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Research Article

Neural Glide and Conventional Physical Therapy in the Treatment of Lumbar Radiculopathy

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Abstract

Background: Neural glide mobilization is a set of techniques designed to restore the plasticity of the nervous system and the ability of neural tissue to stretch and tension along with pain alleviation and functional improvement.

Objective: The study aim is to determine the effect of neural glide on pain and function in subjects with lumbar radiculopathy.

Methodology: 24 males and females between 18-50 years of age having low back pain radiating to any one lower limb since more than 3 weeks were randomly allocated into two groups.

Group A received neural glide and conventional treatment.

Neural glide intervention was given 3 days per weeks for 2 weeks.2 days per week from 2-4 weeks. 01 day per week from 4-6 weeks.

Group B received conventional treatment alone.

Result: Pain and function were measured using Numerical Pain Rating Scale(NPRS), Lumbar Flexion ROM (LROM)and Modified Oswestry Disability Index (MODI) respectively. There was a significant difference in pain at rest and pain during activity within each group. Pain during activity showed significant difference in group A over group B along with function.

Conclusion: Compared to conventional treatment, there is significant decrease in pain during activity and improvement in function following neural gliding technique.

Keywords: Function; Lumbar Radiculopathy; Neural Glide; Pain; Straight Leg Raise

Introduction

Low back pain (LBP) is the most common health issue ranking fifth among disease categories in the cost of hospital care and accounts for higher costs resulting in absenteeism from work and disability. Lifetime prevalence of LBP has been reported to be 50-84%. Lumbo-sacral radiculopathy is a mechanical compression of dorsal lumbar and/or sacral nerve roots, resulting in radiating pain in lower extremity often with tingling, numbness, paraesthesia, and/or muscle weakness. It has a multi-factorial aetiology ranging from herniated disc, spinal canal stenosis, buckled ligamentum flavum,

osteophyte formation. Surgery has been reserved for those who do not respond to clinical rehabilitation approaches which commonly employ bed rest, lumbar corsets, physical modalities, manual therapy and exercises. Radiculopathy is pathology of neural tissues in which the physiological property of the nerve is altered to mechanical stresses.

Neural mobilization is a set of techniques designed to restore the plasticity of the nervous system defined as the ability of nerve surrounding structures to shift in relation to other such structures. Neural mobilization was described by Maitland in 1985, Elvey in 1986 and Butler refined it in 1991 as an adjunct to assessment and treatment of neural pain syndromes including radicular low back pain. Michael Shacklockin 1995 described that neural glide mobilization contributes to restoring the ability of the nervous tissue itself to stress and tension and stimulates the reconstruction of normal physiological function of nerve cells along with pain alleviation and functional improvement. A study by Ghadam Aliconcluded that abnormal neural glide responses and consequently symptoms in patients with chronic radiculopathy may be due to a pathomechanic problem and deficiency in neural adjustment for movement and tension transfer. Neuromobilization techniques can increasingly be useful in treatment of abnormal neural tensions and removing chronic radiculopathy symptoms.

However, this research was a case study and lacks good quality evidence. Owing to the prevalence of LBP and lumbo-sacral radiculopathy in India, and the amount of physiological and psychological stress it induces, there is a need to determine the efficacy of interventions which aid in LBP and its associated symptoms. A wide range of physical therapy interventions have been proposedto be effective, however the efficacy of neural glide mobilization is still undermined in developing countries like India.

Objective

Comparison between neuro-dynamics and conventional treatment in lumbar radiculopathy.

Hypothesis

Null Hypothesis

Neural glide mobilization will not cause any significance difference in patient with pain and functions.

Alternate hypothesis

Neural glide mobilization will cause significance difference in patient with pain and functions.

Methodology

- Duration of study – 6-8 Months.
- Study design – Experimental Study.
- Sample design – Simple Random Sampling.
- Sample size –24 Sample Size (Two group).

Outcome measure

- Numerical pain rating scale (NPRS),
- Modified Oswestry Disability Questionnaire (MODQ)
- Lumbar flexion range of motion (Lumbar FROM) by Schober's method

Source of data

24 Symptomatic patients fulfilling the inclusion criteria were recruited from Swasthya kalyan hospital and RHL.

Inclusion criteria

- Informed consent.
- Age between 18-50 years.
- Both genders.
- Suffering from radiculopathy from last 3 months.

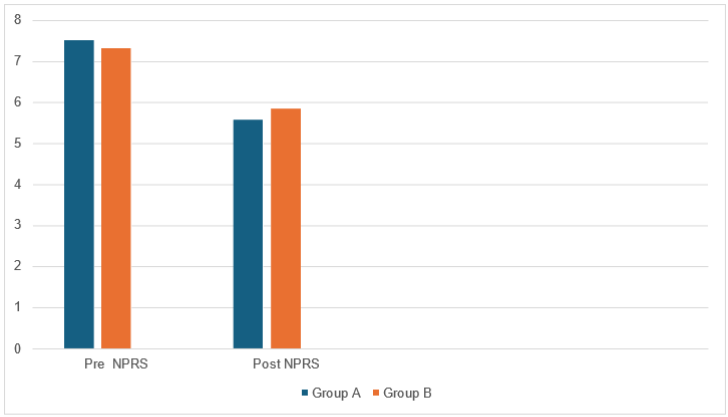
Exclusion criteria

- Pregnancy
- Age more than 50 year.
- Patients who are taking alternative treatment.
- Acute LBP.

Result

Table 1: Mean difference in NPRS.

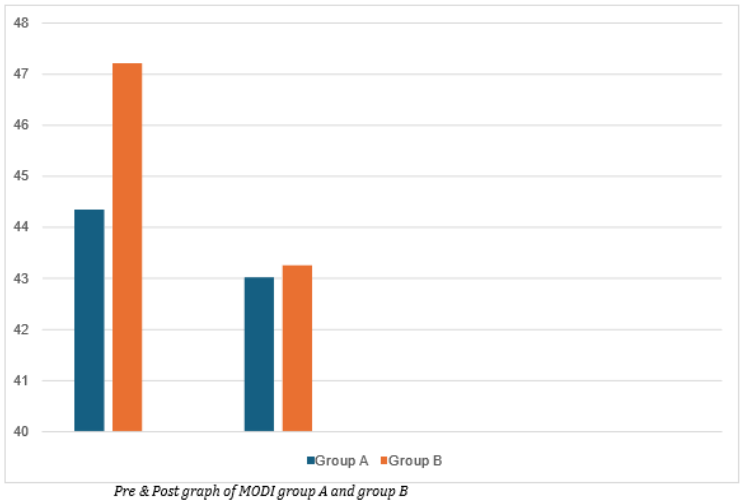
Group	Pre NPRS	Post NPRS	p value
A	6.34+1.16	3.64+1.92	0.002
B	5.83+1.47	4.70+1.13	0.004



Pre & Post graph of NPRS group A and group B

Table 2: Mean difference in MODI at within the group.

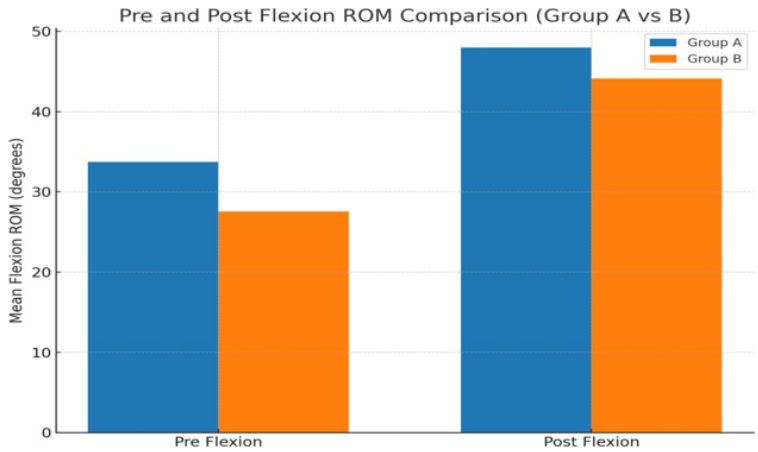
Group	Pre MODI	Post MODI	p value
A	41.67+2.67	39.27+3.74	0.020
B	41.33+5.86	40.67+2.57	0.461



Pre & Post graph of MODI group A and group B

Table 3: Mean difference in lumbar flexion within the group.

Group	Pre	Post	p value
A	32.50+6.33	49.08+6.66	0.0012
B	29.83+5.84	44.03+2.09	0.0024



Pre & Post graph of Lumbar Flexion group A and group B

Discussion

Results of the present study showed significant difference in pain and function following neuro-dynamic mobilization in combination with conventional treatment. Conventional group also showed improvement, however, improvement in pain and function was more in neuro-dynamic group (Group A) [1-19].

Conclusion

There is improvement in pain and function following neuro-dynamic mobilization. Pain reduces following conventional treatment, but there is no improvement in function. Compared to conventional treatment, pain during activity and function improves following neuro-dynamic mobilization.

Limitation

- Study includes only 24 subjects which is a small sample size. Larger sample size needed for future study.
- Duration of treatment was short (6 weeks). Hence long duration intervention is necessary for better outcome measures.

Bibliography

1. Dr. Tabish Aziz., *et al*. "Efficacy of Pilates Exercise for Low Back Pain in Adolescents". *Journal of Neonatal Surgery* 14.8 (2025): 123-131.

2. Shacklock M. "Neural glides". *Physiotherapy* 81.1 (1995): 9-16.

3. Talebi G., *et al*. "Treatment of chronic radiculopathy of the first sacral nerve root using neuromobilization techniques: A case study". *Journal of Back and Musculoskeletal Rehabilitation* 23.3 (2010): 151-159.

4. Delitto A., *et al*. "Low back pain: clinical practice guidelines". *Journal of Orthopaedic and Sports Physical Therapy* 42.4 (2012): 1-57.

5. David J. Magee. Orthopaedic Physical Assessment; Chapter 9-Lumbar Spine; 5th edition: 558-564.

6. Jensen M., *et al*. "What is the maximum number of levels needed in pain intensity measurement?" *Pain* 58.3 (1994): 387-392.

7. Fritz J and Irrgang J. "A comparison of a modified Oswestry Low Back Disability Questionnaire and the Quebec Back Pain Disability Scale". *Physical Therapy* 81 (2001): 776-788.

8. Wernicke M., *et al*. "A Descriptive Study of the Centralization Phenomenon". *Spine* 24.7 (1999): 676-683.

9. McCracking HV. "The long-term effects of a neural glide treatment technique using a treatment-based classification approach to low back pain". *Journal of Manual and Manipulative Therapy* 16.3 (2008): 161-181.

10. Cleland J., *et al*. "Slump stretching in the management of non-radicular low back pain: A pilot clinical trial". *Manual Therapy* 11.4 (2006): 279-286.

11. Bertolini G., *et al*. "Neural mobilization and static stretching in an experimental sciatica model: an experimental study". *Brazilian Journal of Physical Therapy* 13.6 (2009): 493-498.

12. McGill S. "Low back disorders: Evidence based prevention and rehabilitation". 2nd edition. Human kinetics. Ontario (2007).

13. Sharma V., *et al*. "Efficacy of neural mobilization in sciatica". *The Indian Journal of Physiotherapy and Occupational Therapy* 3.2 (2007): 136-141.

14. Sahar M Adel. "Efficacy of neural mobilization in treatment of low back dysfunctions". *Journal of American Science* 7.4 (2011): 566-573.

15. Pallipamula K and Singaravelan RM. "Efficacy of nerve flossing technique on improving sciatic nerve function in patients with sciatica– a randomized controlled trial". *Revistaromână de Kinetoterapie* 18.30 (2012): 13-22.

16. Dabholkar T., *et al*. "Effect of neural mobilization on agility in asymptomatic subjects using sliders technique". *International Journal of Therapies and Rehabilitation Research* 3.4 (2014): 46-54.

17. Hardik Patel., *et al*. Journal of the Maharaja Sayajirao University of Baroda UGC Care Listed Group-I Journal 58.1 (2024).

18. *Pain Journal of Clinical Orthopaedic and Trauma* 13 (2021): 163-168.

19. Subarna Das., *et al*. "Effect of spinal mobilization with leg movement as an adjunct to neural mobilization and conventional therapy in patients with lumbar radiculopathy: Randomized controlled trial". *JMSR* 6.1 (2018).