# *The effectiveness of neural mobilization of the sciatic nerve - straight leg raise position and passive static stretching for the range of motion of the knee joint.*

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## *Abstract*

**Introduction:** Neural mobilisation has emerged as a significant treatment protocol, however clinical trials utilizing Passive Straight Leg Raise position in neural mobilisation are lacking. Neural mobilisation is a treatment modality which activates a range of mechanical and physiological responses in nervous tissues. Static stretching consists of a continuous stretch without movement, held in one position for a pre-specified period of time. The purpose of this study was to explore and compare the effectiveness of neural mobilisation of the sciatic nerve and passive static stretching of the hamstring muscles in order to increase range of motion (ROM) of the knee joint during extension.

**Subjects and Methods:** The hypothesis of the study was that the neural mobilisation of the sciatic nerve would prove to be more effectiveness, by increasing the ROM of the knee after neural mobilisation of the sciatic nerve. The study was a randomised control trial with double blinding, where the neither the participant nor the examiner had knowledge of the selected procedure. The study was conducted by randomly dividing the 41 asymptomatic participants into two equal groups of twenty people. Ages varied from 18 to 40 with M=20,3 and SD=3,3. The neural mobilisation of the sciatic nerve, in straight leg raise position intervention consisted of oscillating towards dorsiflexion for 30 seconds for 5 repetitions, with 30 second intervals between stretches. The passive static stretching of the hamstring muscles group, received stretching in supine position for the duration of 30 seconds for 3 repetitions, with 30 second intervals. In order to measure the ROM of the knee at baseline and post intervention a Goniometer application was used, specifically the Goniometer-Pro, by the examiner who was blinded. Statistical Package for

Social Services (SPSS) was used to conduct a T-test, statistical significance was set at a maximum of $p<0,05$.

**Results:** The results indicate that both interventions were statistically significant for the increase of ROM of the knee ($p=0,001$). With the comparison of the two intervention methods, the neural mobilisation of the sciatic nerve appeared to be slightly more effective, specifically by 1,1 degrees. The increase in range of motion at the knee for neural mobilisation of the sciatic nerve, when compared between baseline and post intervention measurements was $M=11,8$ degrees and $SD=6,2$, however the increase in range of motion at the knee after passive static mobilisation was $M=10,7$ and $SD=6,1$.

**Discussion and Conclusion**: The starting hypothesis was verified, with neural mobilisation of the sciatic nerve being slightly more effective. However, it is also our finding that both methods proved to be highly effective when attempting to increase the range of motion at the knee. It is our conclusion that both these interventions may be used as treatment modalities in patients with reduced knee joint range of motion occurring from soft tissue injuries or infestation.

**Key words:** Neural Mobilisation, Straight Leg Raise, Hamstring, Sciatic Nerve, Static Stretch, Knee Extension, Knee Range Of Motion,