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## **Reflexology for Peripheral Neuropathy**

### **Introduction**

Many people who are experiencing consistent hand and foot pain and/or numbness may be experiencing the symptoms of a common ailment called peripheral neuropathy. The peripheral nerves make up an intricate network that connects the brain and spinal cord to the muscles, skin, and internal organs. Peripheral nerves come out of the spinal cord and are arranged along the lines of the body. Damage to these nerves can impair muscle movement; prevent normal sensation in the arms and legs, and cause pain. According to the Mayo Clinic, "Peripheral neuropathy is caused by damage to the nerve endings starting in the longest nerves, the ones that reach your toes." It can result from carpal tunnel syndrome, spinal cord injuries, sciatic nerve pain, infections, metabolic problems, diabetes, and/or exposure to toxins such as chemotherapy drugs. As a group, peripheral neuropathies are common, especially among people over the age of 55. The condition affects three to four percent of people in this group. (2005-2015 WebMD)

### **Signs and Symptoms**

Signs and symptoms of peripheral neuropathy in the hands and feet include the following:

- Gradual onset of numbness and tingling in the hands and feet
- Burning pain
- Sharp, jabbing or electric-like pain
- Extreme sensitivity to touch
- Lack of coordination
- Muscle weakness or paralysis if motor nerves are affected. (Mayo Clinic Staff "Lifestyle and Home Remedies." Peripheral Neuropathy Nov 3, 2009.)

### **Prior Research**

After researching extensive medical and alternative medical journals it has been determined that numerous studies have been conducted on the effect of reflexology and peripheral neuropathy. One such study, "Diabetes Mellitus: Peripheral Blood Circulation and Peripheral Neuropathy", investigated the effect of self-foot reflexology on peripheral blood circulation and peripheral

neuropathy to determine the feasibility of self-foot reflexology as a nursing intervention. The study concluded self-foot reflexology was not effective in improving peripheral circulation, but had good effect on improving peripheral neuropathy. ([www.reflexology-research.com](http://www.reflexology-research.com)).

## **Subject**

The subject is a 64-year-old retired male. He is married, loves playing the game of golf, has three adult children and held full-time employment until he became ill. He walks with a slow, unbalanced stroll as if exerting more pressure or speed would exacerbate the pain in his feet. He is a smoker, has high blood pressure controlled by medication, respiratory problems, and complains of numbness, tingling, and Taser-like stabbing pain in both feet. He uses a portable oxygen machine to assist him with breathing. Between 2009 and 2014 he was hospitalized three times with symptoms of pneumonia. In 2011 during his third hospitalization, his core temperature dropped and a spot on his right lung was identified. A spot on his left lung was also identified. The spot on his left lung became calcified and caused him to experience shortness of breath. A biopsy was taken and sent to Tulane Medical Center in Louisiana and the Mayo Clinic located in Florida. The biopsy results concluded a diagnosis of Primary Amyloidosis Disease; a rare disease involved in deposits of a protein called amyloid. In primary amyloidosis, proteins build up in body tissues and organs found in the heart, lungs, skin, tongue, thyroid gland, intestines, liver, kidneys, and blood vessels (Lifescrpt.com).

Following his diagnosis, the subject went through chemotherapy treatment. Following the chemotherapy treatment the subject begin feeling annoying numbness, tingling and severe nighttime pain in his feet. He was then diagnosed with Peripheral Neuropathy. The subject believes the peripheral neuropathy is a side effect from the chemotherapy treatments.

In November of 2014, he tried to control his pain with medication (Lyrica). The medication did not work so he tried eight weeks of therapeutic treatment involving nerve block injections and Transcutaneous Electrical Nerve Stimulation (TENS Unit electrical stimulation). He stated he felt some improvement following the treatment; however, the original symptoms returned after using his personal TENS Unit device at a high voltage. He states his pain level at a 5 on a scale of 1 to 5. He is not overweight but stated he is interested in losing weight to help relieve pain from his joints and feet. This study will be the subject's first introduction to Reflexology.

## **Treatment Plan**

Foot reflexology (finger walking, thumb walking, and relaxation techniques) was the only modality used. No oils, lotions, or foot soak were used during the sessions. There were five one-hour sessions once a week for five consecutive weeks. Each session was conducted on a Wednesday at 12:30pm. The sessions began on March 5, 2015 and ended on April 2, 2015. The following areas were the focus for each session:

- Nervous and Circulatory System Reflexes with an additional emphasis on the Spinal Reflexes, Pituitary Reflex, and Cervical Muscle reflexes.

The subject was instructed to keep a daily assessment log to track sleep patterns, TENS Unit usage, foot discomfort, and medication usage (see Table 1.1). He was also instructed to write a post-session comment after each reflexology session.

### **SESSION 1: March 5<sup>th</sup> 2015**

**PRE SESSION:** Subject reported having low energy. He stated he felt like he is walking on bubble wrap. He took medication (Gabapentin) the night before to relieve foot pain.

**DURING SESSION:** Subject wore an oxygen mask and kept his eye closed during the session. His breathing appeared difficult with slight pauses between inhaling and exhaling. His feet were very stiff with scaly excessive dry skin on his ankles. His right foot was very stiff with sensitivity to touch and pressure. He raised his right foot every time I touched his right ankle. There were adhesions in both feet near the lung and shoulder reflexes. The subject has adhesions in the cervical muscle reflexes of his great toe on the right foot. He also has adhesions on the right foot in the lung reflexes.

**POST SESSION:** Subject reported his feet felt better, relaxed, and soothing with less bubble wrap sensations. He stated he felt like playing a game of golf. After returning home he did house chores that required a lot of walking. The pain, numbness, and tingling returned at bedtime so he took medication for the pain.

### **SESSION 2: March 11<sup>th</sup>, 2015**

**PRE SESSION:** Subject reported feeling mild pain with mild numbness and tingling in his feet. He had no medication the night before and used his TENS on low level (14) for 20 minutes. Subject stated he has more flexibility in his left leg but still struggles with taking off his sock/shoe on his right foot. He also stated his feels his breathing is improving.

**DURING SESSION:** Subject wore an oxygen mask during the session. His eyes remained closed during the session. He continues to have gaps with breathing between inhaling and exhaling. His feet felt more relaxed in my hands. There was less raising of his feet when touching his ankles. His feet were less sensitive with touch and pressure. The skin on his ankles was less dry and scaly. There were adhesions in both feet in the lung reflexes and the adrenal reflex on his right foot.

**POST SESSION:** Subject stated the pads of his feet and his toes felt like cardboard; however, he felt some improvement following the session. The client also states he felt less pain standing without socks. After receiving the treatment the subject reported he rested for the remainder of the day. His feet felt good with minimal discomfort. He reported he was able to sleep without pain medication.

### **SESSION 3: March 18<sup>th</sup>, 2015**

**PRE SESSION:** Subject reported he has been working on changing his diet for several months by decreasing portion size and eating healthy food. He had a follow-up appointment with his doctor and reported he lost nine pounds. The subject reported feeling less bubble wrap like sensation in his feet. He states his breathing has improved. He asked if there were any self-help treatments to help with his symptoms. I suggested rolling his feet back and forth on a broom for 10 to 15 minutes or to his comfort level. He also mentioned he would like to try soaking his feet in warm water for twenty minutes at least twice a week.

**DURING SESSION:** Subject wore an oxygen mask during the session. His feet felt relaxed in my hands. He stated he now takes showers before each session to help the dry/scaly texture of his feet. I focused on the all the spinal reflexes, pituitary reflex and the reflexes of the cervical muscles with relaxing techniques. There were adhesions in the adrenal reflex, cervical muscle and lung reflexes in both feet.

**POST SESSION:** After receiving the treatment the subject reported his feet felt really good and he was able to do yard work activity: raking leaves. However at bedtime, the tingling and numbness returned. He stated he took medication at bedtime to help relieve the pain.

### **SESSION 4: March 25<sup>th</sup>, 2015**

**PRE SESSION:** He stated he used his TENS Unit at level 14 and was feeling normal tingling and numbness pressure. He stated because he has pain with water pressure, he is apprehensive about trying warm water foot soaks. However, he has started rolling his feet on a boom before he goes to bed.

**DURING SESSION:** Subject wore an oxygen mask during the session. He appeared to be relaxed and comfortable. There were fewer gaps between breaths. His feet were softer than in previous sessions. I focused on the reflexes to the entire spine, pituitary, and the cervical muscles.

**POST SESSION:** After receiving the treatment the subject reported he did a lot of grass cutting and weeding. He was also able to walk with minimal pain while shopping at a local store. The numbness and tingling returned but he felt very little discomfort the next day. He stated he has started a daily exercise plan of rolling his feet on a broom. He also stated he did not take medication for pain or sleep.

**SESSION 5: April 1<sup>st</sup>, 2015**

**PRE SESSION:** We discussed his thoughts regarding the study and he reported on a scale of 1 to 5, the numbness, tingling and pain in his feet was 3.5. Prior to the study he reported his symptoms were a 5. He recalled how painful his feet felt following his chemotherapy treatment in December of 2014. He was also amazed at the level of improvement he felt have 30 days of receiving reflexology. He stated he no longer felt like he was walking on bubble wrap with Taser-like pain.

**DURING SESSION:** Subject wore an oxygen mask during the session. His feet felt very relaxed in my hands. There was no raising of his legs when touching his ankles. His feet felt soft and pliable with mild sensitivity with touch and pressure. His breathing appeared almost normal with fewer gaps between inhaling and exhaling. There were decrease adhesions in the lung reflexes, cervical muscle reflexes and spinal reflexes in both feet.

**POST SESSION:** The subject reported he started a daily routine of the broom exercise after the third session. Since beginning the study he reports his balance has improved significantly, his sleep quality has improved to the point of not needing pain medication at bedtime, and the numbness and tingling sensations are mild.

**Table 1.1 Sleep Quality and Foot Discomfort Before and After Sessions**

Session Date	Hours of Sleep Before Session	Hours of Sleep After Session	Sleep Quality Before Session	Used Tens Unit After Session	Sleep Quality After Session	Feet Discomfort Before Session	Feet Discomfort After Session
03/05/15	5-hours	5-hours	Minimal	No	Minimal	3	3
03/11/15	6.45-hours	7.45-hours	Deep	No	Deep	1	0
03/18/15	6.5-hours	6-hours	Moderate	No	Minimal	2	1
03/25/15	6.45-hours	6.5hours	Minimal	No	Moderate	3	2
04/01/15	6.45-hours	8.5 hours	Moderate	No	Moderate	2	1

**Table 1.2 Recorded Sleep Quality, TENS Usage, Feet Discomfort during study**

Session Date	Hours of Sleep	Sleep Quality 1. Deep 2. Moderate 3. Minimal (with or without MEDS)	Use TENS Unit (YES/NO)	Rate Feet Discomfort 1. 0-No discomfort 2. (1-2) Mild 3. (3) Moderate 4. (4-5) Severe (Pain, Numbness, Tingling)
3/5/2015	5	Mininal with MEDS	No	3
3/6/2015	3	Mininal with MEDS	No	2
3/7/2015	7.5	Mininal with MEDS	No	3
3/8/2015	3	Mininal with MEDS	No	3
3/9/2015	8.5	Mininal with MEDS	No	3
3/10/2015	5	Mininal with MEDS	No	2
3/11/2015	6.5	Mininal with MEDS	Yes	0
3/12/2015	7.45	Mininal with MEDS	No	1
3/13/2015	6.45	Mininal with MEDS	No	2
3/14/2015	8	Mininal with MEDS	Yes	1
3/15/2015	4.45	Mininal with MEDS	No	3
3/16/2015	6.45	Mininal with MEDS	Yes	2
3/17/2015	6	Mininal with MEDS	No	2
3/18/2015	6.5	Mininal with MEDS	No	1
3/19/2015	6	Mininal with MEDS	No	2
3/20/2015	6	Mininal with MEDS	No	2
3/21/2015	7	Mininal with MEDS	No	2
3/22/2015	9	Mininal with MEDS	Yes	2
3/23/2015	7.5	Mininal with MEDS	No	2
3/24/2015	7.5	Mininal with MEDS	No	2
3/25/2015	6.5	Mininal with MEDS	Yes	2
3/26/2015	6.5	Mininal with MEDS	No	2
3/27/2015	6	Mininal with MEDS	No	2
3/28/2015	8	Mininal with MEDS	No	0
3/29/2015	9	Mininal with MEDS	No	1
3/30/2015	8	Mininal with MEDS	No	1
3/31/2015	8.5	Mininal with MEDS	No	1
4/1/2015	6.5	Mininal with MEDS	No	1
4/2/2015	8.5	Mininal with MEDS	No	1

## **Results**

Reflexology helped to improve the symptoms of feet peripheral neuropathy for this subject. Foot discomfort was measured by the combined level of pain, numbness and tingling experienced by the subject. The results showed the

subject's combined foot discomfort improved from a level of 3 to a level of 1 by the end of the study. Quality of sleep was measured by hours of uninterrupted sleep obtained by the subject. The results show the subject gained an average of 3.5 hours of uninterrupted sleep. He felt the improvement in his sleep pattern helped to lower his stress level.

Prior to participating in the study, the subject reported using a TENS device almost daily to help manage his neuropathic pain. By the end of the fourth session on March 25<sup>th</sup>, he discontinued using the device as noted in his daily log.

### **Conclusion**

The subject was truly dedicated to this study. He approached it with enthusiasm and determination to discover if reflexology could help improve his neuropathic symptoms and improve his quality of life. By the end of the study, the subject was able to return to golfing and outside household activities. At the present time, he reports he has discontinued smoking. He continues the daily exercise of rolling a broom on the bottom of his feet, and has added weekly 20 minutes foot soaks. He inquired about future reflexology sessions and would like to continue having weekly sessions to help continue his progress.

I believe foot reflexology was effective in helping to improve the symptoms of peripheral neuropathy (especially the tingling, numbness, and stabbing pains) for this subject. Therefore, it is my opinion that reflexology can be used as a complementary modality to promote foot care for people living with peripheral neuropathy.