

Natureza do trabalho: Resumo

TÍTULO

UNBREAKING MIRRORS: RELATION BETWEEN AUTISM AND MIRROR NEURONS

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RESUMO

Introduction: Discovered in the 90s by Rizzolati and collaborators in the pre-motor cortex of Rhesus monkeys, mirror neurons are a type of neuron that responds both during a practical and directed action as in the observation of this same action being performed by another individual. Neurology says that this system should not be considered as a separate and self-sufficient system, but as an intrinsic mechanism of the various cortical areas, such as inferior frontal gyrus, temporal and parietal lobes and cingulate cortex. Therefore, it allows immediate and unconscious understanding of the observed activity, allowing even its reproduction. In this way, it is postulated that this neuronal type is directly linked to the autism spectrum disorders. **Objective:** Analyze the autism by the premise of dysfunction of the mirror neuron system. **Materials and methods:** Systematic review of current literature from the PubMed database. **Discussion:** The ability of mirroring actions provided by the mirror neuron system (MNS) is closely linked to the mechanisms of learning. This imitation can also be directly related to the development of empathy, an affective response that allows the emotional processing, giving the ability to sentimental approach to other people. Starting from these premises, these properties are directly correlated to the autism spectrum disorders (ASD), which are difficulties in communication and social interaction, restriction in understanding and mechanical and mental reproduction of new expressions or feelings, as well as limitation in the perception of intent with who they relate. In order to prove this correlation between the MNS and the ASD, comparative experiments were performed in patients with diagnostic confirmation of autism and healthy patients. Exemplifying with the experiments of Schunke et al. and Swoden et al., in the first instance, they have measured the reaction time to imitation of simple, meaningless movements (lifting a finger, a dot or both). As a second experiment, subjects were asked to answer as quickly as possible, to two sound stimuli of different tones (500 or 1000 Hz), and lift the index finger or little finger according to each tone (pattern previously stipulated). The third test blended visual and auditory stimuli so that images were reproduced as the first experiment, but the answer should be given according to the sound stimulus. In all tests, the results proved no significant variation between groups of healthy patients and autistic patients. It was noticed that there was "interference effects" in the tests when visual and additives stimuli have been presented together, but present in both groups. **Conclusion:** Since the emergence of the study of mirror neurons, these were quickly linked to autism spectrum disorders by its deficit in order to, a priori, explain all the symptoms of this disease. However, new standardized and reproducible studies have shown that the mirror neuron system is fully active among the ASD patients. This correlation is consistent with the fact that autism is much more complex than expected after the discovery of mirror neurons.

Acknowledgments and references

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