

Effectiveness of the Slump Test in Diagnosing and Managing Lower Back Pain in Fast Bowlers: A Study on Rehabilitation outcomes

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Abstract

The slump test is a popular way to check for low back pain and nerve strain. It is especially useful for athletes like fast bowlers. They are more at risk for stress-related injuries due to the tough and repetitive nature of their sport. This study examined 15 fast bowlers from clubs affiliated with the Mumbai Cricket Association—all of whom reported back pain—to assess how well the slump test detects lower back problems. Researchers used this test as the primary method before and after a four-week rehabilitation programme to assess the severity of their condition. The researcher has given some exercises in a rehabilitation programme, such as knee-to-chest stretch, bridges, bird dog exercises, dead bugs, superman exercises, etc., along with a proper warm-up for the selected fast bowlers suffering from back pain. The results aim to enhance rehabilitation practices by using the slump test as a vital tool, helping fast bowlers better manage their lower back pain.

Keywords: slump test, back pain, rehabilitation, endurance, skill and strategy.

Introduction

The evolution of cricket from its humble origins in medieval England to its current status as one of the world's most popular sports has been marked by numerous milestones and developments. The 19th and 20th centuries witnessed the emergence of various game formats, reflecting the evolving tastes and preferences of players and spectators alike. Test cricket, with its emphasis on endurance, skill and strategy, has become the ultimate test of players' abilities, while the introduction of limited-overs cricket, such as the one-day international, has brought a faster-paced, more dynamic style of play to the fore.

Bowling is a vocation that takes great fitness, stamina and skill, but also great strength of character. Unlike their batting and fielding challenges, bowlers, especially the quicks, are far more susceptible to intrinsic injuries than extrinsic injuries. Worse still, these intrinsic injuries will often plague the bowler much later in life, long after he has hung up his bowling boots [1]. In recent years, much attention has been paid to preventing injuries among fast bowlers. Dennis Lillee was diagnosed with the first documented case of lumbar stress fractures among international fast bowlers [2-3], demonstrate that there seem to be two injury thresholds—one at low and one at high bowling workloads. In [4] study, the strongest predictor of injury risk was a previous injury, which is consistent with all sports injuries.

Injuries have become increasingly common in modern cricket. Fast bowlers are most affected by the workload imposed on them during what is now a busy national and international

playing schedule [5] Injury prevention must be a strong theme of any fitness programme, particularly during the early stages before muscle groups are properly conditioned. [6] Back pain is common among fast bowlers. Usually, it results from repetitive motions and suboptimal body mechanics. The slump test assesses the nervous system's sensitivity—especially when back pain occurs. This study examines the effectiveness of this test for evaluating back injuries in fast bowlers to ensure it is included in broader rehabilitation plans. Some studies examined cricket players' back injuries. [7] found that fast bowlers were at high risk of lower back injury and pain. [8-11] conducted a study on 21 fast bowlers at premier-grade level and above, who were tested using a three-dimensional motion analysis system.

Objectives of the study

1. To assess the impact of a rehabilitation program for back pain on fast bowlers in cricket, utilizing the Slump Test.

Hypotheses of the study

HO₁: There would be no significant improvement in selected lower back pain on fast bowler's aspects regarding the cricket rehabilitation programme using the slump test.

Methods

A single-group design was selected, focusing on 15 fast bowlers with lower back troubles. For this study, 15 cricketers who specialize in fast bowling were selected from Mumbai region clubs who regularly play cricket and have complaints of back pain.

For the pre- and post-test data collection, the slump test was chosen because it reliably identifies lower back pain and neural strain well. Expert physiotherapists helped us run the test and interpret the results, ensuring the researcher got things right. In a controlled setting with a flat bench and a goniometer—measuring knee extension angle at the time discomfort occurred—the researcher applied the slump test on fast bowlers twice: before and after the rehabilitation programme. The researcher has given some exercises in a rehabilitation programme, such as knee-to-chest stretch, bridges, bird dog exercises, dead bugs, superman exercises, etc., along with a proper warm-up for the selected fast bowlers suffering from back pain.

Results: Comparison of Pre and Posttest Mean Scores of Slump Test

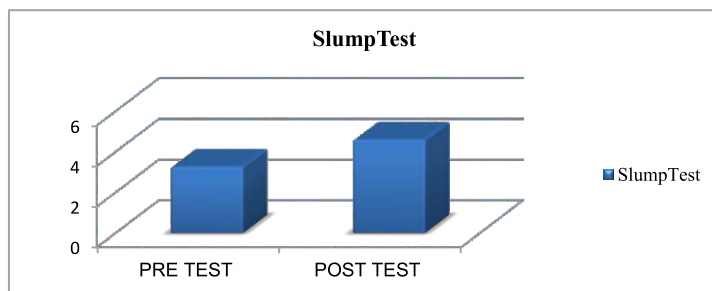


Fig 1: Comparison of group means of the slump test at pre- and post-tests

In these findings from the Slump Test, mean performance was 3.27 (SD = 0.59) before the rehabilitation programme and improved to 4.60 (SD = 0.51) after. The mean performance gain is shown in Figure 1. The difference for this group turned out to be 1.33. The t-test results revealed significant improvements ($t = 6.6144$, $p < 0.0001$). So, the researcher had to reject this hypothesis – H_0 . There would be no notable improvement in selected lower back pain aspects regarding the cricket training rehabilitation programme using the slump test. After doing the rehabilitation programme, results from the Slump Test showed much lower back pain for fast bowlers. Across all players, knee extension without pain increased, indicating the effectiveness of this rehabilitation programme.

Discussion

This rehabilitation program, implemented with 15 subjects, showcased promising results in terms of reducing pain, improving functional outcomes and enhancing overall performance.

Conclusion

The Slump Test stands out as a trustworthy diagnostic tool for addressing fast bowlers' lower back problems. Including this test in a rehabilitation programme can lead us toward better treatment strategies, with athletes experiencing stress-related injuries seeing great results.

References

1. Kachanathu, S. J., Zakaria, A. R., Sahni, A., & Jaiswal, P. (2012). Chronic low back pain in fast bowlers a comparative study of core spinal stabilization and conventional exercises. *Journal of Physical Therapy Science*, 24(9), 821-825.
2. Farhart, P., Beakley, D., Diwan, A., Duffield, R., Rodriguez, E. P., Chamoli, U., & Watsford, M. (2023). Intrinsic variables associated with low back pain and lumbar spine injury in fast bowlers in cricket: a systematic review. *BMC Sports Science, Medicine and Rehabilitation*, 15(1), 114.
3. Barry, T. J. (2021). *A multi-factorial evaluation of lower back injury risk factors in fast bowlers* (Doctoral dissertation, Manchester Metropolitan University).
4. Saayman, M. (2011). *Low back pain and front foot hip joint kinematics in Western Province first league fast bowlers* (Doctoral dissertation, Stellenbosch: University of Stellenbosch).
5. Sudarshan, A. (2013). Physical therapy management of osteitis pubis in a 10-year-old cricket fast bowler. *Physiotherapy theory and practice*, 29(6), 476-486.
6. Delitto, Anthony, Steven Z. George, Linda Van Dillen, Julie M. Whitman, Gwendolyn Sowa, Paul Shekelle, Thomas R. Denninger et al. "Low back pain: clinical practice guidelines linked to the International Classification of Functioning, Disability, and Health from the Orthopaedic Section of the American Physical Therapy Association." *Journal of orthopaedic & sports physical therapy* 42, no. 4 (2012): A1-A57.
7. Ng, L., Cañeiro, J. P., Campbell, A., Smith, A., Burnett, A., & O'Sullivan, P. (2015). Cognitive functional approach to manage low back pain in male adolescent rowers: a randomised controlled trial. *British journal of sports medicine*, 49(17), 1125-1131.
8. Perich, D., Burnett, A., O'Sullivan, P., & Perkin, C. (2011). Low back pain in adolescent female rowers: a multi-dimensional intervention study. *Knee surgery, sports traumatology, arthroscopy*, 19(1), 20-29.
9. de Oliveira, I. O., de Vasconcelos, R. A., Pilz, B., Teixeira, P. E. P., de Faria Ferreira, E., Mello, W., & Grossi, D. B. (2018). Prevalence and reliability of treatment-based classification for subgrouping patients with low back pain. *Journal of Manual & Manipulative Therapy*, 26(1), 36-42.
10. Dankaerts, W., O'sullivan, P. B., Straker, L. M., Burnett, A. F., & Skouen, J. S. (2006). The inter-examiner reliability of a classification method for non-specific chronic low back pain patients with motor control impairment. *Manual therapy*, 11(1), 28-39.
11. McConnell, J. (2000). A novel approach to pain relief pre-therapeutic exercise. *Journal of Science and Medicine in Sport*, 3(3), 325-334.