

# Researchers negatively correlate a neuropeptide with executive functions

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Dr. Fernández-Aranda (left) with his research group. Credit: Gemma Fornons

Researchers from the Bellvitge Biomedical Research Institute

(IDIBELL) and the group of Eating Disorders, of the Bellvitge University Hospital (HUB), led by Dr. Fernando Fernández-Aranda, published a study in *Scientific Reports* (Nature) that negatively correlates the concentration of orexin A (a neuropeptide) with executive functions in anorexic patients. The study is part of the research program "Neurocognition and extreme weight conditions: from anorexia to obesity," carried out at the Centro de Investigación Biomédica en Red de Obesidad y Nutrición (CIBEROBN).

"We have evaluated the association between the concentration of the neuropeptide orexin A from [blood plasma](#) and the neuropsychological faculties in adult women, and we have been able to establish a negative correlation, i.e. the more concentration of orexin, lesser the adequacy of [executive functions](#) in patients," comments Dr. Fernández-Aranda. One hundred two [adult women](#), 51 of them with [anorexia](#) nervosa, all of whom were treated in the HUB, participated in the study; the other half were healthy women. Male representatives have been excluded due to the low prevalence of men with this disorder.

In patients with anorexia, there are usually changes in decision making, difficulties in adapting to new situations (inflexibility) and difficulty with the general context of what they observe (excessive fixation in details), high rigidity and perfectionism and, in some cases, high levels of impulsivity.

Orexins, also called hypocretins, are neuropeptides (substances of the nervous system) used by neurons to communicate with each other. In previous studies it has been observed that orexins are involved in a variety of mechanisms, such as food intake and cognition, and sleep disorders, among others.

One of the main objectives of Dr. Fernández Aranda's research group is studying the interaction between biological, cognitive and clinical

factors. To achieve this, they are looking for neurobiological markers that can explain [cognitive processes](#) and those of diseases (such as anorexia, bulimia or obesity) and behavioral addictions. "That's why we wanted to study whether orexin A could play an important role in psychiatric disorders such as anorexia," justifies Dr. Fernández Aranda.

Once patients with anorexia have recovered, decision-making levels are also more appropriate, meaning that they are reversible. For this reason, it would be of great interest to explore if the improvement of decision-making observed during the recovery of anorexia is related to changes in levels of [orexin](#) A. This way, we could establish it as a biomarker with potential clinical applications.

**More information:** Trevor Steward et al, Reduced Plasma Orexin-A Concentrations are Associated with Cognitive Deficits in Anorexia Nervosa, *Scientific Reports* (2019). [DOI: 10.1038/s41598-019-44450-6](https://doi.org/10.1038/s41598-019-44450-6)

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