



V International Congress of Psychobiology
Madrid, July 9-12, 2024



Title:

**V International Congress of Psychobiology (Madrid, July 2024):
Conference Book**

© Authors listed in the Author Index

Scientific Editors:

**Jaime Iglesias Dorado, Ela I. Olivares Carreño,
Jorge Francisco Bosch Bayard**

Promoting entity:

Sociedad Española de Psicobiología

Collaborating entity:

Facultad de Psicología de la Universidad Autónoma de Madrid

ISBN: 978-84-09-63494-1

SPONSORS

Bionic Ibérica



Intelimed Ibérica





POSTER 50

Neurophysiological Markers of Cardiac Interoceptive Processing in Expectant Parents: A Study with Heartbeat-Evoked Potentials.

Patrícia Vilela Braga¹, Amanda Marshall², Diogo Lamela³, Inês Jongenelen³, Nuno Barbosa Rocha⁴, Raquel Costa^{3,5,6}, Rita Pasion³, Simone Schütz-Bosbach², Tiago Miguel Pinto³, Ruth Feldman⁷ & Carlos Campos^{3,8}

¹Faculty of Medicine, University of Porto, Portugal

²Department of Psychology, General and Experimental Psychology Unit, Ludwig-Maximilians-Universität München, Germany

³Lusófona University, HEI-Lab: Digital Human-Environment Interaction Labs, Portugal

⁴Center for Translational Health and Medical Biotechnology Research, School of Health, Polytechnic University of Porto, Portugal

⁵EPIUnit - Instituto de Saúde Pública, Universidade do Porto, Portugal

⁶Laboratório para a Investigação Integrativa e Translacional em Saúde Populacional (ITR), Universidade do Porto, Portugal

⁷Center for Developmental Social Neuroscience, Baruch Ivcher School of Psychology, Reichman University, Israel

⁸Neurocognition Group | LabRP, School of Health, Center for Rehabilitation Research, Polytechnic University of Porto, Portugal

Introduction: Pregnancy and parenthood are associated with functional and morphological brain changes. Specifically, the parental caregiving network encompasses key structures implicated in interoception, that is, the ability to perceive and subjectively experience inner bodily states. Interoceptive processing may be critical for successful caregiving, allowing parents to integrate perceived changes in their own bodily states with information stemming from their child. Thus, it is feasible to hypothesize that pregnancy-related neurophysiological changes can modify interoception in expectant parents. Objective: To compare neural markers of cortical interoceptive processing (heartbeat-evoked potentials; HEP) between first-time expectant parents (mothers and fathers) and matched non-parents. Methods: First-time expectant heterosexual couples at 26-34 weeks gestational age (n = 70) and matched non-parents (n = 140, 70 female) will complete a multilevel interoception assessment protocol. Neural markers of interoception will be indexed by HEP, that is, neurophysiological responses to cardiac afferent inputs which are obtained through electroencephalography recordings (EEG) time-locked to electrocardiography events (ECG). HEP will be recorded while participants complete the Baby Face Repetition Suppression Paradigm in which sad or neutral infant facial expressions are either repeated or alternated in a 500 ms interstimulus interval. This manipulation induces an emotion-specific repetition modulation on HEP amplitude (differential effects for sad vs. neutral facial expressions). A condition with adult facial expressions will be employed to examine domain-general vs. infant-specific effects. Expected Results: Expectant parents will display increased allocation of neural resources to interoceptive inputs (larger repetition-induced HEP modulation) in contrast to non-parents, particularly when considering infant facial expressions. Effect sizes will be larger when contrasting sad vs. neutral infant facial expressions. Implications: Findings from this pioneering study will provide further understanding of the parental brain and the role of interoception during pregnancy, contributing to the comprehension of complex processes involved in caregiving and the development of the parent-infant bond.

Funding: This work was supported by the Fundação para a Ciência e a Tecnologia (FCT) through R&D Units funding (grants UIDB/05380/2020 and UIDB/05210/2020) and project funding (2022.01784.PTDC).