Systematic reviews of the literature relevant to neurodegenerative diseases, including Parkinson's disease (PD), multiple sclerosis (MS), and amyotrophic lateral sclerosis (ALS), are important to the practice of occupational therapy. We describe the four questions that served as the focus for systematic reviews of the effectiveness of occupational therapy interventions for PD, MS, and ALS. We include the background for the reviews; the process followed for addressing each question, including search terms and search strategy; the databases searched; and the methods used to summarize and critically appraise the literature. The final number of articles included in each systematic review; a summary of the themes of the results; the strengths and limitations of the findings; and implications for practice, education, and research are presented.


Since 1998, the American Occupational Therapy Association (AOTA) has instituted a series of evidence-based practice (EBP) projects to assist members in meeting the challenge of finding and reviewing the literature to identify evidence and, in turn, use this evidence to inform practice (Lieberman & Scheer, 2002). Following the evidence-based philosophy of Sackett, Rosenberg, Gray, Haynes, and Richardson (1996), AOTA’s projects are based on the principle that the EBP of occupational therapy relies on the integration of information from three sources: (1) clinical experience and reasoning, (2) preferences of clients and their families, and (3) findings from the best available research.

A major focus of AOTA’s EBP projects is an ongoing program of systematic review of multidisciplinary scientific literature, using focused questions and standardized procedures to identify practice-relevant evidence and discuss its implications for practice, education, and research. The systematic reviews in this issue strengthen current knowledge of the efficacy of practices occupational therapy practitioners use in services for adults with neurodegenerative diseases.

Background

Neurodegenerative diseases are conditions whose pathology results in a degenerative process to part or all of the central nervous system (Forwell, 2006). According to Findley and Baker (2002), neurodegenerative diseases are progressive, may have an unknown cause, and are incurable. Neurodegenerative diseases, however, are amenable to management with pharmacological and other interventions, such as occupational therapy. Although many diseases are considered neurodegenerative, four of importance to occupational therapy are Parkinson’s disease (PD), amyotrophic lateral sclerosis (ALS), multiple sclerosis (MS), and transverse myelitis (TM). A fifth is Alzheimer’s disease, and a systematic review by Rao, Chiu, Bursley, Smulofsky, and Jezequel (2014) of the effects of exercise programs on...
The reviews addressed the following four focused questions:

1. What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice for people with multiple sclerosis?
2. What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice for people with Parkinson’s disease?
3. What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice for people with amyotrophic lateral sclerosis?
4. What is the evidence for the effectiveness of interventions within the scope of occupational therapy practice for people with transverse myelitis?

Methodology

Search terms for the reviews were developed by the methodology consultant to the AOTA Evidence-Based Practice Project and AOTA staff in consultation with the authors of each question and then reviewed by the advisory group. The search terms were developed not only to capture pertinent articles but also to make sure that the terms relevant to the specific thesaurus of each database were included. Table 1 lists the search terms related to population and intervention included in each systematic review. A medical research librarian with experience in completing systematic review searches conducted all searches and confirmed and improved the search strategies.

Databases and sites searched included Medline, PsycINFO, CINAHL, AgeLine, and OTseeker. In addition, consolidated information sources, such as the Cochrane Database of Systematic Reviews and the Campbell Collaboration, were included in the search. These databases are peer-reviewed summaries of journal articles and provide a system for clinicians and scientists to conduct evidence-based reviews of selected clinical questions and topics. Moreover, reference lists from articles included in the systematic reviews were examined for potential articles, and selected journals were hand searched to ensure that all appropriate articles were included.

Inclusion and exclusion criteria are critical to the systematic review process because they provide the structure for the quality, type, and years of publication of the literature incorporated into a review. The review of all four questions was limited to peer-reviewed scientific literature published in English. The intervention approaches examined were within the scope of practice of occupational therapy. The literature included in the review was published between 2003 and 2011 and included study participants with neurodegenerative diseases (MS, PD, ALS, and TM). The review excluded data from presentations, conference proceedings, non–peer-reviewed research literature, dissertations, and theses. Studies included in the review provide Level I, II, and III evidence. Level IV and V evidence was included only when no evidence of a higher level on a given topic was found.
A total of 8,566 citations and abstracts were included in the reviews. The question on MS had 3,484 references, the PD question had 4,061, the ALS question had 872, and the TM question had 149. The first author of this article completed the first step of eliminating references on the basis of citations and abstracts. All articles were eliminated from the initial TM review because none were within the scope of occupational therapy practice, and TM is not discussed further in this issue. The systematic reviews for PD and MS were carried out as academic partnerships in which academic faculty worked with graduate students to carry out the reviews. The systematic review on ALS was carried out as a partnership between the AOTA methodology consultant and an occupational therapist with expertise in ALS. Review teams completed the next step of eliminating references on the basis of citations and abstracts. The full-text versions of potential articles were retrieved, and the review teams determined final inclusion in the review on the basis of predetermined inclusion and exclusion criteria.

A total of 139 articles were included in the final review. Table 2 presents the number and levels of evidence for articles included in each review question. The teams working on each focused question reviewed the articles according to their quality (scientific rigor and lack of bias) and levels of evidence. Each article included in the review was then abstracted using an evidence table summarizing the methods and findings of the article and an appraisal of the strengths and weaknesses of the studies’ design and methodology. AOTA staff and the EBP project consultant reviewed the evidence tables to ensure quality control.

### Summary of the Themes in the Systematic Reviews

The results of the systematic reviews published in this issue of AJOT provide guidance for occupational therapy practitioners working with people who have PD, MS, and...
ALS. By reviewing the scientific literature and appraising and synthesizing specific studies, the authors provide guidance on critical practice questions.

Because the systematic review for MS had two large and distinct themes, the results are presented in two articles in this issue. Interventions for people with MS were found to target either (1) impairments or (2) activities and participation. Activity- and participation-based interventions for MS were found in the following areas: multidisciplinary rehabilitation programs, fatigue management programs, and health promotion programs. Impairment-level interventions for MS targeted cognition, emotional regulation, and motor and praxis skills. The evidence for interventions for people with ALS was categorized by the themes of exercise, assistive devices and wheelchairs, multidisciplinary programs, palliative care, and preparatory methods.

The evidence for interventions for people with PD had the following themes: engagement in exercise or physical activity to improve performance skills and occupational performance, environmental cues, stimuli and objects to improve task and occupational performance, and integration of self-management and cognitive–behavioral strategies into daily life to improve occupational performance and quality of life. Readers should refer to the individual articles for a summary of the findings of the systematic reviews (Arbesman & Sheard, 2014; Foster, Bedekar, & Tickle-Degnen, 2014; Yu & Mathiowetz, 2014a, 2014b).

**Strengths and Limitations of the Reviews and Implications for Practice, Research, and Education**

The systematic reviews on PD, MS, and ALS presented in this issue have several strengths and include many aspects of occupational therapy practice with these populations. The reviews included 139 articles, and nearly three-fourths of the articles provide Level I and II evidence, indicating that the evidence was of high quality. The reviews also involved systematic methodologies and incorporated quality control measures.

The limitations of the systematic reviews are based on the design and methods of the individual studies, including small sample sizes, high dropout rates, and limited descriptions of the psychometric properties of outcome measures. In addition, many of the studies in the review included concurrent interventions, and separating the effects of a single intervention may be difficult. Please refer to the individual systematic reviews for more complete information on results, interpretation of findings, limitations, and implications for practice.

The systematic reviews presented in this issue provide summaries of the best available evidence. This agenda is also clear for academic programs training the next generation of occupational therapy practitioners. Educators need to be aware of the results of the systematic reviews and present this multifaceted information to students rather than focus on a favored type of intervention. In addition, the evidence should not be presented in a one-size-fits-all framework but should be discussed from a client-centered and occupation-based perspective as described in the *Occupational Therapy Practice Framework: Domain and Process* (2nd ed.; AOTA, 2008).

**References**


