Sugar Alcohols

What is a sugar alcohol?
Sugar alcohols, also known as polyols, are neither sugar nor alcohol. They are carbohydrates that are not completely absorbed by the body. They do not cause as much increase in blood sugar levels as regular table sugar.

Where do sugar alcohols come from?
Sugar alcohols occur naturally in certain fruits and vegetables, and some are even produced by the human body. However, large amounts of sugar alcohols are produced by food manufacturers for use in commercial food products.

Why are sugar alcohols used in food products?
Sugar alcohols tend to have fewer calories than regular sugar, with 0-3 Calories per gram versus 4 Calories per gram of sugar. Sugar alcohols impart various degrees of sweetness, and are used by the food industry as sugar substitutes in order to lower both the calorie and sugar content of foods.

The chart below lists some of the most common sugar alcohols and some information about them.

<table>
<thead>
<tr>
<th>Sugar Alcohol</th>
<th>Calories per Gram</th>
<th>Approximate Sweetness (Table sugar = 100%)</th>
<th>Typical Uses in Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorbitol</td>
<td>2.6</td>
<td>50 - 70%</td>
<td>Sugar-free candies, chewing gums, frozen desserts and baked goods</td>
</tr>
<tr>
<td>Xylitol</td>
<td>2.4</td>
<td>100%</td>
<td>Chewing gum, gum drops and hard candy, drugs, cough drops, cough syrups, children’s chewable vitamins, toothpastes and mouthwashes, foods for special dietary purposes</td>
</tr>
<tr>
<td>Maltitol</td>
<td>2.1</td>
<td>75%</td>
<td>Hard candies, chewing gum, chocolates, baked goods and ice cream</td>
</tr>
<tr>
<td>Isomalt</td>
<td>2.0</td>
<td>45 - 65%</td>
<td>Candies, toffee, lollipops, fudge, wafers, cough drops</td>
</tr>
<tr>
<td>Lactitol</td>
<td>2.0</td>
<td>30 - 40%</td>
<td>Chocolate, some baked goods (cookies and cakes), hard and soft candy and frozen dairy desserts</td>
</tr>
<tr>
<td>Mannitol</td>
<td>1.6</td>
<td>50 - 70%</td>
<td>Dusting powder for chewing gum, chocolate-flavored coating for ice cream and confections</td>
</tr>
<tr>
<td>Erythritol</td>
<td>0 - 0.2</td>
<td>60 - 80%</td>
<td>Sweetener in low calorie foods</td>
</tr>
<tr>
<td>Hydrogenated Starch Hydrolysates (HSH)</td>
<td>3</td>
<td>25 - 50%</td>
<td>Sweetener in low calorie foods</td>
</tr>
</tbody>
</table>

Do sugar alcohols damage teeth?
Sugar alcohols do not contribute to tooth decay.

Are sugar alcohols safe? Are there side effects?
Sugar alcohols are considered safe for people with diabetes and the general public. However, sugar alcohols can cause gas, bloating, diarrhea, and headaches when consumed in large amounts. Some people may experience these side effects even with small amounts of sugar alcohols. The American Dietetic Association currently advises avoiding intakes greater than 50 grams per day of sorbitol or greater than 20 grams per day of mannitol, as they “may cause diarrhea.”

Sugar alcohols may cause:
- Gas
- Diarrhea
- Bloating
- Headaches

Sugar alcohols are considered safe for people with diabetes and the general public.

References:

Jackie Walters, MBA, RD, LD
Extension Specialist for Nutrition Education Programs

September 2009