

Comparison of Ankle Dorsiflexion Scores Between Division I Male and Female Collegiate Student Athletes

ADMAR CALOVINI, DAVID WANG, EMILY KISHORI, TAREK HARHASH, PAIGE KYLE, LILY YEPEZ, JAMIE GHIGIARELLI, KELLY SHAVER, KATIE SELL

Human Performance Laboratory; Department of Allied Health and Kinesiology; Hofstra University; Hempstead, NY

Category: Undergraduate

Advisor / Mentor: Sell, Katie. (Katie.Sell@hofstra.edu)

ABSTRACT

The modified weight bearing lunge test (WBLT-MOD) is a closed-chain, functional, and replicable assessment used to measure ankle dorsiflexion (ADF). The difference in ADF between sports and sex may emphasize how specific movement patterns place varying demands on the ankle. **PURPOSE:** The purpose of this retrospective study was to evaluate the difference in ADF scores in Division I student-athletes across different sports. **METHODS:** The WBLT-MOD was completed by 326 DI student-athletes (162 women: 19.7 ± 1.6 y, 169.2 ± 8.1 cm, 146.7 ± 21.1 lbs and 164 men: 19.9 ± 1.6 y, 181.9 ± 7.8 cm, 181.0 ± 25.0 lbs) during a preseason screening assessment. Athletes had clearance to participate from the Sports Medicine staff and had no current injuries disqualifying them from participating. ADF for the right side (R-ADF) was assessed using the WBLT-MOD. The athlete started in a half kneeling position with the right foot positioned in front of the left and the knee of the left foot on a pad behind. The athlete actively moved their right knee anteriorly over the foot and the angle made by the anterior tibia to vertical was measured using the clinometer app, and then repeated to determine the ADF for the left side (L-ADF). Differences across sports for the R-ADF and L-ADF were examined using a MANOVA with Bonferroni post-hoc analysis, using SPSS version 30 (IBM Corp) with an alpha significance level of $p < 0.05$. **RESULTS:** Significant differences in R-ADF ($F_{1,15} = 5.957$, $p < 0.001$, partial eta squared = 0.224), and L-ADF ($F_{1,15} = 8.486$, $p < 0.001$, partial eta squared = 0.291) were seen across sports. Men's (MBB) and women's (WBB) basketball had the lowest L-ADF and R-ADF scores, and men's and women's soccer had the highest R-ADF and L-ADF. MBB had significantly lower L-ADF than all sports and lower R-ADF than all except men's golf ($p < 0.05$). WBB had significantly lower L-ADF than all sports except wrestling, volleyball, tennis, and men's golf ($p < 0.05$). **CONCLUSION:** The WBLT-MOD identified differences in R-ADF and L-ADF across different sports and supports the notion that there should be a sport-specific emphasis placed on balancing ankle stability and mobility. Given the quick, agility-based cutting movements executed in a relatively small playing area, it is possible that the lower ADF is due to higher ankle stability.