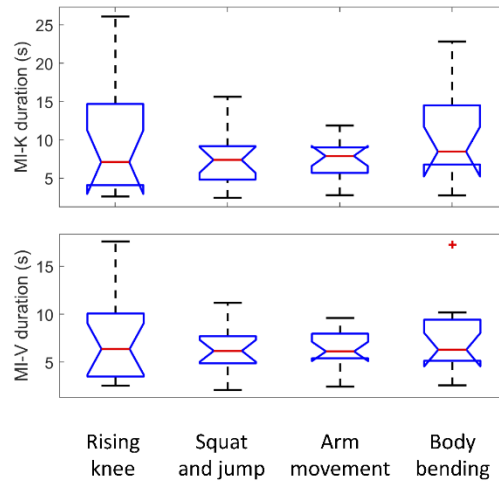


Supplementary Material

Supplementary Figure 1



Supplementary Figure 1. Boxplots of duration of imagery trials. Dispersion of trials durations between subjects in kinesthetic (upper panel) and visual (lower panel) imagery perspectives.

Statistical non-Parametric Mapping, SnPM.

Here we briefly introduce the basis and rationale of SnPM for correlation analyses. Let assume we have n volunteers: for each volunteer both a performance index X (e.g. K-MIQ) evaluating a specific task, and an EEG feature Y for each scalp electrode (or electrodes cluster) have been collected. For each electrode/cluster, a Pearson correlation analysis is conducted, and the related r -value is retained. Consider the null-hypothesis of no significant subject-wise association between X and Y for any electrode/cluster: under the null hypothesis, the labeling of X can be randomly re-assigned (i.e. the X value of subject 3 could be assigned to subject $n-1$ and so on).

Based on this assumption, 1000 random relabeling are conducted. For each relabeling, correlation tests are conducted for all electrodes/clusters. For each relabeling, only the maximum r -value (absolute value) is retained. At the end of the procedure, the distribution of maximum r -values under

the null-hypothesis of no subject-wise association between X and Y is obtained. The significance of each original r -value is thus estimated as the ratio between the number of r -values of the null-distribution exceeding the original r -value (in absolute value) and the number of relabeling. The same approach holds true also for the study of association between Granger Causality estimates related to multiple pairs of clusters and the performance index.