. Does spending that kind of money in marketing get people to buy the advertised products? It most definitely does. And you hardly have a chance against the onslaught of marketing methods that companies can buy with that kind of money.

That is because enticements to buy sweet foods in supermarkets do not end with advertising, product placements, and coupon campaigns. They also include the ways foods are priced. Foods containing corn sweeteners are cheap, and soft drinks—the principal source of caloric sweeteners in American diets—are especially cheap to make. And why not? Water is practically free, corn syrup costs only pennies per bottle, and flavor additives are used in tiny amounts. The main costs to manufacturers are in packaging and labor and, of course, in advertising and marketing. That is why bigger sizes are almost always a bargain; the cost of the actual ingredients in the product is trivial compared to the costs of bringing the product to market.



Coping with this situation calls for firm determination. To make it easier on yourself, you can decide never to set foot in the aisles devoted

to soft drinks and candy. If you must have sweet drinks, stick with juices (preferably the ones with pulp). But nutritious as they are, fruit juices still have sugar calories—about 100 in 8 ounces—and those calories add up. To avoid sugars in other foods, you will have to read ingredient labels. If an ingredient ends with “syrup” or “-ose,” it’s

a sugar; if it is honey or fruit concentrate, it is still sugar(s). If you want package labels to be easier to understand, you will want to join the campaign of the Center for Science in the Public Interest. In 1999, this group petitioned the FDA to establish a Daily Value of 40 grams for added sugars. This, of course, is precisely the amount in just *one* 12-ounce soda—the equivalent of two of those 1942 bottles. It is disappointing—but not surprising—that the FDA has not acted on this petition.

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## Cereals: Sweet and Supposedly Healthy

If you want to keep up with the latest developments in food marketing, the processed cereal aisle is the best place to begin. Early in 2005, I came across a box of Post Frosted Shredded Wheat with a big heart on its front panel. But instead of the usual “Helps lower cholesterol or the risk of heart disease,” which appears on practically all boxes of cereals aimed at adults, this one said: “Lose 10 lbs. The Heart Healthy Way (see back for details).” I immediately turned the box over: “That’s right! Research by a leading cardiologist shows that people who ate 2 bowls of Post Healthy Classics cereals each day, as part of a reduced calorie diet, LOST 10 LBS\* and reduced their risk factors for heart disease . . .” You can do this at home, the box tells you, in just three easy steps:

- Replace 2 meals a day with a serving of any Post Healthy Classics cereal, ½ cup fat-free milk and fruit.
- Focus on portion control at mealtimes.
- Add more physical activities into your day.

Good advice. Replacing a meal with a cereal serving (presumably just one) will surely reduce your caloric intake. Eating less and moving