

EVIDENCE OF READINESS POTENTIALS IN HEMIPLEGIC PATIENTS

Diana M.E. Torta, Lorenzo Pia, Alessia Folegatti, Marco Neppi-Modona, Sergio Vighetti , Paola Perozzo , Lorys Castelli, Paolo Cerrato, Anna Berti

Readiness potentials (RPs) represent the cortical contribution to pre-motor planning of willed actions. In the present study we aim at investigating whether hemiplegic patients still possess the ability to generate Readiness Potentials (RPs) despite their inability to move contralesional limbs. In order to test our hypothesis, we recorded RPs in a patient (G.M.) with complete left upper limb hemiplegia due to a right-hemisphere damage sparing frontal and parietal areas. The task comprised two different conditions: 1) a motor execution task, in which the patient was asked to press a button with his right (RT) or left thumb (LT) at his own pace 2) a motor imagery task in which the self paced movement was to be mentally simulated. We found preserved RPs in G.M. both in the LT and RT executed conditions and in the LT and RT simulated conditions. The present results confirm and extend previous data showing that hemiplegic patients still have a preserved ability to plan and intend actions notwithstanding their inability to move contralesional limbs and concur to suggest that execution of a voluntary action is not a necessary condition for generating brain potentials related to our experience of intending to act.