TACSM Abstract

Bilateral Lean Mass and Dynamic Balance Asymmetry in Collegiate Athletes

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ABSTRACT

Laterality, or lateral dominance may lead to asymmetry in muscle mass and strength, which in turn could lead to differences in stability and balance. Muscular asymmetry and dynamic balance asymmetry have been independently linked with increased injury risk. For example, athletes with >4cm anterior reach distance differences (ΔARD) were found to be at significantly higher risk to incur injuries. **PURPOSE**: However, it is unknown if there is an association between muscle mass asymmetry and dynamic balance. Nor is it known if these factors change throughout the sports' seasonal periods (i.e., off-, pre-, and post-season). The purpose of this preliminary analysis was to analyze differences between lower body lean mass and dynamic balance in collegiate athletes and to examine if associations exist between the two variables during different seasons. **METHODS**: NCAA Division II student-athletes were recruited in their respective off- or pre-season. Lean mass was assessed via dual energy x-ray absorptiometry. Dynamic balance was assessed via lower quarter Y Balance Test and ΔARD was calculated. Pearson correlation was used to examine associations. **RESULTS**: 109 athletes (67W/42M) from six sports have been recruited (Basketball, Football, Golf, Track & Field, and Volleyball). There were no significant correlations ($p > 0.05$) between differences in lower body lean mass and ΔARD in either off- or pre-season ($r^2=0.003$ and $r^2=0.001$, respectively). 51% of athletes in off-season and 48% in pre-season exhibited >4cm ΔARD. **CONCLUSION**: In this preliminary report, no correlation was found between lower body lean mass asymmetry and dynamic balance asymmetry. Concerning was our finding that about half of the athletes showed dynamic imbalances, indicating higher injury risk. Further data collection will determine the extent of the changes in muscle mass and dynamic balance asymmetry over one full competitive season.