

Current Evidence and Opportunities for Expanding the Role of Occupational Therapy for Adults With Musculoskeletal Conditions

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Musculoskeletal conditions are the second greatest cause of disability worldwide, and chronic musculoskeletal conditions affect nearly the same percentage of the general population as chronic circulatory and respiratory conditions combined. Moreover, people with musculoskeletal conditions experience a significant decline in independence with daily activities and occupational performance, key areas targeted by occupational therapy interventions. This special issue of the *American Journal of Occupational Therapy* provides comprehensive summaries of evidence for the care of common musculoskeletal conditions, highlights important implications that support evidence-informed practice, and proposes ways to advance the practice of occupational therapy to improve the lives of people with musculoskeletal conditions.

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More than 1.7 billion people, nearly 25% of the world's population, are affected by a musculoskeletal condition (Global Burden of Disease Study 2013 Collaborators, 2015). In the United States, 54% of the adult population has a chronic musculoskeletal condition, which is nearly equal to the combined percentages of people with chronic respiratory and circulatory conditions, including heart disease and stroke (U.S. Bone and Joint Initiative, 2014). Of all health conditions, only chronic hypertension comes close to matching the prevalence of musculoskeletal conditions. Using data from the Agency for Healthcare Research and Quality, Weinstein, Yelin, and Watkins-Castillo (2014c) estimated the prevalence of arthritic and joint pain, general musculoskeletal injuries and conditions, and spinal conditions in the general population as 19.7%, 14.0%, and 10.1%, respectively. These data also indicate that prevalence across all three of these categories increases to nearly 50% among people older than age 45 yr.

In addition to high prevalence, musculoskeletal conditions contribute to significant impairment and lead to decline in

the independent performance of activities of daily living (ADLs). In fact, of more than 300 diseases, injuries, and acquired disorders, 3 of the top 10 conditions with the most years lived with a disability are musculoskeletal disorders; in total, musculoskeletal conditions have been identified as the second greatest cause of worldwide disability (Murray et al., 2012, 2013; Vos et al., 2012). Among the U.S. population, people with musculoskeletal conditions have the highest rate of inability to work compared with people with all other conditions, with a prevalence equal to that of the next two categories combined (i.e., circulatory conditions, such as heart, stroke, circulation, or blood problems, and psychological conditions; Weinstein, Yelin, and Watkins-Castillo, 2014b). Moreover, data from the Centers for Disease Control and Prevention's National Health Interview Survey have indicated that, across all age groups, the rate of self-reported limitations in the performance of ADLs is highest among people with musculoskeletal conditions compared to people with all other conditions (Weinstein, Yelin, and Watkins-Castillo, 2014a).

Unfortunately, the proportion of the population requiring care for musculoskeletal conditions has increased by 5% in the past 10 years (U.S. Bone and Joint Initiative, 2014), and the need for interventions is expected to continue to grow as the average age of the general population increases. Given the significant burden and impact, it is vital that occupational therapy practitioners and researchers be well equipped and prepared to respond to the significant rehabilitation needs in this area. In an effort to support the profession, I am pleased to introduce this special issue of the *American Journal of Occupational Therapy*, which contains systematic reviews evaluating the effectiveness of occupational therapy interventions for adults with musculoskeletal conditions and original research articles evaluating interventions and outcomes measurement for these clients.

Evidence-Based Occupational Therapy Interventions for Adults With Musculoskeletal Conditions

Among the many goals of the Evidence-Based Practice Project of the American Occupational Therapy Association (AOTA), completing regular reviews of the published literature and developing practice guidelines are paramount. AOTA first evaluated the evidence for occupational therapy interventions for musculoskeletal conditions in 2006, resulting in the *Occupational Therapy Practice Guidelines for Individuals With Work-Related Injuries and Illnesses* (Kaskutas & Snodgrass, 2009). In addition to these guidelines, a series of systematic reviews were published to describe evidence for treating conditions of the forearm, wrist, and hand (Amini, 2011); elbow (Bohr, 2011); shoulder (von der Heyde, 2011); and low back (Snodgrass, 2011).

The most recent iteration of AOTA's evidence-based practice review for musculoskeletal conditions aimed not only to update the previous reviews but to significantly expand the scope of conditions and interventions to be considered. Whereas the previous reviews and practice guidelines were limited to preventive and rehabilitative interventions for conditions with work-related etiology, the updated review process included any musculoskel-

etal condition regardless of how it was acquired. Given this expanded definition, the evidence-based practice team acknowledged the role of occupational therapy professionals in the treatment of a broader range of musculoskeletal conditions than had previously been considered. Thus, interventions for cervical spine disorders, musculoskeletal conditions of the lower extremities, and systemic musculoskeletal conditions not specific to one body segment were considered. Although neuromuscular disorders (e.g., muscular dystrophy, multiple sclerosis) were not included, systemic diagnoses included as part of this review were rheumatic and arthritic conditions, as well as burns and musculoskeletal pain (e.g., complex regional pain syndrome). Also included were interventions related to general, acquired musculoskeletal conditions (e.g., ergonomics).

In total, the review team completed 10 systematic reviews that will be used to support the development of two new occupational therapy practice guidelines for musculoskeletal disorders and rheumatic and arthritic conditions. Five of these systematic reviews are included in this special issue, which together provide integrated summaries of more than 300 articles. The first 2 reviews provide an update to the previous reviews by summarizing the relevant literature published since 2006 for conditions of the forearm, wrist, and hand (Roll & Hardison, 2017) and the shoulder (Marik & Roll, 2017). The other 3 reviews represent new additions to AOTA's Evidence-Based Practice Project and provide a comprehensive review of the published literature for occupational therapy interventions for adults with musculoskeletal disorders of the lower extremity (Dorsey & Bradshaw, 2017) and for adults with fibromyalgia (Poole & Siegel, 2017) and rheumatoid arthritis (Siegel, Watson, Apodaca, & Poole, 2017).

Readers of this special issue who provide services for people with musculoskeletal conditions of the upper and lower extremities will find comprehensive syntheses of evidence for a wide range of conditions and interventions. Specific diagnoses for which the most literature is available include carpal tunnel syndrome, distal radius fracture, tendon surgeries in the hands, rotator cuff tears, adhesive capsulitis, sub-

acromial impingement syndrome, hip fracture, and hip replacement. Across these conditions, a significant number of systematic reviews and Level I trials were discovered in the literature. Upper-extremity studies primarily evaluated orthoses, exercise, and other preparatory interventions (e.g., modalities) targeted at improving body structures and general functional performance. In contrast, interventions for the lower extremities focused on ADLs, activity pacing and education, functional mobility training, and performance of occupational tasks. The difference in the focus of interventions between upper- and lower-extremity disorders may primarily be because occupational therapy interventions for the lower extremity are most often provided as part of a multidisciplinary team, whereas nearly all studies included in the upper-extremity reviews evaluated interventions provided by only one professional. When working as single providers, practitioners often need to address body structure impairments before occupational tasks can be effectively targeted, a process that requires holistic care to be provided more implicitly through therapeutic use of self and other nondirected interventions. However, in the team environment, body structure impairments are treated by other professionals, allowing occupational therapy providers to focus on occupation-specific interventions.

Similar to the evidence for treating lower-extremity conditions, multidisciplinary care was also more common in the intervention studies included in the systematic reviews for fibromyalgia and rheumatoid arthritis. In addition to multidisciplinary care, both of these reviews describe supportive evidence for various physical activities, exercises, and complementary medicine techniques (e.g., yoga, Tai Chi), as well as numerous psychoeducational and cognitive-behavioral interventions, such as self-management and joint protection strategies. Two original research articles included in this special issue provide new evidence to support occupational therapy practitioners in developing joint protection interventions for people with rheumatoid arthritis. Together, these articles evaluate forces required to complete functional hand tasks, identify optimal diameters of handles or lids to minimize force (Liu, Yip, & Fan, 2017), and

provide suggestions for the best techniques for people with arthritis to successfully open jars (McGee & Mathiowetz, 2017).

Limitations and Challenges of Musculoskeletal Rehabilitation Research

The primary limitation noted across the systematic reviews in this issue was a lack of homogeneity within publications, in both participant demographics and intervention parameters. Rehabilitation research has always been, and will likely continue to be, challenged by the limitation of heterogeneity because of the client-centered nature of occupational therapy practice and the use of a wide variety of intervention techniques to treat each individual client. Although the reviews identify general interventions that show positive effects, it is challenging to describe specific protocols that are most effective. For example, significant evidence supports the use of orthoses for a variety of wrist and hand conditions, but no research has definitively identified one specific type of orthosis or wearing pattern as most effective for any of the conditions. In addition to limitations resulting from heterogeneity across studies, interventions for the upper extremity were limited in scope to addressing body structures to reduce impairment and did not fully evaluate the link of such improvements in impairment to functional tasks. More studies are needed that evaluate the full realm of the holistic focus used by occupational therapy professionals in the treatment of musculoskeletal disorders.

Unfortunately, the need to increase the amount of high-quality research is limited by the current landscape of scarce research funding. In an effort to increase awareness of the significant impact of musculoskeletal conditions, President George W. Bush declared 2002–2011 the National Bone and Joint Decade. The purpose of this initiative was to improve patient involvement in care decisions, promote prevention and cost-effective interventions, and encourage increased funding for research (Weinstein, 2000). Despite this decree, the burden and impact of musculoskeletal conditions have continued to grow, and research funding remains stagnant, with less than 2% of the National Institutes of Health budget being

dedicated to musculoskeletal disorder research, equivalent to funding levels of 2 decades ago (Weinstein, 2016).

Given the challenges of developing and testing standardized interventions and limited resources to support musculoskeletal research, it is imperative to identify new methods for evaluating occupational therapy interventions. One viable method to advance evidence-based practice is by way of practice-based evidence: the development and analysis of clinical databases. Two studies in this special issue provide an example of how researchers may be able to advance evidence across heterogeneous clients and interventions. These studies completed retrospective analyses of data to identify factors associated with success in rehabilitation. In the first of these two studies, Hardison and Roll (2017) explored client and program factors to determine how the heterogeneity of these factors contributed to successful outcomes of two occupational rehabilitation programs for people with work-related musculoskeletal injuries. Similarly, Miller and Kaskutas (2017) used a database to evaluate predictors associated with quality of life, functional activities, and return to work for people with peripheral nerve injuries in the upper extremity. Both of these articles provide evidence for the use of holistic occupational therapy interventions for the treatment of clients with various musculoskeletal conditions within a complex, heterogeneous, client-centered rehabilitation context.

Opportunities for Expanding Occupational Therapy's Role in Treating Adults With Musculoskeletal Conditions

Musculoskeletal conditions are a significant driver of disability, and the number of people requiring services for these conditions continues to grow. Occupational therapy has many opportunities to be a primary player in the future of care for people with musculoskeletal conditions. I offer three suggestions to consider relative to expanding occupational therapy's role in this practice area: (1) identification of occupational therapy's distinct value, (2) involvement in professional advoca-

cacy, and (3) building of capacities for practice and research.

Distinct Value

A primary consideration for advancing the role of occupational therapy in musculoskeletal rehabilitation is describing its unique contribution and distinct value. This process begins by acknowledging that all types of interventions, from preparatory to occupation-based activities, are useful. At the same time, we practitioners must avoid being overly reductionist and remain true to our professional roots by ensuring that clinical interventions always incorporate techniques to evaluate and treat the client holistically. When we make a conscious effort to explore all aspects of a client's life and establish rapport through appropriate therapeutic use of self, we can then fully engage our clients in the rehabilitation process. This holistic approach is the primary means of demonstrating occupational therapy practitioners' distinct value apart from other clinicians providing services for people with musculoskeletal conditions.

Whether we address function through implicit or explicit interventions, we must be vigilant about directly assessing the occupation-based outcomes that are of most importance to our clients. The final article in this special issue (Leshner, Mulcahey, Hershey, Stanton, & Tiedgen, 2017) provides insight into the way outcomes are currently being measured as related to the *Occupational Therapy Practice Framework: Domain and Process* (3rd ed.; AOTA, 2014) and the *International Classification of Functioning, Disability and Health* (World Health Organization, 2001), and it provides some suggestions for how this area of distinct value might be improved. Finally, it is vital that researchers explore practice patterns to identify how occupational therapy practitioners are currently providing care and to identify additional or new opportunities for the profession to be involved in the care of people with musculoskeletal conditions.

Advocacy

To advance our role in musculoskeletal rehabilitation, all occupational therapy practitioners must actively advocate for the

profession. Most practitioners are already adept at advocating for themselves in their own practice setting, but I would challenge every practitioner to go the extra step to objectively demonstrate his or her distinct value through the use of practice-based evidence. In addition, it is vital that every practitioner be an active member of AOTA. AOTA leverages the collective voice of all occupational therapy practitioners to increase public awareness, monitor and have an impact on federal policies, and influence change in practice patterns. Although AOTA advocates for all aspects of occupational therapy practice, the association must determine how to distribute its resources across the broad scope of occupational therapy practice areas. Without a viable contingent of members providing services within musculoskeletal and work programs rehabilitation, the association has no impetus to dedicate resources and focus on this area of practice.

In addition to being active in AOTA, it is vital that occupational therapy practitioners be active members of other interdisciplinary practice-based societies. Membership, attendance, and presentations at interdisciplinary conferences will increase the profession's visibility and lead to heightened awareness of the value of occupational therapy for people with musculoskeletal conditions. Finally, I encourage all practitioners to actively advocate to politicians at the local, state, and federal levels. Share your experience, passion, and enthusiasm for what you do, and describe to them the distinct value of occupational therapy for people with musculoskeletal conditions. Through advocacy at every level, you can have a significant impact on local practice and referral patterns and on policies and federal legislation that can positively influence occupational therapy practice and research.

Capacity Building

Demonstrating occupational therapy's distinct value and advocating for the role of occupational therapy in supporting people with musculoskeletal conditions can only go as far as the number of people in the communities of practice and research. An important means of building capacity is by increasing the number of students who are exposed to and interested in working

with clients with musculoskeletal conditions. Educational programs must provide opportunities to promote this area of practice along with more widely known practice contexts. Educators should actively recruit into professional programs students who express interest in working with clients with musculoskeletal disorders and in industrial settings, rather than encouraging these students to seek careers in other professions. Moreover, people interested in this practice area tend to be detail and process oriented and often come from underrepresented groups within the profession (e.g., male). As such, bolstering the profession's representation in musculoskeletal rehabilitation as well as in work and industry programs represents an opportunity to increase the diversity of the occupational therapy workforce.

In addition to expanding the clinical and research workforce, it is vital to focus on building capacity for research. Although the availability of funding may be out of practitioners' individual control, practitioners can begin building evidence in multiple ways that will overcome many of the limitations noted in the current literature. It would be valuable to build networks that connect practitioners with researchers. Clinical practice settings have an abundance of data, and researchers are in need of access to such data to construct high-quality research. In turn, researchers have access to large amounts of evidence and can provide support for decision making by practitioners. When paired together, researchers and clinicians can work to build practice-based evidence databases to begin answering questions related to the effects of occupational therapy interventions. In addition to individual clinic databases, practitioners and researchers should explore pooling of data across a wide range of practice sites to support development of best practices through evaluation of relationships among heterogeneous client demographics, diagnoses, individual intervention parameters, and various combinations of interventions. Together, building networks and pooling data can improve occupational therapy practitioners' ability to evaluate intervention effectiveness across multiple sites and contexts so that they can better answer questions related to heterogeneity in patient characteristics and practice contexts.

Conclusion

Musculoskeletal conditions are a significant and growing concern for the general population. It is vital that occupational therapy practitioners embrace musculoskeletal and work rehabilitation as important areas of practice within occupational therapy and ensure that these practice settings are included in the professional lexicon. We practitioners have all been asked, "Do you help people find jobs or provide counseling at work?" I challenge readers to, instead of immediately dismissing the question, acknowledge that occupational therapists can, and do, provide services that support clients in finding, obtaining, keeping, and returning to work. More specifically, within the context of treating musculoskeletal conditions, occupational therapy professionals have distinct value in evaluating, considering, and providing holistic interventions to assist clients in returning to their daily occupations, including work. Providing simple acknowledgment of this distinct role can go a long way toward engaging the public in understanding the profession, not only in a musculoskeletal context, but across all areas of practice. ▲

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