

# Quiet rest contributes to retaining detailed memories

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Credit: Heriot-Watt University

A brief rest can result in the retention of more detailed memories, relative to being busy in the minutes following learning, according to new research from Heriot-Watt University.

Published in *Nature Scientific Reports*, the paper follows previous research by the team showing that if we rest quietly for 10 minutes after learning something new, we retain more information. The team's new findings show that quiet resting after learning not only helps us to remember, it also results in the retention of more detailed memories.

Dr. Michael Craig, the research fellow at Heriot-Watt University funded by The Alzheimer's Society to conduct this research, said: "Recent research suggests that the [memory](#) system strengthens weak [new memories](#) by 'reactivating' them, where [brain](#) activity first observed during learning automatically reappears in the minutes that follow. This appears especially true during sleep and quiet resting, when we're not busy taking in any new sensory information.

"We think that quiet resting is beneficial because it is conducive to the strengthening of new memories

in the brain, possibly by supporting their automatic reactivation. However, we don't know exactly how this rest-related memory strengthening works. Specifically, it remained unknown whether quiet resting only allows us to retain more information, or whether it also helps us to retain more detailed memories."

Dr. Craig and Dr. Michaela Dewar developed a [memory test](#) able to detect subtle differences in the fine detail of new memories. Dr. Craig explained: "In this memory test, peoples' ability to discriminate between 'old' and 'similar' photos provides a measure of how detailed stored memories are. If detailed memories are stored, people should notice subtle differences in similar photos, and correctly respond 'similar'. However, if not-so detailed memories are stored, people should miss the subtle differences in similar photos, and mistake them for 'old' photos.

"Interestingly, we found that younger adults who quietly rested in the minutes that followed the photo presentation were better at noticing subtle differences in similar photos, suggesting that these individuals stored more detailed memories, compared to those who did not rest. This new finding provide the first evidence that a brief period of quiet rest can help us to retain more detailed memories."

The research team will now focus on what happens in the brain during rest periods, and why it has a positive effect on memory retention. To do this, they are combining their new memory test with EEG recording to monitor [brain activity](#) during rest; with the aim of pinpointing when and how new memories are strengthened during [rest](#) and whether they can detect the spontaneous 'reactivation' of new memories in the brain.

The team is currently looking for healthy adult volunteers to join the project—participants should be aged 60 years or older and have no known memory

problems or brain injury/diseases. The research will take place in a single session lasting around three hours at Heriot-Watt University, Edinburgh. Volunteers will be reimbursed for their time and travel expenses.

**More information:** Michael Craig et al. Rest-related consolidation protects the fine detail of new memories, *Scientific Reports* (2018). [DOI: 10.1038/s41598-018-25313-y](https://doi.org/10.1038/s41598-018-25313-y)

Provided by Heriot-Watt University

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