



## Get facts on sweeteners before ditching diet soda

By now you probably saw headlines about a new study that links artificial sweeteners with promoting obesity, disrupting blood-sugar control and increasing the risk of developing diabetes. Although this study was well designed in some ways and yielded potentially important new perspectives, it is easy to misinterpret the significance of the study's results and overreact. Take a deep breath and read on.

**Question:** How was this study conducted?

**Answer:** This study was done in multiple stages that took the research from mice to men (and women). First, mice were split into groups and given water in only one of the following forms for 11 weeks: plain water or water with added sugar, saccharin, sucralose or aspartame. Otherwise, all the mice consumed the same type of food. After 11 weeks the mice that consumed the artificial sweeteners in their water were (on average) less efficient at removing sugar from their blood after they were fed sugar. This implied that some of them (but not all) were developing diabetes. Saccharin had the most pronounced effect. Sucralose had no effect on most of the mice, but did appear to affect about 1 out of 5 mice. Aspartame appeared to

have little, if any, effect. All of their remaining studies were conducted only on saccharin, since it had the most pronounced effect on blood-sugar regulation.

**Q:** Did saccharin affect colon bacteria?

**A:** Yes. The relative amounts of some key types of bacteria changed significantly in response to the saccharin. When these animals were given antibiotics to kill the bacteria in their colon, the adverse effect on blood-sugar control disappeared. Researchers then took bacteria from the colon of saccharin-fed mice and introduced the bacteria into the colon of mice that had not consumed saccharin. They again saw problems with blood-sugar control.

**Q:** Are these results relevant to humans?

**A:** Possibly. The researchers fed seven people the FDA's maximum daily acceptable intake of saccharin for a week and found that four individuals developed an impaired capacity to handle a sugar challenge, but three participants experienced no change.

**Q:** What is the take-home message from this study?

**A:** The relative amounts of specific types of bacteria in the colon may affect the ability of a person to

regulate blood sugar. This new information will likely help us understand factors that contribute to the development of diabetes.

It is, however, critical to realize the more commonly used sugar substitutes had little effect on blood-sugar regulation in the first experiment and were not studied in the subsequent experiments.

Saccharin and sucralose are not absorbed by the intestine and have the potential to become food for gut bacteria. Aspartame, however, is digested to amino acids and absorbed like digested protein components. It therefore remains to be seen whether other sweeteners have a similar impact to saccharin. Of the three nonsugar sweeteners studied, aspartame appears to be the least likely to negatively affect colonic bacteria and blood-sugar regulation since aspartame is absorbed and does not reach the colon.

The results of this study do not condemn all sugar substitutes as some reports might claim. They do raise questions about the variable effects of saccharin. More study is needed to see if these results are repeatable. At this point it would be an overreaction to pour your diet soda down the drain.

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