



Fascia Stretching Improve the Pain and Functional Level in Disc Protrusion Patients

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ABSTRACT

Background: Conservative management of spine problems is safe and secure as compare to surgery. In physical therapy different exercise protocols are design to solve the multiple spine problems. Most of the time the fascia restriction makes the patient condition verse. Guy Voyer introduce the systems of exercise more than 35 years ago which works specially on spine at every intervertebral level including costal and pelvic articulation. These exercises are called Elongation Longitudinaux avec Decoaption Osteo-Articulaire (ELDOA) or simply Longitudinal Osteo-Articular De-coaptation Stretching (LOADS).

Objective: The objective of the study was to determine the effectiveness of Facia Stretching in patients with disc protrusion.

Methodology: This is a Quasi Experimental study. This study was conducted in Department of physical therapy and rehabilitation center Pakistan railway hospital Rawalpindi from July 2014 to December 2014. Through convenient sampling 14 patients who had establish diagnosis of Spine disc protrusion with no history of trauma were recruited in this study. The sampling techniques was Convenient Sampling initially 14 patients recruit for this study those had establish diagnosis of disc protrusion on MRI and non-traumatic disc protrusion patient, but only 12 follow the complete session. The rehabilitation program includes application of hot packs and teaching of ELDOA exercise. Base line evaluation of demographic, symptomatology and comorbidities were taken. Self-reported questionnaire functional disability index (FDI) were filled on 1st and 4th visit to compare the disability index.

Results: The mean age of the participants was 53.25 ± 7.10 with male female ratio 3:1. Most common spinal segment was cervical disc protrusion C5-C6 (25%) and L4-L5 (33.33%) in lumber disc protrusion. The pretreatment intensity of pain (FRI) was 2.58 ± 1.165 and post treatment intensity of pain was 0.92 ± 0.793 , it shows the significant difference ($P < 0.001$). The frequency of pain also shows the significant difference. FRI score on 1st evaluation was 21.42 ± 9.307 and after ELDOA Exercise on 4th assessment the mean score was 7.92 ± 5.583 , also shows statistically significant ($P < 0.001$) difference.

Conclusion: The ELDOA exercises improve the pain and functional level in the spinal disc protrusion patients.

Key Words: Disc Protrusion, ELDOA, LOADS, Spinal Fascia

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INTRODUCTION

The spine acts as a pillar to support the body weight; it starts from base of the skull to the pelvis. The vertebrae of the region stacked like blocks on top of each other with cushion called discs.⁽¹⁾ The outer portion of the disk is made of a strong material called annular fibers (annulus fibrosis). Inside is a jelly like substance known as mucoprotein gel (nucleus pulposus). One of the study on pathological changes in the disc state that anterior protrusions are infrequent and of minor clinical interest, whereas posterior protrusions are of major clinical importance 80% of the specimens showed evidence of posterior nuclear protrusions.⁽²⁾ Treatment option depends upon the severity of the

disc protrusion and it varies from case to case according to patient symptoms. In non-surgical treatment option or conservative treatment initially the medicine which includes the NSAIDs, Muscles Relaxants, anti-inflammatory etc. epidural steroids injection is one of the options from quick recovery of pain. The most advance conservative option of treatment is Physical Therapy. In a physical therapy we have option of moist heat therapy, cryotherapy, LASER therapy, Short wave diathermy, therapeutic ultrasound and deferent type of electric current modalities such as TENS, interferential current, galvanic or faradic current. In manual therapy we can apply the spinal mobilizations, spinal manipulations, spinal tractions and NAG's/SNAG's.



But there is no any generalized stretching technique which addresses to the fascia.

Conservative management of spine problems is safe and secure as compare to surgery. In physical therapy we use different tools to solve the multiple spine problems. Some tools used to treat orthogenic component such as mobilization, manipulation, SNAGS, and traction. Some tools used to treat myogenic component such as Muscle energy technique, neuromuscular reeducation, active isolated stretch etc. Some tools used to treat neurogenic component such as Neurodynamics, Active release technique etc. As we know the fascia is important component in our body most of the time the fascia restriction make the patient condition verse. Guy Voyer introduce the systems of exercise more the 35 years ago which works specially on spine at every intervertebral level including costal and pelvic articulation. These exercises are called Elongation Longitudinaux avec Decoaption Osteo-Articulaire (ELDOA) or simply Longitudinal Osteo-Articular De-coaptation Stretching (LOADS). It can be described as fascial stretch that's localizes tension at the level of a specific spinal segment. In which he combined improving the tone of the intrinsic muscles of the spine along with reinforcing the extrinsic muscles related to the spine aim the back and stretching the interlinking paraspinal muscles. ELDOA exercise is designed for every level of the spine from base of the skull to sacro iliac joint. In each ELDOA exercise we create fascial tension above and below the joint or disc that one is trying to "open up" or decompress. The outcomes include; Release vertebral compression, improved blood circulation, Disc re-hydration, improve muscle tone and awareness.⁽³⁾

METHODOLOGY

The study design was quasi experimental study, conducting in department of physical therapy Pakistan railway hospital, from July 2014 to December 2014.

The study was approved by the research ethical committee of Riphah college of rehabilitation sciences (RCRS), through convenient sampling 14 patients who had establish diagnosis of Spine disc

protrusion through MRI, Both Genders and Age between 40 to 70 years were recruited in this study. Patients with the history of trauma, severe osteoporotic, any deformities and age more than 70 years were not included in the study. The rehabilitation program includes application of hot packs and teaching of ELDOA exercise. Base line evaluation of demographic, symptomatology and comorbidities were taken. Self-reported questionnaire functional disability index (FDI) were filled on 1st and 4th visit to compare the disability index. Out of 14, two participants discontinue the treatment one patient went out of the city and second one came after 4 weeks. Data from remaining 12 participants were considered for analysis on SPSS 20. Pre intervention and post intervention data was analyzed on paired t test and compare the result.

POSITIONS OF ELDOA



IMAGE NO 01: Segmental level positions of ELDOA

RESULTS

The mean age of the participants was 53.25 ± 7.10 with male female ratio 3:1. Most of the patients were doing executive job (41.67%). Most common disc level in cervical disc protrusion patients was C5-C6 (25%) and L4-L5 (33.33%) in lumbar disc protrusion patients. Pain, spasm and muscles weakness was the major symptoms. Common aggravating factor was walking (66.67%) and relieving factor was sitting which was 25%. Among participants 58.33% patients had sleep disturbance and 83.33% patients were using medicine before the treatment



but gradually there is no history of medicine intake. Patients had complained of radiating pain (66.67%). Sleep disturbance was most common in cervical patients as compare to lumbar patients.

The pretreatment intensity of pain (FRI) was 2.58 ± 1.165 and post treatment intensity of pain was 0.92 ± 0.793 , it shows the significant difference ($P < 0.001$) after treatment of ELDOA. The frequency of pain also shows the significant difference, in pre evaluation the frequency of pain was $2.42 \pm .996$ and in post evaluation was 1.17 ± 0.718 , it shows the significant difference ($P < 0.001$). FRI score on 1st evaluation was 21.42 ± 9.307 and after ELDOA Exercise on 4th assessment the mean score was 7.92 ± 5.583 , so this shows the statistically significant ($P < 0.001$) difference.

Tables 1: Pre and post mean and standard deviation of intensity, frequency and FRI variables.

S.No	Variable	Pre treatment Mean \pm SD	Post treatment Mean \pm SD	P Value
01	Intensity of Pain	1.58 ± 1.165	0.92 ± 0.793	$P < 0.001$
02	Frequency of pain	2.42 ± 0.996	1.17 ± 0.718	$P < 0.001$
03	FRI	21.42 ± 9.307	7.92 ± 5.583	$P < 0.001$

DISCUSSION

The result of this short term study shows that ELDOA has significant result to decrease pain and improved functional status of the patients. According to my search there is no data available on ELDOA technique in the literature.

Surgery is the choice of treatment in disc protrusion patients; the outcomes of surgical treatment is not 100% satisfactory in a study seventy-six patients who underwent re-operation for recurrent lumbar disc protrusion were analyzed to define the pattern of disc recurrence and the outcome following the operation. Whereas recurrence after an L4/5 discectomy occurred at the same level in 66%, recurrence after an L5/S1 discectomy was as likely to occur at L4/5 as at L5/S1.⁽⁴⁾ In another longitudinal cohort study design on cervical disc herniation patient's support the successful manage with aggressive nonsurgical treatment. The treatment comprised of traction, precise exercises, NSAID, and patient teaching.⁽⁵⁾ Most of surgeon have looked

the choice of conservative management of Disc protrusion and send patient to the physical therapy. Multiple studies demonstrate that protrusion of nucleus pulposus of a lumbar disc with radiation symptoms can be cured very effectively with aggressive non operative care.⁽⁶⁻⁸⁾

It is basically osteopath techniques but now frequently use by physical therapist in their practice, as we know multiple studies were found in which the physical therapy have good results in MSK conditions. Koes B et al.⁽⁹⁾ did a randomized clinical trial in which they show effectiveness of manual therapy, physiotherapy, continuous treatment by the general practitioner, and placebo therapy (detuned ultrasound and detuned short-wave diathermy) were compared for patients ($n = 256$) with nonspecific back and neck complaints lasting for at least 6 weeks. Both physiotherapy and manual therapy decreased the severity of complaints more and had a higher global perceived effect as compared to continued treatment by the general practitioner. Zeliha Unlu et al. did a study in 2008 in which they compare the three physical therapy modalities traction, Ultrasound and low power LASER were used in 60 patients which randomly assign into three groups, the result of this shows significant reductions in pain and disability scores between baseline and follow-up periods, but there was not a significant difference between the 3 treatment groups at any of the 4 interview times. There were significant reductions of size of the herniated mass on magnetic resonance imaging after treatment, but no differences between groups.⁽¹⁰⁾

Fascia of our body is interlinked with each other if there is adhesion on one side it will disturb the whole body. There is a lack of research on this important component of body. It is recommended to do further research in future with large sample size and with long term effects.

CONCLUSION

Elongation Longitudinaux avec Decoaption Osteo-Articulaire (ELDOA) or Longitudinal Osteo-Articular De-coaptation Stretching (LOADS) shows significant result in spine disc protrusion patients.



REFERENCES

- 1 Leelavathy KR. A study of lower back disorders among Indian vehicle drivers and analysis of Potential environmental ergonomic Risk factors.
- 2 Coventry MB, Ghormley RK, Kernohan JW. The intervertebral disc: its microscopic anatomy and pathology. *The Journal of Bone & Joint Surgery*. 1945;27(3):460-74.
- 3 Sajjad AG. ELDOA In: Patients Pot, editor. JPGE. Riphah Rehabilitation Center 2014. p. Segmental level position of the ELDOA.
- 4 O'sullivan MG, Connolly AE, Buckley TF. Recurrent lumbar disc protrusion. *British journal of neurosurgery*. 1990;4(4):319-25.
- 5 Saal JS, Saal JA, Yurth EF. Nonoperative management of herniated cervical intervertebral disc with radiculopathy. *Spine*. 1996;21(16):1877-83.
- 6 SAAL JA, SAAL JS. Nonoperative treatment of herniated lumbar intervertebral disc with radiculopathy: an outcome study. *Spine*. 1989;14(4):431-7.
- 7 Van der Heijden GJ, Beurskens AJ, Koes BW, Assendelft WJ, de Vet HC, Bouter LM. The efficacy of traction for back and neck pain: a systematic, blinded review of randomized clinical trial methods. *Physical therapy*. 1995;75(2):93-104.
- 8 Unlu Z, Tascı S, Tarhan S, Pabescu Y, Islak S. Comparison of 3 physical therapy modalities for acute pain in lumbar disc herniation measured by clinical evaluation and magnetic resonance imaging. *Journal of manipulative and physiological therapeutics*. 2008;31(3):191-8.
- 9 Koes B, Bouter L, Van Mameren H, Essers A, Verstegen G, Hofhuizen D, et al. The effectiveness of manual therapy, physiotherapy, and treatment by the general practitioner for nonspecific back and neck complaints: a randomized clinical trial. *Spine*. 1992;17(1):28-35.
- 10 Unlu Z, Tascı S, Tarhan S, Pabescu Y, Islak S. Comparison of 3 physical therapy modalities for acute pain in lumbar disc herniation measured by clinical evaluation and magnetic resonance imaging. *Journal of manipulative and physiological therapeutics*. 2008;31(3):191-8.