

Editor's Message

This group of articles vary in country of origin (Australia; Denmark; Italy; and eastern, midwestern, and western US), type of analysis (correlation/regression, instrument development, efficacy of intervention, and systematic review), and level of evidence that each provides. Collectively, these works illustrate that research in geriatric rehabilitation involves scientists and clinicians across the globe, tackling issues relevant to many aspects of clinical practice.

We begin with one component of the InCHIANTI project, a longitudinal study that is following a cohort of aging adults in Italy. This particular article focuses on relationship of a variety of psychological, physical, and functional variables with fear of falling, and teases out differences in predictors for those fearful of falling at home versus while in the community. Dr. Despande and colleagues suggest that, as fear of falling is multidimensional, the environments in which an aging adult functions as well as the type and scope of support and resources available must be carefully considered in interpreting depth of concern about falling and fall risk, especially if fear of falling is being used as an indicator of efficacy of intervention.

Drs. Tseng and Kluding explore relationships between function, aerobic status, and fatigue, in a sample of persons with previous stroke. While the sample was small ($n=9$), the magnitude of correlations suggest that impaired motor function, associated with higher energy costs during mobility, contributes significantly to fatigue which individuals with stroke experience. These findings prompt us to consider whether rehabilitation and wellness interventions include sufficient emphasis on both motor control and aerobic conditioning. This work on relationship might prompt future research efforts to determine the most efficacious dose, intensity, timing, combination, and duration of interventions to improve motor control and aerobic capacity.

There is much evidence in the literature suggesting reaction time is a key component of postural responses for aging adults. The most accurate indicators of reaction time, however, are laboratory based. Dr. Mercer and colleagues have explored the concurrent validity and reliability of the response speed subtest of the Bruininks-Oseretsky Test of Motor Proficiency (BOT), (typically used for children), as a simple clinical tool to examine reaction time in aging adults. Their work provides a model for instrument development, and an example of how "evidence" about tools and measures used in physical therapy examination evolves over time.

Persons with knee osteoarthritis often have impairment of joint position sense, which may increase risk of injury and pain during exercise. Massage as a preparation for exercise is thought to enhance muscle performance in skilled athletes. Dr. Lund and colleagues use a cross-over design (in which subjects with knee osteoarthritis serve as their own control) to assess whether accuracy of joint position sensation, measured as joint repositioning error, is improved by vigorous massage of the muscles of the thigh. While these researchers did not find what they had hoped to, their search for possible explanations demonstrates how unexpected evidence raises additional research questions and provides a blueprint for future work.

There is solid evidence in the literature that exercise is an important contributor to function, health and wellness, and quality of life for aging adults. Many aging adults have difficulty engaging in sufficient strengthening, flexibility, and/or cardiovascular conditioning programs. Dr. Lovell and colleagues present a randomized clinical trial using a test-retest design to determine whether high intensity strength training changed aerobic function over a 16-week training and 4-week detraining period. Heart rate, blood pressure, and VO_2 max improved, with a better response to submaximal exercise testing. These results suggest that strengthening exercise protocols, if of sufficient intensity, may address both muscle performance and aerobic needs of community living older adults.

Drs. Beling and Roller's randomized clinical trial evaluates efficacy of a small group exercise program on gait characteristics, performance on clinical measures of balance, and prospective falls in community living older adults. The exercise program (1 hour, 3 times per week) included many different activities addressing muscle performance, flexibility, visual-vestibular integration, and motor control. There was a significant difference in function post-program, between participants (who improved) and controls (who plateaued or declined); however, we cannot determine which of the many interventions were important contributors. The next question to ask is whether the statistical difference is clinically important; this requires us to go into the literature to see if any evidence about minimal detectable change (MDC) and minimally clinically important difference (MCID) has yet been published.

The final article, by Drs. Merriman and Jackson, is a systematic review of evidence about efficacy and safety of whole body vibration (WBV), an emerging exercise modality, focusing on bone density, muscle performance, balance, and function. They provide a solid model for us about assessing quality of the literature available, from search strategy, establishing criteria for selection of articles for inclusion, classifying findings, and interpreting the collective findings of the set of articles they chose to review. Their discussion highlights the challenges of dealing with variation in design, methodology, intervention, and analysis across studies.

The Associate Editors and I anticipate that you will find the evidence presented in this issue to be intriguing, thought provoking, and (hopefully) clinically useful. We look forward to sharing a "position paper" on strength training in later life in the December issue of the Journal!

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