

## Deep sleep may be critical to flushing out your brain's 'toxic waste'

Why sleep has restorative—or damaging—effects on cognition and brain health has been an enduring mystery in biology. Researchers think cerebrospinal fluid (CSF) may flush toxic waste out, “cleaning” the brain and studies have shown that garbage clearance is hugely improved during sleep. They were not sure exactly how all this works, however, or why it should be so enhanced during sleep.

One aspect of sleep that is well understood is how the slow electrical oscillations (or “slow waves”) that characterize deep, non-REM sleep contribute to memory consolidation, the process whereby new memories are transferred into long-term storage. A new study, from a team led by neuroscientist Laura Lewis of Boston University, now gives insight into what drives CSF flow through the brain, suggesting that the same slow waves that coordinate memory consolidation drive oscillations in blood flow and CSF in the brain.

The work has implications for understanding the relations between sleep disturbance and psychiatric and neurodegenerative conditions, and may even point to new approaches to diagnosis and treatment.

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“This effect is really striking, and we’re also interested in what it means for maintaining brain health, especially in disorders such as Alzheimer’s disease,” [Lewis said].

**Read full, original post:** [Deep Sleep Gives Your Brain a Deep Clean](#)