ABSTRACT

Background: The single leg sit-to-stand test (SLSTST) is a functional test that assesses quadriceps strength. The original SLSTST was used to diagnose lumbar nerve root impingement/radiculopathy – specifically at the L3 and L4 level. The original SLSTST used one repetition as the requirement for a successful test, therefore it may not identify quadriceps weakness in highly functional individuals with or recovering from an athletic injury.

Purpose/Hypothesis: The purpose of this study was to determine the interrater and test-retest reliability of two new SLSTSTs, one for maximum number of repetitions over 30 seconds and one for time to complete five repetitions.

Study Design: Cross-sectional, reliability study

Methods: Twenty healthy college-aged individuals (12 males, age: 22.5 years ± 1.37, height: 1.72 m ± 0.09; weight: 70.2 kg ± 11.0) participated in the study. Two testing sessions were held three to seven days apart, and two second-year physical therapy students served as examiners. The objective of the 30-second SLSTST was for the participant to perform as many single leg sit-to-stand repetitions they could in thirty seconds, while the five repetitions SLSTST measured how quickly the subjects could perform five single leg sit to stand repetitions. Both lower extremities were tested and Intraclass Correlation Coefficients (ICC) were calculated to determine reliability.

Results: Both SLSTSTs were found to have excellent interrater and good to excellent test-retest reliability. The 30-second SLSTSTs had inter-rater ICC = 0.99 on the right and 0.98 on the left while the test-retest ICCs ranged from 0.92 to 0.94. The five repetition SLSTSTs had an inter-rater ICC = .99 on both legs while the test-retest ICC ranged from 0.87 to 0.94.

Conclusions: The results of the current study indicate that the two new SLSTSTs had good to excellent test-retest and excellent inter-rater reliability. However, more research is needed to determine if SLSTSTs can be used to identify quadriceps weakness in individuals with recovering from an athletic injury or to be used as a return-to-sport (RTS) assessment.

Levels of Evidence: Level 2

Key Words: Functional test, Movement System, quadriceps weakness, return to sport assessment, single leg sit to stand

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Conflicts of Interest: None.