**Modified strength testing protocol for use in subjects with posterior tibial tendon dysfunction**

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**Purpose:** To examine the reliability of a modified ankle and hip isometric and isokinetic strength testing protocol using a isokinetic testing unit. The modified protocol was designed to be used in an ongoing clinical trial of patients with Posterior Tibial Tendon Dysfunction (PTTD) who are typically older (50-80 years), overweight (BMI ~ 30), and experiencing pain. **Methods:** Seven healthy subjects were recruited to perform hip flexion, extension, abduction, and adduction in modified standing positions. Additionally, ankle plantar flexion and dorsiflexion was tested. All motions were performed isometrically and isokinetically to be analyzed for their level of test-re-test agreement. **Results:** Intraclass correlation coefficients and standard error of the measurement (SEM) for a select data set were used as cut-off points to describe pilot data from 10 subjects with PTTD and are included in Table 1.

| | Average (Nm) | ICC | SD | SEM (Nm) |
|---|---|---|---|---|
| Isokinetic PF | 28.7 | 0.967 | 8.6 | 1.5 |
| Isokinetic hip flexion | 89.9 | 0.966 | 24.2 | 4.4 |
| Isokinetic hip abduction | 61.1 | 0.964 | 29.3 | 5.5 |

Table 1. Reliability (test, re-test) of selected lower extremity muscle groups. All isometric data are tested in the neutral position while isokinetic data are tested at 60 degrees per second. ICC Model (3,1). PF – plantar flexion.

**Conclusion:** Test-re-test reliability was good to excellent and used to interpret the clinical trial data. Preliminary findings suggest that an increase in muscle strength, that exceeded the SEM reliability values, were associated with improved self reported function (Foot Function Index-Revised) in subjects who wore a jointed ankle brace.

Research funded by NIH-NIAMS Grant: R15AR061737