

# Do you obsess over your appearance? Your brain might be wired abnormally

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Body dysmorphic disorder is a disabling but often misunderstood psychiatric condition in which people perceive themselves to be disfigured and ugly, even though they look normal to others. New research at UCLA shows that these individuals have abnormalities in the underlying connections in their brains.

Dr. Jamie Feusner, the study's senior author and a UCLA associate professor of psychiatry, and his colleagues report that individuals with BDD have, in essence, global "bad wiring" in their brains—that is, there are abnormal network-wiring patterns across the brain as a whole.

And in line with earlier UCLA research showing that people with BDD process [visual information](#) abnormally, the study discovered abnormal connections between regions of the brain involved in visual and emotional processing.

The findings, published in the May edition of the journal *Neuropsychopharmacology*, suggest that these patterns in the brain may relate to impaired [information processing](#).

"We found a strong correlation between low efficiency of connections across the whole brain and the severity of BDD," Feusner said. "The less efficient patients' [brain connections](#), the worse the symptoms, particularly for compulsive behaviors, such as checking mirrors."

People suffering from BDD tend to fixate on minute details, such as a single blemish on their face or body, rather than viewing themselves in their entirety. They become so distressed with their appearance that they often can't lead normal lives, are fearful of leaving their homes and occasionally even commit suicide. Patients frequently have to be hospitalized. BDD affects approximately 2 percent of the population and is more prevalent than [schizophrenia](#) or bipolar disorder. Despite its prevalence and severity, scientists know relatively

little about the [neurobiology](#) of BDD.

In the current study, Feusner and his colleagues performed [brain scans](#) of 14 adults diagnosed with BDD and 16 healthy controls. The goal of the study was to map the brain's connections to examine how the white-matter networks are organized. White matter is made up of nerve cells that carry impulses from one part of the brain to another.

To do this, they used a sensitive form of brain imaging called diffusion tensor imaging, or DTI. DTI is a variant of magnetic resonance imaging that can measure the structural integrity of the brain's white matter. From these scans, they were able to create whole brain "maps" of reconstructed white-matter tracks. Next, they used a form of advanced analysis called graph theory to characterize the patterns of connections throughout the brains of people with BDD and then compared them with those of healthy controls.

The researchers found people with BDD had a pattern of abnormally high network "clustering" across the entire brain. This suggests that these individuals may have imbalances in how they process "local" or detailed information. The researchers also discovered specific abnormal connections between areas involved in processing visual input and those involved in recognizing emotions.

"How their brain regions are connected in order to communicate about what they see and how they feel is disturbed," said Feusner, who also directs the Adult Obsessive-Compulsive Disorder Program and the [Body Dysmorphic Disorder](#) Research Program at UCLA.

"Their brains seem to be fine-tuned to be very sensitive to process minute details, but this pattern may not allow their brains to be well-synchronized across regions with different functions," he said. "This could affect how they perceive their physical

appearance and may also result in them getting caught up in the details of other thoughts and cognitive processes."

The study, Feusner noted, advances the understanding of BDD by providing evidence that the "hard wiring" of patients' brain networks is abnormal.

"These abnormal [brain](#) networks could relate to how they perceive, feel and behave," he said. "This is significant because it could possibly lead to us being able to identify early on if someone is predisposed to developing this problem."

Provided by University of California, Los Angeles

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