Brain Imaging and Binge Eating Disorder

Although it is not as well studied as anorexia nervosa and bulimia nervosa, a limited number of studies have utilized brain imaging techniques to study binge eating disorder (BED). For example, results of a single positron emission computerized tomography (SPECT) imaging study demonstrated decreased serotonin (5-HT) transporter binding in the mid-brain of obese women who binge eat compared to obese women who do not binge eat (Kuikka et al., 2000). Later research using SPECT imaging indicated that this dysfunction in the serotonin system improves significantly following successful treatment of BED, but does not change over time among individuals whose symptoms persist (Tammela et al., 2003). Other research using functional magnetic resonance imaging (fMRI) procedures demonstrated that obese binge eaters show increased activation in the right premotor area (ventral premotor cortex adjacent to the oral region) in response to both visual and auditory binge food simuli (Geliebter et al., 2006). Finally, one study using magnetic resonance voxel-based morphometry (VBM) showed that individuals who binge eat demonstrate increased atrophy in the right ventral insula, striatum, and orbitofrontal cortex (Woolley et al., 2007).

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