

# Cognitive rehab helps people with acquired brain injury

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Cognitive rehabilitation after a serious brain injury or stroke can help the mind in much the same way that physical therapy helps the body, according to a new meta-analysis. Because the data suggest that treatment may work best when tailored to age, injury, symptoms, and time since injury, the findings may help establish evidence-based treatment guidelines. A full report is in the January issue of *Neuropsychology*, which is published by the American Psychological Association.

Researchers at the University of South Alabama and the University of North Carolina at Charlotte analyzed and updated the data found in systematic reviews, published in 2000\* and 2005\*\*, of several hundred studies of cognitive rehabilitation. The researchers took those studies whose samples and methods were most amenable to rigorous statistical techniques and documented the extent to which various treatments improve the language, attention, memory and other cognitive problems that appear after acquired brain injury (such as from trauma, stroke or loss of oxygen - in other words, not congenital).

The meta-analysis examined 97 articles, comprising 115 studied treatment samples and 45 control samples. These samples collectively included 2,014 individuals who underwent cognitive rehabilitation after brain injury and 870 individuals in a variety of control conditions. The authors of the initial reviews had concluded there was enough evidence to generally support the use of a variety of rehabilitative treatments. To develop specific treatment guidelines, this new analysis documented the

extent to which treatment type and timing, origin of the injury, recovery level, and participant age affected the odds of success.

Given the patterns they found, the authors offered initial treatment guidelines:

Generally, it is better to start treating patients as early as possible, rather than waiting for a more complete neurological recovery.

Even older patients (age 55 and up) may benefit from cognitive rehabilitation, particularly if the brain injury is due to stroke.

Clinicians should focus their efforts on direct cognitive skills training in specific cognitive domains (such as attention or visuospatial processing). More holistic, non-targeted interventions appear to be less effective.

Especially if they were treated soon after the event, language training helped older people after stroke with aphasia, problems producing and/or comprehending language. However, language training was still effective, just not as much, when it started more than a year after the stroke.

Attention training helped people with acquired brain injury and seemed to work best with younger patients less than a year after injury. It was the most specific treatment, improving nothing but attention.

Visuospatial training helped stroke patients with visuospatial neglect, the inability to respond or orient to something shown on the side opposite to the site of the injury. Visuospatial training also tended to improve performance in other cognitive domains.

Memory treatment did not produce clear results. Nor did comprehensive treatments that attempted to treat cognitive problems holistically.

Other specific findings emerged. For one thing, patients treated less than a year after injury did better than those treated more than a year later. For another, older patients tended to improve more after stroke than younger patients improved after traumatic brain injury (TBI). However, because strokes are more common in old age and TBI is more common in youth, further research is needed to disentangle the roles of age and injury type.

Thus, in the field of cognitive rehabilitation, one size does not fit all. Additional research should fill remaining gaps in understanding the effectiveness of and optimizing conditions for specific interventions.

Article: "Effectiveness of Cognitive Rehabilitation Following Acquired Brain Injury: A Meta-Analytic Re-examination of Cicerone et al.'s (2000, 2005) Systematic Reviews," Martin L. Rohling, PhD, University of South Alabama; Mark E. Faust, PhD, University of North Carolina at Charlotte; Brenda L. Beverly, PhD, University of South Alabama; George Demakis, PhD, University of North Carolina at Charlotte; *Neuropsychology*, Vol. 23, No. 1.

\* Cicerone, K. D., Dahlberg, C., Malec, J. F., Langenbahn, D. M., Felicetti, T., Kneipp, S., et al. (2005). Evidence-based cognitive rehabilitation: Updated review of the literature from 1998 through 2002. *Archives of Physical Medicine and Rehabilitation*, 86, 1681-1692.

\*\* Cicerone, K. D., Dahlberg, C., Kalmar, K., Langenbahn, D. M., Malec, J. F., et al. (2000). Evidence-based cognitive rehabilitation: Recommendations for clinical practice. *Archives of Physical Medicine and Rehabilitation*, 81, 1596-1615.

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