

Hop Performance Measures in ACL Injured Athletes Compared with Normative Data from Uninjured Athletes

Reference: Munger L, Pendergrass TJ, Chen YR, Allen B, Hooper TL, James CR. Hop Performance Measures in ACL Injured Athletes Compared with Normative Data from Uninjured Athletes. Unpublished data, August 2019.

Context: Previous studies have established normalized scores for return-to-play (RTP) functional testing following anterior cruciate ligament (ACL) repair. However, improved training methods in collegiate athletes may mean that these scores are outdated and should be revised. The purpose of this research is to begin building a database of normative performance measures for commonly used hop tests used in RTP decisions for the college female athlete.

Objective: To identify differences in previously reported normative values versus actual performance values on five hop tests.

Design: Forty female collegiate Division I and II athletes (30 healthy and 10 previously ACL injured athletes) who are currently training without restrictions were recruited to participate. The examination was performed in a biomechanics laboratory collecting lower quarter kinetic, kinematic, and performance data on five randomly assigned hop tests.

Outcome Measures: All trials were performed three times on each leg and the max score was used in this analysis.

Results: The numbers following each test represent the findings for normal athlete, athlete with previous ACL injury (34.5 months \pm 20.1), and published literature norms for uninjured individuals. Single-leg hop distance (cm) 154.1 \pm 12.3, 147.5 \pm 17.0, 133 \pm 27.0 (free hop 149 \pm 17.0); Hop (% Height) 89.6 \pm 9.1, 87.6 \pm 10.1, 70.5 \pm 10.9; Stop/Hop ratio (%) 99.9 \pm 7.3, 100.6 \pm 7.4, 113.7 \pm 9.5; Triple hop distance (cm) 508.2 \pm 58.3, 500.2 \pm 61.9, 470 \pm 53.0; Cross-over hop distance (cm) 452.6 \pm 55.9, 442.8 \pm 54.2, 376.1 \pm 83.2; and 6-m timed hop (sec) 2.04 \pm 0.27, 2.00 \pm 0.34, 2.13 \pm 0.20.

Conclusions: Performance results in both the healthy and previously ACL injured athletes were above previously reported measurements. Based on these differences, earlier literature should be reexamined.