A Descriptive Analysis of Lower Extremity Flexibility and Strength in Collegiate Men’s and Women’s Soccer Athletes

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**Context:** Lower extremity (LE) injury is a serious concern for soccer athletes, with injury affecting the long-term well-being of the athlete in addition to their short-term playing status. Gender is a well-established risk factor for LE injury at the knee and ankle. By linking musculoskeletal characteristics, including flexibility and strength, to gender, a better appreciation of the connection between gender and injury is established. Establishing gender-specific musculoskeletal characteristics promotes more specific and effective injury prevention initiatives. **Objective:** To identify differences in flexibility and strength, as risk factors for LE injury, in men's and women's soccer athletes. **Design:** Descriptive cohort study. **Setting:** Athletic Training Room. **Participants:** A total of 80 collegiate male and female soccer athletes (age: 19.3±1.4 years, height: 173.7±9.0 cm, weight: 69.5±9.5 kg) participated. All athletes were cleared for full participation and had no history of LE injury in the four weeks prior to testing. **Interventions:** Testing occurred prior to the initiation of the competitive soccer season. Flexibility was assessed bilaterally using a standard goniometer and digital inclinometer. Flexibility tests included: weight-bearing ankle dorsiflexion mobility (DFM), active ankle dorsiflexion, active knee extension (AKE), and passive hip flexion (PHF). Strength testing was performed using a handheld dynamometer. Strength tests were performed bilaterally as isometric “make tests”; held for a total of 5 seconds in a standard grade 5 manual muscle testing position. Strength tests included: ankle inversion/eversion, ankle dorsiflexion, knee flexion/extension, hip abduction/adduction, and hip internal/external rotation. All data analysis was completed utilizing the average of three trials. **Main Outcome Measures:** Flexibility tests including, ankle dorsiflexion, AKE, and PHF were expressed as a mean value in degrees. Mean value in centimeters was analyzed for DFM. Isometric strength was expressed as mean peak force normalized to body weight (%BW). All data were assessed for normality. If normally distributed, gender differences were calculated using an independent samples Student's T-test; if normality was violated, gender differences were calculated using a Mann-Whitney U test. Significance level of <0.050 was established a priori. **Results:** Flexibility tests yielded significant differences between genders for both AKE (Right:p=0.007, Left:p=0.045) and PHF (Right:p<0.000, Left:p=0.001). Females demonstrated greater flexibility for both the AKE and PHF compared to males. Strength tests yielded significant differences between genders for hip internal rotation on the left leg (p=0.001). Females demonstrated greater left hip internal rotation strength compared to males. **Conclusions:** Gender differences are present in LE flexibility and strength, with females demonstrating greater flexibility and left hip internal rotation strength compared to males. These results implicate that flexibility may be better linked to gender than strength, suggesting that it may be a better indicator of injury risk. Future research should explore the implications of these gender differences and how they affect risk of LE injury. **Word Count:** 449