

THE PREVALENCE OF LOW BACK PAIN IN CRICKETERS – AN UNDERGRADUATE EPIDEMIOLOGICAL STUDY

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INTRODUCTION

Cricket in South Africa plays a major socio-economic role and, through innovations such as the one day limited overs and day-night games, is increasingly drawing the attention of large crowds throughout the country.

Cricket is becoming far more aggressive and faster¹ and is placing greater strains on the cricketer's body. The lumbar area of the cricketer is one of the areas that is being placed under increased strain, especially in the fast bowling action². This is taking place at a time when, with increased professionalism, cricketers can least afford to be affected by disabling injuries, such as Low Back Pain (LBP).

LBP in itself has far reaching affects on the general community with as much as 5% of all time absent from work being attributed to LBP³. With the added stresses and strains of modern cricket, epidemic levels of LBP are expected amongst cricketers. The problem of LBP is further aggravated by the difficulty of making an accurate diagnosis. LBP is often characterised by the stooped appearance associated with old age which could be harmful to the self esteem of a cricketer with LBP. Therefore, LBP is not frequently discussed by the cricketing fraternity, making it extremely difficult to ascertain the true extent of LBP in cricketers.

The dearth of research on cricket in South Africa and the changing nature of the game challenges science and medicine to explore the various aspects of the game.

METHOD

A questionnaire was given directly to 110 cricketers, 55 from the first teams of

five cricket clubs and from five schools in the Western Cape during the 1991/92 season. The questionnaire consisted of an initial set of close-ended questions as well as a further set of open-ended questions which allowed the respondents to voice their opinions.

A grading scale of pain severity was used to measure LBP. The pain being graded as follows: Grade 1, an ache but could continue playing, Grade 2, pain which forced the player to leave the field and Grade 3, pain which prevented the playing of a match. Each respondent was classified as either a fast bowler (FB), slow bowler (SB), batsmen (BAT) and a wicket keeper (WK).

Numerous cricket practices and matches were visited in order to gain general information on warm-up methods, different techniques shown and to obtain a feel for the cricketers' personalities and idiosyncrasies.

The data obtained from the questionnaire was presented by means of descriptive statistics with null hypotheses being formulated and tested by appropriate statistical tests.

RESULTS

The return response was 90%. The mean age was 20.2 years with a range of between 15 and 35 years, with 55.6% of respondents being above 18 years old and 44.4% were younger than 18 years. The mean number of years playing cricket was 12.3 years with a range between 3 and 27. The respondents consisted of 37.4% FB, 58.6% BAT, 27.3% SB and 11.1% WK.

PREVALENCE OF INJURY

LBP was present in 61.6% of the cricketers and, of these, 78.7% cited cricket as being the cause of the LBP.

SEVERITY OF INJURY

Grade 1 injuries were most prevalent (72.1%), although Grade 3 injuries oc-

ABSTRACT

The prevalence of Low Back Pain (LBP) in cricketer's was determined and possible causative factors were investigated. Questionnaires were sent to 110 cricketers playing for their first times of both clubs and schools during the 1991/92 season. The return response was 90% with a prevalence of LBP at 61.6%. Of these 78.7% cited cricket as being the primary cause of their LBP. The injuries were predominantly grade 1 (72.1%), followed by grade 3 (23.1%) and grade 2 (6.6%). Grading was made according to the effect the pain had on the cricketers game. Fast bowlers proved to be more at risk of developing LBP with a group prevalence of 75.6% followed by wicket keepers at 63.6%, batsmen at 56.8% and slow bowlers at 48.1%. Cricketers had rather a poor general knowledge of ways of protecting their backs. Recommendations were made to help reduce the high prevalence of LBP, especially amongst Fast bowlers and in cricketers in general.

curred in a large group (21.3%). A further indicator of severity is the large number (62.3%) of cricketers who required treatment for their LBP.

GROUP PREVALENCE

The largest proportion of LBP was amongst the fast bowlers (75.6%) which proved to be statistically significant with an obtained p-value of 0.06 using the Chi-squared test. Furthermore, it was found that there was a higher prevalence of LBP in FB's with a front-on action (85.7%) than in those with a side-on action (72.4%). The group of front-on bowlers was too small for statistical testing.

OTHER FACTORS

Of the factors investigated (age, number of years playing, warm-up, various types of exercises, knowledge of prevention of injuries), the only one that proved to be significant was the lack of knowledge that cricketers had of ways to protect their backs. Of those cricketers who had LBP, only 55.7% said they knew how to protect their backs. Age did not prove to be a significant predictor of LBP.

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the knee-joint. Physiotherapists treating cycling-related injuries should not treat purely symptomatically, and a thorough knowledge of the above-mentioned factors is imperative. The distinguishing trademark of the effective practitioner in this case will not be her knowledge of physiotherapy, but her knowledge of the sport.

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DISCUSSION

PREVALENCE OF LOW BACK PAIN

The prevalence of LBP found in this study compares well with the 48 serious and less serious back injuries found in a study of 92 first class cricketers by Stretch⁴.

The large proportion of grade 1 injuries may be attributed to soft tissue problems such as the myofascial pain syndrome, with the back showing signs of stiffness and weakness⁵.

Another possible explanation for the high incidence of minor injuries is the extrovert personality type of most cricketers, which makes them tend to underplay their injuries. It must also be borne in mind that LBP, even if it is an innocuous strain, can be totally disabling. The high percentage of cricketers requiring treatment adds strength to the above statement.

GROUP PREVALENCE

The bowlers (75.6%) proved to be the most at risk of developing LBP. This was confirmed in the study of first class cricketing injuries in South Africa by Stretch, which showed 65.7% of LBP was caused by bowling⁴. The studies done by Stretch and this study were focussed on assessment of severity rather than a diagnosis of LBP. If more accurate diagnosis of pathology using computerised topography was used the findings may have been different⁶.

The high prevalence of LBP in fast bowlers is not surprising when one considers that the fast bowling absorbs three times their body weight at run-up and up to four times their body weight at front and rear foot contact during the delivery stride.

These absorption forces, together with a spine that is laterally flexing, rotating, extending and being compressed, can cause trauma which, despite being below the threshold that muscles and joints can tolerate, is able to produce injury due to the repetitive nature of fast bowling⁷. The repetitive nature of fast bowling can be illustrated by a work to rest ratio which has been calculated as 1:3⁸. This means that, although the repeated trauma is below the threshold that joints and musculotendinous structures can tolerate, injury may well occur.

Foster suggests that there is a combination of factors responsible for LBP, including one or more inadequate physical and/or physiological attributes, poor bowling technique, high physical demands and sudden increases in training⁷. This was confirmed by Meuleman who stated that changes in bowling technique have caused many of the fast bowler injuries⁹. Despite the fact that the front-on and the side-on technique have similar forces on front foot impact, the side-on technique allows the body to summate body forces more effectively².

KNOWLEDGE OF PROTECTION

Although knowledge of protection may be an unusual concept to investigate, it needs to be further explored. Physiotherapists have for years been involved in treating LBP and more recently have embarked on preventative programmes, through increasing the public's awareness of the possible causes of LBP. However, not much has been done in order to educate sportsmen regarding the dangers that their backs are exposed to due to the specific mechanics of their sport. The distinct lack of knowledge found in this study, together with poor bowling technique and inadequate strength and flexibility training are causes of LBP in cricketers. Clearly we have a responsibility to increase the awareness of cricketers regarding the problem of LBP.

OTHER FACTORS

There was no relationship between the age group and the prevalence of LBP. This is in keeping with Micheli who noted an increase in adult type injuries now occurring in children¹⁰. Overuse injuries in areas such as stress fractures to the pars interarticularis and the growth cartilage are on the increase, as children become more heavily involved in cricket. Children are more susceptible to overuse injuries than adults because of the effect it has on structures that are not yet mature.

There was also no relationship between the number of years that cricket was played and LBP. However, the number of years of playing cricket wasn't truly representative of the repetitive nature of cricket, and does not describe the number of repetitive activities involved in a cricketer's year.

CONCLUSION

This study can be seen as a stepping stone to further research in the complex area of LBP. Fortunately South Africans have a deep desire to produce champions, and this desire in both the cricketing authorities and the players will recognise and support further studies.

RECOMMENDATIONS

There is a great need for continuing research into the possible causes of LBP in cricketers, especially in fast bowlers with populations which are far more diverse and ranging from schoolboy cricketers right through to international level cricketers.

The health professions must realise that their involvement in treating cricket injuries is an important one, not only by decreasing the cricketer's pain but also by restoring him to normal functioning on the cricket field. The way this can be achieved is by taking into account the cricketer, his personality and the cricketing environment.

Coaches, cricketers and administrators will have to accept their role in tackling the problem of LBP. Science of the sport suggests good leg, back and trunk flexibility as well as strength to reduce the large forces placed on the low back. Excessively long bowling spells must be avoided, especially in the young and those who aren't accustomed to a heavy workload. Good technique, without destroying individual flair and a quality warm up should be undertaken at all times, and cricketers themselves encouraged to take responsibility for protecting their backs.

COMMENT FROM REFEREES

If the aim of the study was only to identify the prevalence of low back pain in cricketers, then it would have been worthwhile to provide normative data for the age group studied. The scale used to measure pain is limited and a more accurate measurement would have enhanced the study.

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