

Weight gain is associated with reduced striatal response to palatable food. ^[1]

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Weight gain is associated with reduced striatal response to palatable food.

Stice E, Yokum S, Blum K, Bohon C.

Consistent with the theory that individuals with hypofunctioning reward circuitry overeat to compensate for a reward deficit, obese versus lean humans have fewer striatal D2 receptors and show less striatal response to palatable food intake. Low striatal response to food intake predicts future weight gain in those at genetic risk for reduced signaling of dopamine-based reward circuitry. Yet animal studies indicate that intake of palatable food results in downregulation of D2 receptors, reduced D2 sensitivity, and decreased reward sensitivity, implying that overeating may contribute to reduced striatal responsivity. Thus, we tested whether overeating leads to reduced striatal responsivity to palatable food intake in humans using repeated-measures functional magnetic resonance imaging. Results indicated that women who gained weight over a 6 month period showed a reduction in striatal response to palatable food consumption relative to weight-stable women. Collectively, results suggest that low sensitivity of reward circuitry increases risk for overeating and that this overeating may further attenuate responsivity of reward circuitry in a feedforward process.

J Neurosci. 2010 Sep 29;30(39):13105-9. doi: 10.1523/JNEUROSCI.2105-10.2010.

<http://www.ncbi.nlm.nih.gov/pubmed/20881128> ^[3]

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