Nutrition SENSE

UNIVERSITY OF MASSACHUSETTS – DINING SERVICES

VOLUME 6 | ISSUE 4 | JANUARY/FEBRUARY 2007

We're on the web:
www.aux.umass.edu/diningservices

JANUARY/FEBRUARY
quick tip

An average 2000 calorie/day diet includes a possible discretionary calorie allowance of about 8 teaspoons (128 calories) of added sugars (USDA).

DIETITIAN
on duty

5:30–7:30 PM

Wednesday, Jan. 31
at Hampshire DC

Wednesday, Feb. 7
at Franklin DC

Wednesday, Feb. 14
at Berkshire DC

Wednesday, Feb. 21
at Worcester DC–Hillside Room

Dianne Z. Sutherland RD,LDN
Dining Services
Worcester Dining Commons – 3rd Floor
110 Stockbridge Road
University of Massachusetts
Amherst, MA 01003

Phone (413) 545-2472
Fax (413) 545-9673
Email dietitian@mail.aux.umass.edu

Be Smart. Eat Smart.
Nutrition
UMASS AMHERST DINING SERVICES

CUT SUGARCANE

SUGAR BEET

"Sugar comes from two main sources, sugar cane and sugar beets".

ADDED SUGARS IN YOUR DIET

How sugar is made?

Sugar comes from two main plant sources, sugar cane and sugar beets. It is an immense crop grown mostly in Latin America, the United States, the Caribbean, and the Far East. In the 2005-06 financial year, worldwide production of sugar equaled 144.7 million tons. Both sugar beets and cane sugar contain 99.95% sucrose, and the sugar content can be 12-20% of the plant's dry weight. Some manufacturers of sugar do not specify which source their products come from, and it is hard for the average consumer to determine the source by tasting the products.

FLOWERING SUGARCANE

Sugar from sugar cane, a tropical grass, is made by harvesting the grass and crushing the entire stalk to extract the juice. The juice is then treated with lime to remove any impurities. Then the juice is boiled and refined further depending on what the end product is (i.e., table sugar, raw, or brown sugar). Molasses, an ingredient commonly used in baking, is a by-product of the final stages of the refining process.

Beet sugar comes from the harvested sugar beets that are put through a hot water diffusion process to extract the sugar. After further refining involving centrifuging and filtration, white sugar as we know it is produced. The molasses from the sugar beets is saved and sold mainly for use in animal feed.

Raw sugars are the result of the processing of sugar beet juice, and are the product of partially processed white or refined sugar. This type of sugar is simply the yellow to brown product made from clarified cane juice boiled down to a solid, and involves very little chemical processing. Examples of raw sugar include demerara, muscovado and turbinado sugars.

White refined sugar (granulated/table sugar) is the end product of dissolving raw sugar and purifying it through various filtration methods. Regardless of the purification process, the sugar is then further decolorized giving it the pure white color that we all recognize as table sugar.

Brown sugar (light or dark) comes from the end stages of sugar refining, when the sugar becomes fine crystals that have a high molasses content. An alternative method used for making brown sugar is by coating white refined sugar with molasses syrup, in other terms, putting the molasses back in the sugar. The color and taste of brown sugar becomes stronger the more molasses is either left in the product, or added back to it.

FORMS OF SUGAR

Sugars consist of naturally occurring chemical substances. This table shows the name and source of the four types that are commonly referred to.

FORM	SOURCE
Glucose	Simple sugar that is a main product of photosynthesis in plants (all carbohydrates break down to glucose)
Fructose	Naturally occurring sugar in fruits
Sucrose	Combination of glucose and fructose, also known as table sugar
Lactose	Naturally occurring sugar in milk and milk products

Naturally Occurring Sugars

When considering the amount of sugar that we consume it is important to remember the ones that occur naturally in foods. For example, fructose is the sugar that occurs naturally in fruits, and lactose is in milk. These sugars are of less concern when trying to limit the amount we are consuming because it is the added sugar that creates the problem. Along with natural sugars, fruits and milk products also contain important nutrients that are part of a healthy diet, as seen in MyPyramid (www.MyPyramid.gov). Fruits (5-9 servings per day) and milk products (3 servings per day) should be viewed as essential sources of natural sugar, while foods with added sugars, such as cakes, cookies, candy and some beverages, should be consumed as part of our discretionary or extra calories. According to the USDA, about 8 teaspoons of sugar (or 128 calories) is the possible discretionary calorie allowance per day.

High Fructose Corn Syrup

High fructose corn syrup (HFCS) is created by chemically processing corn starch to produce glucose and fructose and then liquefying it to make it more useful in food production. This process began in Japan and was introduced in the United States in the 1970's with an increasing popularity. HFCS is easily blended with other foods and beverages, has a longer shelf life than table sugar, and is cheaper due to the fact that corn is a crop that is easy to grow. There has been some recent controversy regarding the use of HFCS in many foods and beverages (specifically soft drinks) and the health problems that may result from over consumption, namely obesity which can lead to diabetes.

Honey

Honey is created by bees, with the nectar from flower blossoms, and harvested by humans. It consists mainly of fructose, glucose, and water but also contains small amounts of vitamins, minerals, amino acids, and antioxidants. As a carbohydrate, it has just as many calories as sugar. There are more than 300 types of honey in the United States, such as clover, eucalyptus and orange blossoms. In general, lighter colored honeys have a milder flavor, while darker honeys are usually stronger in flavor. The color and flavor of honey will vary depending on the source of the nectar (type of blossom).

HOW SUGAR IS USED BY THE BODY?

Sugars are broken down to glucose by the body for energy. Glucose is usually the sole energy source for the brain and nervous system. From this it is clear that it is very important to:

1) Pay attention to the types and quantities of sugar that you are consuming.

2) Understand that sugar plays an important role in the functioning of the body.

This means that sugar can have a place (occasionally) in a healthy diet if one chooses to eat it. However, too much sugar can lead to empty calories (high in calories, low in nutrients) that may take the place of other foods with beneficial nutrients.

USES OF SUGAR IN FOOD PRODUCTION

There are many useful qualities of sugar in the production of food other than the appealing taste. Sugar:

1. Is vital in baking and cooking for the interactions with the protein molecules, gluten, and gelatinization processes in the food.
2. Caramelizes under heat, giving baked goods an appetizing color and aroma.
3. Is needed in bread products that use yeast as it is the food for the yeast to grow, and thus the bread can rise.
4. Controls the gelling of fruit jellies and jams, and helps prevent them from spoiling.
5. Is a preservative for fresh and frozen fruits by slowing any browning of the surface (for example when they are to be used in a fruit salad).
6. Enables a wide variety of candies through varying stages of recrystallization.
7. Enhances the smoothness and flavor of ice cream.

Reading Nutrition Labels

It is important to read both the ingredient list as well as the nutrition profile on the food label to determine just how much sugar is added to a product. Unfortunately, the label does not differentiate between the sugar that is added, and sugar that is naturally occurring. In addition, sugar is not always listed as "sugar." The products listed below are other forms of sugar that contain just as many calories and possible health consequences when taken in excess. As you are reading a nutrition label keep the following alternative names of sugar in mind:

• BROWN SUGAR • CORN SWEETENER • CORN SYRUP • DEXTROSE • FRUCTOSE • FRUIT JUICE CONCENTRATE • GLUCOSE • HIGH FRUCTOSE CORN SYRUP • HONEY • INVERT SUGAR • LACTOSE • MALTOSE • MALT SYRUP • MOLASSES • RAW SUGAR • SUCROSE • SYRUP

The sugar content of some common foods served at DC. How many servings do you consume of each item?

FOOD ITEM	Serving size	Grams of sugar per serving	TSP of total sugar per serving	Calories from sugar per serving
Regular soft drink	1 can (12 oz)	39	**9.25**	149
Snickers candy bar	2 oz bar	28	**6.6**	107
PowerAde	1 cup (8 oz)	15	**3.6**	58
UMass carrot cake with cream cheese icing	1 piece	23	**5.5**	88
UMass blueberry pie	1 slice (1/10 pie)	34	**8**	130
Vanilla ice cream	1/2 cup (4 oz)	25.5	**6**	97
Dannon plain yogurt	8 oz container	17	**4**	65
Dannon strawberry fruit on the bottom yogurt	8 oz container	38	**9**	144
White milk (naturally occurred lactose)	1 cup (8 oz)	13	**3**	48
Chocolate milk	1 cup (8 oz)	24	**5.75** (2.75 tsp. more added sugar than white milk)	92 (44 more calories than white milk)
Capt'n Crunch cereal	3/4 cup	12	**2.8**	45

Common Foods Containing the Most Added Sugar

According to the United States Department of Agriculture the foods that most Americans eat in abundance that have high amounts of added sugar include:

- regular soft drinks
- candy
- cakes
- cookies
- pies
- fruit drinks (not 100% fruit juice)
- milk-based desserts and products (ice cream, sweetened yogurt and sweetened milk)
- grain products such as sweet rolls, sweetened cereals, and cinnamon toast

Practical tips for limiting added sugars

HOW TO LIMIT SUGAR:

- Limit the amount of soft drinks that you consume daily. This is a major contributor to the over consumption of sugar in the United States.
- Make sure that the fruit juice that you are drinking contains 100% juice, not a juice beverage or a drink (less than 10% real fruit juice with added sugar).
- Avoid snacks and other foods with sugar (or sugar by any other name) as the first or second ingredient. The ingredients on a food label will begin with the item that has the highest weight. Therefore, if sugar is the first or second ingredient, the product contains a significant amount of sugar.

- Be aware of serving sizes when you read food labels. There may not be a substantial amount of sugar in 1 serving of the product, but how many servings are you consuming?
- Choose cereals that contain no more than 7 grams of sugar (1.5 tsp) per serving. Cereal with dried fruit should be limited to no more than 12 grams per serving (the extra grams account for the naturally occurring fructose in the dried fruit).
- Avoid adding too much sugar to your coffee or tea. If you currently add more than 1 tsp to a cup (8 oz.), try cutting back gradually.
- Replace any snacks containing added sugars with those containing natural sugars (fruit, dried fruit, lightly sweetened yogurt) when possible.

Artificial Sweeteners

The following artificial sweeteners are approved for use in the United States, acesulfame K (Sunett, Sweet One, and Sweet & Safe), aspartame (NutraSweet, Equal and Sugar Twin), neotame (the newest on the market and 8,000 times sweeter than sucrose), saccharin (Sweet 'N Low, Sweet Twin and Necta Sweet), sucralose (Splenda). These are all chemically manufactured, or molecules that do not exist in nature, and are hundreds of times sweeter than natural sugar. The main "benefit" to consumers for artificial sweeteners is that they do not contain the calories that typical sugar does. For people with diabetes, these sweeteners are safer than sugar because they do not affect blood sugar levels. However, the long-term effects of these artificial sweeteners are not known, due to the fact that they have not been in existence long enough. Knowing this fact, it is important to be aware of just how much of these sweeteners you may be consuming on a daily basis, and if you really want to include any in your diet at all. For more information on artificial sweeteners, take a look at the Nov/Dec 2006 issue of the Nutrition Sense Newsletter, Artificial Sweeteners.

Why Limit Added Sugar in Your Diet

Effective weight management and disease prevention depend on consuming a balanced diet and exercising 20-60 minutes per day most days of the week. However, there are important health benefits specifically related to limiting added sugar in your diet:

- Aids in weight control. When fat and excess sugars are consumed together, the sugars are used first (for energy) and the fat is stored in the body, leading to weight gain and an increased chance of developing health problems, such as obesity which could lead to diabetes and/or heart problems.
- Helps prevent dental cavities. The bacteria in the mouth rapidly metabolize the sugar, creating an acidic environment and eroding tooth enamel. When the enamel is damaged it is impossible to restore it by brushing.
- Can allow you to consume more nutrient dense foods to promote your health.

Moderation

As with all other aspects of health and nutrition the key is moderation. Sugar is a natural product and plays an important role in food production and palatability. Being aware of where your added sugars are coming from and limiting the amount that you consume on a daily basis will make you successful at consuming sugar in moderation.

Researched and compiled by Melanie Farwell, UMass Dietetic Intern

DINING SERVICES
UMassAmherst

Winner of ten national awards from National Association of College and University Food Services:

"Outstanding College and University Menu for Residential Dining"
in 2000, 2001, 2002, 2004, 2005, 2006

NACUFS LOYAL E. HORTON Dining Award
GRAND PRIZE WINNER '05

"Most Creative Nutrition Promotion"
2003 "Do You Want to be a Meal-lionaire?"
2004 "Nutrition Jeopardy"
2006 "Step Up to Nutrition and Health

The nutrition information in this newsletter is for educational purposes only. Information in this newsletter shall not be construed as medical, nutritional, fitness or other professional advice nor is it intended to provide medical treatment or legal advice. We recommend you meet with the appropriate professional advisors regarding any individual conditions.