

Poster Exhibition (abstracts)

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Performance and strategy in verbal memory encoding. A fMRI study.

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From behavioral experiments is known that memory performance is modulated by the type of strategy utilized in the encoding stage. Here we aimed to assess the impact of performance and strategy upon word encoding related brain activation in an event-related fMRI study. Fifteen healthy volunteers were given seven lists of 22 words each. Word lists were to learn with immediate recall after presentation of each list. According to their performance, subjects were allocated to groups of high or low performers. The majority of high performers reported a visuo-spatial encoding strategy whereas the majority of low performers utilized a rehearsal strategy. Functional imaging data were analyzed using SPM99 and random effects analysis was used assessing the interaction between performance and encoding success. Hippocampal and parahippocampal activation was found both, in the interaction contrast and in the follow-up analysis among low performers during successful versus unsuccessful encoding. Similarly, right superior temporal activation was found in the interaction contrast as well as in the follow-up analysis among low performers during unsuccessful versus successful encoding. While performance and strategy are related in terms of behavioral outcome, fMRI results indicate specific impact of this relationship upon brain activation in the formation of verbal memories.