

Humans as 2-brained living beings: psychobiology of early interactions in typical and at-risk conditions

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Abstract

Human development is the complex result of genetic predispositions and environmental exposures. Children learn in highly interactive contexts, yet we often look at cognitive development through controlled brain-to-stimulus focused experiments, not integrating the social perspective present in learning. More recently, advances in developmental social neuroscience have provided us with an innovative approach to the study of brain-to-brain dynamics in real-time interactions, further suggesting that the quality of environmental encounters and the way our brains wire together can be linked to learning. In the present talk, I will report on a specific at-risk condition for infants' socio-cognitive development – i.e., visually-impairment. I will highlight how the interactive environment scaffolding social learning might change when such risk is present. The findings suggest that even in conditions of visual impairment infants as young as 9-12 months are able to detect and signal the presence of a violation of expectations in the mothers' interactive behavior. Notwithstanding, differences in maternal vocal-tactile behaviors emerged between dyads of sighted and visually impaired infants. This information could have relevant implications both theoretically and clinically, when looking at how to improve these infants' later development. Building upon this intertwined connection between social environment and development, I will also present ongoing research from our lab on the brain-to-brain synchrony that occurs in real-time in dyads of parents and infants with typical or at-risk developmental conditions. Taken together, I will discuss how humans might be better framed as 2-brained living beings who can be better understood only if we frame our focus on the interaction as a precocious and precious socio-cognitive learning environment.