

PSYCHOPHYSIOLOGYOF SPORT AND EXERCISE (CODE: 2024088)

COURSE SYLLABUS:

Study of models that link behavior with brain modulation of muscle recruitment from internal physiological changes (feedback) and cognitive aspects related to the context of motor action (feedforward): Central Governor Model and Corollary Model.

Discuss the integration between the cardiomyocentric fatigue model with the modulation of motor unit recruitment mediated by the central nervous system. Study of the construct perceived exertion and its psychophysiological bases. To study the association between perceived exertion, self-selected control of intensity (pacing), soliloquy and performance.

GOALS:

- Differentiate the psychobiological models of physical performance;
- Use the models to formulate experimental hypotheses;
- Apply the models to propose bodily experiences and physical education.

BIBLIOGRAPHY:

Books

- Fisiologia do exercício: bioenergética humana e suas aplicações. Brooks G.A., Fahey T.D., Baldwin K.M..Phorte Ed. 2013.

- Psychobiology of physical activity. Acevedo, E. O., &Ekkekakis, P (Eds.). HumanKinetics. 2006.

- Cem bilhões de neurônios: conceitos fundamentais de neurociência. Lent, R. Atheneu. 2010.

Articles:

- Fontes, E.B., Bortolotti, H., Grandjean da Costa, K., Machado de Campos, B., Castanho, G.K., Hohl, R., Noakes, T.D., Min, L.L. <u>Modulation of cortical and subcortical brain areas at low and</u> <u>high exercise intensities</u>. Br J Sports Med. (2020). 54: 110–116.

- KG Costa, DA Cabral, Hohl,R., EB Fontes. <u>Rewiring the addicted brain through a</u> <u>psychobiological model of physical exercise</u>. Frontiers in Psychiatry. (2019).V10: 600.

- Inzlicht, M. &Marcora, S.M. The Central Governor Model of Exercise Regulation Teaches Us Precious Little about the Nature of Mental Fatigue and Self-Control Failure. *Front. Psychol.* (2016). v 04.

- Micklewright, D & Parry, D. The Central Governor Model Cannot be Adequately Tested by Observing its Components in Isolation. Sports Med. (2010). 40 (1): 91-94

- Noakes T.D. The Central Governor Model in 2012: eight new papers deepen our understanding of the regulation of human exercise performance. *Br J Sports Med* (2012). Vol 46 No 1.

- Williamson, J.W. The relevance of central command for the neural cardiovascular control of exercise. *Exp Physiol* (2010). 95: pp 1043–1048.