Thermoregulation, sleep dynamics and napping in the aged

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INTRODUCTION

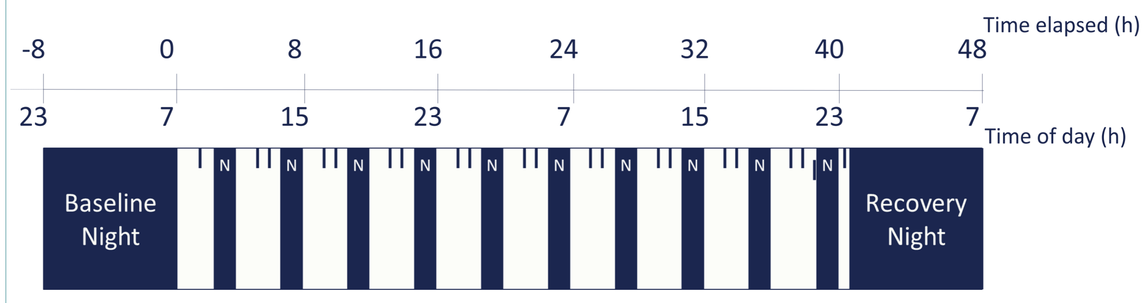
Increased **sleep fragmentation** and disturbed 24-h rest-activity cycle in aging could be linked to underlying **circadian rhythm alteration**, reflected by the occurrence of chronic napping.

We hypothesize that napping is associated with altered circadian rhythmicity, assessed by extracting the modulation of the distal-proximal temperature gradient (DPG) over the 24-h cycle.

METHODS

58 healthy older participants (69,5 ± 5,82 years), recruited according to their napping habits (nappers and no-nappers), took part in a multiple nap constant routine during which DPG was extracted using iButtons at proximal and distal locations.

Sleepiness was assessed by KSS questionnaires, and **sleep onset latency** (SOL) and sleep parameters were derived from polysomnographic measurements during nap opportunities.



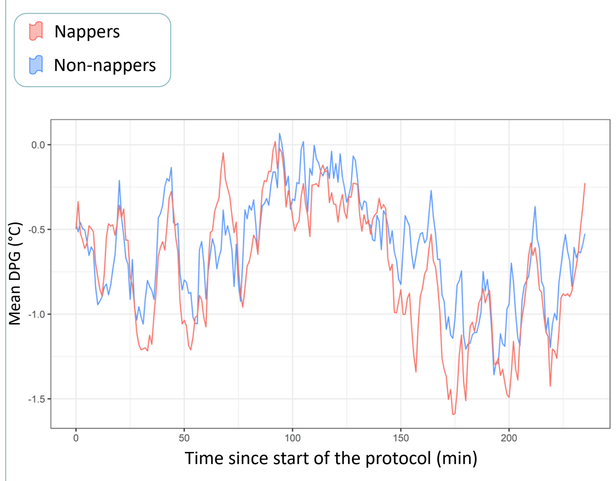
General linear mixed models were performed to explore whether napping has an impact on the modulation of DPG, sleepiness and SOL.

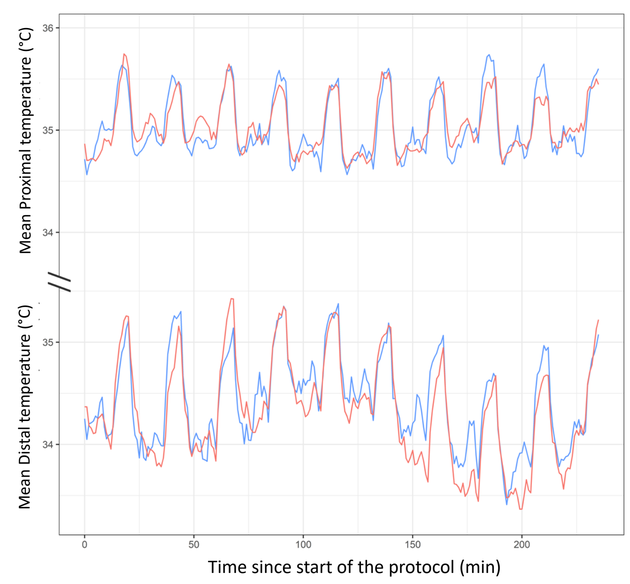
CONCLUSION

In the absence of differences in daytime sleepiness, napping habits seem to changes in thermoregulation, such as altered proximal temperature, higher amplitude or more dynamic changes in DPG. It could in part explain their less distinct allocation of sleep propensity over the 24h-cycle.

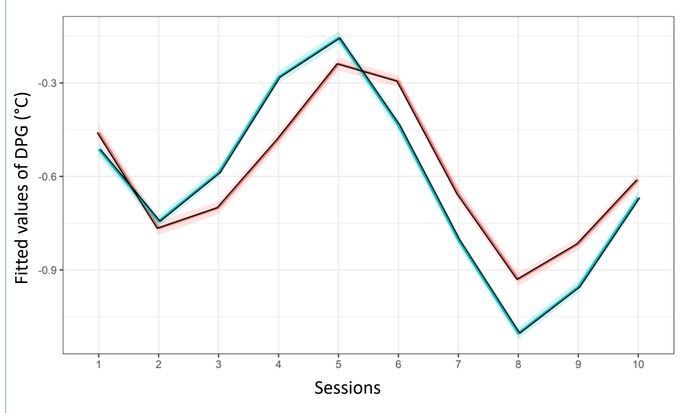
An nap-suppression intervention study is ongoing to distangle cause from consequence.

RESULTS



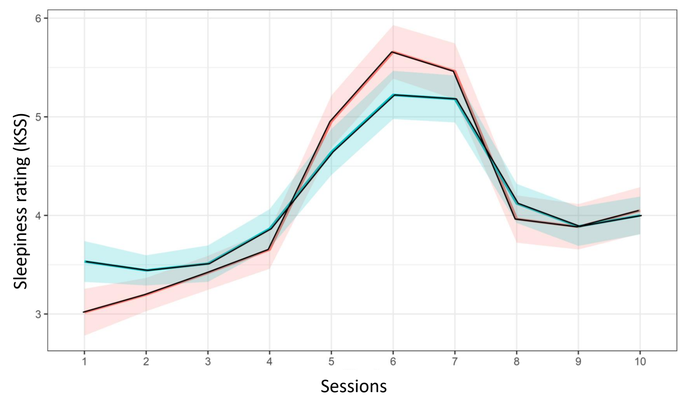


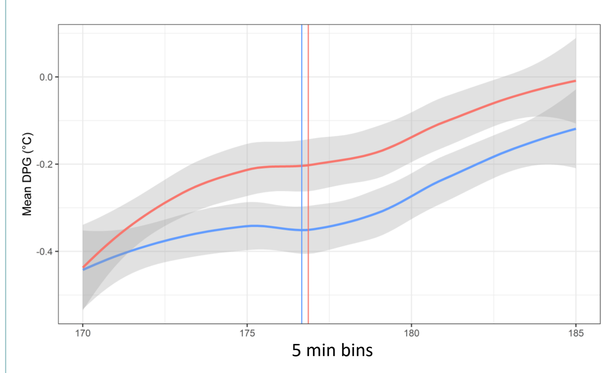
Temperature was **higher in** sleep opportunities than in wake episodes (ps<.001), and showed a circadian modulation over the protocol (ps<.001). **Proximal temperature was higher** in nappers than no-nappers (p=.002).

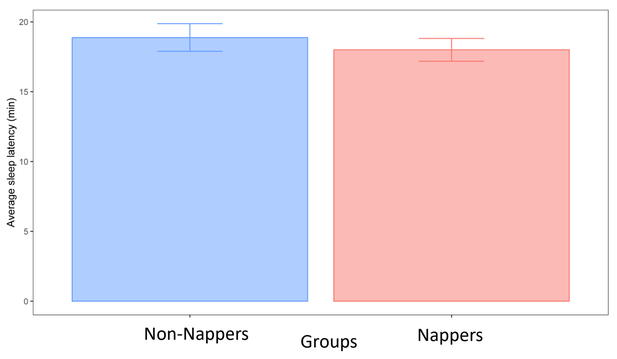


Amplitude of DPG is **higher in nappers** than in non-nappers (ps<.001). Fitted values show a significant drop during the 2nd biological day.

Sleepiness showed a circadian modulation accross sessions (ps<.001), but **no group difference** was found (p=.85).







Groups did not differ in regards to their SOL (p=.27). Nappers however had **higher rise of DPG after lights off**, leading however to the same SOL (p<.001).

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