

## Too Much Fructose Could Leave Dieters Sugar Shocked

*ScienceDaily* (Dec. 14, 2007) — Here's one tip for how to eat at the holidays: Don't take your cues from Santa. The sugary cookies and fat-laden fruitcakes the mythical North Pole resident eats are a no-no. But you don't have to go no-carb to stay fit at the holidays, either, University of Florida researchers say.

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In fact, many dieters may actually be cutting out the wrong foods altogether, according to findings from a UF paper published recently in the *European Journal of Nutrition*. Dieters should focus on limiting the amount of fructose they eat instead of cutting out starchy foods such as bread, rice and potatoes, report the researchers, who propose using new dietary guidelines based on fructose to gauge how healthy foods are.

"There's a fair amount of evidence that starch-based foods don't cause weight gain like sugar-based foods and don't cause the metabolic syndrome like sugar-based foods," said Dr. Richard Johnson, the senior author of the report, which reviewed several recent studies on fructose and obesity. "Potatoes, pasta, rice may be relatively safe compared to table sugar. A fructose index may be a better way to assess the risk of carbohydrates related to obesity."

Many diets -- including the low-carb variety -- are based on the glycemic index, which measures how foods affect blood glucose levels. Because starches convert to glucose in the body, these diets tend to limit foods such as rice and potatoes.

While table sugar is composed of both glucose and fructose, fructose seems to be the more dangerous part of the equation, UF researchers say. Eating too much fructose causes uric acid levels to spike, which can block the ability of insulin to regulate how body cells use and store sugar and other nutrients for energy, leading to obesity, metabolic syndrome and type 2 diabetes, said Johnson, the division chief of nephrology and the J. Robert Cade professor of nephrology in the UF College of Medicine. UF researchers first detailed the role of uric acid on insulin resistance and obesity in a 2005 study in rats.

"Certainly we don't think fructose is the only cause of the obesity epidemic," Johnson said. "Too many calories, too much junk food and too much high-fat food are also part of the problem. But we think that fructose may have the unique ability to induce insulin resistance and features of the metabolic syndrome that other foods don't do so easily."

About 33 percent of adults in the United States are overweight or obese, according to the Centers for Disease Control and Prevention. Studies at other institutions have shown that following a low-glycemic diet can reduce the risk for diabetes and heart disease, but the effect could occur because these dieters often are unintentionally limiting fructose as well by cutting out table sugar, Johnson said.

"Processed foods have a lot of sugar," Johnson said. "Probably the biggest source (of fructose) is soft drinks."

Johnson also noted that, in relation to obesity, the type of fructose found in foods doesn't seem to matter. For example, the fructose in an apple is as problematic as the high-fructose corn syrup in soda. The apple is much more nutritious and contains far less sugar, but eating multiple apples in one sitting could send the body over the fructose edge.

In another UF paper, published in October in the American Journal of Clinical Nutrition, Johnson and his collaborators tracked the rise of obesity and diseases such as diabetes with the rise in sugar consumption. The rates of hypertension, diabetes and childhood obesity have risen steadily over the years.

"One of the things we have learned is this whole epidemic brought on by Western diet and culture tracks back to the 1800s," he said. "Nowadays, fructose and high-fructose corn syrup are in everything." Aside from soft drinks, fructose can be found in pastries, ketchup, fruits, table sugar and jellies and in many processed foods, including the sugar substitute high fructose corn syrup.

UF researchers plan to test a low-fructose diet in patients soon, Johnson said. Kathleen Melanson, an associate professor of nutrition and food sciences at the University of Rhode Island, said establishing a fructose index for foods could "be an appropriate approach," depending on how foods are classified. It makes sense to limit foods prepared with high fructose corn syrup and table sugar, which often contain empty calories, but fruits are an important part of a person's diet, she added.

"One concern I have always had with the glycemic index is the potential to pigeonhole foods as good or bad," she said.