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Authors: Gillian Weir, Richard van Emmerik, Carl Jewell, Joseph Hamill



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# Coordination and variability during anticipated and unanticipated sidestepping

Gillian Weir<sup>1</sup>, Richard van Emmerik<sup>2</sup>, Carl Jewell<sup>1</sup> and Joseph Hamill<sup>1</sup>

<sup>1</sup>Biomechanics Laboratory, University of Massachusetts Amherst

<sup>2</sup>Motor Control Laboratory, University of Massachusetts Amherst

Corresponding Author: Gillian Weir  
155 Totman Building  
30 Eastman Lane  
University of Massachusetts  
MA 01003-9258  
gweir@umass.edu

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## Highlights

- Coordination becomes more in-phase when sidestepping tasks are unanticipated.
- Trunk motion dominates trunk-pelvis coupled motion during sidestepping tasks.
- Coordination variability is greater when sidestepping tasks are unanticipated.

## ABSTRACT

*Background:* Numerous investigations have attempted to link the incidence and risk of non-contact anterior cruciate ligament injuries to specific intrinsic and extrinsic mechanisms. However, these are often measured in isolation.

*Research Question:* This study utilizes a dynamical systems approach to investigate differences in coordination and coordination variability between segments and joints in anticipated and unanticipated sidestepping, a task linked to a high risk of non-contact anterior cruciate ligament injuries.

*Methods:* Full body, three-dimensional kinematics and knee kinetic data were collected on 22 male collegiate soccer players during anticipated and unanticipated sidestepping tasks. A

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