

EFFECTS OF WORKING MEMORY TRAINING ON COGNITIVE FLEXIBILITY IN BOTH MEN AND WOMEN PARTICIPANTS

Stavroulaki V (1), Kazantzaki E (1,2), Bitsios P (1), Giakoumaki SG (3), Sidiropoulou K (4)

(1) Medical School, University of Crete, Heraklion

(2) Forth Institute of Computer Science, Vassilika Vouton, Heraklion

(3) Department of Psychology, University of Crete, Rethimno

(4) Department of Biology, University of Crete, Heraklion

Abstract

OBJECTIVE: The study aims to investigate the effect of working memory training on cognitive flexibility in both men and women participants.

MATERIAL – METHOD: Ninety-five healthy participants were divided into three groups (matched for demographic variables, schizotypy, impulsivity and baseline cognitive flexibility): a) fully adapted group (participants were fully trained with an executive working memory task, the Letter Number Sequencing task, for six consecutive days), b) partially adapted group (participants were partially trained with the same task for six consecutive days) and c) control group (participants did not receive cognitive training). Following training, all participants were tested in another cognitive flexibility task; the Intra-Extra Dimensional Set Shift Task (ID/EDS).

RESULTS: Results showed that the fully adapted group had improved performance on the ID/EDS test, since they made fewer attempts to complete the stages of the test and marginally significantly fewer errors, compared with both the other two groups, who did not differ between each other. There were also significant correlations between the tests used. Specifically, it was found that the number of errors in the Wisconsin Card Sorting Task (WCST) was negatively correlated with the number of errors in the ID/EDS test. Also, it was observed that the Raven test correlates negatively with the number of errors in the WCST and also positively with the number of errors and trials needed to complete the stages of the ID/EDS task.

CONCLUSIONS: These findings could have significant implications in the development of therapeutic approaches for the improvement of cognitive deficits in neuropsychiatric disorders.