

Perceived obesity causes lower body satisfaction for women than men

October 14 2016



This is an image of a weight scale. Credit: CDC/Debora Cartagena

'Owning' an obese body produces significantly lower body satisfaction for females than males, scientists have found.

In the first study of its kind investigating healthy individuals and their [brain activity](#) when perceiving themselves as either slim or obese, psychologists at the University of York and Karolinska Institutet in

Stockholm found that the way we perceive our bodies directly triggers neural responses which can lead to [body](#) dissatisfaction.

To create a sense of illusory body ownership, participants wore a [virtual reality headset](#) and observed a video of an obese or slim body from a first person perspective, so when looking down the body appeared to belong to them. Scientists then prodded the participants' torso with a stick in synchronisation with the video, eliciting a vivid illusion that the stranger's body was their own.

Monitoring brain activity in an fMRI scanner, scientists found a direct link between activity in the parietal lobe of the brain – relating to body perception – and the insular and [anterior cingulate cortex](#), which controls subjective emotional processes such as pain, anger or fear.

Such research helps to shed light on why sufferers of eating disorders such as anorexia nervosa can be affected by a distorted perception of their body as overweight, when in reality this is biologically inaccurate.

Investigating healthy individuals allows researchers to examine the link between perception and emotion without the possibility that body starvation could affect biological results, as is the case when studying those with eating disorders.

Dr Catherine Preston, Lecturer in York's Department of Psychology and lead author of the study says: "In today's Western society, concerns regarding body size and negative feelings towards one's body are all too common. However, little is known about the neural mechanisms underlying [negative feelings](#) towards the body and how they relate to body perception and eating-disorder pathology.

"This research is vital in revealing the link between [body perception](#) and our emotional responses regarding body satisfaction, and may help

explain the neurobiological underpinnings of eating-disorder vulnerability in women."

Henrik Ehrsson, Associate Professor at Karolinska Institutet and co-author of the study, adds: "We know that woman are at greater risk at developing eating disorders than men, and our study demonstrates that this vulnerability is related to reduced activity in a particular area of the frontal lobe – the anterior cingulate cortex – that is related to emotional processing."

More information: Catherine Preston et al. Illusory Obesity Triggers Body Dissatisfaction Responses in the Insula and Anterior Cingulate Cortex, *Cerebral Cortex* (2016). [DOI: 10.1093/cercor/bhw313](https://doi.org/10.1093/cercor/bhw313)

Provided by Karolinska Institutet

Citation: Perceived obesity causes lower body satisfaction for women than men (2016, October 14) retrieved 25 April 2024 from <https://medicalxpress.com/news/2016-10-obesity-body-satisfaction-women-men.html>

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