Shifting Perspectives: Prism Adaptation and Stroke Recovery – Peii Chen

Real Life Science Audio Newsletter Transcript

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MATILDA: 00:00 [Music] Welcome to Real Life Science, where we explore the breakthroughs shaping rehabilitation and recovery. I'm your host, and today we're diving into a fascinating treatment that's helping stroke survivors reclaim their independence—prism adaptation therapy. Backed by over 20 years of research, this simple yet powerful intervention is changing how we approach spatial neglect. Stay tuned as we unpack the science, the promise, and what's next for this innovative therapy.

If you've had a stroke or brain injury—or know someone who has—you might have seen signs of spatial neglect. This is a condition where the brain has trouble paying attention to one side of space, depending on the part of the brain injured. As a result, tasks like dressing, eating, or moving around safely can become challenging. While left-sided neglect after a right-brain stroke is more common, right-sided neglect also occurs in 20 to 25 percent of people after a left-brain stroke.

There is currently no gold standard for how to screen, assess, or diagnose spatial neglect, so it often goes unnoticed. Some studies suggest that prism adaptation treatment can help stroke survivors improve daily function and independence, but not all the research agrees. That is why scientists at Kessler Foundation and other centers took a closer look to find out when prism adaptation treatment works best, how it works, and who benefits most.

MATILDA: 01:3 6 How does the treatment work?

neglected side. While wearing the goggles, a person performs simple, repetitive tasks like pointing to visual targets. These movements help retrain the motor system in the brain to adapt to the visual shift.

When the goggles are removed, there is a brief aftereffect—the person tends to reach or point too far toward the neglected side. While the

aftereffect is short-lived, usually lasting a few seconds or minutes, it shows that the brain is responding to the treatment.

The process of adapting and re-adapting stimulates important brain areas involved in spatial brain connectivity. Over time, these changes can help reduce the symptoms and severity of spatial neglect.

MATILDA: 02:28 Reviewing years of data

Researchers provided a large review of past research studies guided by the National Institutes of Health Stage Model for Behavioral Intervention Development, a framework for developing therapies from labs to real-world rehabilitation settings.

The critical review looked back at research on prism adaptation treatment from the first study published in 1998 through present day. It closely examined 20 clinical trials included in recent meta-analyses, which combine results from multiple studies. It also summarized several clinical studies that analyzed existing clinical information. Kessler Foundation scientists led analyses of those clinical studies and included data from more than 4,000 people treated for spatial neglect at 16 rehabilitation hospitals across the U.S.

MATILDA: 03:22 What researchers found:

Observational clinical studies using real-world hospital data show that prism adaptation treatment helps improve independence and daily function in stroke survivors with spatial neglect

But formal reviews of clinical trials have found inconsistent results. Differences in treatment procedure, intensity, and how outcomes are measured made it hard to draw firm conclusions

Important treatment factors include:

- Prism strength—Stronger prisms seem to be more effective
- Number of sessions—More frequent sessions (at least four) may lead to better outcomes

- Aftereffects—Not all patients respond to treatment. Measuring changes in movement after prism adaptation can help identify who might benefit
- Activities used—Tasks that involve arm movement and visual feedback (like reaching or pointing to visible targets) are key, but more research is needed to see how prism adaptation can be combined with other therapy activities most effectively.

MATILDA: 04:28 Why does this study matter?

Spatial neglect affects at least one in three people after a stroke and can make recovery more arduous. Research on prism adaptation treatment, a low-cost, drug-free treatment, provides a roadmap for improving future clinical trials and ensuring therapies like prism adaptation treatment are ready for everyday rehabilitation use.

MATILDA: 04:50 What can you do?

If you or a loved one has spatial neglect after a brain injury such as stroke or head trauma, talk to your care team about available treatments such as prism adaptation treatment. Ask whether there are programs at your rehabilitation center that assess for spatial neglect and offer specialized treatment.

MATILDA: 05:10 Key takeaway

Prism adaptation treatment may help stroke survivors with spatial neglect—but more research is needed to find the best way to use it in rehabilitation settings.

MATILDA: 06:15 [Music] Want to dive deeper into the science behind prism adaptation treatment? Check out the full study, “Does prism adaptation treatment reduce spatial neglect and improve function?” published in Frontiers in Rehabilitation Science (2025), led by Dr. Pay Chen and a team of expert collaborators. You’ll find the link in the show notes, along with

resources on clinical tools developed by Kessler Foundation scientists—like the KF-NAP® and KF-PAT®—that are helping transform stroke rehabilitation. Visit these links to explore how research is shaping real-world recovery.

MATILDA: 06:54

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This podcast was recorded in July 2025 and was edited and produced by Joan Banks-Smith, Creative Producer for Kessler Foundation.