

Research Article

# Prevalence of Contralateral Internal Oblique Strain in Recreational Fast Bowlers

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## I N F O

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## A B S T R A C T

**Background:** Side strain injuries in cricketers have increased in recent years. An internal oblique strain occurs most commonly in fast bowlers and is the second most common injury among them. Young bowlers are more prone to internal oblique strain injury. The aim of this research was to investigate the prevalence of contralateral internal oblique strain in recreational fast bowlers.

**Method:** Random sampling method was used in this study which consisted of 43 participants who were selected on the basis of inclusion and exclusion criteria. The collected data included demographic data and responses to a questionnaire.

**Result:** Based on the statistical analysis, it was found that contralateral internal oblique strain is prevalent among recreational fast bowlers and was considered extremely significant ( $p < 0.0001$ ). Overall, 45.56% of the respondents were aware of this injury.

**Conclusion:** We found a high prevalence of contralateral internal oblique strain in recreational fast bowlers in this study.

**Keywords:** Contralateral Internal Oblique Strain, Recreational Fast Bowlers, Age Group

## Introduction

A side strain injury occurs most commonly in cricketers while bowling. During single delivery, a fast bowler may feel a sudden onset of sharp lateral trunk pain on the side contralateral to his/her bowling arm. This is referred to as contralateral internal oblique strain. The main risk factor for side strain injury is age. Younger bowlers (under 24 years of age) have been shown to be twice as likely to suffer injury as compared to those aged between 25 to 29 years and 3 times more likely than those over 30 years of age. The mechanism of the side strain injury is considered to be associated with the vigorous pulling down of the front arm (contralateral side to their bowling arm) by the bowler, causing a side strain. The clinical presentation of

side strain injury in fast bowlers is an acute localised sharp lateral pain (often in the mid-axillary line) that occurs during their delivery. On palpation, tenderness can be felt most commonly in the mid-axillary line. The pain may slightly radiate into the abdominal area. They may also describe the pain to be associated with sneezing, coughing and breathing along with being uncomfortable while moving around, especially rolling over in bed. Restriction of range of motion is seen mostly in forward flexion and side bending. Side pain contraction tests are the diagnostic features for this injury. Side pain contractions such as isometric shoulder adduction in 90° abduction and isometric shoulder adduction from elevation are the tests to be performed.<sup>1</sup>

Side strain injury accounts for the second-highest seasonal

incidence.<sup>2</sup> All side strain injuries in bowlers affect the side contralateral to the bowling arm impacting the internal oblique muscle.<sup>2</sup> The point of internal oblique rupture in side strain injuries among fast bowlers is the sudden vigorous motion from the assumed maximum eccentric contraction when the non-bowling arm is fully flexed and suddenly extends or pulls through, allowing the bowling shoulder to flex to bowl the ball.<sup>2</sup> During the phase of bowling, the front foot comes in contact with the ground and the front arm pulls the body through. At this point, the front arm is pulled from a high position while the trunk is usually bent or rotated towards the other side. This places the internal oblique under maximal stress.<sup>3</sup>

The fast bowlers have up to 10% more muscle bulk in the internal oblique on the non-bowling side as compared to the other side.<sup>3</sup>

**Method**

This cross-sectional study was carried out among 43 participants by sending Google Forms from different social media. We questioned the patients and checked their knowledge about side strains. A case sheet was made which included the name, age, gender, and email-id of participants. The questions began with the nature of the player, and the attitude towards side-strain injury. The study duration was from May 2022 to October 2022.

**Inclusion Criteria**

- Age group of 18 to 25 years
- Recreational fast bowlers

**Exclusion Criteria**

- Any congenital deformity

- Any debilitating illness
- Any past injury

**Ethical Committee Approval**

The study was approved by the Institutional Ethics Committee of Krishna Institute of Medical Sciences (Deemed to be University), Karad. An explanation about the study and questionnaire was given to respondents and informed consent was obtained from them. They also had the authority to not participate in the questionnaire. All the respondents participated voluntarily and their confidentiality was maintained throughout the study.

**Results**

The questionnaire was used to determine the knowledge and attitude of participants about contralateral internal oblique strain and its prevalence among recreational fast bowlers. There were in all 6 questions. The response was obtained by sending Google Forms.

The collected data were analysed by a statistician using an instant application. Chi-square test was used to analyse the questions.

Table 1 shows the responses of participants to the questionnaire. Regarding the knowledge about side strain condition, 36 respondents knew about the side strain condition and 7 did not know about the condition.

Regarding the frequency of playing cricket, 25 respondents played monthly, 17 played weekly, and 1 respondent played daily.

When asked about the pain on the non-bowling side during delivering a ball, 29 respondents reported that they experienced pain, whereas 14 experienced no pain.

**Table 1. Responses of Participants**

S. No.	Questions		Number	Percentage
1.	Do you know about side strain condition?	Yes	36	83.7
		No	7	16.2
2.	How frequently do you play cricket?	Monthly	25	58.1
		Daily	1	2.4
		Weekly	17	39.5
3.	Do you experience pain on the non-bowling side during delivering a ball?	Yes	29	67.4
		No	14	32.6
4.	Do you experience pain on raising the contralateral arm away from the side of the body?	Yes	24	55.8
		No	19	44.2
5.	Do you experience pain on bending forward after ball release?	Yes	28	65.1
		No	15	34.9
6.	Do you feel pain on the contralateral side while coughing?	Yes	24	55.8
		No	19	44.2

The players were asked if they experienced pain from raising the contralateral side away from the body. 24 respondents stated that they experienced pain, while 19 respondents did not experience pain.

Regarding experiencing pain on bending forward after ball release, 28 respondents experienced pain while 15 did not.

The subjects were also asked about feeling pain on the contralateral side while coughing. As per the responses, 24 respondents experienced pain and 19 did not experience pain on the contralateral side while coughing.

## Discussion

Contralateral internal oblique strain is a condition that occurs in fast bowlers while bowling. Young players aged between 18 and 25 years of age are more prone to side strain injuries. Its clinical presentation in fast bowlers is a pain in the contralateral side that occurs during delivering a ball, which may slightly radiate towards the abdominal area. The pain may also occur on their contralateral side, that is, the non-bowling side on the lateral chest while sneezing or coughing. Range of motion is mostly affected in side strain injury; forward flexion and side bending being the most commonly affected ranges of motion.<sup>1</sup>

Side strain condition accounts for the second-highest injury among fast bowlers.<sup>2</sup> Fast bowlers have more muscle bulk in the internal oblique on the non-bowling side as compared to the other side.<sup>3</sup>

A previous study data presented conducted by Humphries et al. suggested that side strain injury is more common among cricket players who are fast bowlers. Younger bowlers are more prone to side strain injuries in contrast to lower limb muscle strain and the nature of the player is also an important risk factor for side strain injury.<sup>4</sup>

Our study has shown that contralateral internal oblique strain among recreational fast bowlers is more common in younger bowlers. It has also been seen that the players are aware of the side strain condition and its signs and symptoms.

## Limitations

The present study was conducted at a single institution, therefore generalisation of the study may be limited. Another limitation of the study was the less sample size.

## Conclusion

According to this study's findings, there is a high prevalence of contralateral internal oblique strain among recreational fast bowlers. We also found that the players are aware of the side strain condition and its signs and symptoms.

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**Conflict of Interest:** None

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