

## EFFECT OF SCIATIC NERVE MOBILIZATION ON LOWER LIMB FUNCTION AMONG SUBJECTS WITH DIABETIC NEUROPATHY

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**Abstract** - The most frequent consequence that diabetes people experience is diabetic neuropathy. The form of diabetic neuropathy that occurs most frequently is distal symmetrical polyneuropathy, involving sensory, motor and autonomic fibers. Sensory disturbance is most common and may be seen as hypersensitivity to touch, burning sensation, tingling and pricking pain sensation. Techniques for nerve mobility can be utilized to lessen discomfort and enhance sensibility in the area that the nerve feeds. The goal of this study is to evaluate the impact of sciatic nerve mobilization on the performance of the lower limbs and the degree of peripheral neuropathy in diabetic neuropathy patients. A Quasi-experimental design was carried out in Saveetha physiotherapy OPD, Saveetha medical college and hospital, Chennai involving 30 patients recruited using convenient sampling procedure. The data were tabulated and analyzed using Graph pad prism. This study focuses on the Influence of sciatic nerve mobilization on lower limb mobilization among subjects with diabetic neuropathy.

**Key Words:** Sciatic nerve mobilization, Diabetic neuropathy, Lower limb function, Dynamic gait index scale, Toronto clinical neuropathy score.

### 1.INTRODUCTION

Hyperglycemia is a symptom of a group of metabolic illnesses known as diabetes mellitus, caused by an issue with insulin action, production, or both.<sup>[1]</sup> It reported that 366 million people globally had diabetes mellitus in 2011, and that proportion was expected to rise to 552 million by 2030. <sup>[2]</sup> The eyes, kidneys, nerves, heart, and blood arteries are just a few of the organs that are linked to damage that occurs over time as a result of diabetes persistent hyperglycemia.<sup>[3]</sup> The most frequent side effect is neuropathy, with distal symmetric polyneuropathy standing out. <sup>[4]</sup> Polyneuropathy, which can affect different proportions of sensory, motor, and autonomic fibers, is thought to be caused by metabolic disturbances caused by persistent

hyperglycemia<sup>[5]</sup> The highest prevalence rate, almost 20.5 million people in the part of the world live with diabetes.<sup>[6]</sup> According to the study, type 2 diabetes mellitus patients in north India had a significant prevalence of DPN (29.2%).<sup>[7]</sup> 19.1% of these South Indian type 2 diabetes participants have neuropathy overall. DNP is characterized by electric shock-like symptoms as well as tingling, burning, stabbing, shooting, and lancinating pain. Typically mild to severe, it worsens at night and interferes with sleep. Diabetic neuropathy can cause foot ulceration and painful neuropathy, which can even lead to amputation. This carries an increased risk for morbidity and mortality. Different methods and sites of action are used by antioxidants to exert their biochemical effects and treat diabetic nerve damage<sup>[10]</sup> Benfotiamine a potent antioxidant, has proven their efficiency in reducing the signs and symptoms of neuropathic pain.<sup>[11]</sup> Anticonvulsants such as pregablin, gabapentin, mono amino reuptake inhibitors and opioids are also used for treatment of diabetic neuropathy and it can be prevented by life style modifications such as exercising regularly and taking low fat diets and glucose control<sup>[12]</sup>

By preparing the nervous system in general or the components of the nervous system, the neuro-dynamic intervention aims to restore equilibrium in and around the brain.<sup>[13]</sup> Nerve mobilization technique is used to help people recover from injuries or improve their performance in activities. Electrical signals produced by nerve and muscle carry messages to and from the brain. These electrical signals may cease to develop as a result of any diseases or accidents that affect the nerves and muscles.<sup>[14]</sup>

Techniques such as tensioning and sliding attempt to mobilize the nervous system. With a tensioning technique, nerve mobilization is obtained by moving 1 or several joints so as to elongate the nerve bed, forcing the nervous system to slide relative to its surrounding structures. Alternatively, in a sliding technique, at least 2 joints are moved simultaneously in such a manner that the movement in one joint counterbalances the increase in nerve strain caused by another movement<sup>[15]</sup>

## 2. Body of Paper

### METHODOLOGY:

This study was conducted as a Quasi-experimental study, randomly 30 samples have been selected based on inclusion and exclusion criteria. The study was conducted in Saveetha physiotherapy OPD, Saveetha medical college, and hospital, Thandalam, Chennai. Patients with the reduced lower limb function who were getting rehabilitation in our Physiotherapy department between September and November 2022 were prospectively enrolled in the study. The informed consent was given to the patient before the treatment begins and explained about the procedure. All the 30 patients were assessed with the Dynamic gait index

score and Toronto clinical neuropathy scale in order to get pre-test and post-test scores. The informed consent was given to the patient before the treatment begins and explained about the procedure.

### **INCLUSION CRITERIA:**

- Age between 35- 60 years.
- Participants with sensory, motor diabetic peripheral neuropathy.
- Participants who are willing to participate in the study.
- Participants of both the genders.

### **EXCLUSION CRITERIA:**

- Participants with any other neurological disorders.
- Participants with any recent injuries.
- Participants who underwent any recent surgeries.
- Patients with diabetic ulcer and other co morbid disorders.

### **STATISTICAL ANALYSIS**

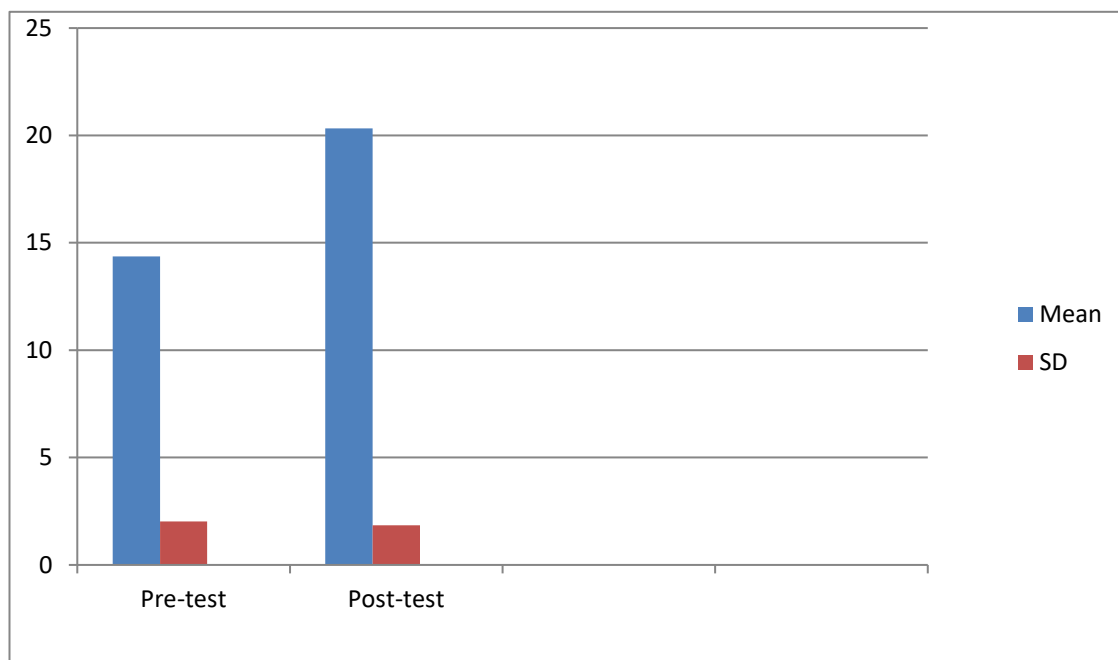
#### **Result**

The result and the collected data were tabulated and analyzed. The data acquired were statistically significant between pre-test and post-test, of Dynamic gait index scale with a mean value of 14.37 in the pre-test and 20.33 in the post-test and a standard deviation of 2.03 in the pre-test and 1.84 in the post-test and also data is statistically significant according to Toronto clinical neuropathy scoring system with a Mean value of 9.03 in the pre-test and 4.57 in the post-test and a standard deviation of 1.79 in the pre-test and 1.01 in the post-test As a result, it was determined that the sciatic nerve mobilization was beneficial for improving lower limb function and reducing severity of peripheral neuropathy among subjects with diabetic neuropathy

**TABLE: 1 THE TABLE DISPLAYS THE COMPARISON OF PRE-TEST AND POST-TEST VALUES OF DYNAMIC GAIT INDEX SCALE**

	<b>Mean</b>	<b>SD</b>	<b>t- Value</b>	<b>P- Value</b>
<b>Pre test</b>	<b>14.37</b>	<b>2.03</b>	<b>22.1787</b>	<b>&lt; 0.0001</b>
<b>Post test</b>	<b>20.33</b>	<b>1.84</b>		

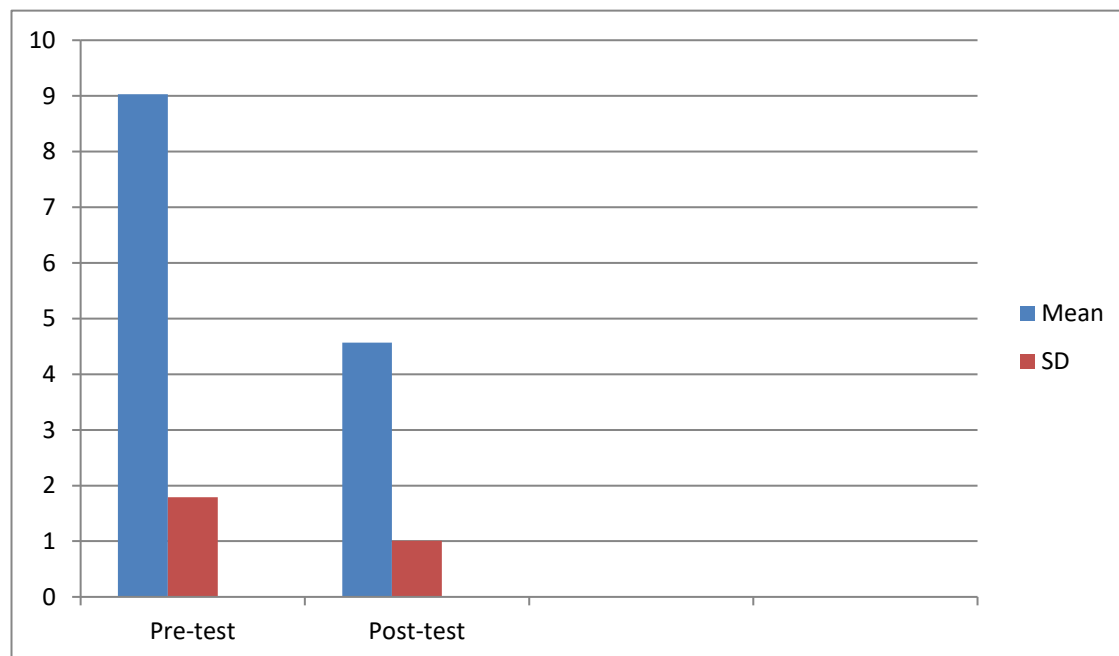
# GRAPH : 1 COMPARISON OF PRE-TEST AND POST-TEST VALUES OF DYNAMIC GAIT INDEX SCALE



# TABLE : 2 THIS TABLE DISPLAYS THE COMPARISON OF PRE-TEST AND POST-TEST VALUES OF TORONTO CLINICAL NEUROPATHY SCORING SYSTEM

	Mean	SD	t- Value	P –Value
Pre-Test	9.03	1.79	19.5387	<0.0001
Post-Test	4.57	1.01		

## GRAPH 2: COMPARISON OF PRE-TEST AND POST-TEST VALUES OF TORONTO CLINICAL NEUROPATHY SCORING SYSTEM



### 3. CONCLUSIONS

In this study, it has been concluded that sciatic nerve mobilization in diabetic neuropathy patients is an effective therapy for improving lower limb function. The patients, lower limb function is improved and severity of peripheral neuropathy is reduced by this investigation, yielding positive therapeutic results.

### 4. LIMITATIONS OF THE STUDY

The limitation is that the intervention is limited to only lower extremities and only to particular population – Diabetic Neuropathy. For future studies, A lengthy study with a suitable sample size is advised and self- mobilization technique can be taught.

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