

Food Addiction, Obesity, and Inflammation

There is increasing evidence that the same brain reward circuits involved in alcohol and drug abuse are involved in the urges and food cravings observed in overweight and obese subjects (1). A genetic variant of the D2 dopamine receptor which renders it less sensitive to dopamine stimulation has been proposed to promote self-stimulatory behavior such as consuming alcohol, abusing drugs, or binging on foods. It is important to determine how this genetic difference may interact with other well-known candidate genes for obesity. Leptin is a proinflammatory cytokine as well as a long-term signal maintaining body fat. Upper-body obesity stimulates systemic inflammation through the action of multiple cytokines including leptin throughout many organs including the brain. The association of numerous diseases including diabetes mellitus, heart disease, as well as depression with chronic low-grade inflammation due to abdominal obesity has raised the possibility that obesity-associated inflammation affecting the brain may promote addictive behaviors leading to a self-perpetuating cycle that may affect not only foods but addictions to drugs, alcohol, and gambling. This new area of interdisciplinary research holds the promise of developing new approaches to treating drug abuse and obesity.

1. Heber D, Carpenter CL. Addictive genes and the relationship to obesity and inflammation. *Mol Neurobiol.* 2011 Oct;44(2):160-5.