

How the brains of obese people function differently from those of healthy weight

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A research group from Mind, Brain and Behaviour Research Centre (CIMCYC) of the University of Granada (UGR) has been studying the issue of excess weight from a neuroscientific perspective for many years, to determine the precise role played by the brain.

In a study recently published in the *International Journal of Obesity*—based on the doctoral thesis of Cristina Martín, which dealt with overweight adolescents—researchers from the UGR have found that that inferior [weight](#) loss among adolescents following a diet is linked to a stronger connection between the areas of the brain associated with the motivation to eat and the rewarding effect of food.

This finding adds to those previously obtained by the UGR's Applied Neuropsychology and Psychoneuroimmunology Research Group in its work devoted to studying adolescents and adults, which shows how the brains of overweight people work differently from those of people of a healthy weight in all matters related to food.

"When faced with a decision about what best to eat and when presented with highly appetizing food, in terms of brain response we observed that the 'impulsive' circuits are more highly activated than the 'reflective' circuits," explains Raquel Vilar López, a researcher at the UGR's Department of Personality, Evaluation and Psychological Treatment and one of the authors of this work.

Different thickness in the cerebral cortex

In addition to these differences in brain activation, various areas of the brain in overweight people were found to differ in terms of how they connect and in the thickness of the cerebral cortex. There is also a link between these differences (which could be related to a diet high in fat) and the difficulty experienced by some people in following a diet and exercising, and therefore weight loss.

Based on these findings, researchers Raquel Vilar and Alfonso Caracuel of the UGR's Department of Developmental and Educational Psychology, in collaboration with two international research groups, have recently started a project to combat the phenomenon of excess weight.

This involves a combination of training approaches that, individually, have proven effective in modifying imbalanced aspects in the functioning of the [brain](#) circuits involved in being overweight or obese. These approaches can be delivered online or in person.

More information: Cristina Martín-Pérez et al. Stressing diets? Amygdala networks, cumulative cortisol, and weight loss in adolescents with excess weight, *International Journal of Obesity* (2020). [DOI: 10.1038/s41366-020-0633-4](https://doi.org/10.1038/s41366-020-0633-4)

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