Another Look at Artificial Sweeteners and Weight Gain

By Ruth Kava — July 1, 2016

One of the most controversial nutritional theories promulgated in recent years is the one based on experiments by researcher Susan Swithers at Purdue University. Her work led her to propose that non-nutritive (NNS — artificial no- or low-calorie) sweeteners in food or drink are more likely to lead to obesity than such items sweetened with sugar.

Supposedly this occurs because the association typically made between sweetness and calorie content is "broken" when non-nutritive sweeteners are used. Although this theory contradicts the principles of thermodynamics, it gained much attention in the media. Our opinion of this theory can be seen here [1].

A new group of researchers, led by Professor R.A. Boakes from the University of Sydney in Australia, tried to replicate her results, but guess what? It didn't work. Their work will be published [3] in the journal Appetite, and here's the preview [4].

These investigators tested the hypothesis that NNS (saccharin in this case) would cause rats to gain weight faster than would the same edible sweetened with glucose. All the rats were given normal rat chow and water, and they were divided into three groups:

- one group also got yogurt sweetened with 0.3 percent saccharin
- one got yogurt sweetened with 20 percent glucose
- the control group was given unsweetened yogurt

Initially the animals were given both types to establish preferences.
As one might expect, the group given glucose was heavier than the other two by the last five weeks of the experiment (the experimental period totaled 15 weeks): they also had the heaviest fat pads of the three. There were no differences between the NNS-sweetened yogurt group and the control group. In a test of chow consumption, the saccharin group actually consumed slightly less than the control group over a four-hour test period — in contradiction to the theory that NNS would cause an increase in food intake and thus lead to obesity.

While this is only one study, the fact that it fails to replicate the results seen in the work by Swithers certainly does not support her hypothesis. And if the effect of NNS on rats cannot be reliably replicated, one must question the theory’s applicability to humans. After all, our eating environment and choices are certainly more complex than that of lab rats.