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Accumulating evidence over the past decade suggests that semantic deficits may represent a core feature of amnesic Mild cognitive impairment (MCI). A meta-analysis was performed on articles obtained from the PubMed database with the aim of investigating whether semantic deficits were consistently found in elderly individuals with MCI who are at significant risk of developing Alzheimer's disease (AD). 22 studies met the inclusion criteria for the current meta-analysis. An effect size and a weight were calculated for each study. A random effect model was performed to assess the overall difference in semantic performances between MCI patients and healthy subjects. Results of the meta-analysis indicate that MCI participants perform significantly worse than healthy matched controls in terms of overall semantic performance (effect size = 1.024; 95% CI [0.803; 1.245]). Moreover, although MCI participants are more affected than controls across all semantic tasks, they are more impaired on naming tasks (proper-name retrieval) and on effortful semantic tasks (free recall of semantic knowledge) than on effortless semantic tasks (cued recall or multiple choice answers. $F(2,76) = 9.71$; $p < 0.001$). Semantic deficits are a key feature of amnesic MCI. Semantic tests may contribute to better identify those individuals who are more likely to develop AD and should be incorporated in routine clinical assessments. Semantic tests are also less sensitive to situational factors such as stress, fatigue and anxiety that may have a negative impact on the performance of elderly individuals during clinical assessments.

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The effects of exploring novel environments on learning: Individual differences and the role of volition

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Exploration of novel environments has reliably been shown to enhance learning in rodents. More recently, by using virtual reality these effects have been replicated in humans: Learning is enhanced after exploration of novel compared to familiar virtual environments. However, exploration of a novel versus familiar environment differs in several ways. Navigating familiar territory relies heavily on habits, while navigating new territory requires active decision-making. It could thus be this difference in choices underlying the positive effects of novelty on memory. In this study, we aimed to investigate this possibility. Participants familiarized with a virtual environment (day 1) and were exposed to this environment again (day 2 or 3) and a novel environment (day 2 or 3). After exposure to a novel or familiar environment, participants performed a word-learning task and filled in a virtual presence questionnaire. Participants either actively explored the environments or were passively exposed to the exploration behavior of another participant in virtual reality. They also filled out a questionnaire to estimate the novelty seeking personality trait. Although no effect of exposure type was observed, there were individual differences. Memory performance was higher for low

novelty seekers after exploring a novel versus a familiar environment, while the effects were reversed for high novelty seekers. Taken together, our findings suggest that passive exposure suffices for novelty-induced memory benefits to occur, but that effects may depend on individual differences. People who score low on the novelty seeking personality trait potentially have higher dopaminergic functioning, which could underlie these memory benefits.

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Poster abstracts

Aging increases reliance on gist memory: Further evidence Marlène Abadie

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Aging makes verbatim traces which faithfully record the details of experience less accessible and increases reliance on gist traces which store general themes or semantic content (e.g., Reyna & Brainerd, 2011). This study aimed at further investigating the preservation of semantic processes during aging. Older (60–80 year-olds) and younger adults (20–30 year-olds) learned a list of words including groups of words related to each other (strong gist activation) and unrelated words (weak gist activation). This manipulation is known to increase gist memory. After the presentation of the list, participants completed a recognition task. They were presented with three probe types: target, related distractors and unrelated distractors. They indicated for each probe whether it was identical to an old item (i.e., a target), related to an old item or new. Data were analyzed with the conjoint recognition mathematical model of the Fuzzy-trace theory (Brainerd, Reyna, & Mojardin, 1999) to estimate the contribution of gist and verbatim memory to recognition performance. As expected, verbatim memory was higher for younger than older adults whereas gist memory did not differ between both age groups. Gist memory also increased in the strong relative to the weak gist activation condition. Interestingly, younger adults made more correct recognition than older adults in the weak gist activation condition whereas there was no difference between both age groups in the strong gist activation condition. These findings suggest that older adults use meaning-based gist representations to compensate their difficulties in retrieving the verbatim details of experience.

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Recollection of odor-evoked autobiographical memories in Alzheimer's disease

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