Activity-specific patterns of arm use after stroke: Insights from wearable monitoring

Marion Granier[1], Léonie Olivier[1], Victor Fernando Lopes De Souza[1], Karima Bakhti[1,2], and Denis Mottet*[1]

[1]EuroMov - Digital Health in Motion – IMT - MINES ALES, Université de Montpellier, Université de Montpellier : $\mathrm{UR}_U M_I MT_1 02, IMTMinesAlès - -France$

[2]CHU Montpellier, Médecine Physique et de Réadaptation – Université de Montpellier – France

Résumé

After a stroke, sensorimotor recovery can be supported by encouraging use of the more affected limb, leveraging brain plasticity through rehabilitation. We also know that, despite a good recovery, many individuals continue to favour their less affected arm during daily activities. However, we do not know the influence of the nature of the activity on the use or non-use of the upper limbs. Here, we examined how arm use varies according to the type of activity performed in both healthy individuals and people with stroke. Using wrist-worn accelerometers, we measured functional upper limb use during three common activities: eating, dressing and shower/bath. In healthy individuals, use of both arms remained balanced, although the use ratio differed according to the activity. In individuals with stroke, use of the affected arm was reduced, with greater variability between and within individuals as a function of the activity. Our results reveal that activity-specific monitoring of arm use is feasible and may inform more targeted, personalized neurorehabilitation strategies.

*Intervenant