

## The Medical Minute: How sweet it was...

November 29 2010, By Ann M. Rogers

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Do you ever stop to wonder why it's so easy to put on a little extra weight now that you're no longer a teenager?

Well, wonder no more -- the answer is simple: [food](#) tastes good! As the [obesity](#) epidemic rages, multiple theories have emerged about its possible causes:

- A “conservative gene” that forces us to hold on to extra calories so we'll be prepared for the next ice age.
- The startling increase in portion sizes that are offered wherever we go.
- The ready availability of fast food instead of good old-fashioned whole foods.

All of these probably are true. But the simple fact remains that food tastes good, and we are hard-wired to enjoy the taste of food, and more so the bigger we get.

Researchers at Penn State Hershey Medical Center and Penn State College of Medicine are studying just this effect. Dr. Andras Hajnal, an associate professor of Neural and Behavioral Sciences, has dedicated his laboratory resources in part to the science of “food reward.” And what has he found? It seems that obese rats will work incredibly hard to be given sips of sugar water, much harder than lean rats. The obese rats actually become diabetic with time, but they will happily push buttons over and over, many times a day, to receive continuous infusions of a

sweet “reward.” And it is possible to study the “reward areas” in the brain to try to figure out what is different between lean and obese animals.

To expand on this knowledge, Hajnal and I are starting a collaborative pilot study to look at changes in brain reward areas in humans, before and after gastric bypass surgery.

What is known so far? About 30 percent of obese patients are diabetic. It also is very common among obese patients to enjoy things that taste sweet. In addition, there is a relatively high rate of binge-eating disorder among obese patients. This means they frequently consume unusually large amounts of food -- not just on Thanksgiving -- and then feel deeply ashamed about it. It is a compulsion that is hard to resist; such patients feel completely out of control and upset by their own eating, but cannot stop. Emotional eating -- turning to food for comfort, whether consciously or unconsciously, when stressed, when bored, when lonely, or when feeling down -- also is common. Emotional eating often includes taking in too much of high-calorie, sweet, fatty foods.

It is interesting, however, that after gastric bypass surgery, things may start to smell or taste different. Many morbidly obese patients lose their taste for sweets. In fact, many bypass patients actually find things to be “too sweet,” which helps in making better food choices. The study of brain regions involved in taste and hormonal “food reward” may be helpful in possibly finding new ways to prevent diabetes and obesity. Alternatively, it may also help patients maintain the weight they have lost after bariatric surgery or even possibly lead to effective treatments for diabetes and obesity that do not require an operation.

Provided by Pennsylvania State University

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