ABSTRACT

Background: The knee joint is one of the most frequently injured regions in the game of golf, and the loads experienced by the knee during the golf swing are typically greater than during other activities of daily living. Altering movement patterns is a common strategy that can be used to reduce loading on the knee joint but has received little attention during studies of the golf swing. The primary aim of this study was to examine the effect altering golf stance has on the lead limb peak external knee adduction moment.

Study Design: Laboratory based, quasi-experimental

Methods: Twenty healthy participants were recruited for a 3-dimensional biomechanical analysis wherein participants hit three golf shots with a driver using the following stance conditions: self-selected, bilateral 0º foot angle, bilateral 30º foot angle, wide stance width, and narrow stance width.

Results: Both the 30º foot angle (0.80 ± 0.51 Nm) and wide stance width (0.89 ± 0.49 Nm) conditions significantly decreased (p < 0.001) the lead limb peak external knee adduction moment compared to the self-selected (1.15 ± 0.58 Nm) golf stance. No significant differences (p = 0.109) in swing speed were found between any of the stance conditions.

Conclusion: The externally rotated foot position and wider stance width decreased the lead limb peak external knee adduction moment without hindering swing speed. Modifying stance could be a viable option for golfers who wish to continue playing the sport at a high level, while reducing potentially detrimental loads at the knee joint.

Levels of Evidence: 2b-Individual cohort study

Keywords: Biomechanics, golf, injury, knee, osteoarthritis

1 Department of Kinesiology and Health Promotion, University of Kentucky, Lexington, KY, USA
2 Program in Physical Therapy, Washington University School of Medicine, St. Louis, MO, USA
3 Department of Rehabilitation Sciences-Division of Physical Therapy, University of Kentucky, Lexington, KY, USA
4 Department of Exercise Science, University of Puget Sound, Tacoma, WA, USA

Conflict of Interest: The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the materials discussed in this manuscript

CORRESPONDING AUTHOR
Quenten L. Hooker
Program in Physical Therapy, Washington University School of Medicine
Campus Box 8502, 4444 Forest Park Ave., St. Louis, MO 63108, USA.
E-mail: quenten.hooker@wustl.edu