**Supplementary Table S3. Inter-relationships among changes in task-switching performance, changes in physical function and social interaction, and changes in BOLD response magnitude in the prefrontal cortex during the Switch condition from pre-intervention to post-intervention in the TCC group**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | △ IED Completed Stages | △ IEDTotal Errors | △ Outside- fMRI Errorsw (%) | △ Inside- fMRI Errorsw (%) | △ Inside- fMRI RTsw (ms) | △ Frequency of social interaction | △ BOLD in L SFG | △ BOLDin R MFG | △ BOLDin L IFGt |
| △ Knee extensor strength (kg) | *r*= 0.041*p*= 0.895 | *r*= -0.234*p*= 0.442 | *r*= -0.123*p*= 0.689 | *r*= 0.134*p*= 0.663 | *r*= -0.086*p*= 0.781 | *r*= 0.110*p*= 0.721 | *r*= 0.458*p*= 0.116 | *r*= 0.314*p*= 0.296 | *r*= 0.802*p*= 0.001\* |
|  |  |  |  |  |  |  |  |  |  |
| △ Four Square Step Test (sec) | *r*= 0.199*p*= 0.514 | *r*= 0.075*p*= 0.808 | *r*= 0.128*p*= 0.676 | *r*= -0.093*p*= 0.762 | *r*= -0.053*p*= 0.863 | *r*= -0.237*p*= 0.435 | *r*= -0.307*p*= 0.308 | *r*= 0.048*p*= 0.876 | *r*= -0.210*p*= 0.492 |
|  |  |  |  |  |  |  |  |  |  |
| △ Six Minute Walk Test (m) | *r*= -0.087*p*= 0.778 | *r*= 0.066*p*= 0.830 | *r*= 0.316*p*= 0.292 | *r*= -0.346*p*= 0.247 | *r*= -0.247*p*= 0.415 | *r*= -0.216*p*= 0.479 | *r*= 0.213*p*= 0.485 | *r*= -0.336*p*= 0.262 | *r*= -0.026*p*= 0.933 |
|  |  |  |  |  |  |  |  |  |  |
| △ IED Completed Stages |  | *r*= -0.162*p*= 0.598 | *r*= 0.063*p*= 0.838 | *r*= -0.310*p*= 0.303 | *r*= -0.309*p*= 0.304 | *r*= 0.248*p*= 0.413 | *r*= -0.197*p*= 0.518 | *r*= 0.076*p*= 0.804 | *r*= 0.050*p*= 0.870 |
|  |  |  |  |  |  |  |  |  |  |
| △ IED Total Errors |  |  | *r*= 0.252*p*= 0.406 | *r*= 0.060*p*= 0.846 | *r*= 0.194*p*= 0.526 | *r*= -0.310*p*= 0.303 | *r*= -0.631*p*= 0.021\* | *r*= -0.551*p*= 0.051 | *r*= -0.100*p*= 0.746 |
|  |  |  |  |  |  |  |  |  |  |
| △ Outside-fMRI Errorsw (%) |  |  |  | *r*= -0.084*p*= 0.785 | *r*= 0.165*p*= 0.590 | *r*= -0.690*p*= 0.009\* | *r*= -0.046*p*= 0.882 | *r*= 0.014*p*= 0.965 | *r*= 0.140*p*= 0.648 |
|  |  |  |  |  |  |  |  |  |  |
| △ Inside- fMRI Errorsw (%) |  |  |  |  | *r*= 0.519*p*= 0.069 | *r*= -0.156*p*= 0.610 | *r*= 0.062*p*= 0.839 | *r*= 0.199*p*= 0.514 | *r*= 0.059*p*= 0.847 |
|  |  |  |  |  |  |  |  |  |  |
| △ Inside- fMRI RTsw (ms) |  |  |  |  |  | *r*= -0.487*p*= 0.091 | *r*= 0.105*p*= 0.733 | *r*= -0.032*p*= 0.917 | *r*= 0.043*p*= 0.890 |
|  |  |  |  |  |  |  |  |  |  |
| △ Frequency of social interaction |  |  |  |  |  |  | *r*= -0.262*p*= 0.387 | *r*= 0.134*p*= 0.662 | *r*= -0.053*p*= 0.863 |
|  |  |  |  |  |  |  |  |  |  |
| △BOLD in L SFG |  |  |  |  |  |  |  | *r=* 0.389*p*= 0.152 | *r=* 0.224*p*= 0.462 |
|  |  |  |  |  |  |  |  |  |  |
| △ BOLD in R MFG |  |  |  |  |  |  |  |  | *r=* 0.361*p*= 0.225 |

Partial correlation analyses were performed, controlling for age, gender, and education. △= post-intervention value – pre-intervention value; BOLD= blood oxygenation level dependent; Error= error rate; IED= Intra-Extra Dimensional Set Shift; L SFG= left superior frontal gyrus; R MFG= right middle frontal gyrus; L IFGt= left inferior frontal gyrus pars triangularis; RT= reaction time; sw= Switch condition. \*Significant correlations, *p* < 0.05.