

# INJURY AND LUMBAR REPOSITION SENSE IN CRICKET PACE BOWLERS IN NEUTRAL AND PACE BOWLING SPECIFIC BODY POSITIONS

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## What is the problem and what is known about it so far?

Bowlers have the highest percentage of injuries when compared with fielders, wicket keepers and batters. Pace bowling requires a series of complex forceful actions involving the lower back. The demanding and repetitive nature of the pace bowling action is well known to be associated with a high incidence of low back injuries.

Proprioception refers to the awareness of the position and movement of one's body parts and joints in space. This is a vital component in controlling movements performed during pace bowling. Poor proprioception may therefore be a risk factor for injury in pace bowlers.

## Why did the researchers do this particular study?

The researchers set out to investigate the involvement of proprioception of the lower back in previous injury or injuries that pace bowlers had sustained during the cricket season. Injuries related to the action of bowling with involvement of the lower back were focussed on. Various positions of the lower back were assessed namely neutral spine and positions corresponding to those required with the front foot placement and ball release positions of pace bowling.

## Who was studied?

Seventeen male cricket pace bowlers between the ages of 18 and 26 years participated in this study.

## How was the study done?

The bowlers were given time to warm up before the testing procedure started. An electrogoniometer (measures joint movement) was attached to the lower back of each participant. A bluetooth telemetric measuring system was also fitted around the waist of each participant. Each bowler was asked to bowl once, aimed at right-handed batsman. A camera (synchronized with the electrogoniometer and telemetry) captured the pace bowler from the side during his delivery stride. Data were collected using MyoResearch software.

To test the position sense (proprioception) of the lower back, each participating bowler was asked to close his eyes while a researcher positioned his lower back and body into a position similar to the position achieved during front foot placement. Bowlers were asked to maintain this position for 5 seconds, and were then allowed to rest for 5 seconds. After the 5 second rest period, each bowler was asked to reposition himself into that same position and hold this position for 3 seconds. A reposition error was then calculated by assessing the difference between the initial electrogoniometric reading and the reading taken when the bowler repositioned himself. The same procedure was repeated both for the ball release position as well as neutral spine position.

## What did the researchers find?

The reposition errors (difference between the initial electrogoniometer reading and the reading when the bowler repositioned himself after 5 seconds of rest) were found to be associated with general injuries previously sustained by the bowlers as well as injuries sustained during the current cricket season. The injuries ranged from lower back injuries to other injuries sustained during the bowling action.

## What are the implications of the study?

Lower back position sense is related to general injuries, injuries sustained during bowling and lower back injuries. Due to the strenuous nature of pace bowling, a high load is placed on the lower back of pace bowlers. It is therefore important to impose methods to prevent low back injuries in this population. The results of this study imply that if the proprioception of the lower back is improved in pace bowlers, it may reduce their risk of lower back injuries.



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