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# News Release

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## **VA Researchers help Veterans with language disorders caused by stroke**

Stroke is one of the leading causes of disability among older Veterans. Although stroke rehabilitation tends to focus on the physical consequences of the disease, stroke also is a common cause of language disorders, including aphasia. People with aphasia have trouble with language and communication after brain injury. It is a frequent result of strokes on the left side of the brain, where the areas that control language are found. Approximately 25-40% of stroke survivors have aphasia, and the prevalence is growing every year. Other potential causes include brain tumors, head injuries, infections, degenerative disease, and other neurological conditions that damage the brain.

When language areas on the brain's left side are damaged by stroke or other neurological conditions, it can be useful to engage related areas on the brain's right side to facilitate recovery of language functions. In an article recently published online in the journal *Neurorehabilitation and Neural Repair* (print version to follow), Dr. Bruce Crosson, Atlanta VA Research Investigator, and his colleagues described a treatment in which word-finding attempts were paired with left-hand movements. Dr. Crosson found left-hand movements help engage related right-side brain areas during aphasia therapy sessions. His research team found that activity in the brain's frontal lobes shifted from the left side toward the right side when left-hand movements were used in therapy sessions. This shift was not observed during similar therapy sessions where hand movements were not involved. This shift in brain activity from left to right may influence other brain areas as well. Crosson emphasized that the treatment does not evoke a wholesale transfer of language functions to the brain's right side. Instead, the brain appears to use intact language areas on the left side along with areas on the right side as this hand-evoked therapy brings about improved language function.

One exciting and unusual finding was that this therapy not only improved the participants' use of words trained in the therapy, but the use of many other words as well. This is not true of a similar treatment when left-hand movements were not included. Additionally, patients were better able to retrieve words during picture descriptions after the treatment when left-hand movements initiated word-finding attempts. Picture descriptions are closer to the type of language used in conversations. Crosson said, "This finding is important because it suggests the treatment may have a greater impact on the aphasia patient's every-day functioning than some other treatments."

More research is needed to look at the effects of this treatment in larger patient groups and in patients with different types and severity of aphasia to determine who is best able to benefit from this treatment and why. Nonetheless, Dr. Crosson is optimistic about the potential of the treatment.

Dr. Crosson is the Executive Associate Director of the Atlanta VA's Center of Excellence for Visual and Neurocognitive Rehabilitation where he also heads its Neuroimaging Core. He is a research neuropsychologist. Dr. Crosson is Professor of Neurology and Radiology at Emory University and Professor of Psychology at Georgia State University. He holds an Honorary Professorship of Health and Rehabilitation Sciences at the University of Queensland in Brisbane, Australia.

The research was funded by the National Institute on Deafness and Other Communication Disorders and Dr. Crosson's VA Senior Research Career Scientist Award. It was performed at the University of Florida and the Brooks Rehabilitation Hospital in Jacksonville, FL.