

S #5

A combination of visual and motor cuing may be more effective than motor cuing alone in reducing left neglect

Lin, K.-C., Cermak, S. A., Kinsbourne, M., & Trombly, C. A. (1996). Effects of left-sided movements on line bisection in unilateral neglect. *Journal of the International Neuropsychological Society, 2,* 404–411.

Level IC1b

Randomized controlled trial, less than 20 participants per condition or group, high internal validity, moderate external validity

Why research this topic?

"Left neglect" is usually called "unilateral neglect," the major defining characteristic of which is "consistent inattention to stimuli on the affected side" (Anderson, Anderson, & Glanze, 1998, p. 1676)—in this case, the left side. Therapists attempt to correct unilateral neglect in stroke clients by manipulating the demands of a task or the properties of a stimulus through offering various cues. Research has demonstrated various types of cues to be effective, but it has not fully explored their relative effectiveness.

What did the researchers do?

Lin and colleagues (1996), all of Boston University, sought to test the relative effectiveness of three types of cuing: visual, motor, and a combination of the two. There were 13 participants in the study: 12 men and 1 woman. Their average age was 57.5 years. All were right-handed Taiwanese with right-brain damage, left hemiplegia (total or partial paralysis of the left side of the body), and sensory impairments. They were receiving rehabilitation in one of six hospitals in Taiwan. The average time since they had experienced their stroke was 11.5 weeks.

The researchers were interested in the following outcome area: participants' *perceptual processing*, as measured by their ability to divide a series of lines in half. In the visual-cuing condition, the participants first reported a digit that had been placed at the left end of each line and then divided the line with their right hand. In the motor-cuing condition, they reached leftward with their right hand to circle the digit before dividing the line. In the visuomotor-cuing condition, they circled the digit with their right hand and then traced the line with their right index finger from its left end to its midpoint before dividing it. In a fourth condition, they divided the line with their right hand without any cuing.

Each participant performed the task on randomly presented lines of various lengths for 21 trials in each condition. An occupational therapist administered all the trials in a hospital setting.

What did the researchers find?

The participants **significantly** (*see Glossary*) improved their performance in all three of the cuing conditions. Visuomotor cuing showed the greatest improvement, then motor cuing, then visual cuing.

What do the findings mean?

For therapists and other providers, the findings suggest that, among right-handed stroke patients with left neglect, a combination of visual and motor cuing may be more effective in reducing left neglect than visual or motor cuing alone. Further, motor cuing (having the patient move the unaffected arm into space on the affected side) alone may be more effective than visual cuing alone.

What are the study's limitations?

The study was well controlled. The high rating (1) that it received on internal validity indicates that the outcome was due to the intervention and not some other factor.

Reference

Anderson, K. N., Anderson, L. E., & Glanze, W. D. (Eds.). (1998). *Mosby's medical, nursing, and allied health dictionary* (5th ed.). St. Louis: Mosby.

Glossary

significance (or significant)—A statistical term, this refers to the probability that the results obtained in the study are not due to chance, but to some other factor (such as the treatment of interest). A significant result is one that is likely to be generalizable to populations outside the study.

Significance should not be confused with clinical effect. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to walk, may report that the participants in the treatment group were able to walk significantly longer distances than the control. However, if you read the study you may find that the treatment group was able to walk , on average, six feet, while the control group was able to walk, on average, five feet. While the outcome may be statistically significant, a clinician may not feel that a one foot increase will make his or her client functional.

Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: Uniform Terminology for Occupational Therapy Practice—Third Edition (AOTA, 1994) and International Classification of Functioning, Disability and Health (ICIDH-2) (World Health Organization [WHO], 1999). More recently, the Uniform Terminology document was replaced by Occupational Therapy Practice Framework: Domain and Process (AOTA, 2002), and modifications to ICIDH-2 were finalized in the International Classification of Functioning, Disability and Health (WHO, 2001).

This work is based on the evidence-based literature review completed by Hui-ing Ma, ScD, OTR, and Catherine A. Trombly, ScD, OTR/L, FAOTA.

For more information about the Evidence-Based Literature Review Project, contact the Practice Department at the American Occupational Therapy Association, 301-652-6611, x 2040.



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