# AOTA Evidence Briefs
## Brain Injury

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

**BI #4**

## Cognitive rehabilitation at home may have therapeutic benefits for clients with brain injury

Salazar, A., Warden, D. L., Schwab, K., Spector, J., Braverman, S., Walter, J., Cole, R., Rosner, M. M., Martin, E. M., Ecklund, J., & Ellenbogen, R. G. (2000). Cognitive rehabilitation for traumatic brain injury: A randomized trial. *JAMA*, *283*, 3075–3081.

**Level: IA2b**

Randomized controlled trial, 20 or more participants per condition, moderate internal validity, moderate external validity

### Why research this topic?

Clients with traumatic brain injury have seemed to benefit from specialized, interdisciplinary rehabilitation. However, most rehabilitation strategies have not been closely scrutinized for efficacy and cost-effectiveness.

### What did the researchers do?

The researchers, variously affiliated with the Henry M. Jackson Foundation (Rockville, Maryland), the Uniformed Services University (Bethesda, Maryland), and Walter Reed Army Medical Center (Washington, DC), evaluated the efficacy of inpatient cognitive rehabilitation with persons who have traumatic brain injury.

The participants were recruited from 273 patients with traumatic brain injury who were consecutively hospitalized at Walter Reed Army Medical Center from January 1992 through February 1997. Of the 273, 167 met the study's criteria for eligibility, but 47 of these declined to participate. That left the researchers with a sample of 120. The eligibility criteria included, among other things, moderate-to-severe head injury that had occurred within the previous 3 months and a Rancho Los Amigos cognitive level of 7 (oriented, appropriate). The participants were randomly assigned to intensive in-hospital cognitive rehabilitation or limited home rehabilitation, resulting in groups of 67 and 53, respectively. Of the 67 in the hospital group, 62 were men and 5 were women, and their average age was 25 years. Of the 53 in the home group, 51 were men and 2 were women, and their average age was 26 years.

The in-hospital rehabilitation program, which lasted 8 weeks, combined physical fitness training and group and individual cognitive, speech, occupational, and coping-skills therapies. It also used a program of integrated work therapy (not explained). An occupational therapist coordinated participants' placement in work settings that were as similar as possible to their previous military assignment.

The participants in the home rehabilitation program, which also lasted 8 weeks, received education about their injury and individual counseling from a psychiatric nurse. The nurse trained them in various number and card games and encouraged them to watch news programs and read magazines and books. As they felt ready to do so, they resumed daily physical exercise. The nurse talked with each participant once a week for 30 minutes to inquire about the week's happenings and to offer support and advice.

The outcome areas of interest were *return to work* and *fitness for military duty* at 1-year follow-up (as determined through an interview, military records, or both).

## What did the researchers find?

At the one-year follow-up, there was no **significant** *(see Glossary)* difference between the two groups in return to work or fitness for duty. In the hospital group, 90% had returned to work and 73% were fit for duty; in the home group, the corresponding figures were 94% and 66%.

## What do the findings mean?

- For therapists and other providers, the findings support the therapeutic benefits of the home setting in rehabilitation for clients with brain injury. An interesting comment by the researchers was that whereas the hospital group's treatment was therapy oriented, the home group's treatment was "almost completely functional."
- The findings and comparative costs ($51,840 per participant for the hospital group, $504 per participant for the home group) should encourage confidence in providing rehabilitation for persons with brain injury in the home setting.

## What are the study's limitations?

The researchers' method of selecting study participants was systematic; that is, they selected the participants randomly. This feature raises confidence that the results of the study can be attributed to the intervention.

The study provides useful information. However, it has limited generalizability for the population of persons with traumatic brain injury across settings because the participants did not represent all populations.

## 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 Beatriz C. Abreu, PhD, OTR, FAOTA, and colleagues.

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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