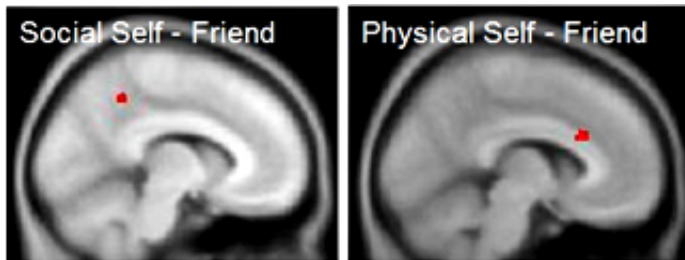


# Study shows brain function differences in women with anorexia

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Researchers found different parts of the brain were activated during different appraisals of self.

A new [study](#) published in *Social Cognitive and Affective Neuroscience* by researchers at the Center for BrainHealth at UT Dallas and UT Southwestern found brain-based differences in how women with and without anorexia perceive themselves. The findings shed light on how brain pathways function in ill and fully recovered individuals who have had anorexia nervosa.

Dr. Dan Krawczyk, associate professor at the Center for BrainHealth at The University of Texas at Dallas in the School of Behavioral and [Brain Sciences](#) and psychiatry at UT Southwestern, and Dr. Carrie McAdams, assistant psychiatry professor at UT Southwestern Medical Center, used [functional magnetic resonance imaging](#), or fMRI. Then they asked [women](#) to evaluate their own characteristics in comparison to a friend.

Tasks consisted of reading and responding to statements with three different appraisals:

- Self (evaluation of an attribute about one's own identity based on one's own opinion).
- Friend (evaluation of an attribute about a close female friend).
- Reflected (evaluation of an attribute about one's self as believed by one's friend).

When making judgments about themselves, women with anorexia showed different types of [brain activation](#) than women without anorexia. "This data provides [biological evidence](#) that self-identity is processed differently in women with anorexia nervosa," said Dr. Krawczyk. "These differences in understandings of oneself may lead to and perpetuate the problematic eating behaviors of those with anorexia. This is important because it further validates the idea that anorexia is not just about food behaviors, but rather it is about how individuals see themselves and link it to [social perception](#)."

Researchers observed differences in fMRI activation related to self-knowledge ("I am," "I look") and perspective-taking ("I believe," "a friend believes") in the [brain](#)'s precuneus, two areas with the dorsal anterior cingulate and the left middle frontal gyrus. This study further validates that the precuneus is linked to self-consciousness and reflective self-awareness, both of which involve rating one's own personality traits as opposed to making judgments of other people.

According to the National Association of Anorexia Nervosa and Associated Disorders, more than 24 million people of all ages and genders suffer from an eating disorder in the United States. Women are much more likely than men to develop eating disorders, and research suggests that up to 4 percent of women suffer from anorexia nervosa in

their lifetimes.

"Anorexia nervosa is the psychiatric illness with the highest mortality rate, with nearly 10 percent of its sufferers dying from the disorder," said Dr. McAdams. "Treatments for anorexia attempt to change the eating habits of the individual so that they begin to eat a nutritionally balanced diet. However, this disorder is rarely cured by dietary changes alone."

The hope of Dr. Krawczyk's and Dr. McAdams' research is to show how the latest advancements in neuroimaging can characterize brain-based changes in those with [anorexia](#) to facilitate timely and efficacious prevention and treatment.

"We are now working to compare how these brain pathways function in both currently ill and fully recovered individuals who have had [anorexia nervosa](#), with the hope of observing whether changes in these brain regions can be associated with recovery," said Dr. Krawczyk.

**More information:** [doi: 10.1093/scan/nss093](https://doi.org/10.1093/scan/nss093)

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