TACSM Abstract

Gait evaluation of young adults wearing a Bledsoe-Extender-Plus© knee brace at two different degrees of flexion

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Category: Undergraduate

ABSTRACT

Summary. As students of the LeTourneau University WHEELS team, we are recording outcomes measures of the Bledsoe-Extender-Plus© knee brace. Using the GAITRite© mat, several skills tests and a questionnaire, this comparative study will investigate differences in gait performance for students wearing the brace locked at 10° and 0° flexion[1]. **Introduction.** Outcomes measures are used to evaluate the functionality of assistive devices utilized in a variety of rehabilitation settings[2]. Athletes commonly tear their anterior cruciate ligament (ACL) in sports injuries; many of these injuries require the use of a knee brace, particularly in female athletes[3]. This study investigates whether wearing the brace locked at 10° or 0° flexion provides lower energy cost, more normal gait characteristics and greater user satisfaction. In studies with prosthetic users in less resourced settings the Gait Function Questionnaire (GFQ) was developed[4]. The GFQ has been used to evaluate the subjects' experiences using the brace at 10° and 0° flexion[1]. This brace study is presently being done for the ongoing validation of the GFQ. We hypothesize that the 10° knee position will promote more symmetrical gait, lower energy cost, and higher user satisfaction for specific aspects of gait function. **Methods.** Wearing the brace locked at 10° and then 0° flexion, each subject will complete a suite of tests including the following: Timed Up-and-Go test (TUG), a six minute Timed Walk Test (TWT), a ten-minute Physiological Cost Index (PCI) performed on a treadmill, and a two minute PCI performed during three skills tests: stairs, around chairs, and on a ramp[5-7]. Heart rates will be measured during walking and resting using a Polar RS400 Heart Rate Monitor. The GAITRite© pressure sensitive gait analysis mat will be utilized to record spatial and temporal gait characteristics. All subjects will walk across the GAITRite© mat 15 times[1]. Subjects will answer the GFQ upon completion of the tests. **Preliminary Results and Conclusion**. This study is currently underway. Preliminary results should be available by the conference date.