

No relationship between single-leg hop performance and changes in activity level following Anterior Cruciate Ligament Reconstruction (ACLR)

Context: Single-leg hop distance (SLHD) is positively correlated with strength and knee stability, which leads to reduced ACLR re-injury risk. The purpose of this study is to examine the relationship between current and pre-injury activity level difference and ACLR limb SLHD in individuals post-ACLR.

Methods: 14 participants (12 females, height=166.7±6.8 cm, weight=68.8±12.1 kg, 30.2±17.6 months post-ACLR) completed the Tegner activity scale (0-10) to assess activity level. Sedentary individuals score 0 and elite athletes score 10. Tegner change scores were calculated as current score-pre-injury score. Participants hopped on a single leg toward a light 3m in front of them when it illuminated. ACLR SLHD was normalized based on height (% body height). Average distance (m) was calculated with all trials. A linear regression was used to examine the relationship between Tegner change scores and normalized SLHD.

Results: Participants reported high activity pre-ACLR (8.5±1.4). Current scores were 6.6±1.5 (-1.9±1.6 change). ACLR SLHD was 1.39±0.21m and normalized ACLR SLHD was 0.839±0.145 (% body height). There was no association between Tegner change scores and normalized SLHD ($r^2=-0.0222$, $p=0.413$).

Conclusion: No association between Tegner change score and normalized SLHD suggests that activity changes after ACLR may not influence SLHD. Tegner scores show a drop from competitive (8-9) to recreational sport (6-7) with a minimum current level of heavy labor or recreational sports (5). These scores indicate the sample is physically active, which can improve hop performance. Further research should explore this relationship in a larger sample size and using other metrics to measure activity changes.