

## **The real cause of obesity: Addicted to Food**

**Flora Devlin**

### **Category: General Prize**

Telling obese people to 'just eat less' is the equivalent of advising a chronic heroin addict to 'cut down a bit', say scientists.

According to research carried out at New York's Brookhaven National Laboratory obesity is literally an addiction to food. The findings may offer clues to why current strategies to combat obesity are failing. The condition is as much a psychological problem as a physical one and should be treated accordingly, scientists urge.

It has previously been shown that drug addicts and alcoholics have fewer receptors for dopamine, a neurotransmitter associated with feelings of pleasure and satisfaction, than non-addicts. The Brookhaven team, led by Professor Gene Jack Wang, has discovered that obesity causes the same kind of changes in brain chemistry. The results imply that obese people consume more food to stimulate the release of 'pleasure' endorphins in the brain, just as addicts feel compelled to take drugs to obtain a 'high'. If you find this hard to believe, think about the feeling when you devour that first mouthful of chocolate.

In the experiment, the brains of 10 severely obese people and 10 individuals of normal weight were examined. The subjects were injected with a radioactive chemical tag, made to bind to the dopamine receptors. Positron Emission Tomography (PET) was used to pick up the radioactive signals, the strength of which was proportional to the number of receptors. The obese group were found to have significantly fewer receptors. The study further revealed that there is an inverse relationship between weight and the number of dopamine receptors. That is, the more obese the individual the fewer dopamine receptors they have.

The advice given to obese people on the NHS Direct website is "Try not to overeat – listen to your body and stop when you're full." However, in an obese person there may be an overriding message from the dopamine receptors in the brain saying, "carry on eating!"

Whether the observed differences in brain chemistry determine obesity or are caused by obesity is unclear. "It's possible that obese people have fewer dopamine receptors because their brains are trying to compensate for having chronically high dopamine levels, which are triggered by chronic overeating," said Professor Wang.

"However, it's also possible that these people have low numbers of dopamine receptors to begin with, making them more vulnerable to addictive behaviours including compulsive food intake." This question is a current area of investigation.

This research revolutionises our understanding of obesity. The focus needs to switch away from 'which diet' to the question of how to tackle food addiction. One possibility is prescribing drugs that artificially alter dopamine levels. However these drugs are highly addictive and would only be appropriate when a person's weight is

an immediate risk to their health. A better alternative is exercise. Not only does it have the direct physical effect of weight-reduction, but it also provides the all-important dopamine high. This will effectively replace the need for the obese person to eat food to obtain this high.

So what is my point? Stop feeding the ever-expanding diet industry and get the nation on its bike.

**Sources:**

Brookhaven National Research Laboratory [www.bnl.gov](http://www.bnl.gov)

**Biography:**

Flora Devlin is a sixth form student at St Bedes College, Manchester. She is currently studying for AS levels in Maths, Further Maths, Physics and Economics. Last year she achieved 10 A\*'s in her GCSE's. She is hoping to study Economics or maths at university, and her ideal career would be to be a civil servant.

Her main hobbies are sport and music. She plays both piano and percussion to a high level and is a regular team player at school. She is a keen follower of the modern music scene, especially local Manchester groups and musicians.