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Whalen Oral presentation abstract
Lumbar Bracing and the Effect on Lumbar Motion During a Golf Swing

Repetitive motions are shown to be a common cause of low back pain. The repetitive nature of a golf swing, as well as, the large range of motion required of the spine and muscular activity are associated with increased rates of injury in golfers (McHardy and Pollard, 2005). Amateur golfers, in particular, tend to demonstrate increased extension and rotation at the lumbar spine compared to professional golfers, leading to increased injury risk (Hosea and Gatt, 1996). Lumbar bracing is a tool used to limit motion at the lumbar spine and frequently used by athletes to alleviate low back pain (Lee and Chen, 2000; Cholewicki et al 2010). There is limited research on the effectiveness of lumbar bracing on reducing extension and rotation range of motion during amateur golfers' swings. Therefore, we examined the effect of lumbar bracing on extension and rotation of lumbar motion which are thought to be related to low back pain. Thus, the purpose of this project was to look at if lumbar bracing is an effective technique for amateur golfers to reduce lumbar ranges of motions during the golf swing. Our participants were two amateur golfers, one with low back pain and one without. Participants were fitted with a series of inertial measurement units (IMUs) on the sternum, upper arm, lumbar spine, upper leg, and wrist in order to measure range of motion of the hips, lumbar spine, shoulder during the golf swings. Each swung a 7 iron in the "brace" and "no brace" conditions three times. Data analysis was done using Excel to determine the average peak range of motion at top of swing, ball impact, and follow through with and without the brace for each participant at the hips and lumbar spine. Within subject comparisons between brace conditions at each swing time point were assessed to determine whether the lumbar brace changes the joint ranges of motion during a golf swing.

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