

DEFINING LOWER EXTREMITY DOMINANCE: THE RELATIONSHIP BETWEEN PREFERRED LOWER EXTREMITY AND TWO FUNCTIONAL TASKS

Christopher R. Carcia, PT, PhD, SCS, OCS¹

Paul A. Cacolice, PhD, LAT, ATC, CSCS²

Scott McGeary, DPT, CSCS³

ABSTRACT

Background: A commonly utilized operational definition of lower extremity (LE) dominance assumes the LE with which a participant prefers to kick a ball with is the same preferred LE a participant would choose for a unilateral landing task.

Hypothesis/Purpose: The purpose of this study was to determine the relationship between the preferred lower extremity (LE) when performing a unilateral landing and kicking task. The authors hypothesized a strong correlation between the LE the participant chose for the landing task and the LE the participant chose for the kicking task would be evident.

Study Design: Repeated measures.

Methods: A convenience sample of 50 (age = 21.9 ± 0.9 years; sex = 27 female; 23 male; height = 170.6 ± 10.8 cm; weight = 73.3 ± 18.3 kg) healthy, recreationally active college aged students performed two tasks (kicking a ball; unilateral drop jump landing) in a counterbalanced order.

Results: Thirty-three participants kicked and landed with their right LE; 14 kicked with the right and landed on their left; two kicked and landed with their left and one participant kicked with their left and landed on their right LE. The Phi Coefficient ($\phi = 0.18$; $p = 0.18$) indicated little to no relationship between the preferred LE for kicking a ball and landing from a drop jump. Similarly, the Chi-squared statistic revealed no differences between observed and expected frequencies ($\chi^2 = 1.76$; $p = 0.23$).

Discussion: When studying anterior cruciate ligament injury mechanisms in the laboratory, most investigators examine characteristics of the dominant LE. Dominance is frequently defined by which LE the individual kicks a ball with. The majority of ACL injuries however occur to the landing or plant LE. Hence, LE limb selection based on this approach may be flawed.

Conclusion: A significant relationship was not evident between the preferred LE for kicking a ball and a unilateral landing in a group of healthy recreationally active college aged students. The data suggests the preferred LE for kicking a ball and a unilateral landing task is not necessarily the same.

Level of Evidence: Level 3

Key Words: Dominant limb, kicking, landing, lower extremity, movement system

CORRESPONDING AUTHOR

Christopher R. Carcia, PT, PhD, SCS, OCS

Chair & Associate Professor

Department of Physical Therapy

John G. Rangos, Sr. School of Health Sciences

Duquesne University

Pittsburgh, PA 15282

412-396-5545

E-mail: carcia@duq.edu

¹ Duquesne University, Pittsburgh, PA, USA

² Movement Science, Sport & Leisure Studies Department, Westfield State University, Westfield, MA, USA

³ Pivot Physical Therapy in Mechanicsburg, PA, USA

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