

Project Title: PILOT STUDY: EXPLORING NEUROPHYSIOLOGICAL AND NEUROPSYCHOLOGICAL BEHAVIORS IN ACTIVE PERSONS AFTER MILD HEAD INJURY

Investigator: Denise Gobert

Department: Physical Therapy

Project Summary:

Thus far, twenty-seven participants aged 18 - 40 years of age with (MHI) and without (non-MHI) a history of mild head injury have participated in this study. Participants were grouped according to responses to a screening questionnaire including the standardized Rivermead Post-Concussion Symptom Questionnaire. The project utilized commonly used tests for neuropsychological and neurophysiological evaluation including the written Trail Making Test, the computerized IMPACT™ protocols, the computerized protocols of InVision™ to assess dynamic visual acuity as influenced by the vestibular ocular reflex, and the computerized EquiTest® protocols for the Sensory Organization Test used to assess standing balance during altered sensory conditions.

Data analysis of test scores were compared and analyzed according to group (MHI, non-MHI). Factorial MANOVA statistics were used to analyze scores at an alpha level of 0.05.

This pilot project is unique in that helped to explore several factors, which might influence long-term sensorimotor processing function post mild head injury. Preliminary results indicate a significant relationship between time post injury and cognitive processing speed for short-term memory and reaction times, vestibulo-ocular reflexes for gaze stability, and balance performance during complex sensory conditions. In addition, unexpected results indicate a gender difference in recovery from mild head injury. Project results have supported other projects with four grant applications (two NIH) and several conference presentations and posters. The project has been extended another year to increase the participant pool and to explore some rehabilitation strategies used for MHI patients during long-term recovery.

Publication:

Gobert, D. "A Multidiscipline Approach to Concussion Management for College Athletes." Journal of Head Trauma Rehabilitation, September/ October 2008. 23(5): 342 - 343

Presentation:

"Rehabilitation Strategies for TBI: An Update." Texas Physical Therapy Association Annual Conference, Lubbock, TX, October 2008.

"EXPLORING GENDER DIFFERENCES IN NEUROPHYSIOLOGICAL AND NEUROPSYCHOLOGICAL BEHAVIORS AFTER MILD HEAD INJURY", College of Health Professions 13th Annual Faculty/Student Research Forum April 24, 2009.

"Comparison of Ankle Strategies for Balance in Persons After MTBI", MTBI 2009 - An International Conference on Mild Traumatic Brain Injury scheduled for August 12 - 15, 2009, Vancouver, Canada (Accepted).

External Grants:

Gender-Specific Oculomotor, Cognitive and Sleep Function of Veteran Students with Mild Traumatic Brain Injury in Response to Customized Exercise Training. Submitted to National Institutes of Health- Challenge Grant Award (RC01). \$860,138.00, Direct & Indirect Costs. Principal Investigator.

Characterizing Sleep and Oculomotor Function in Persons with Mild Traumatic Brain Injury in Response to Exercise. Submitted to National Institutes of Health- Academic Research Enhancement Award (R15). \$150,000.00, Direct Costs. Principal Investigator.

External Grant Awarded:

Student Participation in Concussion Management for College Athletes. Funded by Texas Allied Health Association. \$1,000.00 Total Direct Costs (2008 – 2009). Principal Investigator.

Student Number: 2