

Nutrition and Your Health  
**Dietary Guidelines  
 for Americans**  
**Avoid Too Much  
 Sugar**

FEB 0 4 1987

**From the Editor**

This is one of a series of bulletins with tips to help you use the seven Dietary Guidelines in choosing and preparing the foods you eat and serve to others: Following the Dietary Guidelines is a balancing act: getting the variety of foods necessary to supply the nutrients you need, but not too much of other food components—calories, fat and cholesterol, sugar, sodium, and alcohol. This bulletin shows how to

“Avoid Too Much Sugar.” But remember, it’s important to consider all seven guidelines in building a healthful diet:

- Eat a Variety of Foods
- Maintain Desirable Weight
- Avoid Too Much Fat, Saturated Fat, and Cholesterol
- Eat Foods with Adequate Starch and Fiber
- Avoid Too Much Sugar
- Avoid Too Much Sodium
- If You Drink Alcoholic Beverages, Do So in Moderation

**Sugar and  
 Your Teeth**

**Harmful**

- Too much sugar
- Frequent snacks
- “Sticky” sweets



**Helpful**

- Sugar at meals only
- Good dental care
- Fluoride

**Sugar: Fact or Fiction?**

To get an idea of what you already know about sugar and your diet, take this quiz. After you’ve read this bulletin, try the quiz again to see how much you have learned. (Answers are on page 8.)

True False

- |                          |                          |   |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | 1. A major problem with diets high in sugar is that the foods high in sugar may replace more nutritious ones. |
| <input type="checkbox"/> | <input type="checkbox"/> | 2. Snacking on dried fruit is less harmful to the teeth than drinking a fruit drink.                          |
| <input type="checkbox"/> | <input type="checkbox"/> | 3. The average 12-ounce cola drink contains about 9 teaspoons of sugar.                                       |
| <input type="checkbox"/> | <input type="checkbox"/> | 4. The total amount of added sugars Americans eat has gone down in recent years.                              |
| <input type="checkbox"/> | <input type="checkbox"/> | 5. People who eat a lot of sugar are almost always obese.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 6. For nearly all foods, manufacturers must list any added sugars on the ingredient label.                    |
| <input type="checkbox"/> | <input type="checkbox"/> | 7. Many foods can be made with less sugar without harming their taste or quality.                             |
| <input type="checkbox"/> | <input type="checkbox"/> | 8. Honey and brown sugar are much more nutritious than table sugar.   |

**The Sugar/Tooth  
 Decay Connection**

The major problem related to eating too much sugar is tooth decay. Tooth decay, however, is more than a matter of HOW MUCH sugar you eat. Both the FORM in which you eat sugar and HOW OFTEN you eat it are important. Sticky or chewy sugary foods that stay on the teeth longer cause more problems than other sweets. Sugary foods eaten between meals are more likely to cause tooth decay than those eaten only at mealtime.

Maintaining healthy teeth is more than avoiding too much sugar. Use of fluoridated water and careful dental hygiene are also important.

**Read On For...**

- Sugar: The basic facts, page 2
- Getting to know your sugars, page 3
- Rating your diet, page 4
- Recipes, pages 5 and 6

# Sugar: The Basic Facts

## What Is Sugar?

To most people, "sugar" means white table sugar. In the Dietary Guidelines, "sugar" means all forms of caloric sweeteners, including white sugar, brown sugar, raw sugar, corn syrup, honey, and molasses.

Table sugar, or sucrose, is the most commonly used sugar. Corn-based sweeteners are also used in large amounts in food processing.

Sugars are simple carbohydrates. Another type of carbohydrate, complex carbohydrate, includes starch and dietary fiber. It is discussed in another bulletin in this series.

## Where's the Sugar?

### What Comes Naturally

Sugars are found naturally in some foods. Most fruits and some vegetables contain sugars such as glucose, fructose, and sucrose. Another sugar, lactose, is found in milk and milk products. Legumes and cereals contain small amounts of maltose. Besides sugars, these foods provide needed vitamins and minerals.

### What's Added

Sugars are added to foods during processing, preparation in the home, or at the table. These sweeteners, such as sucrose and corn syrups, are used to flavor and preserve foods. Soft drinks and sweetened beverages, sugars and sweets, and bakery products provide most of the sugar in the American diet.

## How Much Sugar Is in the Foods You Eat?

The tradeoffs\* below are equations that show approximately how much sugar is added to some popular foods. Foods on each side of the equation provide about the same amount of nutrients. For example, milk- and grain-based desserts provide the same nutrients as the enriched flour or milk from which they are made, but they also provide much more sugar and fat.

Sugary Foods	
1 tsp. jam or jelly	= 1 tsp. sugar, syrup, or molasses
1-ounce chocolate bar	= 2 tsp. fat + 5 tsp. sugar
12 ounces fruit drink, ade, or punch	= 12 tsp. sugar
12 ounces cola	= 9 tsp. sugar

Effects of Food Form and Preparation	
1/2 cup frozen sweetened fruit	= 1/2 cup unsweetened fruit + 6 tsp. sugar
1/2 cup fruit, canned in heavy syrup	= 1/2 cup unsweetened fruit + 4 tsp. sugar
1/2 cup fruit, canned in light syrup	= 1/2 cup unsweetened fruit + 2 tsp. sugar
8 ounces lowfat vanilla yogurt	= 8 ounces lowfat milk + 4 tsp. sugar
8 ounces lowfat fruit yogurt	= 8 ounces lowfat milk + 7 tsp. sugar

Desserts	
1/2 cup ice cream	= 1/3 cup skim milk + 2 tsp. fat + 3 tsp. sugar
1/2 cup ice milk	= 1/3 cup skim milk + 1 tsp. fat + 3 tsp. sugar
1/2 cup lowfat frozen yogurt	= 1/3 cup skim milk + 4 tsp. sugar
1/16 of white layer cake with chocolate frosting	= 1 slice bread + 3 tsp. fat + 6 tsp. sugar
2 oatmeal cookies	= 1 slice bread + 1 tsp. fat + 1 tsp. sugar
1/6 of 9-inch apple pie	= 2 slices bread + 1/3 medium apple + 3 tsp. fat + 6 tsp. sugar

\*Tradeoffs are approximations based on the calories and nutrients in these types of foods. Individual foods vary.

## Sugar and Your Health

Sugar supplies energy (calories) but few nutrients. If eating sugar keeps you from eating nutritious foods, you may not get enough vitamins and minerals. Amounts of sugar should be limited by everyone, but especially by individuals with low calorie needs.

The major problem that results from eating too much sugar is tooth decay. Sugar has been blamed for obesity, diabetes mellitus, heart disease, and hyperactive behavior in young children. However,

scientific studies have not shown a *direct* link between sugar and any of these conditions, except tooth decay.

Obesity results from eating too many calories, regardless of their source. Cutting back on added sugars is a good way to reduce calories—without reducing nutrients. Too much sugar has not been shown to cause diabetes or heart disease, but obesity *is* associated with an increased risk for both of these disorders.

# Getting to Know Your Sugars

## Terms That Mean Added Sugar— Word Find

Just for fun, see how many of 10 different sugars you can find in the puzzle below. Names run up and down, across, and diagonally. The box at right may give you some clues (solutions on page 7).



## Names of Sugars Used in Foods

Sugar	Lactose
Sucrose	Mannitol
Glucose	Honey
Dextrose	Corn syrup
Sorbitol	High-fructose corn syrup
Fructose	Molasses
Maltose	Maple syrup

## Using the Ingredient Label

Read the ingredient label to get a rough idea of the sugars in a product. (The names of some sugars that manufacturers add to foods are listed above.) Ingredients are listed on the label in order by weight—from greatest to least. So, if one of these sugars is listed as one of the first three ingredients, or if several sugars are listed on the label, the product is probably high in sugar.

**INGREDIENTS:** Bleached flour, sugar, partially hydrogenated vegetable shortening, dextrose, water, corn syrup, carob, whey blend, cornstarch, salt, sodium bicarbonate, lecithin, artificial flavorings, and artificial colors.

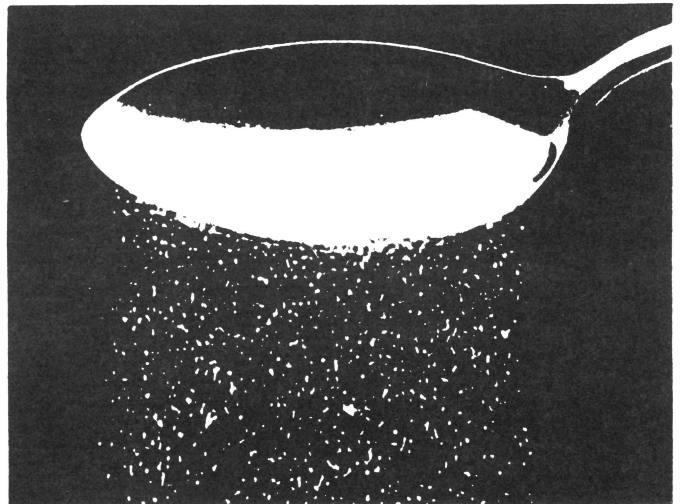
## What About Artificial Sweeteners?

Saccharin and aspartame are artificial sweeteners commonly used in diet beverages, tabletop sweeteners, and other products to provide sweetness without unwanted calories. Aspartame (marketed commercially as "NutraSweet®") is also used in gelatins, puddings, dessert toppings, and even cereals. Since saccharin does not have the same baking characteristics as sugar, special recipes must be used for preparing baked products using this sweetener. Aspartame decomposes with heat and is not appropriate for baking purposes.

*It is not necessary to use artificial sweeteners to avoid too much sugar in your diet.*

The safety of artificial sweeteners as food additives is continuously under review by the Food and Drug Administration (FDA). For current information about specific food additives, contact the FDA Consumer Affairs Office in your region.

This product contains three different added sugars: sugar, dextrose, and corn syrup. Notice that these sugars are the second, fourth, and sixth ingredients on the label. This indicates that this product is probably high in sugar.



## Rating Your Diet: How Sweet Is It?

Now that you are aware of some of the sources of added sugars, let's take a look at *your* diet. Check the box that most closely describes your eating

habits to see how the foods you choose affect the amount of added sugars in your diet.

How often do you—	Less than once a week	1 or 2 times a week	3 to 5 times a week	Almost daily
1. Drink soft drinks, sweetened fruit drinks, punches or ades?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Choose sweet desserts and snacks, such as cakes, pies, cookies, and ice cream?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Use canned or frozen fruits packed in heavy syrup or add sugar to fresh fruit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Eat candy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Add sugar to coffee or tea?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Use jam, jelly, or honey on bread or rolls?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### How Did You Do?

The more often you choose the items listed above, the higher your diet is likely to be in sugars. However, not all of the items listed contribute the same amount of added sugars. (See the tradeoffs on page 2.) You may

need to cut back on sugar-containing foods, especially those you checked as "3 to 5 times a week" or more. This does not mean eliminating these foods from your diet. You can moderate your intake of sugars by choosing foods that are high in sugar less often, and by eating smaller portions.

## Avoiding Too Much Sugar—Some Suggestions

### At the Supermarket—

- Read ingredient labels. Identify all the added sugars in a product. Select items lower in total sugar when possible.
- Buy fresh fruits or fruits packed in water, juice, or light syrup rather than those in heavy syrup.
- Buy fewer foods that are high in sugar such as prepared baked goods, candies, sweet desserts, soft drinks, and fruit-flavored punches and ades.

### In the Kitchen—

- Reduce the sugar in foods prepared at home. Try new recipes or adjust your own. Start by reducing the sugar gradually until you've decreased it by one-third or more.
- Experiment with spices such as cinnamon, cardamom, coriander, nutmeg, ginger, and mace to enhance the flavor of foods.

- Use home-prepared items (with less sugar) instead of commercially prepared ones that are higher in sugar, when possible.

### At the Table—

- Use less of all sugars. This includes white and brown sugar, honey, molasses, and syrups.
- Choose fewer foods high in sugar such as prepared baked goods, candies, and sweet desserts.
- Reach for fresh fruit instead of a sweet for dessert or when you want a snack.
- Add less sugar to foods—coffee, tea, cereal, or fruit. Get used to using half as much; then see if you can cut back even more.
- Cut back on the number of soft drinks, punches, and ades you drink. (See page 7 for alternate choices.)

# Recipes

If you love desserts but are concerned about the amount of sugar that they contain, you will be happy to

discover how tasty foods prepared with less sugar can be. Try some of the following recipes and see for yourself.

## Strawberry-Yogurt Popsicles

Makes 12 popsicles

Per popsicle:

Calories.....	70	Cholesterol.....	2 milligrams
Total fat.....	1 gram	Sodium.....	29 milligrams
Saturated fatty acids.	Trace		

Frozen sweetened strawberries, thawed .....	2 cartons, 10 ounces each
Unflavored gelatin.....	1 tablespoon
Plain lowfat yogurt.....	16 ounces
Paper cups, 3-ounce.....	12
Wooden sticks.....	12

1. Drain strawberries, reserving liquid.
2. Place drained liquid in a saucepan and sprinkle with gelatin. Cook over low heat, stirring constantly, until gelatin dissolves. (The sweetened liquid sweetens the whole recipe.)
3. Mix strawberries, yogurt, and gelatin mixture in a blender until smooth.
4. Place cups on a tray or in a baking pan. Fill with blended mixture and cover cups with a sheet of aluminum foil.
5. Insert a stick for each popsicle by making a slit in the foil over the center of each cup.
6. Freeze popsicles until firm.
7. Run warm water on outside of cup to loosen each popsicle from the cup.

## Whole-Wheat Raisin Cookies

About 5 dozen cookies

Per cookie:

Calories.....	50	Cholesterol.....	5 milligrams
Total fat.....	2 grams	Sodium.....	22 milligrams
Saturated fatty acids.	1 gram		

Whole-wheat flour.....	1 cup
All-purpose flour.....	1 cup
Baking powder.....	1-1/2 teaspoons
Cinnamon.....	1/2 teaspoon
Salt.....	1/4 teaspoon
Vegetable shortening.....	2/3 cup
Brown sugar, packed.....	1/3 cup
Egg.....	1
Skim milk.....	1/4 cup
Vanilla.....	1 teaspoon
Raisins, chopped.....	1 cup

1. *Preheat oven to 350°F (moderate).*
2. Grease baking sheet.
3. Mix dry ingredients except sugar.
4. Mix shortening and sugar until creamy. Add egg, milk, and vanilla. Mix well.
5. Stir in dry ingredients. Add raisins. Mix well.
6. Drop dough by teaspoonfuls onto baking sheet, about 1 inch apart.
7. Bake until lightly browned, about 9 minutes.
8. Remove from baking sheet. Cool on rack.

## Tapioca Pudding

4 servings, about 1/2 cup each

Per serving:

Calories.....	120	Cholesterol.....	71 milligrams
Total fat.....	2 grams	Sodium.....	160 milligrams
Saturated fatty acids.....	1 gram		

Quick-cooking tapioca.....	2 tablespoons
Sugar.....	3 tablespoons
Salt.....	1/8 teaspoon
Egg, beaten.....	1
Skim milk.....	2 cups
Vanilla.....	1/2 teaspoon

1. Mix all ingredients except vanilla in a saucepan. Let stand 5 minutes.
2. Bring to full boil, stirring constantly. Remove from heat. Stir in vanilla.
3. Stir again after 20 minutes.
4. Chill.

## Layered Fruit Dessert

4 servings, about 2/3 cup each

Per serving:

Calories.....	85	Cholesterol.....	2 milligrams
Total fat.....	1 gram	Sodium.....	183 milligrams
Saturated fatty acids.....	Trace		

Lowfat cottage cheese.....	3/4 cup
Honey.....	1 tablespoon
Ground nutmeg.....	1/8 teaspoon
Cantaloup cubes.....	1-1/3 cups
Honeydew melon cubes.....	1-1/3 cups
Wheat germ, unsweetened, if desired.....	1 teaspoon

1. Put cottage cheese, honey, and nutmeg into blender container; cover. Blend until smooth.
2. Mix melon cubes. Place 1/3 cup fruit in each serving dish. Top with about 1-1/2 tablespoons cheese mixture. Repeat layers.
3. Sprinkle 1/4 teaspoon wheat germ on each serving, if desired.

## Carrot-Pineapple Cupcakes

8 cupcakes

Per cupcake:

Calories.....	165	Cholesterol.....	34 milligrams
Total fat.....	8 grams	Sodium.....	151 milligrams
Saturated fatty acids.....	1 gram		

Whole-wheat flour.....	1 cup
Sugar.....	1/3 cup
Baking powder.....	1 teaspoon
Baking soda.....	1/2 teaspoon
Cinnamon.....	1 teaspoon
Nutmeg.....	1/4 teaspoon
Salt.....	1/8 teaspoon
Egg, beaten.....	1
Oil.....	1/4 cup
Carrots, shredded.....	1 cup
Crushed pineapple, juice pack, drained.....	1/2 cup
Vanilla.....	1 teaspoon

1. Preheat oven to 350°F (moderate).
2. Place paper baking cups in muffin tins.
3. Mix dry ingredients thoroughly in mixing bowl.
4. Add remaining ingredients; mix well.
5. Fill baking cups two-thirds full.
6. Bake 20 minutes or until top springs back when touched lightly.

This cupcake recipe uses less than half the sugar of a typical carrot cake. It is also much lower in fat and calories.

## What's to Drink?

Looking for an alternative to soft drinks and fruit drinks that contain so much sugar? Try one of these:

**Fruit Juices**—ready-to-drink from the can or bottle, or mixed from frozen concentrate. To get the most fruit juice with the least amount of added sugar, be sure the label says fruit *JUICE*, and not fruit *DRINK*.

**Fruit Juice Mixes or Punches**—pleasantly sweet with just a bit of a tang.

**Fruit Juice Coolers**—any combination of fruit juice and club soda. A pineapple-citrus juice makes a tangy combo.

**Skim or Lowfat Milk**—a nutritious thirst quencher.

**Yogurt Fruit Shakes**—a blender treat: 1/2 cup of plain lowfat yogurt, 1 serving of fruit, 1/2 cup of juice, and 4 ice cubes. Tasty fruit and juice combinations: banana and orange juice, pineapple chunks and apple juice, apple and grape juice.

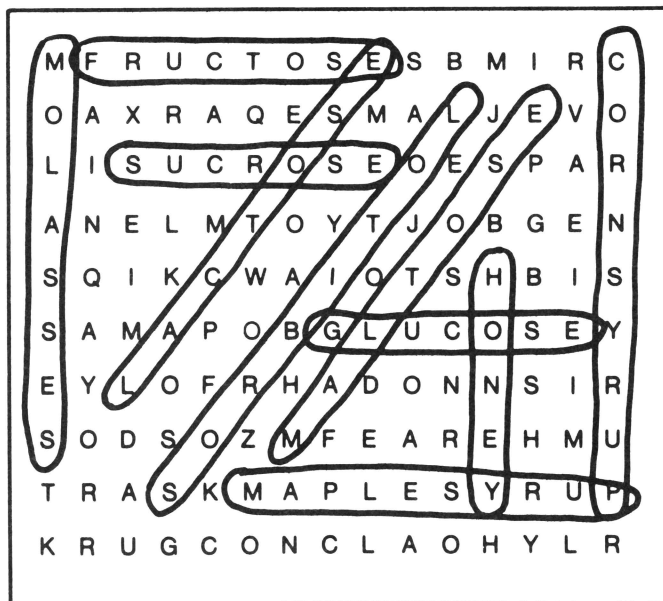
**Club Soda or Mineral Water**—refreshing served on ice with a twist of lemon or lime.

## Preventing Baby-Bottle Tooth Decay



Do not put a baby or young child to bed with a bottle of milk, formula, juice, or other sweet liquid or use such a bottle as a pacifier during the day. During sleep this liquid stays in the mouth and gathers around the teeth. Exposure of the teeth to sugars in these liquids for extended periods of time, day or night, leads to a high risk of tooth decay.

## Word Find Solutions



## Sugar: Fact or Fiction?

(Answers to Quiz on page 1.)

1. True.
2. False. In general, the sugars in sticky or chewy foods are more damaging to the teeth than those in drinks. This is true of the sugars in dried fruit as well as the sugars in chewy candies.
3. True.
4. False. Though the intake of table sugar (sucrose) has decreased in recent years, the intake of other types of sugar (especially corn-based sweeteners used in soft drinks) has increased, resulting in a small overall increase in total sugar intake.
5. False. Obesity results from taking in more calories than you use, regardless of the calorie source. Large intakes of sugar will help lead to obesity in a diet that contains too many total calories.
6. True.
7. True.
8. False. Though honey and brown sugar contain traces of some vitamins and minerals, the amounts of these nutrients are insignificant.

## Want More Information?

- Read the other bulletins in this series.
- Contact your local county Extension agent, public health nutritionist, or dietitian in hospitals or other community agencies.
- Contact the Human Nutrition Information Service (HNIS) for a list of current publications on guidelines topics. The address is U.S. Department of Agriculture, HNIS, Room 360, 6505 Belcrest Road, Hyattsville, Maryland 20782.



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