AOTA Evidence Briefs
Stroke

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

S #19

Individualized, self-administered home therapy using a program of written and illustrated exercises may improve stroke clients' motor ability

Turton, A., & Fraser, C. (1990). The use of home therapy programmes for improving recovery of the upper limb following stroke. *British Journal of Occupational Therapy, 53,* 457–462.

Level IIC2b

Nonrandomized comparison of two or more groups or treatments in a quasi-experiment without randomization to group, condition, or sequence; less than 20 participants per condition or group; moderate internal validity; moderate external validity

Why research this topic?

Stroke patients are discharged from inpatient care before they have fully recovered. They can benefit from further treatment. Outpatient therapy may have drawbacks: Travel may be tiring, transportation may not be available, scheduling may be difficult, learning takes place outside the client's own environment, and the therapist cannot always readily involve the client's family. Home therapy might solve these problems.

What did the researchers do?

Turton and Fraser (1990), of Addenbrooke's Hospital (Cambridge, England), explored the effects of home therapy on stroke patients' reaching movement. The study involved a home therapy group and a control group. The 22 participants, 12 men and 10 women, averaged 58 years in age. They were assigned to one or the other group in alternating runs of five, resulting in 12 members in the home therapy group and 10 in the control group. All were stroke patients discharged from inpatient care in the rehabilitation unit of Addenbrooke's Hospital from the end of September 1986 to the end of November 1987. To be included, they had to have achieved less than 95% of normal performance on a repeated-reaching action (involving transferring pegs from hole to hole). Patients with sensory or proprioceptive problems were eligible (proprioception is "reception of stimuli produced within the organism regarding spatial position and muscular activity" [Anderson, Anderson, & Glanze, 1998, p. 1333]). Patients with apraxia (an inability to execute complicated movements) or perceptual or cognitive impairments also were eligible if they could understand instructions.

A therapist provided the home therapy group with a booklet and a written and illustrated program of exercises that were considered appropriate to participants' individual stages of recovery and the problems they presented. The participants performed the exercises two or three times a day for an average of 9 weeks. The therapist visited occasionally during the 9 weeks to adjust the program.

The therapist visited the control group at home for assessment only.

The outcome area of interest was **sensorimotor** (*see Glossary*) *performance* (as measured by the upper-limb activity assessment of the Southern Motor Group's motor assessment and by a timed 10-hole peg test).

What did the researchers find?

The home therapy group showed more improvement than the control group on both measures. Only the performance on the peg test was **significantly** (*see Glossary*) better, however.

What do the findings mean?

For therapists and other providers, the findings suggest that providing stroke patients with a written and illustrated home exercise program appropriate to their stage of recovery and their individual problems may enhance spontaneous recovery in the impaired arm.

However, the findings are inconclusive because of several limitations of the study.

What are the study's limitations?

First, the therapist who delivered the treatment and conducted the assessments knew the study's hypothesis and may have unintentionally influenced the results.

Second, the instrumentation (a peg test) was poorly chosen because 4 out of 10 of the control patients and 7 out of 12 of the experimental participants could not do the test and were arbitrarily assigned a score of 60, meant to be the worst obtained. This score was used in the statistical calculations. The peg test had "floor effects" for these participants; that is, the lowest score was not low enough to show the differences among them. The researchers should have used a different test to capture the participants' skill levels.

Third, some participants received outpatient therapy as well as the intervention delivered as part of the study, so the results may have been confounded.

Fourth, more participants in the home therapy group than in the control group had caregivers living with them who may have influenced their compliance.

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

sensorimotor—"of, relating to, or functioning in both sensory and motor aspects of bodily activity" (*Merriam Webster's Collegiate Dictionary,* 10th ed., p. 1066)

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).

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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.