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ABSTRACT 120

Title: Healthy Aging and Memory Processing

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Background: Memory is not unitary, but consists of several systems, with different neural correlates and degrees of susceptibility to environmental insults. The episodic-autobiographical memory system is the latest human ontogenetic achievement and displays a high vulnerability to brain damage, psychological stress and effects of aging (Markowitsch and Staniloiu, *Amnesia. Lancet*, 2012). Episodic-autobiographical memory allows mental time travelling into past and future and synchronizing emotional and cognitive aspects of personal events. Consequently, especially structures of the limbic system and the prefrontal cortex are regarded as essential for an appropriate processing of autobiographical events.

Objectives: We will discuss variables and prerequisites for proper learning and mnemonic processing across life span. We will review changes in memory processing in both healthy individuals and those with early memory deterioration – in particular with age-related neurodegenerative diseases. We will present our own results from functional brain imaging studies in normal subjects belonging to different age groups in order to illustrate the development of episodic-autobiographical memory across the life span and its accompanying changes in brain functional connectivity.

Methods: Review of own data on subjects of various ages, which were investigated with neuropsychological and brain imaging methods. .

Results: Our findings support the importance of the ventro-medial prefrontal cortex for mnemonic and time processing, consciousness and representing the self in relation to others.

Conclusions: The prefrontal cortex undergoes age-related changes that may impact on complex functions of memory such as free recall, metamemory, source memory, self projection and processing of emotional stimuli with various valences. Some of these changes, such as an increased focus in healthy elderly on processing information with positive valence may have an adaptive role, such as to promote well-being and emotional coping with the possible various challenges of the old age.