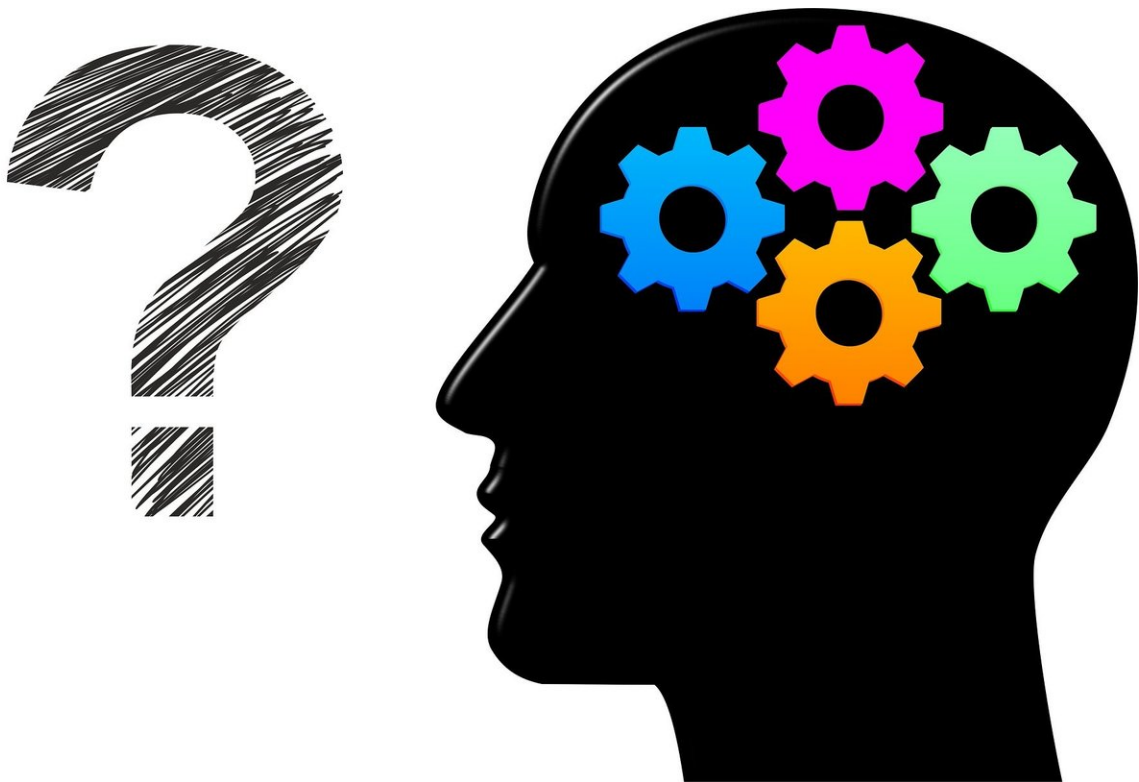


Pulling an all-nighter impairs working memory in women

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Over the last few decades, a wealth of evidence has accumulated to suggest that a lack of sleep is physically and mentally unhealthy. Working memory is important for retaining information for brief periods of time, which facilitates reasoning and planning. A team of

sleep scientists from Uppsala University now demonstrates that acute sleep loss impacts working memory differently in women and men.

In the current study from the Department of Neuroscience at Uppsala University, 24 [young adults](#) performed a [working memory](#) task in the morning following either a full night of sleep or a night of wakefulness. Half of the participants were females, and half were males. The set-up of the working memory task was to learn and remember 8-digit sequences. Contrary to expectations, males' working memory [performance](#) remained unaffected by [sleep loss](#). In contrast, females remembered fewer digits after sleep loss than after a night of sleep. Importantly, even though their performance was reduced, females were unaware of the drop in working performance when sleep-deprived. A lack of awareness of impaired mental performance could increase the risk of accidents and mistakes, which can be dangerous in many private and occupational situations, both for the sleep-deprived person as well as for others.

"Our study suggests that particular attention should be paid to young women facing challenges in which they have to cope with both a high working memory load and a lack of sleep. However, it must be kept in mind that we have not tested whether the observed sex-dependent effects of sleep loss on working memory during morning hours would also occur at other time points of the day. In addition, while our data suggest that sleep loss impairs working [memory](#) in a sex-dependent manner, this does not mean that the sex-differences we observed can be generalised to other mental or physical measures of how we are affected by sleep loss," says Frida Rångtell, PhD student at the Department of Neuroscience and lead author of the study.

More information: Frida H. Rångtell et al, A single night of sleep loss impairs objective but not subjective working memory performance in a sex-dependent manner, *Journal of Sleep Research* (2018). [DOI: 10.1111/jsr.12651](#)

Provided by Uppsala University

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