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Abstract Title: Napping and episodic memory performance in healthy older adults: a one-year intervention study

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Introduction:

Aging correlates with rest-activity cycle fragmentation, reflected by napping habits. Actimetry-derived daytime rest (DTR) has been associated with cognitive impairment in aging, and its frequency was negatively associated with episodic memory (EM) performance. Using an interventional design, we assessed whether reducing DTR will affect age-related EM decline.

Method:

90 participants (69±5,18 y.o.) were recruited according to their napping habits (non-nap:n-NAP), n=30; nap, n=60). The nap-group was split into a control (c-nap, n=30), and an intervention-group (i-nap, n=30) which was asked to stop napping over a one-year duration. All participants wore an actigraph during this period and were monthly followed up to estimate the evolution of DTR-frequency and duration. At baseline (T0) and one year later (T1), participants completed cognitive assessments, including the Free and Cued Selective Reminding Test. This task assesses immediate and delayed free-, and cued-word recall and thereby explores EM learning and recollection abilities. Linear regression models were applied to assess the impact of group and time on both actimetry and EM metrics.

Results:

Analysis in a subgroup of individuals (n=66) for which pre-processed actimetry data were available revealed higher DTR-frequency and duration in c-NAP and i-NAP, compared to n-NAP (all ps<.05). Furthermore, a significant time*group interaction indicated that DTR-duration (p=.004) reduced from T0 to T1 in i-NAP. We found no main effects of group nor of time on EM performance (all ps>.05). However, a significant time*group interaction indicated that free word recall declined from T0 to T1 in the c-nap group (p=.0427), but not in the i-nap/n-nap group. Concomitantly, cued recall performance increased in the same group (p=.018).

Conclusion:

Our result show that the i- and n-NAP group kept their ability to spontaneously retrieve encoded memory traces, while the c-group developed a difficulty in implementing an effective retrieval strategy. This indicates that a one-year reduction in DTR habits could be protective against age-related EM decline. We are currently extending the actimetry analyses to the full dataset to confirm these results and quantify individual treatment adherence; a metric that will be used to assess the direct impact of the individual's evolution of DTR on EM performance.

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