

Guest Editorial

Occupational Therapists' Expertise in Work Rehabilitation and Ergonomics

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Humans have a natural desire to participate in meaningful and productive activities. Success in those activities is a critically important contributor to the human sense of self worth, competence, and the ability to financially survive through the benefits of gainful employment. Furthermore, working has a positive correlation with mental health, and incorporates the capacities of the individual's physical, psychosocial and interpersonal skills.

Employers and employees face many challenges to success. Medical costs for employers are rising, and with the aging of the population, work rehabilitation and ergonomic intervention can play a major role in reducing those costs, increasing productivity and enhancing the lives of people of all ages who want to work. Given that the average age of employees is 41 years old and that many current workers indicate that they intend to continue to work beyond age 65, the simultaneous decline in the birth rate will lead to a decreased ability

to replace these valuable workers when they do retire. As people increase in age, so does the percentage of those who have a disability which affects the employability of people as they age. According to the US Disability Employment Policy (ODEP), 55.8% percent of people with disabilities aged 16–64 are employed [5]. It is critically important to maximize the opportunities for successful employment for people of all ages with and without disabilities.

Occupational Therapists (OT) are professionals highly skilled in work rehabilitation, injury prevention and ergonomic services. OT is defined as “the art and science of applying occupation as a means to effect positive, measurable change in the health status and functional outcomes of the client [2]. OT's expertise encompasses elements of activity performance required for success including physical, sensorimotor, cognitive, psychosocial and psychological aspects. Employees and employers require optimal use of their abilities in all of these areas for successful production at work.

Work rehabilitation services such as occupational therapy facilitate the successful employment of persons with disabilities. Since The Americans with Disabilities Act (ADA) was passed in 1990 employers have been encouraged to support reasonable accommodations that enable employment for persons with disabilities, and discrimination against workers with disabilities has been illegal. While some fear the cost of such actions, the costs associated with accommodations are relatively low. As noted by the Job Accommodation Network (JAN), more than half of all accommodations

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cost less than \$500 and most employers report benefits from using accommodations in excess of \$5,000 [2].

Injury prevention is also critical to proactively maintain a healthy workforce. Many employees work daily in pain from musculoskeletal disorders which, while not typically considered disabilities, can have a major impact on one's comfort and production. The musculoskeletal disorders are typically considered sprains and strains affected by those risk factors addressed through the science of ergonomics: Repetitive and sustained postures, excessive force, awkward postures, contact stress, temperature extremes and vibration. Occupational therapists have been addressing these issues since World War I. Those occupational therapists who become specialists in the fields of work rehabilitation and ergonomics apply their knowledge regarding physical, psychiatric, and interpersonal aspects of humans and work, often in collaboration with workers, employers, safety personnel, engineers, union representatives, and others.

In considering OT's important role in both work rehabilitation and injury prevention through ergonomics, the guest editors were interested in reviewing its value, and development and practice models. OT training is extensive in sciences that contribute to rehabilitation and ergonomics. Occupational therapists hold bachelors, master's or doctoral degrees and occupational therapy assistants have associate degrees. Practitioners must complete supervised clinical internships in a variety of health care settings and are required to pass a national certification examination. In addition, individual states also regulate occupational therapy practice [2]. Most that pursue a specialty in work rehabilitation and/or ergonomics study extensively in additional course work and may pursue related certifications.

When one reviews the components of OT training, the correlations to rehab and ergonomics are extensive. Through its university programs, "Occupational therapy education includes the study of human growth and development with specific emphasis on the social, emotional, and physiological implications of illness and injury. Occupational therapy practitioners are also skilled in developing and guiding a job-specific program of graded activity for the individual, job task analysis, job station and tool modification, and in identifying and remediating behaviors inappropriate to the work environment. Occupational therapy practitioners use their knowledge of the structure and function of the human body, the effects of illness and injury, and the components of activity to increase the individual's involvement in productive activity and safe practices." [1].

While persons with various training backgrounds work in the fields of work rehabilitation and ergonomics, according to the American Occupational Therapy Association (AOTA), "understanding the client as an occupational human being for whom access and participation in meaningful and productive activities is central to health and well-being is a perspective that is unique to occupational therapy" [3].

The science of ergonomics, in its quest to match the work to the worker, is closely related to occupational therapy's goal to match environments to the needs of the user(s) in order to maximize their functional independence, health and safety. Since occupational therapists have focused on developing accommodations for people with disabilities, it is logical that clinicians would also work on a population level approach to meet the needs of a wide range of people's abilities through the concept known as Universal Design. Universal Design is defined as the maximal use of products and environments by all people, regardless of their physical or cognitive abilities. The seven principles of UD are (a) equitable use among people with diverse abilities; (b) flexibility in design to accommodate diverse preferences and abilities; (c) simple and intuitive design that is easy to understand and is not dependent on users' knowledge, experience, or language skills; (d) perceptible information that is effectively communicated regardless of sensory abilities or ambience in the environment; (e) tolerance for error that minimizes hazards; (f) low physical effort; and (g) appropriate size and space for approach and use [4]. Similar in concept to ergonomics, examples of workplace design that incorporates UD include automatic doors, wider doorways, adjustable furniture, lighting with minimal glare, contrasting colors on walls and floors, and multi-modal emergency systems. Benefits include preventing injury, reducing health care costs, and minimizing the need for ongoing worker accommodations. These issues have been a primary focus of occupational therapy since its inception.

This edition of the journal *WORK* attempts to present the unique and valuable perspective of Occupational Therapy's role in work rehabilitation and ergonomics. The authors have carefully reviewed a wide variety of issues important to this specialty field of practice and the editors are pleased and honored to include their contributions.

In "Occupational Therapy – Meeting the Needs of Older Adult Workers?" Evans and colleagues explore the needs and abilities of the older working population and the important role that OT can play in their suc-

cess. With the aging workforce becoming increasingly critical to meeting workplace demands, as mentioned above, the exploration of how to maximize positive outcomes through best practices is very timely.

Worksite interventions in ergonomics and injury prevention have been well studied, however rehabilitation professionals, who are often clinicians providing hands on services with little time to do research, are increasingly adding to the field of knowledge through collaboration with academic faculty. Lindstrom-Hazel, in "A Single-Subject Design of Ergonomic Intervention Effectiveness for University Employees in a New Facility" reviews a pilot study to determine the effectiveness of hands-on ergonomic education and consultation for well populations working at computer workstations.

In "Return to Work with Chronic Low Back Pain: Using an Evidence-Based Approach Along with the Occupational Therapy Framework", Paquette offers a look at OT's role in evaluation and treatment for persons with a very common diagnosis, chronic low back, incorporating a holistic view of the client.

Rehabilitation and ergonomics often have overlapping interests. Boynton and Darragh, in "Participatory Ergonomics Intervention in a Sterile Processing Center: A Case Study", review a comprehensive ergonomics intervention program and its successful outcomes.

The study of outcomes and utilizing evidence-based approaches in best practices are very important in the current scope of Occupational Therapy. The literature related to studying physical issues is relatively quite extensive. The scope of OT practice reaches beyond the physical aspects of the person, and addresses psychosocial and mental health issues which can have great impact on a person's employability and risk of injury at work. Lysaght and colleagues have added to the study of measuring related work issues and examined the reliability and validity of the City of Toronto Job Demands Analysis in "Towards Improved Measurement of Cognitive and Behavioral Work Demands".

Evaluations are an important and highly debated issue in the fields of work rehabilitation and hiring practices. While much has been written on the subject, there is need for additional explorations of this topic to advance the reliability and validity of clinical practices. Lechner, Page and Sheffield assess and report on the "Predictive Validity of a Functional Capacity Evaluation: The Physical Work Performance Evaluation" and find a promising correlation three and six months after testing. Anderson and Briggs also considered these issues and offer "A Study of the Effectiveness of Ergonomically-Based Functional Screening

Tests and Their Relationship to Reducing Worker Compensation Injuries" through positive results of post-offer pre-placement testing. Faris examines the positive outcomes from post-offer pre-employment testing with nurses in "Lowering Nursing Injuries Using Post Offer Pre Employment Testing".

Achieving positive outcomes is partially challenging because there are many varied educational and training backgrounds represented by professionals working in the science of ergonomics. Lyshon and Shaw explore this issue and recommend use of the International Classification of Functioning, Disability, and Health to increase consistency and effectiveness in the application of ergonomics in "Using the ICF as a Conceptual Framework to Guide Ergonomic Intervention in Occupational Rehabilitation."

Occupational therapists offer a rich history and unique expertise as one profession in the field of ergonomics. This role is examined from a historical perspective and role comparison by Gainer in her paper entitled "A History of Ergonomics and Occupational Therapy". Bade and Eckert, in "The Critical Value of Occupational Therapists (OTs) in Work Rehabilitation and Ergonomics", offer insight into the training, roles, expertise and evolution of Occupational Therapy in work rehabilitation and ergonomics. They also provide an example of how one OT program has evolved with the profession and offer it as an example to be considered for implementation by others.

The guest editors would like to thank Karen Jacobs for the opportunity to examine the uniquely important service that occupational therapists provide in the lives of so many workers, employers and their mutual success. Whether the issue is work rehabilitation or injury prevention through ergonomics, occupational therapists offer valuable expertise to evaluate and facilitate the abilities of the whole person (physical, psychological and behavioral) to match and enhance the work that they do while minimizing their risk of injury.

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