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Panagodage Perera, N. K. (2019). Too many rib ticklers? Injuries in Australian women's cricket (PhD Academy Award). British Journal of Sports Medicine, 53(22), bjsports-2018-099629-2018-099629v1. <https://doi.org/10.1136/bjsports-2018-099629>

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# Too many rib ticklers? Injuries in Australian women's cricket (PhD Academy Award)

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Accepted 8 November 2018  
Published Online First  
17 November 2018

## WHAT DID I DO?

I provided the first detailed epidemiological profile of incidence, nature and mechanism of injuries sustained by Australian female cricketers, through compilation and analysis of multiple data sources.

## WHY DID I DO IT?

I grew up playing 'mixed' cricket and now it is a popular sport among women around the world. While sports participation carries many health benefits, one negative consequence is an increased risk of injury in participants. Evidence-based injury prevention programmes can reduce this risk when the causes of injury are known.<sup>1</sup> However, before my PhD, little was known about the injuries in women's cricket.

## HOW DID I DO IT?

First, I conducted a systematic review of the literature describing injuries across competitive team bat-or-stick sports played by women.<sup>2</sup>

I then generated a population-based epidemiological profile of cricket injuries sustained by women from multiple existing data sets. This included: (1) Existing data sources relating to hospital presentations in Victoria and Queensland.<sup>3</sup> (2) Successful insurance claims from the cricket-specific national insurer in Australia.

I also examined the nature and incidence of cricket injuries in elite female players using Cricket Australia's Athlete Management System (AMS) to provide an overview of injuries sustained at the elite level.<sup>4</sup>

Finally, I surveyed female cricketers across Australia to describe their self-reported worst injury during the 2014–2015 season and their treatment sources.<sup>5</sup>

## WHAT DID I FIND?

My PhD is one of the largest compilations of injury cases in women's cricket. The systematic review findings indicate that injury incidence proportions were higher than expected based on previous studies on team bat-or-stick sports.<sup>2</sup> Hospital presentation and insurance claims data showed injuries to the wrist/hand, knee/foot and head were common in community-level players. AMS data demonstrated thigh, wrist/hand and knee injuries were common in elite players and running and gradual onset were the most common injury mechanisms. Also, at the elite level wrist/hand and lumbar spine injuries were the most common time loss injuries. Dislocations/sprains/strains, fractures, and muscle and joint injuries as well as gradual-onset injuries were the most common injury types regardless of the level of play. All-rounders and pacebowlers had the greatest risk of injury than other dominant player skills across all levels of play.

The survey findings substantiate results from hospital presentation, insurance claims and AMS data in terms of nature and location of injuries and all-rounders and pacebowlers having high risk of injury discussed above. Also, the survey revealed that most injuries were of a low severity and more likely to be treated in primary care settings from allied health professionals. Majority of injuries were self-treated by players or did not receive treatment.

## WHAT IS THE MOST IMPORTANT CLINICAL IMPACT/PRACTICAL APPLICATION

Injury prevention in women's sports is a novel and emerging field of research interest. My PhD has contributed to inform targeted injury prevention interventions, so more female cricketers are able to enjoy the sport that they love for longer.

- Most common injuries at the community level were injuries to the head, wrist/hand, knee/foot. Therefore, the injury prevention efforts at the community level should focus on use of helmets and skills training to prevent head injuries, skills training to prevent hand/wrist injuries, and neuromuscular training to prevent lower limb injuries.
- Most common injuries in women's cricket at the elite level were to the wrist/hand and the lumbar spine. Therefore, the injury prevention efforts at the elite level should focus on skills training to prevent wrist/hand injuries, correcting bowling technique, overall load management (eg, Cricket Australia's Bowling Workload Guidelines) and back stability programmes to reduce the risk of injuries to the lumbar spine.
- Gradual-onset injuries were common regardless of the level of play and workload management and increasing capacity (physical preparedness) is important to minimise risk of these injuries.
- Allied health professionals have a significant role in injury management. Implications for local primary healthcare services can be both financial and educational, with practitioner effectiveness requiring an appropriate knowledge base and to provide appropriate resources and educate the community to facilitate effective injury management.

**Funding** Nirmala Kanthi Panagodage Perera was supported a Federation University Australia Postgraduate Research Scholarship via its scheme.

**Competing interests** None declared.

**Patient consent** Not required.

**Ethics approval** Federation University Australia Human Research Ethics Committee.



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**To cite:** Panagodage Perera NK. *Br J Sports Med* 2019;**53**:1436–1437.

**Provenance and peer review** Not commissioned; internally peer reviewed.

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