Contribution ID: **706** Type: **Talk in simposio**

Neurophysiological Correlates of Effortful Task Performance

Thursday, September 11, 2025 5:45 PM (15 minutes)

Perception of effort (PE) is a multifaceted construct, partly arising from corollary discharge mechanisms associated with increased central motor command (Marcora, 2009). Crucially, it is the subjective experience of effort —rather than objective task difficulty—that has been identified as the primary determinant of physical task engagement (Greenhouse-Tucknott et al., 2022). This study investigated the neurophysiological correlates of PE and examined the modulatory effects of a Mindfulness-Acceptance-Commitment (MAC) intervention. Using a 2×2 within-between design, 48 young adults were randomly assigned to either an intervention or control group. The intervention involved a 4-week MAC protocol comprising six weekly group sessions (30 min) and daily individual practices (15 min). Controls engaged in time-matched daily web surfing. Electroencephalography and surface electromyography were recorded pre- and post-intervention as participants completed 4 blocks of 60 right leg extensions at 30% of maximal voluntary contraction (MVC). Subjective ratings of effort (RPE), pain, and fatigue were collected at multiple timepoints throughout the task. Movement-related cortical potentials (MRCPs) were extracted and correlated with RPE and pain self-report. Muscular fatigue (MF) was assessed via MVC and sEMG root mean square. We hypothesize that the intervention group will exhibit reduced PE in the absence of MF differences, and lower prefrontal and motor cortical activity, correlating with decreased RPE but not pain or fatigue. These findings aim to advance our understanding of the neural underpinnings of PE and transient fatigue, and to highlight the potential of MAC-based approaches for reducing PE in both healthy and clinical populations.

If you're submitting a symposium talk, what's the symposium title?

Sharper minds, Smarter athletes: the Cognitive Side of Sports

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

No

Primary author: BOVOLON, Luca (Department of Psychology, University of Chieti-Pescara "G. d'Annunzio" , Chieti, Italy)

Co-authors: Dr DÍAZ-GARCÍA, Jesus (Department of Psychology, University of Chieti-Pescara "G. d'Annunzio", Chieti, Italy); Prof. CONTI, Chiara (Department of Psychology, University of Chieti-Pescara "G. d'Annunzio", Chieti, Italy); Dr NIGRO, Federico (Department for Life Quality Studies, University of Bologna, Bologna, Italy); Dr BARTOLOMEI, Sandro (Department for Life Quality Studies, University of Bologna, Bologna, Italy); Prof. MARCORA, Samuele Maria (Department for Life Quality Studies, University of Bologna, Bologna, Italy); Prof. BERCHICCI, Marika (Department of Psychology, University of Chieti-Pescara "G. d'Annunzio", Chieti, Italy)

Presenter: BOVOLON, Luca (Department of Psychology, University of Chieti-Pescara "G. d'Annunzio", Chieti, Italy)

Session Classification: Sharper minds, Smarter athletes: the Cognitive Side of Sports