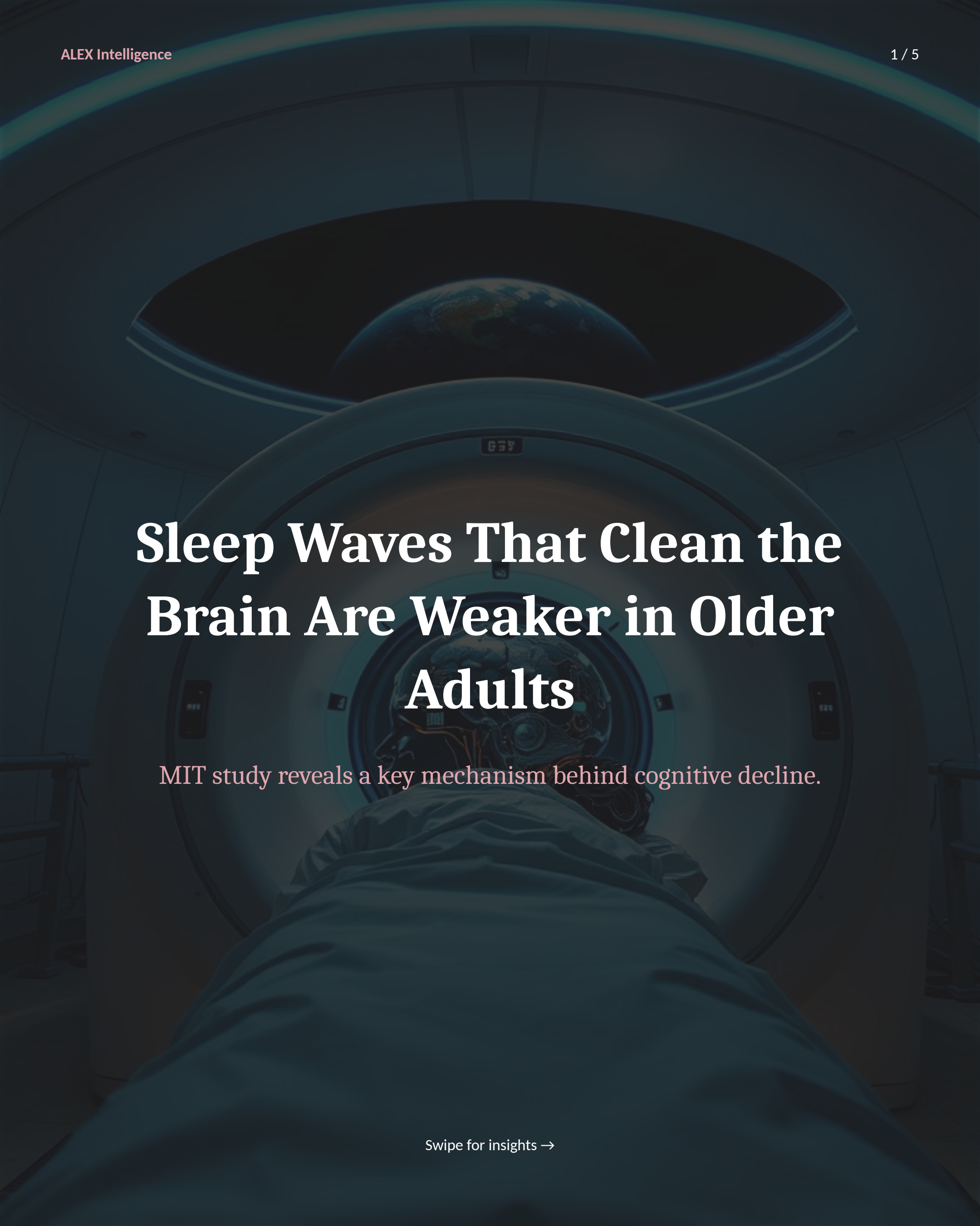


Sleep Waves That Clean the Brain Are Weaker in Older Adults

MIT study reveals a key mechanism behind cognitive decline.

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THE DATA

significantly reduced

CSF Wave Amplitude in Older Adults

Compared to younger adults during deep sleep, older adults show diminished cerebrospinal fluid (CSF) flow waves.

The study found that the amplitude of CSF waves during non-REM sleep — critical for clearing metabolic waste — was markedly reduced in individuals aged 60 to 84. This impairment was not simply due to less sleep, but tied to weakened slow brain waves in deep sleep stages.



Source: Massachusetts Institute of Technology · Published November 13, 2026
https://news.mit.edu/2026/waste-clearing-waves-in-brain-during-sleep-are-impaired-in-older-adults-1113

01

AI Could Predict Neurodegeneration Risk

This represents a shift from reactive to predictive neurology — where AI interprets subtle disruptions in sleep physiology to forecast brain health trajectories, much like how AI models now predict equipment failure in aerospace systems.

02

Sleep Architecture as a Biomarker for AI-Driven Health Monitoring

In commercial space and aviation, where real-time physiological monitoring of pilots and crew is critical, this same AI framework could be adapted to detect early signs of fatigue, cognitive strain, or neurodegenerative risk — ensuring mission safety and operational continuity.

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