

Natureza do trabalho: Revisão Bibliográfica. Neurociências e arte

TÍTULO

THE HUMAN BODY AS AN EXOSKELETON OF THE ENCEPHALON: A DIFFERENT VIEW ABOUT THE ORGANIC SYSTEMS

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RESUMO

Introduction: In order to expand our knowledge about the consciousness's processes and, equally, deepen our conception of who we are, the body is demonstrated here as just an exoskeleton of the encephalon. **Material and Methods:** Review of international bibliography and scientific articles, the following platforms were used: www.scielo.org, www.ncbi.nlm.nih.gov/pubmed, www.sciencedirect.com. The functionality of all the organic systems in the creation and maintenance of the organism were compared and simplified. In the same way, new studies and innovations over the cognitive area were shown. **Results:** Unlike the more widespread views that the notion of ego is contained in all the Central Nervous System, or even the whole body, the conscience is a consequence of the encephalon's activity, whereas the spinal cord is just a center of unprocessed actions, an intermediate and a pathway for ascendant fibers. Analyzing the encephalon, injuries upon the brain stem reinforces its modulating functions over the superior cortical networks. Equally, the cerebellum is presented, according to recent works, as a modulation tool of the limbic and cognitive systems. Meanwhile, within the prosencephalon, the Default Mode Network (DMN) that is, theoretically, the basal connections of the consciousness showed rearrangement during psychedelic experiences and, united with the Claustrum's switch of cognition theory, provides new insights into the conscious universe as its pathways begin to appear. Finally, during electrical stimulation of the left claustrum and anterior insula, an epileptic woman manifested static behavior, aphasia and a complete lack of responsiveness, as well as amnesia. The effects disappeared when the stimulation went off. **Discussion and Conclusion:** Whether analyzing the DMN and Claustrum pathways or so many other perspectives and hypotheses about the processes of consciousness, attention and cognition, one thing that is clear is that we do not possess the encephalon, we are it. Our body is just an exoskeleton that we use for survival in the environment. Certainly, this vision will clarify ideas and thoughts, expanding the human knowledge and catalyzing steps of scientific progress that progresses our specie.

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References

- 1- SCHOUENBORG J, Kiehn O, eds. 2001. **The Segerfalk symposium on principles of spinal cord function, plasticity, and repair**. Brain Research Reviews 40:1–329.
- 2- STEIN PSG, Grillner S, Selverston AI, Stuart DG, eds. 1999. **Neurons, Networks, and Motor Behavior**. Cambridge, MA: MIT Press.

- 3- WINDHORST, U. (2007). **muscle proprioceptive feedback and spinal networks**. BRAIN RESEARCH BULLETIN, 73, 155-202.
- 4- LEMON RN. 2008. **Descending pathways in motor control**. Annual Review of Neuroscience 31:195–218.
- 5- GRAZIANO M. 2006. **The organization of behavioral repertoire in motor cortex**. Annual Review of Neuroscience 29:105–134.
- 6- SALGADO, João F. et al. **Prefrontal cognitive dysfunction following brainstem lesion**. 2007.
- 7- GARRARD P. et al. **Cognitive dysfunction after isolated brain stem insult. An underdiagnosed cause of long term morbidity**. J Neurol Neurosurg Psychiatry 2002;73:191-194
- 8- MILLER, Joseph D. et al. **Activity of mesencephalic dopamine and non-dopamine neurons across stages of sleep and waking in the rat**. Brain Research. Volume 273, Issue 1, 22 August 1983, Pages 133–141
- 9- GARRARD P. et al. **Cognitive dysfunction after isolated brain stem insult: An underdiagnosed cause of long term morbidity**. J Neurol Neurosurg Psychiatry 2002;73:191-194.
- 10- H. BAILLIEUX H; Smet HJ De et al. **Cerebellar neurocognition: insights into the bottom of the brain**. Clin Neurol Neurosurg. 2008 Sep; 110(8):763-73.
- 11- Department of Neurology, University of Duisburg-Essen; Institute of Cognitive Neuroscience, Department of Neuropsychology, Ruhr-University Bochum, Germany. **Cerebellar contributions to cognitive Functions: A progress report after two decades of research**. 2007-09. 159-162.
- 12- RAICHLE ME, Snyder AZ. 2007. **A default mode of brain function: a brief history of an evolving idea**. Neuroimage 37:1083–1090.
- 13- PALHANO Fontes, Fernanda et al. **The Psychedelic State Induced by Ayahuasca Modulates the Activity and Connectivity of the Default Mode Network**. Instituto do cérebro-UFRN.2015.
- 14- CRICK F. C., Koch C. (2005). **What is the function of the claustrum?** Philos. Trans. R. Soc. Lond. B Biol. Sci. 360, 1271–1279 10.1098/rstb.2005.1661.
- 15- RESER David H. et al. **Clastrum projections to prefrontal cortex in the capuchin monkey (CEBUS APELLA)**. Front Syst Neurosci. 2014; 8: 123.
- 16- KOUBEISSI MZ et al. **Electrical stimulation of a small brain area reversibly disrupts consciousness**. 2014.