

SYMMETRY, NOT ASYMMETRY, OF THE ABDOMINAL MUSCLE MORPHOLOGY IS ASSOCIATED WITH LOW BACK PAIN IN CRICKET FAST BOWLERS

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

Fast bowlers have a higher injury incidence than batsmen and spin bowlers. The lumbar spine is a site frequently injured, with stress fractures and disc pathology commonly diagnosed, particularly in adolescent fast bowlers.

Asymmetry of the abdominal muscles has been identified as a risk factor for developing lumbar spine pathology in people in the general population. The asymmetrical nature of a number of sports like cricket results in an adaptive asymmetry of the muscles of lumbar spine. Whether this is a risk factor for the development of low back pain in a sporting population remains controversial with research reporting conflicting evidence.

Why did the researchers do this particular study?

The researchers measured the thickness of the lateral abdominal muscles (internal oblique, external oblique and transversus abdominis) using ultrasound in a group of adolescent fast bowlers. The group of bowlers was divided into fast bowlers with lower back pain and those without. Asymmetry was determined statistically as a difference between sides or individuals and was not defined by a percentage difference.

Who was studied?

Twenty-five adolescent male fast bowlers between the ages of 14 and 18 years participated in this study. Sixteen of the fast bowlers were currently experiencing lower back pain (LBP) associated with fast bowling (they were still currently playing with pain) and 9 fast bowlers were pain free.

How was the study done?

The players lay on a plinth with their hips bent to approximately 45° and their knees bent to 90°. The ultrasound transducer head was placed halfway between the hip and the ribs about 10cm from the midline. Once the transversus abdominis (TrA), internal oblique (IO) and external oblique (EO) muscles were adequately visualised an image was captured at the end of a normal expiration cycle. The thickness of these muscles was measured on both the dominant (bowling arm) and non-dominant sides.

What did the researchers find?

When the combined thickness of the 3 lateral abdominal muscles (TrA+ IO + EO) were compared between fast bowlers with and without LBP there was a statistically significant difference in the thickness of the dominant compared to non-dominant side of fast bowlers without pain (they had an asymmetry). Their non-dominant side was significantly thicker than the dominant side. The fast bowlers with pain had symmetry of the dominant and non-dominant sides.

What are the implications of the study?

This study has identified an association between symmetry of the lateral abdominal trunk muscles and low back pain. While this relationship has not been evaluated prospectively and this relationship cannot be assumed to be a cause-effect relationship, the finding should cause clinicians to think about the relationship between asymmetrical demands of a sport and the asymmetrical development of musculature in an attempt to meet this demand. The implications for rehabilitation are not clear.



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