

# Sitting disc technique and the relationship to the straight leg raise: A retrospective case series of thirty patients.

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**Indexing Terms:** subluxation; lumbar spine; sitting disc technique; *Lasègue*; chiropractic.

## Introduction

The purpose of this study was to determine if a chiropractic intervention, the sitting disc technique (SDT), could be used in coordination with a common orthopedic/neurological test, the straight leg raise (SLR). Clinically the SLR could be used as a pre and post assessment tool to assess the effectiveness of SDT application. Improvement of SLR following SDT application could help determine which specific lumbar spinal segments related discs might be helped by SDT adjustments.

Orthopedic and neurological tests are commonly used with chiropractic diagnostic methods to evaluate patients with chronic mechanical low-back pain. However, studies have found these tests are not readily reproducible. (1) In general, it has been found that *'most procedures commonly used by clinicians in the examination of patients with back pain demonstrate low reliability'*. (2) Since studies to date suggest that a patient's sensitivity and response to palpation for pain demonstrates good reliability, (3) change in pain response has been seen as a good tool to measure patient improvement during a clinical encounter. (4)

The straight leg raise (SLR), also called *Lasègue* test, can be performed during the physical examination to determine whether a patient with low back pain has an underlying herniated disk, mostly located at L5/S1 level 5. A systematic review of the literature including statistical meta-analysis noted that the SLR test has had its diagnostic accuracy limited by its low specificity. (6) Yet other studies have found that the SLR can be useful. Jönsson and Strömquist found that the SLR as performed in clinical practice has a strong correlation with various parameters that signify the pain level of the patient. (7) Summers et al noted that *'acute low back pain associated with significant restriction in SLR is likely to be caused by a disc prolapse compressing the anterior theca.'* (8)

... The SLR appeared to be a helpful method to monitor the functional improvement of the lumbar spine after successful SDT adjustments. The SLR also appeared to parallel symptomatic changes that accompanied lumbar spine improvement following the SDT applications.'

Quick Tap or Scan:



A study by Xin et al of 113 patients 'showed a close relationship between the location of the pain and the position of the protrusion of the disc. The degree of limitation of SLR was also found to have a direct relationship to the size and position of the protrusion and to its relationship to the spinal nerve. The protrusions were classified into three types according to position in relation to the dura mater and to the pattern of pain that was induced by passive SLR. On SLR, central protrusions tended to cause pain in the back, lateral protrusions caused pain in both the back and lower extremity. On this basis, the distribution of pain on SLR allowed an accurate prediction of the location of the lesion in 100 (88.5 per cent) of the 113 patients.' (9)

The Sitting Disc Technique (SDT) has been found clinically to be an effective method of adjusting the lumbar spine for any lumbar subluxation or related discogenic syndrome. (10) In combination with the SDT, the SLR can be both a subjective (patient's pain response) and an objective (patient's range of motion) test to elicit and locate lumbar and sciatic pain. It can also be used to judge the function of the lumbar spine, pelvis, and hamstring muscles. (11) Clinically, the SDT has been found to have a positive effect on the SLR findings when it is performed correctly. (12) This paper is a retrospective analysis of how patients presenting with a specific selection criteria responded to the SDT intervention.

### Methods

This paper is a retrospective study of 30 sequential patients treated at one practitioner's office that, following assessment and evaluation, were determined to have a positive SLR bilaterally, and then were adjusted with the SDT. They were then reassessed utilizing the SLR. To qualify for the study all 30 patients had to have similar SLR findings on the SLR of each leg. Although the SLR is often used as diagnostic when a positive response is elicited unilaterally, for the purpose of this study only patients with bilateral symptomatology were used. All 30 patients' cases reviewed for this study had pain in the lumbosacral area with some pelvic area pain and unilateral lower extremity pain not below the knee, with pain localizing to the leg contralateral to the analgesic lean.

### Intervention

The SLR was performed with the patient lying in the supine position. The doctor would passively lift the patient's one leg straight up, with no knee flexion either side and with no lifting of the pelvis. The examiner passively helped the patient, by lifting at the Achilles area until resistance or pain was met. Using a flexometer, the degree of hip flexion was measured for each SLR on each leg in each patient. (5) If pain was elicited, the area of pain was noted whether it was in the lumbar spine and if the pain that radiated down the leg. Since the three lower lumbar discs tend to have distinct pain patterns in the lower extremities, care was used when evaluating pre and post SLR findings relative to the SDT intervention. Generally the L5/S1 disc sciatica is more posterior in the thigh/leg, the L4/L5 disc sciatica is lateral in the thigh/leg, and the L3/L4 disc sciatica is more anterior in the thigh/leg.

The SDT was performed up to five times at each of 3 levels (15 times in all) with contact made to each interspinous space (L3/L4, L4/L5, and L5/S1) with the patient sitting on a stool or a chair with the back of the chair to the side.

Usually the process begins with the doctor making contact with their thumb just inferior to the tip of the spinous process of fifth lumbar. Once this contact is made, then the patient is instructed to take a deep breath and move into lumbar spine flexion (lordosis) with the doctor following the spinous of the vertebra as it moves forward. Then the doctor stabilizes their thumb and hand contacting the spinous and holds firmly as the patient exhales and draws their lumbar spine into extension (extension) pushing their vertebra against the doctor's stabilized thumb.

The process was repeated approximately three to five times on the inferior aspect of each lumbar spinous process. At the same time that the spinous process inferior tip was contacted, the doctor attempted to feel the space between the adjacent spinous processes of the lumbar vertebra below using the same thumb making the spinous process contact.

The patient controls the force against the doctor’s thumb by how much they extend their lumbar spine and how much force they use to push back into the thumb pressure. DeJarnette also suggested the corner of a pelvic block could be used to apply pressure, particularly if the doctor found the patient’s force against their thumb was uncomfortable.

As can be seen from this chart the greatest change was an improvement between 5-25 percent. Three patients had no improvement following the SDT, and three patients had greater than 25 percent improvement following SDT.

Thirty Patients: Pre and Post SLR Improvement Following SDT								
Degree of SLR Improvement:	0°	5°	10°	15°	20°	25°	30°	35°
Number of Patients:	3	4	4	4	7	5	2	1

### Discussion

The SDT may be indicated when any sign or symptom of lumbar involvement is present. (10) Diagnostically, the SDT needs to be repeated if any spinous process of the lumbar spine is painful while executing the SDT, and if the spacing between the lower adjacent spinous process does not improve as the doctor repeat the process. In this study, after the SDT was performed the patients showed improvement with less sensitivity at the spinous process to palpation, more interspinous space, general improvement in lumbar flexion, and improved findings on repeated SLR.

### Conclusion

From this limited study it was determined that utilizing the SLR and the SDT relationship in conjunction with spinal patterns, pain patterns, and ranges of motion can guide the management of dysfunctions of the lumbar spine and disc-related presentations. Further study with a larger sample utilizing a control, sham intervention, and randomization is recommended.

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# Sitting disc technique and the relationship to the straight leg raise: A retrospective case series of thirty patients.

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## INTRODUCTION

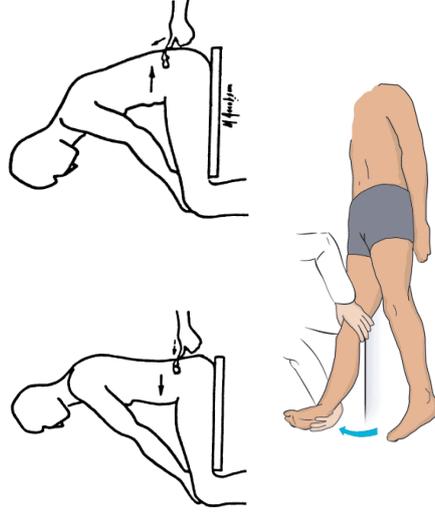
The purpose of this study was to determine if a chiropractic intervention, the sitting disc technique (SDT)<sup>1</sup>, could be used in coordination with a common orthopedic/neurological test, the straight leg raise (SLR)<sup>2</sup>. Clinically the SLR<sup>3,4</sup> could be used as a pre and post assessment tool to assess the effectiveness of SDT application. Improvement of SLR following SDT application<sup>5</sup> could help determine which specific lumbar discs might be helped by SDT adjustments.

## CASE STUDY DESIGN

This paper is a retrospective study of 30 sequential patients treated at one practitioner's office that, following assessment and evaluation, were determined to have a positive SLR bilaterally, and then were adjusted with the SDT. They were then reassessed utilizing the SLR. To qualify for the study all 30 patients had to have similar SLR findings on both leg lifts. Although the SLR is often used as diagnostic when a positive response is elicited unilaterally, for the purpose of this study only patients with bilateral symptomatology were used. All 30 patients' cases reviewed for this study had pain in the lumbosacral area with some pelvic area pain and unilateral lower extremity pain not below the knee, with pain localizing to the leg contralateral to the antalgic lean.

## INTERVENTION/METHODS

The SLR was performed with the patient lying in the supine position. The doctor would passively lift the patient's one leg straight up, with no knee flexion either side and with no lifting of the pelvis. The examiner passively helped the patient, by lifting at the Achilles area until resistance or pain was met with the degree of hip flexion measured with a flexometer.



Degree of SLR Improvement	0°	5°	10°	15°	20°	25°	30°	35°
Number of Patients	3	4	4	4	4	7	5	2
	1							

The SDT used was performed five times at each interspinous space, L3/L4, L4/L5, and L5/S1 with the patient sitting on a stool or a chair with the back of the chair to the side

## RESULTS

Improvement immediately followed care in 27 of 30 cases with the least improvement by 4 patients at 5°, maximum at 35° by one patient and the majority showing improvement between 10-25°. In this study, after the SDT was performed the patients showed improvement with less sensitivity at the spinous process to palpation, more interspinous space, general improvement in lumbar flexion, and improved findings on repeated SLR<sup>5</sup>.

## CONCLUSION

The SLR appeared to be a helpful method to monitor the functional improvement of the lumbar spine after successful SDT adjustments. The SLR also appeared to parallel positive symptomatic changes that accompanied lumbar spine improvement following the SDT applications.

## REFERENCES

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