

Biomechanical Analysis of Change of Direction Movements in Women's Collegiate Soccer Players

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ABSTRACT

Change of Direction (COD) tasks are common in a variety of high performance sports. **PURPOSE:** This study aims to determine technique and kinetic differences between unexpected defensive COD tasks in women's collegiate soccer players. **METHODS:** Eleven collegiate soccer players participated voluntarily in accordance with the local IRB, performing six 180°R and L, 135° L, and 225°R tasks, approaching from 5m and exiting 3m. Force (Kistler, 1200Hz) and timing information (Brower) data was collected. Repeated Measures ANOVA determined differences across the group between movement directions. **RESULTS:** Four categories of techniques emerged: natural step, shuffle, hop, and stomp. 135L COD tasks proved to be faster (1.866 ± 0.132 s) than 225R tasks (1.945 ± 0.159 s, $p = 0.003$), however no other significant differences were found between conditions. **CONCLUSION:** Athletes used varying self-selected techniques to complete COD tasks with similar biomechanical factors and performance outcomes. This may suggest players at the collegiate level have adjusted to their individual movement patterns. Further study of the kinetics of prior incoming or later outgoing steps is necessary. Change of direction movements are a necessary part of defensive play in women's soccer and efficiency as outlined in this study could directly affect game performance. Natural step COD seems to be the most effective technique, therefore it would be interesting to analyze the incorporation of this method at the amateur level. Regardless, exposing athletes to situations which require differing COD techniques may best prepare players to move effectively during competition.