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Battle of the bulge: Low leptin levels undermine successful weight loss

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Individuals who are obese are at increased risk of many diseases, including type 2 diabetes and heart disease. As 75%-95% of previously obese individuals regain their lost weight, many researchers are interested in developing treatments to help individuals maintain their weight loss. A new study, by Michael Rosenbaum and colleagues, at Columbia University Medical Center, New York, has provided new insight into the critical interaction between the hormone leptin and the brain's response to weight loss.

Leptin levels fall as obese individuals lose weight. So, the authors set out to see whether changes in leptin levels altered activity in the regions of the brain known to have a role in regulating food intake. They observed that activity in these regions of the brain in response to visual food-related cues changed after an obese individual successfully lost weight.

However, these changes in brain activity were not observed if the obese individual who had successfully lost weight was treated with leptin. These data are consistent with the idea that the decrease in leptin levels that occurs when an individual loses weight serves to protect the body against the loss of body fat.

Further, both the authors and, in an accompanying commentary, Rexford Ahima, at the University of Pennsylvania School of Medicine, Philadelphia, suggest that leptin therapy after weight loss might improve weight maintenance by overriding this fat-loss defense.