


# Which Extrinsic and Intrinsic Factors are Associated with Non-Contact Injuries in Adult Cricket Fast Bowlers?



BENITA OLIVIER, TRACY TALJAARD, ELAINE BURGER, PETER BRUKNER, JOHN ORCHARD, JANINE GRAY, NADINE BOTHA, AIMEE STEWART, WARRICK MCKINON  
SPORTS MEDICINE (2016) 46:79-101

## CONTEXT

Fast bowlers are prone to injury. Both extrinsic (environment-related) and intrinsic (person-related) risk factors play a role in injury risk.

## HOW WAS THE STUDY DONE?

The scientific literature related to extrinsic and intrinsic factors associated with non-contact injury inherent to adult cricket fast bowlers was assessed and summarised.

## WHY IS THIS STUDY IMPORTANT?

Identifying the injury risk factors is necessary in order to optimise injury prevention efforts. Once identified, risk factors may be included in pre-participation screening tools and injury prevention programmes, and may also be incorporated in future research projects.

## WHAT WAS FOUND?

- 16 studies were included in this systematic review.
- The following intrinsic factors were associated with injury: bowling shoulder internal rotation strength deficit, compromised dynamic balance and low back proprioception (joint position sense), the appearance of low back posterior element bone stress & degeneration of the disc on magnetic resonance imaging (MRI), and previous injury.
- Technique-related factors associated with injury included shoulder-pelvis flexion-extension angle, shoulder counter-rotation, knee angle, and the proportion of side-flexion used during bowling.
- A high bowling workload (particularly if it represented a sudden upgrade from a lower workload) increased the subsequent risk to sustaining an injury 1, 3 or 4 weeks later.