

Researchers Discover Brain's Waste Disposal

A unique peek inside the human brain may help explain how it clears away waste like the kind that can build up and lead to Alzheimer's disease.

Brain cells use a lot of nutrients, which means they make a lot of waste. Scientists have long thought the brain has special plumbing to flush out cellular trash, especially during sleep — they could see it happening in mice. Only circumstantial evidence existed of a similar system in people.

Now researchers have finally spotted that network of tiny waste-clearing channels in the brains of living people, thanks to a special kind of imaging.

'I was skeptical,' said Dr. Juan Piantino of Oregon Health & Science University, whose team reported the findings this past week in the journal Proceedings of the National Academy of Sciences. 'We needed this piece to say this happens in humans, too.'

The brain is remarkably active during sleep. One reason seems to be that's the time it does a deep clean. That has gotten attention because while losing a good night's sleep muddles people's thinking, chronic sleep deprivation also is considered a risk factor for dementia.

So how does the brain cleanse itself?

Over a decade ago, scientists at the University of Rochester first reported finding a network they dubbed the 'glymphatic system.' Cerebrospinal fluid uses channels surrounding blood vessels to get deep into tissue and move waste until it exits the brain. When mice were injected with a chief Alzheimer's culprit named beta amyloid, it cleared away faster when the animals were sleeping.

It's not clear exactly how that network works, although some research has shown pulsing of the blood vessels helps move the waste-clearing fluid where it needs to go.

But it's been hard to find that system in people. Regular MRI scans can spot some of those fluid-filled channels but don't show their function, Piantino said.

So his team in Oregon injected a tracer into five patients who were undergoing brain surgery and needed a more advanced form of MRI. The tracer 'lit up' under those scans and, sure enough, 24 to 48 hours later it wasn't moving randomly through the brain but via those channels as prior research had found in mice.

It's a small but potentially important study that Rochester's Dr. Maiken Nedergaard predicted will increase interest in how brain waste clearance connects to people's health.

But to test if better sleep or other treatments might really spur waste clearance and improve health, 'I have to be able to measure glymphatic function in people,' said Dr. Jeff Iliff of the University of Washington, who helped pioneer waste-clearance research. The question is whether the new study might point to ways of measurement.

Sleep isn't the only question. For example, animal studies show an old blood pressure drug now used to treat PTSD may improve glymphatic function, and Iliff and colleague Dr. Elaine Peskind are about to study it in certain patients.

Additionally, larger studies in healthy people are needed and Piantino, whose lab focuses on sleep health, wants to find an easier, more noninvasive test.

'We cannot study all these questions by injecting people,' he said.

Lauran Neergaard

NAMA now issues Digital Certificates for all new certification applicants

Digital certificates for mental health professionals are electronic documents used to certify the identity, qualifications, and credentials of individuals in the field of mental health. NAMA will begin issuing digital certificates to new Specialists in 2024. Here's a summary of their advantages:

1. **Identity Verification:** Digital certificates help in verifying the identity of the mental health professional. They contain personal information like name, professional title, and the organization they are affiliated with.
2. **Credential Authentication:** They confirm the professional's qualifications, such as degrees, licenses, and certifications. This assures clients and colleagues that the individual is qualified to practice in their field.
3. **Security and Privacy:** Digital certificates often include cryptographic keys for secure communication. This is particularly important for protecting sensitive client information and ensuring confidentiality in digital interactions.
4. **Electronic Signatures:** These certificates can be used to digitally sign documents, such as treatment plans or consent forms, validating their authenticity and integrity.
5. **Compliance with Regulations:** They help mental health professionals comply with legal and ethical standards, such as HIPAA in the United States, which mandates the protection of patient health information.

6. **Online Verification:** Clients, insurance companies, and other professionals can verify the credentials of a mental health professional online, enhancing trust and transparency in the profession.
7. **Ease of Use:** Digital certificates simplify the process of credential verification, making it more efficient compared to traditional paper-based methods.
8. **Elevate professional identity** with prestigious, easily shareable digital certificates that announce your achievements and expertise.
9. **Experience the confidence** of validated expertise with digital certificates that recognize professional growth and commitment to mastering a specific specialty.
10. **Enhance your online presence** with digital credentials that seamlessly integrate with professional profiles, websites, and email signatures.

Digital certificates for anger management and mental health professionals are essential tools for establishing trust, ensuring privacy, and maintaining compliance in the increasingly digital landscape of healthcare. For more information go to <https://sertifier.com/>