

The use of prior knowledge in associative memory is conditioned by the relative preservation of semantic memory in aging, but not in Alzheimer's disease

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Associative memory declines in healthy aging and is impaired in Alzheimer's Disease (AD). However, semantic relatedness between items was shown to improve older adults' associative memory (e.g., Badham, Estes, & Maylor, 2012). This effect has never been assessed in AD. This study aimed at testing whether AD patients –who undergo some semantic memory impairment with the progression of the disease- can still benefit from semantic relatedness in associative memory. Twenty-one mild AD patients and 20 matched controls were tested on an associative memory test in which semantically related word pairs (categorical relationship) versus unrelated ones were to be learnt. In an associative memory test, intact pairs had to be recognized among recombined pairs. Patients also undertook the French version of the Semantic Knowledge Questionnaire (SKQ, Simoes Loureiro & Lefebvre, 2015) in order to determine the severity of their semantic alteration. The results evidenced that semantic relatedness improved associative discrimination in both healthy older adults and patients, but did not disproportionately benefit patients since it did not alleviate their associative memory deficit compared to controls. A significant negative correlation between global discrimination performance for related pairs in the associative memory task and the number of errors for the intracategorical questions on the SKQ was found in healthy older adults, but not in AD patients. This may indicate that the healthy controls who were better able to recognize related pairs were also those who had better preserved lexico-semantic knowledge, while patients' associative memory performance for related pairs was independent of the relative integrity of their semantic knowledge. On the other hand, the correlation between global performance for unrelated pairs and the number of errors for intracategorical questions on the SKQ was not significant. These data suggest that while healthy older adults' memory performance for semantically related associations –and the hypothesized associative benefit due to semantic relatedness - is conditioned by the relative preservation of their semantic memory, patients seem to fail to efficiently recruit their semantic knowledge in order to support and improve their associative memory performance.

References

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