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The Effect of the Different Sensitisers of Straight Leg Raise on Conduction Velocity Characteristics of Sciatic Nerve in Individuals with Sciatica using Nerve Conduction Velocity Parameters: A Cross-sectional Study Protocol

Abhishek Mandal, Postgraduate Student, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.
Mandeep Kumar Jangra, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.
Akanksha Saxena, Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Akanksha Saxena,

Assistant Professor, Department of Physiotherapy, Maharishi Markandeshwar Institute of Physiotherapy and Rehabilitation, Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, Haryana, India.

E-mail: abhishekmandal53@gmail.com

Introduction: The Straight Leg Raise (SLR) is the most commonly applied physical test for individuals with sciatica.During SLR, sensitizers like hip internal rotation, adduction, and ankle dorsiflexion are used to create tension along the sciatic nerve and to confirm the diagnosis. As stretching myelinated nerves increases Nerve Conduction Velocity (NCV), these parameters can help identify the most effective sensitizer.

Aim: The aim of the present study is to investigate the most sensitising position of SLR that subjects the sciatic nerve to excessive stress using NCV parameters.

Materials and Methods: Fifty males and females, aged 17 to 65 years, will be recruited if their pain is radiating to lower limb, or are diagnosed with sciatica. Subjects were excluded if they had any lower limb and spine pathology, any metabolic disorders, tumour or malignancy or any progressive neurological condition. SLR will be then performed with using three different sensitizers like neck flexion, hip adduction and internal rotation, and ankle dorsiflexion in varying range of motion. The motor NCV and the Numerical Pain Rating Scale (NPRS) scores will be then noted to assess the most sensitizing position.

Results: Data will be analysed using the Statistical Package for Social Sciences (SPSS) software. Normality will be assessed using the Shapiro-Wilk test and if data found to be normally distributed it will be presented as mean±SD and if not normally distributed as median (interquartile range).

Conclusion: The study results show that the position of the leg during the SLR may significantly impact how the sciatic nerve conducts signals. This finding highlights the sensitivity of nerve conduction to changes in body position, offering valuable information for healthcare professionals in diagnosing and treating conditions like sciatica. This approach may enhance both the mechano-sensitivity and conduction velocity of the nerve, thereby helping the clinician to select the particular sensitizer for neural testing.

Keywords: Lower extremity, Neural conduction, Neurological condition.