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EEG correlates of dream recall in elderly

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Objectives: Very few studies investigated dream recall (DR) in aged. Our study aimed to understand whether the presence/absence of DR could be related to specific topographical features of the sleep EEG in elderly.

Methods: Forty healthy older volunteers (mean age = 68.4 ± 1.02) were recorded with polysomnography (19 derivations). Twenty subjects were awakened from REM sleep and twenty subjects from stage 2 NREM sleep. Dreams 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. The Better OSCillation (BOSC) detection method was used to detect oscillatory activity within EEG signals of the last sleep segment.

Results: Statistical comparisons (unpaired t-test) between recallers (REC) and non-recallers (NREC), within the same sleep stage, disclosed that: a) DR from stage 2 is associated to the increased beta activity over temporal areas during the total sleep. b) DR from REM sleep is related to a general increased of alpha activity during the total sleep.

BOSC analysis revealed that in the last 5 min of REM higher alpha oscillations predict DR. No differences were found in the oscillatory activity during the last segment of stage 2.

Conclusions: According to the Activation models, these results showed that DR is facilitated by higher cortical activation in both sleep stages. Considering that the differences between REC and NREC were significant only for total sleep using a *between-subject* design, we can hypothesize that these EEG correlates of DR may depend on trait-like factors.

Disclosure: Nothing to disclose.

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Smart dreams: do smart people dream smarter?

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Objectives: Can dreams reveal insight into our intellectual abilities and aptitudes? Although mounting evidence suggests new learning becomes incorporated into dream content, the relationship between the extent of this incorporation and intellectual abilities is not known. Here, we investigated whether individuals who more richly incorporate newly learned experiences into their dreams have superior cognitive abilities.

Methods: Participants ($N = 24$, age 23.3 ± 4) performed either a tennis simulator or a spatial navigation task, then mentally rehearsed the task and provided a verbal report of the content of their rehearsal. During a 90-minute nap opportunity, participants were woken up after brief periods of sleep to provide dream reports, and then retested on the tennis/navigation task. Intelligence testing took place at the completion of the study. Dream incorporation between mental rehearsal and dream reports was assessed objectively by computing the semantic distance between higher-order meanings of sets of synonyms ("synsets") computed from the lexical database "WordNet".

Results: Tennis/navigation performance improvements were correlated to how richly these novel experiences were incorporated into dreams. The extent of this incorporation was correlated to intellectual

abilities (e.g., "reasoning"). However, performance improvements were not directly correlated to reasoning abilities, rather, this relationship was indirect, via dream incorporation.

Conclusions: This study suggests that dreaming reflects the interaction between the processing of newly learned experiences and our existing cognitive capabilities. Our results demonstrate that dreams can serve as a window into our individual intellectual strengths, such as the capacity for reasoning, the use of logic and problem solving skills.

Disclosure: Nothing to disclose.

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The dream self's perception of aggressions and its avoidance or confrontation reactions

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Objectives: The possibility that dreams constitute an evolutionary advantage for survival is currently being discussed. Dreams may provide a safe virtual environment to practise avoidance behaviours, providing evolutionarily useful implicit learning. This study therefore sought to evaluate the quantitative importance of threats to the dream self and its avoidance behaviours.

Methods: Eight self-descriptive adjectives were selected corresponding to 235 dreams: threatened, pursued, attacked, captured, detained, fleeing, struggling and fighting. A threatening dream was defined as one in which the dream self is described by one of these adjectives. An avoidance/confrontation dream was defined as one in which the dream self is described by one of the last three adjectives in the list.

Results: According to this classification, 128 dreams (54.5%) were identified in which the dream self perceived a threat. In 96 of them, the dream self performed an action involving avoidance/confrontation (75.0%).

Conclusions: The dream self feels threatened in over half of dreams. This is an extremely relevant phenomenon from a quantitative perspective which must be accounted for by any theory which seeks to explain the function of dreams. Equally important is the attitude of the dream self, which defends itself from the threat on three out of four occasions. These data support the idea that dreams may consist of a form of implicit learning, offering support to theories of an evolutionary nature.

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Relationship between dream content and the state of anxiety upon awakening

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Objectives: Is it possible to evaluate a person's level of anxiety based solely on their report? To answer this question, it was verified whether content exists in dreams which is related to the level of anxiety at the time when the person awakens.

Methods: The Hall and Van De Castle (1966) method was used to code 132 dreams. The coding frequencies of Characters, Emotions