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EFFECTS OF MINDFULNESS ON POSTURAL STABILITY

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Introduction: It is physically impossible for us to stand completely still for an extensive period of time without experiencing some sway in our movement. Some individuals experience more sway than others based on their ability to stay balanced. This principle is known as postural sway, which is the horizontal movement of the center of gravity even when a person is standing still.[3] For an athlete, postural sway can be detrimental to peak performance. Some modalities such as orthotics, braces, and balance retaining exercises have been used to decrease postural sway. A new approach to improving postural sway is the use of mindfulness. Therefore, the purpose of this study was to conduct the BESS test before and after mindfulness sessions to determine its effect on balance and postural sway in collegiate male lacrosse athletes. It was hypothesized that mindfulness would improve balance and decrease postural sway in collegiate male lacrosse athletes.

Methods: Fifteen healthy, collegiate male lacrosse athletes, aged 18-30 years, volunteered for the study. A pre-participation questionnaire was administered prior to subject recruitment to gain medical history required for possible exclusion from the study. The athletes were also asked to rate their anxiety level before a game. No subjects had any lower extremity injury within the last six months and none of them had prior experience with mindfulness. Data was collected in the Sports Medicine Motion Capture Lab. All 15 participants performed the BESS test on a Ground Force Plate. After removing their shoes, the athlete performed three different stances for 20 seconds each, one round with eyes open and the second round with eyes closed. Errors were recorded during each position. First stance was with both feet on the ground, feet together and hands on hips. Second stance, the athlete stood on their non-dominant leg with hands on hips. The third stance was a tandem stance with the non-dominant leg in the rear. The participants were then randomly placed into the experimental or control group. The experimental group received a 30- minute recording of meditation techniques and were asked to listen to it three times a week for three weeks. Following the three weeks, both groups performed the BESS test a second time on a Ground Force Plate and rated their anxiety levels.

Results: There was no significant differences identified by group or time, or by group by time ($P \geq 0.05$). However, when looking at the data, on average, the control and the experimental groups both started with higher anxiety levels and decreased over time. Further, when comparing postural sway between groups and planes of motion (Medial-Lateral/Anterior-Posterior) it was evident that the medial-lateral sway and anterior-posterior sway improved in the athletes in the experimental group after participating in the meditation techniques.

Conclusion: Although there were no statistically significant differences identified between the groups, our findings revealed that those who participated in mindfulness improved their postural sway and decreased their anxiety level. Clinically, this study will help coaches, athletic trainers and athletes by providing understanding on the effect mindfulness training can have on balance and anxiety levels.