

Meditation: Forever young

Although people might be living longer, the years they gain often come with increased risks for mental illness and neurodegenerative disease. A new study by UCLA researchers show meditation could be one way to minimise those risks.

Building on their earlier work that suggested people who meditate have less age-related atrophy in the brain's white matter, the researchers found that meditation appeared to help preserve the brain's gray matter, the tissue that contains neurons.

They compared 50 people who had meditated for years and 50 who didn't. People in both groups showed a loss of gray matter as they aged. But the researchers found among those who meditated, the volume of gray matter did not decline as much as it did among those who didn't.

The article appears in the current online edition of the journal *Frontiers in Psychology*.



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Mining the Moon

The Moon could be the next new ground for mining. It has an estimated 1.6 billion tonnes of water ice at its poles and an abundance of rare-earth elements hidden below its surface. Since NASA disbanded its manned Apollo missions to the Moon over 40 years ago, unmanned spaceflight has made giant strides and has identified a bountiful supply of water ice at the north and south poles of the Moon.

Texas-based Shackleton Energy Company (SEC)

plans to mine the vast reserves of water ice and convert it into rocket propellant in the form of hydrogen and oxygen, which would then be sold to space partners in low Earth orbit.

Moon Express, another privately funded lunar-resources company, is also interested in using water ice as fuel -- but in a different form. It plans to fuel its operations and spacecraft using "high-test peroxide" (HTP), which has a long and illustrious history as a propellant.



Creating knowledge while sleeping

There is no rest for a baby's brain—not even in sleep. While infants sleep they are reprocessing what they have learned.

Working with researchers from the University of Tübingen, scientists from the Max Planck Institute for Human Cognitive and Brain Sciences in Leipzig have discovered that babies of the age from 9 to 16 months remember the names of objects better if they had a short nap. And only after sleeping can they

transfer learned names to similar new objects. The infant brain thus forms general categories during sleep, converting experience into knowledge.

The researchers also showed that the formation of categories is closely related to a typical rhythmic activity of the sleeping brain called sleep spindles: Infants with high sleep spindle activity are particularly good at generalising their experiences and developing new knowledge while sleeping.

Musical training protects the brain

Scientists have found some of the strongest evidence yet that musical training in younger years can prevent the decay in speech listening skills in later life.

According to a new Canadian study led by the Rotman Research Institute (RRI) at Baycrest Health Sciences, older adults who had musical training in their youth were 20% faster in identifying speech sounds than their non-musician peers on speech identification tests, a benefit that has already been observed in young



PHOTO COURTESY: GRU.EDU

people with musical training.

The findings are published in *The Journal of Neuroscience*.

"Musical activities are an engaging form of cognitive brain training and we are now seeing robust evidence of brain plasticity from musical training not just in younger brains, but in older brains too," writes Gavin Bidelman, lead author of the study and an assistant professor at the University of Memphis.