

Neurofeedback Training on Probable Mild Cognitive Impairment Elderly

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Abstract

Neurofeedback training (NFT) is a self regulation technique that helps individual learns to control or change their brain activity. This study aimed to apply neurofeedback to enhance the cognitive performance in elderly with Mild Cognitive Impairment (MCI). This study focused on alpha wave in the neurofeedback training as it was positively associated with cognitive performance decline in elderly. 10 subjects were selected through convenience and purposive sampling after administration of MMSE and other instruments and then were assigned to experimental (NFT) and control group (no NFT). With 15 sessions of alpha neurofeedback, increase in alpha absolute power was rewarded while simultaneous suppression of theta and beta2 were done in experimental group. Results showed that after completion of neurofeedback, all subjects in experimental group learn to increase their alpha absolute power while mixed result was recorded for suppression of theta and high beta either at individual, inter and intra group level. Cognitive enhancement was measured in terms of working memory (Digit Span & Arithmetic) & processing speed (Symbol Search & Coding) components test of Weschler-IV. Cognitive results in individual level revealed that pattern of increase and decrease of score was regular in experimental group and at grouped level, significant increment observed in DS and SS in experimental group only. These results suggest that MCI elderly could learn to increase specific components of EEG activity that such enhanced activity may facilitate in working memory and processing speed enhancement.

Keywords: Neurofeedback, elderly, mild cognitive impairment, cognitive enhancement

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