

**PREVENTION OF WORK-RELATED LOW BACK PAIN IN SWEEPERS; A CASE STUDY**

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**ABSTRACT**

*Background: Low back pain (LBP) is a common complaint among gardeners and sweeping professionals, and it can be caused by a variety of factors. According to the Mayo Clinic LBP can manifest itself in many ways, including improper posture, improper biomechanics falls, and overuse (such as lifting weights). Possible treatments for LBP include medication, steroid injections, education, physical therapy, or surgery. Surgery is usually used as a last resort as it can be very expensive and cause serious complications LBP has been proven to be significantly reduced by a number of physical therapy techniques, including electrotherapy, traction, and lumbar stabilisation exercises such as bridging cat camel exercise 1 Is Superman stance, and thoracic extension. The motive of the study is to look into the work-related low back pain and to prevent the same among the sweepers by training/prescribing them with exercises and relaxation techniques to reduce pain.*

*Case Description: A case of 43-year-old female sweeper who was working for 8 hours per day for the past 5 months has low back pain.*

*Objective: The intention of this study is to prevent work-related LBP in sweepers by ergonomic view.*

*Conclusion: The ergonomic advice and modifications to the workstation were found to have improved the sweeper's performance with LBP during the onsite evaluation.*

*Paper Type: A case study research.*

*Keywords: Low back pain, sweepers, ergonomics, work-related musculoskeletal disorder.*

**INTRODUCTION**

Particularly as a career and vocation, sweeping is regarded as a straightforward duty because of their ignorance of health risks, sweepers frequently suffer from work related health problems. Musculoskeletal discomfort, which can affect many body areas such as the upper and lower back, neck, shoulders, and limbs, is a significant issue with occupational health around the world<sup>(1)</sup>. The issue of musculoskeletal disorders in adult population is huge. Low back pain is very common that almost half of the adult population suffered from low back pain which last for more than 24 hours at times during the year<sup>(1)</sup>. Episode of LBP are common between sweepers and gardeners. In terms of disability, low back pain ranks first among all conditions as the leading cause of impairment worldwide<sup>(2)</sup>. The occupation of sweeping is to blame for the rise of chronic LBP cases. LBP is a health condition that affects workers of various professions at work. Work-related LBP is correlated with personal, physical, psychological risk factors, and ergonomic stressors<sup>(2)</sup>. Low back discomfort is brought on by prolonged standing, poor posture, psychosocial concerns, rhythmic movements performed over an extended length of time, and repetitively carrying heavy loads<sup>(2)</sup>. Workplace musculoskeletal disorders have grown to be a significant issue for many workers. Although sweepers have dedicated their life to keeping our society clean, the community has alienated them from the mainstream in terms of social, economic, and mental aspects. The goal of the current study is to develop an ergonomic exercise programme to prevent work-related low back pain in sweepers<sup>(1)</sup>.

**CASE DESCRIPTION**

The subject was a woman, age 43, who had suffered from LBP for the previous five months. She works as a sweeper. She works in a single shift duty of 8 hours duration per day. She is not involved in any kind of physical activity. While taking personal interviews and observing her work pattern; She had extreme difficulty with the following tasks: Bending down, standing for long period of time and twisting movements. She was unable to stand more than 30 minutes and could not bend to pick up objects. She complains of pain in the low back during the working hours and sometimes it radiates down in her legs, that she could not work for a long time. She works at home after work and on weekends as well. The subject reported of having no other health issues such as diabetes or hypertension and also not under any medications. She doesn't take medicine even for pain relief. After ergonomic analysis it is clear that, she is bending with her waist instead of hip and knees. Overall musculoskeletal pain was assessed by Visual Analogue Scale (VAS). At the time of assessment, her pain level was 5/10 on the Visual Analogue Scale (VAS). In standing, posture showed increased lordosis, and a slight forward head posture. She had normal gait pattern and showed no difference in ROM during ambulation. With palpation, she has no tenderness to touch but had pain only during work. The subjective and objective

information obtained from the patient, showed that she had limitations in functional strength and endurance. Due to the routine work for 8 hours, this patient finds limitations to reach the health care facilities like physiotherapy advice. Furthermore, while consult with the supervisor of this particular sweeper we noticed the supervisors or the higher officials of the sweepers were unaware of the proper posture and lack of knowledge on work-related musculoskeletal disorders. They are not allowed to sit and work in proper posture instead they do forward flexion of the trunk to do their work which is the major risk factor of LBP.

This study helps to open up few facts of importance of work-related musculoskeletal disorders and principles of ergonomics which need immediate attention among community.



## DISCUSSION

We have used a descriptive case study to analyse the activities of the sweeper in the garden which might support achieving the study's goal. Sweepers play a key role in maintaining the cleanliness in our surroundings. The respondents of the study are the female sweeper whom we went onsite to take assessment on work-related musculoskeletal disorder<sup>(4)</sup>. As the objective of the study is to prevent work-related low back pain in sweeper, a face-to-face interview and observational analysis of various activities were employed, data was collected and analysed for further studies. Survey was not conducted as the subject is untutored<sup>(6)</sup>.

Assessment was taken and found that the subject had difficulties in Bending down, standing for long period of time and twisting movements. She was unable to stand more than 30 minutes and could not bend to pick up objects without principles of ergonomics. Musculoskeletal pain was assessed using Visual Analogue Scale (VAS), and the score was 5 out of 10 which indicates moderate to severe pain. After evaluation, it was clear that low back pain was common problem followed by radiating pain to legs. Correction of her work posture based on ergonomics along with some physiotherapy pain management was given<sup>(6)</sup>. According to a previous study, age, rest period, repetition movement, approach or exceed, organization care about security, contentment, and well-being are significant risk elements associated to the workplace involving extremities. Therefore, ergonomics, organization and individual measures, aimed at minimizing repetitive movements and hard work locate and facilitate rest by exercise which is very important to reduce neck and upper extremities Musculoskeletal conditions in hotel maids<sup>(5)</sup>. The residential sweepers of the buildings, who were mostly women, suffered from a variety of musculoskeletal issues<sup>(7)</sup>. Inappropriate use of ergonomics principles and a lack of worker-friendly products make musculoskeletal issues worse<sup>(7)</sup>. Additionally, the sweepers lack knowledge of the appropriate stance for carrying out the tasks at work. They occasionally experience severe

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social marginalization and internalize inferiority complexes. This part of the study has received more focus due to its vulnerability and weakness. Policy makers and our community should develop recurring educational programmes that can play the primary role in decreasing musculoskeletal issues brought on by job position and poses <sup>(7)</sup> .

### **CONCLUSION**

By its very nature, sweeping requires a standing posture that includes abduction and adduction of the shoulders and arms, as well as bending, twisting, and stooping. The repeated and uncomfortable attitude that led to the evolution of musculoskeletal issues was the most significant risk factor in the current investigation.

The post treatment on the work field has shown improvement in LBP. Ergonomic intervention showed more better results to alleviate the pain. Onsite treatment includes active exercise such as thoracic extension, calf stretch, hamstring stretch, side bends and knee flexion in standing position. These have reduced the LBP and provided relaxation in the lumbar region. Exercise prescription includes medium intensity with 10 repetitions, 3 sets per day. Therefore, it was obvious that the sweeping duty needed to be built according to ergonomic principles, i.e., Use brooms of the right size with long handles to prevent bending, interspacing activities to lessen repetitive motions; sequencing job tasks to avoid static posture; Reduce forceful motions, keep your posture erect as much as you can, and bend using hip and knees instead at waist. This present study recommends conducting observational and experimental studies among sweepers by implementing advanced tools that might resolve the issues faced by sweepers, with work related musculoskeletal problems.

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