

Bilateral Comparison of Cross-Sectional Area of the Vastus Lateralis Among Rodeo Athletes Who Use a Lead Leg While Competing

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ABSTRACT

Skeletal muscle morphology commonly occurs in athletes who train for specific adaptations to meet the demands of the performance task. For rodeo athletes, specific performance tasks require the use of unilateral dominance. Specifically, the use of a “lead leg” when competing may display adaptations when compared to an underutilized opposite limb. **PURPOSE:** The purpose of this study was to bilaterally compare the cross-sectional area (CSA) of the vastus lateralis (VL) among rodeo athletes who use a lead leg during their performance versus those who do not. **METHODS:** Thirty-seven male and female (± 1 yrs; 66.38 ± 3.94 cm; 156.89 ± 38.82 kg) rodeo athletes visited the Human Performance Laboratory for testing. Using ultrasonography, each athlete laid supine for CSA measure of the VL from both their lead and non-lead leg. Panoramic images were obtained from half the distance from the anterior superior iliac crest to the lateral patella, and were externally measured using ImageJ software to determine CSA (cm^3). Groups were determined by those athletes who predominately use their lead leg ($n=9$) for their performance versus those who do not ($n=28$). A two-way mixed factorial ANOVA (group [uses vs doesn't use] x leg [lead leg vs non-lead leg]) was used to compare CSA of the VL. **RESULTS:** The results of the 2-way ANOVA determined no significant groups x leg interaction ($p=0.894$), nor main effects for CSA between legs ($p=0.306$). **CONCLUSION:** To our knowledge, there are no reports regarding performance measures nor morphological comparisons in rodeo athletes. The small number of athletes that use their lead leg during their respective performance were likely to have influenced the outcome of the present investigation. However, this present study does present opportunities to biomechanically assess performance measures in order to assist in the assessment of task requirements for the separate events of a rodeo athlete.