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# Altered Postural Sway and Fear of Fall in Patients Suffering from Non-specific Low Back Pain

[1*] and [2]

[1]Physiotherapy Department of Saaii College of Medical Science and Technology, Kanpur, UP, India

[2]Physiotherapy Department of Saaii College of Medical Science and Technology, Kanpur, UP, India

* : Sadhana Verma, Assistant Professor, Physiotherapy Department of Saaii College of Medical Science and Technology, Kanpur, India, Tel: +919599961160; E-mail: vermasadhana85@yahoo.com

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: The purpose of this study is to determine whether balance response of low back pain patients is different from healthy controls under various up right standing conditions, and also to find out whether body sway is related to the fear of fall in low back pain individuals.

: A sample of 130 subjects was taken in the study through convenient sampling. The postural sway of the subjects was analyzed by using a Sway meter and Fear of Fall was calculated by using a Fall Efficacy Scale.

: The results show that greater sway occurs in the patients suffering with Low Back Pain than compared to healthy control group, and FES value and TSOFEC value are correlated to each other (r value=0.23).

: Thus the study concludes that patients with low back pain exhibit greater postural sway than healthy controls and the decreased postural stability in people with low back pain is correlated with fear of fall when extra stress has been laid on the balancing system.

## Introduction

Human postural balance relies on information from somatosensory, vestibular and visual systems. Postural stability depends also on the e f ciency of the motor function: joint stability and muscle activity. T e performance of the postural balance system is afected by age, neurological dysfunctions, cerebro cranial injuries, and motor organ diseases [1].

A vital role in maintaining balance is played by the spine. Dysfunctions of the spine infuence on control of posture in upright position. Lower back pain is a signifcant social problem. Low back pain is usually defned as pain, muscle tension or stifness localized below the costal margin and above the inferior gluteal folds, with or without leg pain (sciatica) [2].

Low back pain (LBP) is a substantial health problem. It afects up to 80% of the adult population and accounts for considerable healthcare and socioeconomic costs [3].

T e most used classifcation for pain in the lumbar spine by clinicians is specifc or nonspecifc LBP. A specifc low back pain diagnosis (about 1-2% of all patients with early low back pain) is attributed to Low back pain, referring to any diagnosis from a systemic disease, infection, injury, trauma, cauda equine or structural deformity. Nerve root pain usually represents about 5% of the pain in patients with a disc prolapses and spinal stenosis [4].

Approximately 90% cases of back pain have no identifable cause and are designated as Nonspecifc. Non-specifc low back pain means that the pain is not due to any specifc or underlying disease that can be found. It indicates the structure problem of spine. It is thought that in some cases the cause may be a sprain (an over-stretch) of a ligament or muscle [5]. And other common cause like unaccustomed activities, poor posture, muscular, strain, obesity arthritis of spine and occupational cause [6].

Low back pain can be acute sub-acute or chronic patients with acute low back pain is usually defned as the duration of an episode of low back pain persisting for the less than 6 week; sub-acute low back pain as low back pain persisting between 6 to 12 week; chronic low back pain persisting for 12 week or more [5].

Posture sway in quite standing is ofen studied as a measure of posture control. Many instrument ranging from the simple once like lord's sway to the more sophisticated instrumentation, post urography, utilizes force plate to measure Ground Reaction Force, are used to measure the postural sway [7].

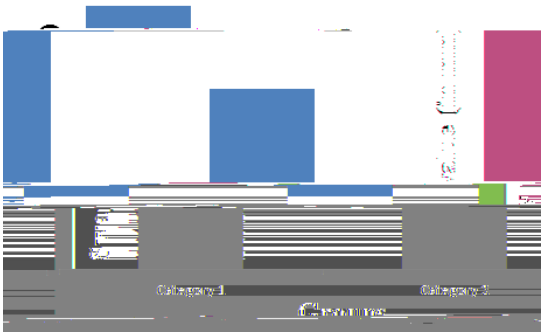
T e purpose of this study is to determine whether balance response of low back pain patients is diferent from healthy controls under various up right standing conditions. It is also determined in the present study whether body sway is related to the fear of fall in low back pain individuals.

## Methodology

A collective sample of 130 human subjects between age group 40-73 years, was selected by convenient sampling. T e subjects were recruited from the orthopedics department of LLR Hospital Kanpur. An approval by the Institutional Review Board was granted and an informed consent was obtained from each subject.

Inclusion criteria

- Person with nonspecifc low back pain for at least 6 weeks age 40-73 year.



**Graph 1**: Total sway on foam with eyes open in control group and experimental group.

| | | | | |
|---|---|---|---|---|
| TSOFOE | 575.65 | 837.02 | 300.49 | 632.66 |
| TSOFCE | 849.27 | 1163.9 | 552.14 | 765.47 |
| TSOGOE | 292.86 | 529.28 | 152.99 | 442.26 |
| TSOGCE | 360.74 | 442.54 | 194.11 | 479.03 |

TSOFEO 2.18

suggest strongly that the persons with recurrent LBP have altered postural control. Moreover, the CNS of the persons with LBP seemed to select the same postural control strategy (i.e. proprioceptive control at the ankles) as in normal bipedal standing on stable support surface, showing a decrease in postural control variability. T is postural strategy leads to less stable postures when postures when postural demands increase and also may generate a fear of falling in the individuals [15,16].

Another reason for the positive correlation between fear of fall and sway may be fear avoidance model according to which pain related fear leads to the avoidance or escape from activity which further leads to disability and inability to maintain balance [17-19].

T us our study aims to correlate the fear of fall and sway in LBP individuals so that in future attempts can be made through the treatment protocol to decrease or avoid these di f culties.

## Strength and limitations

T e strength of the current work is that it may be that only study which used a sway meter to measure sway discriminated between LBP

chronic low back pain a preliminary case control study. Rehabilitation Research and Practice 1155: 1-8.

18. Fritz JM, George SZ, Delitto A (2001) The role of fear avoidance beliefs in acute low back pain: relationships with current and future disability and work status. Journal of Pain 94: 7-15.

19. Leeuw M, Goosens MEJB, Linton SJ, Crombez G, Boersma K, et al. (2007) The fear avoidance model of musculoskeletal Pain: current state of scientific evidence. Journal of Behavioural Medicine 30: 77-94.