Sugar Alcohols
Sugars & Sweeteners

Sugar alcohols are only partially absorbed from the human small intestine. The percentage absorbed varies with each sugar alcohol and in some cases with the presence of food. The absorption rate is slow, variable, usually minimal and may have no significant effect on blood glucose (2008 CPGs) and so sugar alcohols should be subtracted from the total carbohydrate when carbohydrate counting.

The sugar alcohol not absorbed in the small bowel is fermented by colonic bacteria to produce short chain fatty acids. These short chain fatty acids are absorbed and provide energy to the body. In this way, lactitol, which is completely malabsorbed in humans, produces 2 kcal/g. Because of these fermentation by-products, the consumption of large amounts of sugar alcohols can lead to temporary abdominal discomfort such as bloating and diarrhea. The symptoms depend upon an individual’s sensitivity and other foods eaten at the same time. Most people will adapt after a few days (in a manner similar to that seen with high fiber foods). Eating less than 10 grams of sugar alcohols daily is a conservative recommendation representing a level unlikely to cause problems for the vast majority of people. The size of a person is believed to be more important than age or health status in determining the laxation threshold. The laxation threshold is the amount of sweetener taken before abdominal discomfort appears. If your clients are taking medicines that block fat (e.g. orlistat or Xenical®) or sugar (acarbose or Prandase®), they may get severe abdominal discomfort if they eat foods with sugar alcohols.

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<thead>
<tr>
<th>Name</th>
<th>Brand Name</th>
<th>Uses*</th>
<th>Other things to know</th>
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| Sorbitol |            | Throat lozenges; mouthwash; toothpaste; sugar-free candies and gums; breakfast cereal; toaster pastries; candy bars; granola bars; ice cream; cookies; pie fillings; fruit spreads; pancake syrups | • 2.6 kcal/g  
• 50 to 79% small bowel absorption  
• Laxation threshold: 50 g/day  
• Found naturally in fruits and vegetables. Manufactured from corn syrup or glucose. |
| Mannitol |            | Chocolate coatings for ice cream and                                    | • 1.6 kcal/g  
• 50% small bowel absorption                                      |
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<tr>
<td>Maltitol</td>
<td>Chocolate coating for nutritional bars; chocolate flavoured bars and baked products; in baked goods such as cookies and cakes; and in ice cream</td>
<td><strong>3 kcal/g</strong>&lt;br&gt;<strong>50 to 75% small bowel absorption</strong>&lt;br&gt;<strong>Laxation threshold: 100 g/day</strong>&lt;br&gt;<strong>It gives a creamy texture to foods</strong>&lt;br&gt;<strong>Made from high maltose corn syrup</strong></td>
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<td>Xylitol</td>
<td>Oral care products; chewing gum; mints</td>
<td><strong>3 kcal/g</strong>&lt;br&gt;<strong>50% small bowel absorption</strong>&lt;br&gt;<strong>Laxation threshold: 50 g/day</strong>&lt;br&gt;<strong>Also called “wood sugar”</strong>&lt;br&gt;<strong>Found naturally in straw, vegetables, fruit and cereals</strong>&lt;br&gt;<strong>Made commercially from xylose</strong>&lt;br&gt;<strong>It has a cooling reaction in the mouth</strong></td>
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<td>Lactitol</td>
<td>Hard and soft candies; chewing gums; chocolate bars and coatings; baked products; sugar-reduced preserves; ice cream</td>
<td><strong>2 kcal/g</strong>&lt;br&gt;<strong>0% small bowel absorption</strong>&lt;br&gt;<strong>Laxation threshold: 20-50 g/day</strong></td>
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<td>Erythritol</td>
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<td><strong>2.6 kcal/g</strong>&lt;br&gt;<strong>Well tolerated at a daily dose of 1.0 g/kg body weight</strong></td>
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<td>Isomalt</td>
<td>Palatinit</td>
<td>Hard candies including candy canes; fudge; toffee; cough drops; lollipops</td>
<td><strong>2 kcal/g</strong>&lt;br&gt;<strong>50 to 60% small bowel absorption</strong>&lt;br&gt;<strong>Laxation threshold: 50 g/ day</strong></td>
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<tr>
<td>Hydrogenated</td>
<td>Lycasin</td>
<td>Hard candies;</td>
<td><strong>3 kcal/g</strong></td>
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| Starch hydrolysates (HSH), polyol syrups (e.g. sorbitol syrup if sorbitol is >50%), polyglycitol or polyglucitol | Stabilite  Hystar MaltiSweet | caramels; soft candies, chocolates, ice cream and nutritional bars | • Laxation threshold: approx. 100 g/day – the actual level depends on the composition of the HSH  
• Produced by the partial breakdown of corn, wheat or potato starch and subsequent hydrogenation.  
• Hydrogenation of carbohydrates does not lead to the same health issues seen with the hydrogenation of fat. |
| Polydextrose                      |            | Ice creams; chocolate wafer bars         | • 1 kcal/g  
• 0% small bowel absorption  
• Laxation threshold: 90 g/day |

*gums, candies, ice cream, cookies, oral care products are usually labelled “dietetic”, “sugar free” or “no sugar added”


References:
2. SPI Polyols, Inc. New Castle, DE (1-800-789-9755)
3. Lyn O’Brien Nabors, Calorie Control Council (Atlanta, GA 404-252-3663)
5. Joslin Diabetes Center (www.joslin.harvard.edu/education/library)
7. www.healthcanada.ca/nutritionlabelling

Nutrition Education Resource Committee  
Canadian Diabetes Association, revised February 2009