The mirror neuron system (MNS) is a brain network that has been associated with the understanding of the actions performed by others. The main areas of the brain that are considered as belonging to the MNS are the rostral part of the inferior parietal lobe (IPL) and the inferior frontal gyrus (IFG). Many studies have tried to focus on the relationship between the regions belonging to the MNS, but a little consideration has been given to the study of the MNS in resting conditions. In the present experiment, the MNS has been studied by two fMRI modalities (task-based fMRI and resting-fMRI) and three analytical procedures [task-block comparison, functional connectivity (FC), and independent component analysis (ICA)]. The task-fMRI with block design showed a mirror activity located in the rostral IPL. The coordinates of this local maximum voxel were defined as a region of interest (ROI) for an FC analysis of the resting-fMRI. This analysis revealed the existence of a functional connectivity within regions forming the core of MNS network and also with other regions with mirror properties. Finally, resting-state fMRI ICA showed the same functional network, although it was more restricted to the core MNS regions. To the best of our knowledge, this is the first study that approaches the MNS using the resting-state fMRI analysis using independent component analysis and functional connectivity at the same time ¹¹.

1)

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