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## MODULATORY ACTION OF ESTRADIOL DURING DEVELOPMENT ON THE EFFECTS OF UNDER AND OVERNUTRITION IN MALE AND FEMALE RATS

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**D**uring development organisms are more vulnerable to adverse effects that occur both in the internal and external environments, and among the latter, nutrition is a determining factor. It has been widely demonstrated that malnutrition or overnutrition produce long-term alterations generating imbalances in the neurohormonal system that regulates energy metabolism. It is known that estradiol has an inhibitory effect on food intake and that this hormone also has organizing effects on some neural networks during the first stages of life. Recent experiments in rats have shown that estradiol during the first two weeks of life exerts a modulatory function on the alterations produced by malnutrition and overnutrition, and what is more important, that this modulation has differential effects in males and in females in the case of overnutrition. Specifically, a high fat diet seems to alter mainly physiological parameters in males, whereas in females the alterations can be detected in the hypothalamic peptidergic system, concretely in the anorexigenic peptide proopiomelanocortina (POMC). Taking into account the modulatory role of estradiol in the first weeks of life, and that its

influence on food intake occurs through the same transcription factor pathway (STAT3) through which leptin exerts its anorexigenic actions on food intake, and also in its neurotrophic function over hypothalamic circuits during development, it will be of great importance to investigate the possible participation of estradiol in the programming of the hypothalamic circuits that regulate energy metabolism.

### Biography

Paloma Collado graduated from National University of Distance Education of Spain (UNED) in Psychology, and obtained her PhD in Psychobiology in 1990. She is a Professor of Psychobiology at the same university since 1990. Her research has been focused in the field of physiological psychology, and for the last fifteen years, on the mechanisms involved in the development of the cerebral circuits that control food intake in rodents. She has developed this research as Principal Investigator of different grants in collaboration with international researchers.

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