AOTA Evidence Briefs
Parkinson's Disease

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

P #1

Group occupational therapy improves functional status, decreases symptoms of clients with Parkinson's

Gauthier, L., Dalziel, S., & Gauthier, S. (1987). The benefits of group occupational therapy for patients with Parkinson's disease. *American Journal of Occupational Therapy, 41,* 360–365.

Level IA1a

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

Why research this topic?

Drug treatment of **idiopathic** (*see Glossary*) Parkinson's disease has improved clients' quality of life and increased their survival rates. However, as the disease progresses, clients' ability to perform activities of daily living (ADL) decreases. Gauthier and colleagues (1987), researchers at McGill University (Montreal, Canada), thought that rehabilitation coupled with drug treatment might improve clients' ADL performance.

What did the researchers do?

Over 2 years, 64 people (gender not reported) began the study in four groups of 16 each. Five participants subsequently dropped out for personal or medical reasons. The average age of the 59 who completed the study was 60.9 years for the experimental group and 65.3 years for the control group. All were volunteers. They had had idiopathic Parkinson's disease for at least 1 year and were in **stage 2, 3, or 4** (*see Glossary*) of the disease according to a widely accepted **Hoehn and Yahr** (*see Glossary*) system of classifying symptoms. They all had been living at home, were able to attend follow-up assessments, and lived within the city limits of Montreal or its suburbs.

In each group, the participants were evaluated neurologically and functionally before treatment and again at 6 months and at 1 year after treatment. Following the first assessment they were randomly assigned to a rehabilitation group or a control group (eight participants each). Members of the control group received no therapy. Members of the rehabilitation group received 10 sessions of group occupational therapy (two per week for 5 weeks), with each session lasting about 2 hours. The treatment, delivered by two occupational therapists, involved general mobility activities, rest and socialization, dexterity activities, functional activities, and education.

The outcome areas of interest were *ADL* (as measured by the Barthel Index), *physical and motor signs* (as measured by the Extrapyramidal Symptom Rating Scale), *psychological well-being* (as measured by the Bradburn Index of Psychological Well-Being), and *dexterity* (as measured by the Purdue Pegboard Test).

What did the researchers find?

At the 6-month follow-up, participants in the rehabilitation group showed significantly fewer signs of **bradykinesia** (*see Glossary*) and **akathisia** (*see Glossary*) than those in the control group, and at the 1-year follow-up they showed significantly fewer signs of bradykinesia and akathisia. Further, at the 6-month follow-up, 10 members of the rehabilitation group showed a significant decrease in the severity of the stage of their disease as defined by the Hoehn and Yahr scale. No control group members showed **significant** (*see Glossary*) changes.

At the 1-year follow-up, participants in the rehabilitation group had maintained their functional status, but participants in the control group showed a significant decline.

Participants in the rehabilitation group also reported significantly greater psychological well-being after treatment than before. The control group showed **no significant** *(see Glossary)* changes. There were no changes for either group in dexterity.

What do the findings mean?

- For therapists and other providers, the findings support the effectiveness of group occupational therapy as an adjunct to drug treatment with people who have Parkinson's disease. At the 1-year follow-up, the participants with Parkinson's disease who had not received the therapy had experienced a significant decline. By contrast, those who had received the therapy had maintained their functional status.

  The researchers suggest that group treatment is better suited than individual treatment to achieving positive behavioral outcomes in Parkinson's patients because of the opportunity for increased socialization and group motivation.

- The cost-effectiveness of the intervention is of interest. A relatively small investment of time and money yielded many positive outcomes that were maintained over a year's time.

What are the study's limitations?

This study was a well-designed clinical trial in which participants were randomized into groups and evaluators did not know which participants received intervention. In addition, outcome measures used in the study have been shown to be valid and reliable. Because there are no apparent biases or methodological limitations, the results appear conclusive that group occupational therapy was effective for the study population.

Glossary

akathisia—"uncontrollable motor restlessness" (*Merriam-Webster's Medical Dictionary*)

bradykinesia—"extreme slowness of movements and reflexes" (*Merriam-Webster's Medical Dictionary*)

idiopathic—"arising spontaneously or from an obscure or unknown cause"— (*Merriam-Webster's Medical Dictionary*)

Hoehn & Yahr—system of classifying symptoms

Stage 1: unilateral involvement only, usually with minimal or no functional impairment.

Stage 2: bilateral or midline involvement, without impairment of balance.

Stage 3: first sign of impaired righting reflexes. This is evident by unsteadiness as the patient turns or is demonstrated when he is pushed from standing equilibrium with the feet together and eyes closed. Functionally, the patient is somewhat restricted in his activities but may have some work potential depending upon the type of employment. Patients are physically capable of leading independent lives, and their disability is mild to moderate.

Stage 4: fully developed, severely disabling disease; the patient is still able to walk and stand unassisted but is markedly incapacitated.

Stage 5: confinement to bed or wheelchair unless aided.

Hoehn, M. M. & Yahr, M. D. (1967). Parkinsonism: Onset, progression, and mortality. *Neurology*, *17*(5), S11–S26.

nonsignificant or no significance—A statistical term that refers to study findings that are likely to be due to chance differences between the groups rather than to other factors (like the treatment of interest). A nonsignificant result is not generalizable outside the study. Like significance, a nonsignificant result does not indicate the clinical effect. Often studies will show nonsignificant results, yet the treatment group's mean will be better than the control group's. This is usually referred to as a trend in the right direction. Because significance is closely determined by sample size, nonsignificant results would often become significant if the sample size were increased.

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 Susan Murphy, ScD, OTR/L, and Linda Tickle-Degnen, PhD, 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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