

## Dyskinesias-Reduced-Self-Awareness in Patients with Parkinson's Disease. A Neurocognitive Approach

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**P**arkinson's disease (PD) patients may be partially or even completely unaware of the presence of involuntary movements in terms of dyskinesias-reduced-self-awareness (DRSA). As the association with executive dysfunction is a matter of debate and we hypothesize it plays an important role in DRSA, we previously analyzed the role of dopaminergic treatment on the medial-prefrontal-ventral-striatal circuitry using a neurocognitive approach. Indeed, we have given special attention to metacognitive abilities related to action-monitoring and other factors, such as "Theory of Mind", that represent a novel explanation of the phenomenon.

Importantly, response-inhibition dysfunction is often observed in PD. Besides being involved in response-inhibition, the anterior cingulate cortex (ACC) is part of a functional system based on self-awareness and engaged across cognitive, affective and behavioral contexts. In a new study, we used an event-related fMRI to verify the association between response-inhibition disabilities and DRSA. The presence of DRSA was assessed using the DyskinesiasSubtracted-Index (DS-I). Cingulate functionality was evaluated with fMRI, while patients performed an ACC-sensitive GO-NoGO task. Association between blood oxygenation level dependent response over the whole-brain during the response-inhibition task and DS-I scores was investigated.

The presence of DRSA result associated with a reduced functional recruitment in the bilateral ACC, bilateral anterior insular cortex and right dorsolateral prefrontal cortex ( $p < 0.05$ ). Moreover, DS-I scores significantly correlated with percent errors on the NoGO condition ( $r = .491$ ,  $p = .009$ ).

These findings add evidence to the relevant role of executive dysfunctions in DRSA pathogenesis, with a key role played by ACC.

### Biography:

Sara Palermo is MSc in *Clinical Psychology* and PhD in *Experimental Neuroscience*. She is Postdoc Research Fellow at the University of Turin, while she is ordinary member of the *Italian Society of Neuropsychology* and of the *Italian Association of Psychogeriatrics*. Importantly, she is a research member of the *European Innovation Partnership on Active and Healthy Aging*, for which she is involved in the Action Group A3 "Functional decline and frailty".

Sara Palermo is part of the Editorial Panel of "*EC Psychology and Psychiatry*" (ECP), an internationally peer reviewed journal aimed to publish topics related to psychology and medicine.