What Is the Evidence for the Effectiveness of Interventions to Improve Occupational Performance After Stroke?

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stroke continues to be a leading cause of serious long-term disability in the United States (Centers for Disease Control and Prevention, 2009). In the National Heart, Lung, and Blood Institute’s Framingham Heart Study (Kelly-Hayes et al., 2003), among ischemic stroke survivors who were age 65 yr or older, the following disabilities were observed at 6 mo after stroke: 50% had some hemiparesis, 30% were unable to walk without some assistance, 46% had cognitive deficits, 35% had depressive symptoms, 19% had aphasia, 26% were dependent in activities of daily living (ADLs), and 26% were institutionalized in a nursing home. Stroke also continues to be a diagnosis commonly managed using occupational therapy services. Approximately 60% of occupational therapy practitioners provide services to those who have experienced stroke (National Board for Certification in Occupational Therapy, 2013a, 2013b).

These facts dictate that occupational therapy practitioners remain up to date regarding interventions aimed at improving occupational performance. Specifically, occupational therapy practitioners have been mandated to keep their practice as evidence based as possible (American Occupational Therapy Association [AOTA], 2007). To help practitioners meet this mandate, teams of researchers were charged to review the evidence to determine the effectiveness of

- Interventions to improve occupational performance for those with motor deficits after stroke,
- Interventions to improve occupational performance for those with cognitive impairments after stroke,
- Activity- and occupation-based interventions to improve areas of occupation and social participation after stroke, and
- Interventions to improve occupational performance for those with psychological and/or emotional impairment after stroke.

The research teams involved in this project reviewed more than 12,600 abstracts for potential inclusion. A total of 274 articles were included in the final reviews. Slides from presentations at the 2013 AOTA Conference & Expo describing this evidence review are available online at http://otjournal.net (navigate to this article, and click on “Supplemental”).

Themes

The areas that received the least attention in the research literature are, in fact, the areas that are considered to make occupational therapy a unique profession. These areas include interventions focused on occupation and social participation (arguably the lifeblood of occupational therapy practitioners) and interventions for people with emotional impairments (essential to occupational therapy’s holistic perspective). These gaps can potentially undermine the essence of our field. Even within the review of interventions for occupation and social participation, the authors found that the area of ADLs received the most research attention and that other areas of
occupation received little or no attention. This narrow definition of areas of occupation is not consistent with the Occupational Therapy Practice Framework: Domain and Process (3rd ed.; AOTA, 2014). More troubling is the potential that we are narrowing our own scope of practice if this definition is carried into practice settings.

Although interventions addressing cognitive and motor impairments received more attention, the area of motor control research received the most attention by far (150 studies were included for motor impairments, compared with 46 for cognitive impairments). The criterion that excluded the vast majority of studies related to cognitive rehabilitation after stroke was the lack of inclusion of measures of performance and occupation. Because the focus of this review was on improving occupational performance for people with cognitive impairments after stroke, these studies were not included. Measures that evaluated cognition outside of the context of occupations were most commonly reported. Examples of items included in these measures are cancellation tasks, memorizing a number string, and making trails. Of concern is that these out-of-context cognitive assessments are the methods most commonly used by occupational therapists around the globe according to survey research (Koh, Hoffmann, Bennett, & McKenna, 2009; Korner-Bitensky, Barrett-Bernstein, Bibas, & Poulin, 2011; Menon-Nair, Korner-Bitensky, & Ogourtsova, 2007). It is critical that we as a profession embrace occupation-based cognitive assessments to demonstrate our unique contributions.

As stated earlier, the body of research focused on improving occupational performance in clients with motor impairments is substantial, impressive, and compelling. The authors of the motor review identified commonalities among effective interventions for motor impairments, including use of goal-directed, individualized tasks that promote frequent repetitions of task-related or task-specific movements. The authors also point out that this description is very much in line with the Framework’s description of the domain of occupational therapy—that is, “achieving health, well-being, and participation in life through engagement in occupation” (AOTA, 2014, p. S2).

### A Growing Disconnect Between Evidence and Practice

Although occupational therapy’s professed philosophy (AOTA, 2014) and current evidence related to interventions for motor impairments are now relatively in line, the gap between research and practice seems to be widening. Neurodevelopmental treatment (NDT), also called the Bobath approach, has been reported as one of the most frequently used occupational therapy interventions across settings (Crist, Brown, Fairman, Whelan, & McClure, 2007). In a regional study of stroke rehabilitation practice, Natarajan et al. (2008) found that 85% of occupational therapists used NDT and Brunnstrom’s movement therapy as their preferred approaches. It should be noted that Brunnstrom’s approach was last updated in 1992 (Sawner & LaVigne, 1992) and cited abstracts and references from 1898 to 1960 as support.

Only one study has examined Brunnstrom’s approach since its inception. Wagenaar et al. (1990) used an alternating treatment design to compare NDT and Brunnstrom’s approach. Only one patient benefited from Brunnstrom’s approach on only one of multiple outcome measures (walking speed). Similarly, the research related to NDT is far from compelling. A systematic review of randomized trials evaluating the effectiveness of NDT concluded that there was no evidence of the superiority of NDT in improving sensorimotor control of the upper and lower limbs, dexterity, mobility, ADLs, health-related quality of life, and cost-effectiveness (Kollen et al., 2009). In fact, a large randomized controlled trial (Arya et al., 2012) included in this review found that NDT was inferior when compared with meaningful task-related training, an approach clearly in line with occupational therapy philosophy.

This growing disconnect between evidence and practice is likely to be multifactorial. Many occupational therapy practitioners seem to be wedded to traditional interventions as opposed to our mandated evidence-based practice. Similarly, many textbooks used in educational programs continue to promote these now outdated approaches (Fleming-Castaldy & Gillen, 2013).

### Conclusion

Over the past decade, rapid progress has been made in generating evidence to support occupational therapy interventions for clients who survive a stroke. However, the areas receiving attention from a research perspective show a lack of balance. At this point, the profession has relatively clear guidelines in terms of managing performance limitations secondary to motor impairment after stroke. This is an important step because this area of practice has traditionally been plagued by the use of interventions that do not have evidence to support their continued use in the clinic and by the prevalence of unsubstantiated approaches in continuing education offerings (Fleming-Castaldy & Gillen, 2013). If researchers set their future agendas to right this imbalance, practitioners will have more adequate depth and breadth of research to help guide practice in the areas of stroke rehabilitation considered unique to the occupational therapy profession. ▲

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### References


