Neural mechanisms of dream recall:  
Electrophysiological differences between young and older adults

ABSTRACT:

Background  
Neural correlates of dream recall (DR) in elderly people are still largely unknown. Previous studies in older adults found a general decrease in DR and with the notable exception of Chellappa et al. (2009) no investigations have been carried out on EEG correlates of DR in aging.

Aim  
Our study aimed to investigate whether specific EEG patterns during sleep in elderly predict a subsequent DR.

Method  
40 healthy older and 40 young adults were recorded with polysomnography: 21 older subjects were awakened from REM sleep and 19 older subjects from stage 2 NREM sleep; 20 young subjects were awakened from REM sleep and 20 young subjects from stage 2. DRs were collected upon morning awakening from both stages. EEG power spectra of the total sleep and of the last 5 min were calculated by Fast Fourier Transform (FFT). The algorithm to detect oscillatory activity was applied on the last 5 min of sleep.

Results  
The two-way ANOVAs Recall X Age performed on the EEG power bands showed no main effect of Recall neither significant interaction for REM sleep as well as NREM sleep. Only a significant main effect of Age was observed both for total sleep and the last 5 min, during REM and NREM sleep. The analysis of oscillatory activity revealed that frontal theta oscillations during the last 5 min of REM sleep are related to DR, without any age-effect.

Conclusions  
Our result replicated the previous evidence in young subjects and it is completely new for older individuals, showing that the theta oscillations play a pivotal role in the retrieval of dreaming also in this population. The findings are in line with the Continuity Hypothesis between waking and sleep mental functioning from a neurobiological viewpoint.

Keywords  
Dream recall, Dreaming, EEG, Older adults, REM sleep, NREM sleep, Theta oscillations
**Published Work:**


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