Clinical Case Report Competition

West Coast College of Massage Therapy

New Westminster

December 2013

Third Place Winner

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Can Roods techniques used together with proprioceptive neuromuscular facilitation techniques improve the gait and decrease neurological symptoms in a patient suffering from MS?
Abstract

Objective: Multiple Sclerosis (MS) is an immune-mediated, multiphasic, multifocal disease of the central nervous system, it afflicts 2 million people around the world. The objective of this case study is to determine whether stimulatory Roods techniques used together with Proprioceptive Neuromuscular Facilitation techniques can improve the gait in a patient suffering from Secondary Progressive MS.

Methods: The study includes single male patient (pt.) 61 Years of age. The treatment plan consisted of five one hour treatment sessions conducted over a two week period of time. Each treatment (tx.) session consisted of Swedish Massage techniques used on patients Gluteal area, anterior and posterior thighs, legs and feet in order to warm up the tissue. “Therapeutic portion” of treatment consisted of Stimulatory Roods techniques such as quickstretch and fine vibrations, as well as Proprioceptive Neuromuscular Facilitation (PNF) techniques such as rhythmic initiation and slow reversal to the pt. legs. The pt. was asked to fill “Short-Form McGill Pain Questionnaire” form before and after each tx. Also pt. gait was videotaped before and after every tx. session. Range of motion and palpation were used for assessment.

Results: Using the video data average step length and walking speed before and after each tx. session were calculated. The total average step length before and after all sessions were used to calculate the mean changes of step length after treatment. Average step length after the treatment was increased by 0.47inch or 1.94cm. Also the total average walking speed before and after all treatment sessions show significant walking speed increase (5.71 steps per min. faster after tx.). Data from “Short-Form McGill Pain
“Questionnaire” indicated significant decrease in “tingling”, “pins and needles” and “numbness” sensations in hands and feet after each tx.

Discussion and conclusion: This case study demonstrates that using a specific treatment protocol that includes Stimulatory Roods techniques as well as PNF techniques may help to alleviate MS symptoms such as “tingling, pins and needles” for up to 3 days and also may improve pt. gait and walking speed. Further research is needed to determine what other muscle groups could be treated using similar modalities to further improve patient’s gait. It is not known why there was MS neurological symptom decrease in both feet as well as hands while only lower extremities were treated and it is also not fully understood how atmospheric pressure, temperature and humidity affects pt. condition.

Keyword list: Multiple Sclerosis; Myelin; PNF; Spasticity; Proprioception.

*For more information see Appendix A
Introduction to the Medical Condition

Multiple Sclerosis (MS) is an immune-mediated, multiphasic, multifocal disease of the central nervous system. The earliest account of a disease that appears likely to have been MS is found in writings from the 14th century, describing the illness of a Dutch nun, “Blessed Lidwina of Schiedam.” The earliest pathologic descriptions by Carswell and Cruveilhier date to between 1838 and 1845. Charcot is generally credited with the first comprehensive account of the clinical and pathologic features of MS, which was published in 1868 (J. Weiner, G. Goetz, K. Shin & L. Lewis, 2010). MS causes a progressive destruction of myelin sheaths surrounding neurons in the CNS. It afflicts about 350,000 people in the United States and 2 million people worldwide (J. Tortora & Derrickson, 2012). The disease is believed to be an immune disorder that is usually diagnosed in patients between the ages of 15-40 (Multiple Sclerosis Society of Canada, n.d.). The destruction of myelin results in temporary, repetitive, or sustained disruptions in nerve impulse conduction. The clinical picture in MS depends upon the extent of demyelination (J. Tortora & Derrickson, 2012). The following are the most commonly experienced symptoms: Fatigue (59 – 85%) is common; Spasticity (73 – 100%) is often present; Weakness (65 – 100%) can come from lesions in the spinal cord; Proprioception (48 – 72%) may be impaired; Tremors (36 – 81%) - mostly intention tremors are frequently present; All the mentioned symptoms contribute to inefficient movement patterns – altered gait (mostly circumducted gait), dragging the foot can result from weakness and spasticity in one leg; Altered posture is caused by muscle imbalances weakness and spasticity; Compensatory changes occur in the unaffected or overused limbs; Paresthesia (16 – 72 %) such as numbness tingling or burning may be experienced;
Cold extremities or sweating abnormalities (38 – 43%) may result from autonomic dysfunction; Edema may be present – likely if the patient is in the wheelchair, as well if weak muscles affect the efficiency of venous and lymphatic drainage; Mood swings (8 – 55%), depression, as well as cognitive problems such as forgetfulness and inattentiveness may be present; Vertigo (7 – 27 %) – loss of balance and lack of coordination; Diplopia (18 – 93 %); Nystagmus (54 – 73 %); Speech disturbances, such as Dysarthria (29 – 62 %); Slurring; Bladder dysfunction (49 – 93%); Bowel dysfunction (39 – 64%). No client will have all of the symptoms listed. In fact, no two clients will have the same presentation because symptoms will vary according to the location and extent of the lesions in the CNS. Because the client's symptoms can change from one treatment to the next, the therapist needs to get a clear picture of the client's current picture. The short term aims reflect these changes. During an acute attack, the client is unlikely to come for massage. During remission, new symptoms or exacerbation of previous ones are possible. (Rattray & Ludwig, 2000).
Figure 1. Main Symptoms of Multiple Sclerosis

- Visual:
  - Nystagmus (54 - 73%)
  - Optic Neuritis
  - Diplopia (18 - 93%)

- Central:
  - Fatigue
  - Cognitive Impairment
  - Depression
  - Mood Swings (8 - 55%)
  - Vertigo (7 - 27%)

- Speech:
  - Dysarthria (29 - 62%)

- Throat:
  - Dysphagia

- Sensory:
  - Pain
  - Parasthesia (16 - 72%)
  - Proprioception (48 - 72%)

- Bowel Dysfunction (39 - 64%):
  - Incontinence
  - Diarrhea
  - Constipation

- Urinary bladder dysfunction (49 - 93%):
  - Incontinence
  - Frequency
  - Retention

- Musculoskeletal:
  - Weakness (65 - 100%)
  - Spasticity (73 - 100%)
  - Tremors (36 - 81%)
  - Ataxia
It is suggested that, in the early stages of MS, myelin is able to regenerate through the work of the oligodendrocytes. This results in the improvement in the person's symptoms. Over time, these cells fatigue and less recovery occurs (Rattray & Ludwig, 2000).

People with MS can typically experience one of four disease courses, each of which might be mild, moderate, or severe. The four types of MS are: Relapsing – Remitting (RR), Primary – Progressive (PP), Secondary – Progressive (SP), Progressive – Relapsing (PR).

The physician must use established protocols to diagnose MS. The tools for making a diagnosis are: medical history and neurologic exam, MRI, Visual Evoked potential (VEP), Cerebrospinal fluid analysis, blood tests (National MS Society). It is thought that the following factors are all in some way involved in the cause of MS: Genetic Factor: Some genetic link is present. Recent studies in Canada have shown that, likely, more than one gene is responsible for a predisposition to MS. This condition has been found in 25 per cent to 30 per cent of monozygotic twins. There also seems to be an increased risk to relatives of affected individuals. Environmental Factor: This condition is most prevalent in temperate climates, such as North America and Northern Europe, between 40 degrees and 60 degrees north and south latitudes. Therefore, the closer one is to the equator the less likely one is to get MS. To further suggest an environmental link, if a person immigrates to a temperate climate before the age of 15 years, she has the same risk as the local population of contracting the disease. Viral Factor: Some researchers believe that a virus is responsible for stimulating overactivity of the immune response that results in the demyelination of the axons. Immunological Factor: The overactivity of
certain types of white blood cells leads to attacks on the myelin as if it were a foreign substance. Susceptibility to this autoimmune disorder is thought to be, in part, genetically predisposed (Rattray & Ludwig, 2000).

MS has an unpredictable course. Most patients become physically incapacitated over a period of 20 to 30 years. Patients who develop MS after the age of 40 years and those with marked motor disability early in the course of disease have a poor prognosis (Damjanov, 2012). Although there is no known cure for MS, corticosteroids, interferon-alpha, and glatiramer may be used in specific settings to reduce disability or the frequency of relapses and the progression of disease in patients with some variants of MS. Treatment should be individualized because these therapies may be expensive, ineffective in benign or primary progressive disease, and poorly tolerated by some patients. Symptomatic relief (e.g., of spasticity with muscle relaxants, or of bladder dysfunction with anticholinergic drugs) is provided as needed. The patient is advised to avoid fatigue, overexertion, exposure to extreme heat or cold, and stressful situations, and is encouraged to follow a regular plan of daily activity and exercise based on levels of tolerance. The patient is taught about symptoms that may occur during exacerbations of the disease and the need to adapt the plan of care to changing needs, as well as about the administration of prescribed medications. Physical and occupational therapy referral assist the patient to maintain muscle tone and joint mobility, decrease spasticity, improve balance and coordination, and increase morale. Massages, relaxing baths, yoga, and tai chi may prove helpful. A nutritious, well-balanced diet with adequate roughage and fluids is recommended. Bladder and bowel training programs, self-catheterization, and the use of condom catheters may be required. Independence is encouraged by assisting the
patient to develop new methods for ADL performance and optimal functioning. Both the patient and family are encouraged to promote safety in the home and the work environment (Venes, Biderman & Fenton, 2009).

In order to improve gait in a patient who suffers from MS or a similar nervous system disease or in a pt. who is recovering from stroke, various neurophysiological gait rehabilitation techniques can be used. The neurophysiological knowledge of gait principles is the general framework of this group of theories. The physiotherapist supports the correct patient's movement patterns, acting as problem solver and decision maker. Within this general approach according to different neurophysiological hypothesis various techniques have been proposed. The most commonly used in gait rehabilitation are summarized in the following: Bobath (the most widely accepted treatment concept in Europe. This method consists on trying to inhibit increased muscle tone (spasticity) by passive mobilization associated with tactile and proprioceptive stimuli); The Brunnström method (this approach enhances pathologic synergies in order to obtain a normal movement pattern and encourages return of voluntary movement through reflex facilitation and sensory stimulation); Proprioceptive neuromuscular facilitation (is based on spiral and diagonal patterns of movements through the application of a variety of stimuli – visual, auditory, proprioceptive...); The Vojta method (has been mainly developed to treat children with birth related brain damage); The Rood technique (focuses on the developmental sequence of recovery (from basic to complex) and the use of peripheral input (sensory stimulation) to facilitate movement and postural responses in the same automatic way as they normally occur); The Johnstone method (assumes that damaged reflex mechanisms responsible for spasticity are the leading cause of posture
and movement impairment) (Juan-Manuel Belda-Lois, Silvia Mena-del Horno, Ignacio Bermejo-Bosch, Juan C Moreno, José L Pons, Dario Farina, Marco Iosa & Marco Molinari, 2011).

The particular pt. used for this case study presents with limited active range of motion in ankle joint dorsiflexion and eversion and decreased peroneal muscle strength which significantly affects his gait. During a normal gait cycle dorsiflexors of the ankle (tibialis anterior, extensor hallucis longus, and extensor digitorum longus) are slightly active during the swing phase to prevent the foot and toes from dropping. Peak activity occurs in the stance phase just after heel-strike with an eccentric contraction to lower the foot to the ground. This provides shock absorption. The tibialis anterior is the largest and strongest of the dorsiflexors. With paralysis of this muscle, strong contractions of the two long toe extensors can clear the foot from the floor in the swing phase. The peroneus brevis and longus have phasic activity similar to the gastrocnemius, soleus muscles with contraction beginning in the stance phase after foot-flat and peaking after heel-off when support is on the toes. These muscles, along with the posterior tibialis, are important in providing adjustment of the foot to the surface and mediolateral stability of the ankle through control of the tarsal joints and the arches of the foot. The peroneus longus, with its distal attachments on the plantar surface of the foot, is the main muscular support of the three arches and stabilizes the first metatarsal head to the ground (K. Smith, L. Weiss & L. Don, 1996).
**Peroneal muscles**

**Fibularis (Peroneus) Longus**
- **Origin:** head & proximal lateral shaft of fibula
- **Insertion:** medial cuneiform & base of 1st metatarsal (plantar surfaces)
- **Action:** eversion & plantar flexion of foot
- **Nerve innervation:** superficial peroneal (fibular) nerve (L5, S1)
- **Blood supply:** peroneal (fibular) artery
- **Synergists:** plantar flexion: gastrocnemius, soleus; eversion: fibularis brevis & tertius

**Fibularis (Peroneus) Brevis**
- **Origin:** distal lateral ½ of fibula
- **Insertion:** base of 5th metatarsal (lateral aspect)
- **Action:** eversion & plantar flexion of foot
- **Nerve innervation:** superficial peroneal (fibular) nerve (L5, S1)
- **Blood supply:** peroneal (fibular) artery
- **Synergists:** plantar flexion: gastrocnemius, soleus; eversion: fibularis longus & tertius

The fibularis (peroneal) muscles are often grouped together because they evert the foot. Fibularis longus & brevis pass behind the lateral malleolus (plantar flexion action) & peroneus tertius passes in front of the lateral malleolus (dorsiflexion action). Fibularis (peroneus) longus with tibialis anterior makes up the stirrup of the foot; fibularis longus is a key stabilizer of the ankle joint, helping to balance the pull of the ankle invertors (A. Vizniak, 2011).

**Chart 1.** Anatomy of peroneal (fibular) muscles (A. Vizniak, 2011)
Figure 2. Fibular (peroneal) muscles (E. Muscolino, 2012)
Figure 3. Leg muscles (E. Muscolino, 2012)

The goal of this case study is to determine whether stimulatory Roods techniques used together with PNF techniques can improve pt. gait and decrease MS neurological symptoms. Specific treatment plan was designed aiming to stimulate multiple senses (touch, sight, sound) and improve the ability of the brain to perceive stimulus and react accordingly.
Subject case history

At the time of this study the pt. is 61 Years old. He was diagnosed with MS – Secondary Progressive 20 Years ago. The diagnosis was done by an MS neurologist at the UBC MS clinic. Physical responses were tested and MRI was done. Pt. is not working since he was diagnosed. Before he used to work as a teacher at a trade school.

Pt. experiences altered sensation, numbness and tingling in his lower limbs, equilibrium problems, muscle weakness and spasticity symptoms, and gets fatigued, especially when the weather gets hot and humid. Also pt. suffers from mid back pain. Pt. has had a bad / negative reaction to heat. Overall pt. is satisfied with his health and fitness, mental and emotional fitness, diet, ability to relax and he exercises regularly. He drinks alcohol only socially and does not use any recreational drugs such as marijuana. His last physical exam was done in 2010.

The pt. is well informed about Multiple Sclerosis. He knows that currently there is no cure, but overall he is very determined, positive minded and willing to do anything that would improve his health. He is actively involved in yoga class couple times a week and attends a swimming session at least once a week. He uses a walker for all his activities and occasionally uses a cane. This also requires remarkable focus and determination since both of his lower extremities are heavily affected by MS symptoms, especially the left side.

Pt. started taking MS medications in 1992. At the time of this study pt. was taking following drugs: Ditropan (takes 10mg as needed), Baclofen. If he’s at home he doesn’t
take Ditropan, but takes 40mg Baclofen instead. He also used to take Ativan (for more information see appendix A).

After 3 initial treatment sessions at WCCMT “MS inreach” pt. condition was well known to the therapist and on 15\textsuperscript{th} of May 2013 the treatment plan was proposed. The treatment plan was focused on pt. gait improvement. It was proposed to carry out 5 one hour treatment sessions evenly spaced over a two weeks period. Pt. was instructed to arrive at least half an hour before the actual treatment appointment. Pt. was informed that before and after each treatment he will have to fill “Pain questionnaire” form and also before and after each treatment his gait is going to be videotaped. He was informed that one treatment session is going to consist of Swedish massage techniques and a therapeutic treatment portion where he is going to be actively involved.

After the study pt. said that he had no need to see a doctor or other healthcare professional at the time of treatment plan sessions, hence no correlation to the improvements in his condition.
Assessment

Assessment results were collected during 3 treatment sessions prior to the case study. That gave enough information to construct the treatment plan and propose it to the patient.

Observations and palpation:

1. Pt. feet and hands are always slightly cool to touch, calve and quadriceps muscles tend to spasm with deep pressure;

2. WEAK PERONEAL muscles (Peroneus Longus & Brevis + Peroneus Tertius) on both sides but especially on the left side;

3. Medial and lateral Hamstrings (Semitendinosus, Semimembranosus + Biceps Femoris) are weakened – both sides;

4. Lateral head of Quadriceps Femoris has increased tonicity – both sides;

5. Hypertonicity of Gluteus Medius & Tensor Fascia Latae – both sides but especially on the right side;

6. “Lateral strain” involving Tensor Fascia Latae, Gluteus Medius, Ileotibial band, that alters the gait externally rotating the hips which leads to hypertoned thigh adductors, especially Adductor Magnus, that tends to act as hip flexor while walking – both sides but especially on left side;

7. Tibialis Posterior, Soleus mm tend to spasm – both sides;

8. Hypertoned / rigid Flexor Hallucis on the right side.
Figure 4. Summarization of assessment
Patient’s left side of the body is more affected with MS caused neurological symptoms. Numbness and tingling sensations down lower extremities towards the feet are experienced on both sides, but especially on the left side. The gait examination shows that the patient “drags” the left foot on the ground. Manual muscle testing reveals that pt. preoneal muscles are weakened on both sides, particularly on the left side (R = 4; L = 3+). Patient’s ability to evert and dorsiflex the left side’s foot is limited, especially while walking.

### Chart 2. Movement.

<table>
<thead>
<tr>
<th>Movement:</th>
<th>Ankle joint</th>
<th>Knee joint</th>
<th>Hip joint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plantarflexion:</td>
<td>WNL</td>
<td>WNL</td>
<td>4</td>
</tr>
<tr>
<td>Dorsiflexion:</td>
<td>sl. decreased</td>
<td>sl. decreased</td>
<td>4</td>
</tr>
<tr>
<td>Inversion:</td>
<td>sl. limited</td>
<td>sl. limited</td>
<td>4</td>
</tr>
<tr>
<td>Eversion:</td>
<td>sl. limited</td>
<td>sl. limited</td>
<td>3+</td>
</tr>
<tr>
<td>Manual muscle test:</td>
<td>L peroneal mm are particularly weakened. Grade 3+</td>
<td>Grade 4</td>
<td></td>
</tr>
<tr>
<td>Notes:</td>
<td>No pain with RROM, non-capsular restriction pattern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexion:</td>
<td>decreased</td>
<td>WNL</td>
<td>3+</td>
</tr>
<tr>
<td>Extension:</td>
<td>WNL</td>
<td>WNL</td>
<td>4+</td>
</tr>
<tr>
<td>Notes:</td>
<td>No pain with RROM, non-capsular restriction pattern</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexion:</td>
<td>limited</td>
<td>WNL</td>
<td>3</td>
</tr>
<tr>
<td>Extension:</td>
<td>sl. decreased</td>
<td>sl. decreased</td>
<td>4</td>
</tr>
<tr>
<td>Internal rotation:</td>
<td>WNL</td>
<td>WNL</td>
<td>4+</td>
</tr>
<tr>
<td>External rotation:</td>
<td>WNL</td>
<td>WNL</td>
<td>4-</td>
</tr>
<tr>
<td>Abduction:</td>
<td>sl. limited</td>
<td>sl. limited</td>
<td>3+</td>
</tr>
<tr>
<td>Adduction:</td>
<td>sl. limited</td>
<td>sl. limited</td>
<td>3+</td>
</tr>
</tbody>
</table>
Referred pain:

Pt. complains of no referred pain patterns during the case study.

Neurological:

Pt. experiences neurological symptoms such as “tingling, pins and needles” in hands and feet, hot-burning sensations in both feet, occasional throbbing pain in right leg, cramping pain in both feet, occasionally pt. feels tired and exhausted, especially when the weather is hot and humid.

Special tests:

Lhermitte’s sign = positive.

Straight Leg Raise = negative.

Pt. is able to sit down on the chair and stand up on his own only with slight difficulty.

Treatment goals:

Improve proper innervation patterns in dorsiflexor / plantarflexor / invertor / evertor mm, improve proprioception of ankle joint, increase peroneal mm strength and decrease MS symptoms in order to improve pt. gait.
Treatment plan

The treatment session begins with general Swedish massage techniques to warm up the tissue. 12 min. of Swedish massage on pt. gluteal area, thighs and calve muscles in prone (face down) position following 12 min. of Swedish massage on thighs, anterior legs and feet in supine (face up) position.

The “therapeutic portion” of the treatment lasts the rest of the treatment session finishing up with general “clearing” Swedish massage techniques. To reach the treatment goals Stimulatory (facilitory) Roods techniques such as QUICKSTRETCH (same as tapotement) and VIBRATIONS were used. It was done incorporating them in slow and rhythmical Passive, Active assisted and Active Range of motion exercise (PROM / AAROM / AROM) using Proprioceptive Neuromuscular Facilitation techniques such as RHYTMIC INITIATION (RI) and SLOW REVERSAL (SR). Pt. foot was moved at first into Flexion / Extension pattern while slowly progressing from PROM to AAROM, to AROM, when in AROM pt. Tibialis Anterior muscle was stimulated when pt. was dorsiflexing the foot and Soleus, Gastrocnemius muscles were stimulated when pt. was plantarflexing the foot. Then the same techniques were used while moving patient’s foot into Eversion / Inversion pattern, where the focus was particularly on stimulating peroneal muscle group while pt. was actively evertiong the foot. Pt. was also given multiple verbal cues. Patterns of movement were carefully taught to the patient. Visual stimulus was also incorporated.

The treatment protocol for specifically addressing the treatment goals is as follows:
Starting with the unaffected (less affected) side (R):

1. Pt. foot is passively moved into dorsiflexion and plantarflexion. This is done very slowly and rhythmically. The pt. is instructed to concentrate on the foot movement attempting to “connect” the mind to it trying to visualize how only the muscle group responsible for dorsiflexion would work while pt. foot is passively moved into dorsiflexion, then the same moving the pt. foot into plantarflexion. Other than that, the pt. is asked to relax as much as possible. This process is repeated for as long as needed (approx. 3-5 min.), until therapist doesn’t feel any voluntary or involuntary pt. muscular activity of dorsiflexor and plantarflexor muscles;

2. The process is repeated, but the pt. now is asked to actively contribute (with half of the strength available) to the movement trying to involve only the muscle group responsible for dorsiflexion when pt. foot is dorsiflexed and the same into plantarflexion;

3. Then pt. is asked to actively move the foot rhythmically from full plantarflexion into full dorsiflexion and back with maximal effort. At the same time therapist stimulates the muscle group responsible for the particular motion as pt. is actively moving the foot back and forth. Tapotement and vibration activating (facilitating) tx. were used;

4. Then the same process (steps 1 - 3) is repeated with pt. foot moving from full eversion into full inversion. In step “3” the therapist is stimulating the peroneal muscles while the pt. is moving the foot into eversion with activating tx. longitudinally over the peroneal mm bellies.

The same process (steps 1 - 4) is repeated on the (more) affected side (L).
**Remedial exercise / homecare:**

Peroneal muscle strengthening bilaterally 2 – 3 times a week using light resistance (theraband). 30 repetitions per side.

**Hydrotherapy:**

No hydrotherapy modalities were used in the treatments except on June 28 when pt. asked for an ice pack to put on his forehead, because he felt exhausted due to the warm and humid weather that day.
Outcomes

The pt. was instructed to walk 300 inch line 4 times before and after the treatment. Every attempt was videotaped and analyzed. At first the patient was videotaped from the side walking besides the patient (1\textsuperscript{st} attempt), then following behind the patient and walking back to the starting point (2\textsuperscript{nd} attempt), then standing at the starting point and videotaping patient walking the line away from the camera (3\textsuperscript{rd} attempt), then videotaping the patient’s gait walking back to the starting point towards the camera (4\textsuperscript{th} attempt).

Analyzing each video time per attempt was measured and steps per attempt were counted:

<table>
<thead>
<tr>
<th></th>
<th>1st attempt</th>
<th>2nd attempt</th>
<th>3rd attempt</th>
<th>4th attempt</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>steps</td>
<td>time (sec.)</td>
<td>steps</td>
<td>time (sec.)</td>
<td>steps</td>
</tr>
<tr>
<td>Jun-24 Pre</td>
<td>19</td>
<td>16</td>
<td>18</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>Post</td>
<td>18</td>
<td>14</td>
<td>17</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Jun-26 Pre</td>
<td>16</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Post</td>
<td>16</td>
<td>13</td>
<td>17</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Jun-28 Pre</td>
<td>17</td>
<td>16</td>
<td>20</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Post</td>
<td>18</td>
<td>13</td>
<td>19</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Jul-03 Pre</td>
<td>18</td>
<td>14</td>
<td>19</td>
<td>14</td>
<td>17</td>
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<td>Post</td>
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<td>Jul-05 Pre</td>
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<td>18</td>
<td>13</td>
<td>18</td>
<td>12</td>
<td>17</td>
</tr>
</tbody>
</table>

Chart 3. Steps per attempt and time spent walking 300 inch distance before and after tx.
Using the numbers from Chart “3” step length and steps per minute were calculated. On the right side of the chart average step length and average steps per minute PER ATTEMPT are shown, on the right bottom corner average TOTAL step length and steps per minute are shown:

Chart 4. Total mean step length, steps per minute and walking speed before and after tx

The obtained data shows increase in average step length after the treatment (0.47inch or 1.94cm) and walking speed increase (5.71 steps per min. faster after tx or more than 3 meters difference in walking distance after tx.). Comparing the results to normal mean velocity, step length and cadence of adults, pt. falls behind mostly due to shorter step length. The most significant improvement after tx. is increased steps per minute.

**Figure 5.** Videotaping patient’s gait – walking besides the patient (1<sup>st</sup> attempt)

**Figure 6.** Videotaping patient’s gait – following behind the patient and walking back to the starting point (2<sup>nd</sup> attempt)
Figure 7. Videotaping patient’s gait – standing at the starting point and videotaping patient walking the line away from the camera (3rd attempt)

Figure 8. Videotaping patient’s gait – videotaping the patient’s gait walking back to the starting point towards the camera (4th attempt)
Patient was also instructed to fill out “Short form McGill Pain Questionnaire” form before and after each treatment. McGill Pain Questionnaire form asks the patient to grade 20 different sensations (if present) in scale 1 – 10 (“1” being “very light” and “10” being extremely intense). The patient was also asked to specify the region that involves the specific sensation. The most significant changes are shown in red. The SUMMARY of the results is shown below (questionnaire forms can be seen in Appendix D):

<table>
<thead>
<tr>
<th>Part of the Body Affected</th>
<th>Symptom</th>
<th>Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left leg</td>
<td>Throbbing pain</td>
<td>2/10</td>
</tr>
<tr>
<td>Both feet</td>
<td>Hot-burning pain</td>
<td>2/10</td>
</tr>
<tr>
<td>Bending the head downwards</td>
<td>Electric shock pain</td>
<td>3/10</td>
</tr>
<tr>
<td>Both shoulders</td>
<td>Tending</td>
<td>3/10</td>
</tr>
<tr>
<td>Both feet and hands</td>
<td>Tingling / pins &amp; needles</td>
<td>8/10</td>
</tr>
<tr>
<td>Both feet and hands</td>
<td>Numbness</td>
<td>8/10</td>
</tr>
</tbody>
</table>

*Pt.: “Much better sensations in feet”

<table>
<thead>
<tr>
<th>Part of the Body Affected</th>
<th>Symptom</th>
<th>Int.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left leg</td>
<td>Throbbing pain</td>
<td>1/10</td>
</tr>
<tr>
<td>Both feet</td>
<td>Cramping pain</td>
<td>1/10</td>
</tr>
<tr>
<td>Both feet</td>
<td>Hot-burning (not pain)</td>
<td>1/10</td>
</tr>
<tr>
<td>Both shoulders</td>
<td>Tender</td>
<td>4/10</td>
</tr>
<tr>
<td>Bending the head downwards</td>
<td>Electric shock pain</td>
<td>3/10</td>
</tr>
<tr>
<td>Both feet and hands</td>
<td>Tingling / pins &amp; needles</td>
<td>6/10</td>
</tr>
<tr>
<td>Both feet and hands</td>
<td>Numbness</td>
<td>6/10</td>
</tr>
</tbody>
</table>

*Pt.: “Much better sensations in feet”

Chart 6. Summarization of sensations experienced before and after tx. Jun-14 and Jun-26
Chart 7. Summarization of sensations experienced before and after tx. Jun-28 and Jul-03

<table>
<thead>
<tr>
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<tbody>
<tr>
<td></td>
<td>Jun-28</td>
<td>Post</td>
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<tr>
<td></td>
<td>Both feet</td>
<td>Both feet</td>
<td>Lower right back</td>
<td>MS symptom (w high humidity)</td>
<td>Both feet and hands</td>
<td>Both feet and hands</td>
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<td>Cramping pain</td>
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<td>3/10</td>
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<td>Both feet</td>
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<td>Hot-burning (not pain)</td>
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<td>Both feet</td>
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<td>4/10</td>
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<td></td>
<td>Lower right back</td>
<td>Tender</td>
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<td></td>
<td></td>
<td>Both feet and hands</td>
<td>Tingling / pins &amp; needles</td>
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<td>Both feet and hands</td>
<td>Numness</td>
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<td>Both feet and hands</td>
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<tr>
<td><em>Pt.: “Coming to the clinic I felt very tired due to the high humidity”</em></td>
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<tr>
<td><em>Great improvement in all extremities</em></td>
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<tr>
<td><em>MS patients understand this symptom and refer to this as &quot;lethargy&quot;, &quot;poor concentration&quot;, &quot;poor energy&quot; known as &quot;<strong>MS FOG</strong>&quot;, in my case it is brought on with high humidity</em></td>
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<tr>
<td></td>
<td>Both feet</td>
<td>Both feet</td>
<td>Lower right back</td>
<td>Both feet and hands</td>
<td>Both feet and hands</td>
<td>Both feet and hands</td>
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<td></td>
<td>Cramping pain</td>
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<td>Numness</td>
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<td>Both feet</td>
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<td>0/10</td>
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<td>Lower right back</td>
<td>Tender</td>
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<td></td>
<td></td>
<td>Both feet and hands</td>
<td>Tingling / pins &amp; needles</td>
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<td>Both feet and hands</td>
<td>Numness</td>
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<td>Both feet and hands</td>
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<tr>
<td><em>Pt.: “After the session I felt revitalized and more energetic”</em></td>
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<tr>
<td><em>Pt.: “My gait is stronger and I have better heel / toe action”</em></td>
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<td><em>Pt.: “Totally a night and day MS moment”</em></td>
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<tr>
<td><em>Pt.: “<strong>Tiring - exhausting MS symptoms are fading away</strong>”</em></td>
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<th>Jul-03</th>
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<tr>
<td></td>
<td>Right leg</td>
<td>Both feet</td>
<td>Both shoulders</td>
<td>MS symptom</td>
<td>Both feet and hands</td>
<td>Both feet and hands</td>
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<td></td>
<td></td>
<td>Throbbing pain</td>
<td>Hot-burning (not pain)</td>
<td>Tender</td>
<td>Tingling / pins &amp; needles</td>
<td>Numness</td>
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<td></td>
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<td>1/10</td>
<td>8/10</td>
<td>4/10</td>
<td>5/10</td>
<td>8/10</td>
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<tr>
<td><em>July 3-2013, during the day t” was about 23°C + humid</em></td>
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<tr>
<td><em>Pt.: “After last session in June 28 the residual positive effects lasted until June 30”</em></td>
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<td><em>Pt.: “<strong>MS symptoms again increased w heat/humidity</strong>”</em></td>
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<tr>
<td><em>Pt.: “<strong>June 30 left me exhausted (fatigue, lethargy)</strong>”</em></td>
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<tbody>
<tr>
<td></td>
<td>Right leg</td>
<td>Both feet</td>
<td>Both shoulders</td>
<td>MS symptom</td>
<td>Both feet and hands</td>
<td>Both feet and hands</td>
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<td>Throbbing pain</td>
<td>Hot-burning (not pain)</td>
<td>Tender</td>
<td>Tingling / pins &amp; needles</td>
<td>Numness</td>
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<td>1/10</td>
<td>2/10</td>
<td>4/10</td>
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<tr>
<td><em>Pt.: “<strong>MS fatigue is not so prevalent as when I came to the clinic</strong>”</em></td>
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<tr>
<td><em>Pt.: “<strong>My core temp. decreased as I put ice pack on my shoulders and I felt better (the only time used hydrotherapy during the treatments)</strong>”</em></td>
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</table>
### Chart 8. Summarization of sensations experienced before and after tx. Jul-05

The most significant improvements after each treatment were decrease in “tingling”, “pins and needles”, “numbness” sensations in hands and particularly in feet.

Pt. says that residual effects typically last 2 – 3 days after each tx. session.

As shown in the Chart “7”, “June 28” is bolded. The weather in this particular day was warm, humid and the atmospheric pressure was elevated. For some MS patients these conditions often trigger so called “MS fog”. Before the tx. patient that day was feeling very weak, lethargic with “poor energy” and “poor concentration” abilities. As shown in the chart, after June 28 tx. “MS fog” symptoms decreased significantly and the effect lasted for next couple of days (until June 30 – another hot, humid day).

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS symptom</td>
<td>3/10</td>
<td>1/10</td>
</tr>
<tr>
<td>Tingling / pins &amp; needles</td>
<td>3/10</td>
<td>2/10</td>
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<tr>
<td>Numbness</td>
<td>3/10</td>
<td>2/10</td>
</tr>
<tr>
<td>Hot-burning (not pain)</td>
<td>2/10</td>
<td>1/10</td>
</tr>
<tr>
<td>Tiring - exhausting</td>
<td>2/10</td>
<td>1/10</td>
</tr>
<tr>
<td>Electric shock pain</td>
<td>3/10</td>
<td>2/10</td>
</tr>
<tr>
<td>Both feet and hands</td>
<td>3/10</td>
<td>2/10</td>
</tr>
<tr>
<td>Bending the head downwards</td>
<td>3/10</td>
<td>2/10</td>
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</table>

*All MS pain symptoms were reduced after the session*
Chart 9. Severity of symptoms before and after each treatment

![Chart 9](chart9.png)

Chart 10. Weather conditions

*All data values shown in Chart “10” are calculated using information from official Government of Canada web page ([http://climate.weather.gc.ca/climateData](http://climate.weather.gc.ca/climateData)), more information in Appendix A.
Discussion and Conclusion

This case study demonstrates that using a specific treatment protocol that includes Stimulatory Roods techniques as well as PNF techniques may help to alleviate Multiple Sclerosis symptoms such as “tingling”, “pins and needles”, “numbness” sensations in hands and feet for up to 3 days and also may improve patient’s gait and walking speed. Treatment plan was focused on peroneal muscle and ankle joint dorsiflexor muscle group activation during rhythmical ankle joint range of motion exercises. The main goal was to help the patient with clearing the foot from the floor during the swing phase of the gait cycle. The case study results show average ~6 steps per minute increase in walking speed and 3m increase in walking distance per minute. The patient walking speed is limited mostly due to short step length which after treatments was increased only slightly. Further research is needed to determine what other muscles should be treated in the same manner to further improve pt. gait with increasing the step length.

Objectives of this study were met however there are many other factors that might interfere with the results, such as patient’s strong determination to get better and stay physically fit that may differ from patient to patient. Weather conditions also seem to affect patient’s condition. On hot and humid days the patient was feeling lethargic and fatigued however the weather seems not to interfere with patient’s “pins, needles and numbness” symptoms in feet and hands (see Charts “9” and “10”). These symptoms were reduced after each session in both feet and hands however only lower limbs were treated. Further research is needed to determine why did the treatment affect patient’s hands as well.
This study was limited due to its low participant number. Further research involving more participants would generate more reliable results. Past research on this particular topic is limited. There is very little information about PNF and Roods techniques and how they would affect patient’s recovery from a similar condition or improving / maintaining patient’s condition.

Overall this case study shows that massage therapy techniques may be effective in alleviating MS symptoms and increase proper muscle innervation while walking.
Bibliography


Appendix A – Abbreviations and definitions

AAROM – Abbreviation. An exercise in which an external force assists specific muscles and joints to move through their available excursion. AAROM exercises are used when the patient has difficulty moving or when tissue forces need to be reduced (Venes, Biderman & Fenton, 2009).

AROM – Abbreviation. The amount of joint motion produced by voluntary muscle contraction (Venes, Biderman & Fenton, 2009).

Ativan – (lorazepam) is in a group of drugs called benzodiazepines (ben-zoe-dye-AZE-eh-peens). It affects chemicals in the brain that may become unbalanced and cause anxiety. Ativan is used to treat anxiety disorders. Ativan may also be used for other purposes not listed in this medication guide (Drugs.com, 2013).

Baclofen – (Lioresal) (Baclophen) Product names: Lioresal, Lyflex. Baclofen is a drug that has a long history of use as a treatment for spasticity and spasms in multiple sclerosis. It is suggested that baclofen should be the first drug used when treating MS spasticity (Multiple Sclerosis Trust).

Diplopia – (dip-lo-pe-a) [ope, sight] Two images of an object seen at the same time. SYN: double vision (Venes, Biderman & Fenton, 2009).

Dysarthria – (di-sar-thre-a) [arthroun, to utter distinctly] Impairments or clumsiness in the uttering of words due to diseases that affect the oral, lingual, or pharyngeal muscles. The patient’s speech may be difficult to understand, but there is no evidence of aphasia diseases (Venes, Biderman & Fenton, 2009).
Fatigue – (fa-te-g) [L. fatigare, to tire] 1. An overwhelming sustained sense of exhaustion and decreased capacity for physical and mental work at the usual level reduced (Venes, Biderman & Fenton, 2009).

Flaccid – (fla-k-si-d) [L. flaccidus, flabby] Relaxed; flabby; having defective or absent muscular tone (Venes, Biderman & Fenton, 2009).

Inhibitory – (i-n-hi-to-re) Restraining, preventing (Venes, Biderman & Fenton, 2009).

L – left.

Lhermitte’s sign – (la-ri-me-ts) [Jacques Jean Lhermitte, Fr. neurologist, 1877–1959] The symptom (rather than a sign) of a pain resembling a sudden electric shock throughout the body produced by flexing the neck. It is caused by trauma to the cervical portion of the spinal cord, multiple sclerosis, cervical cord tumor, or cervical spondylosis (Venes, Biderman & Fenton, 2009).

Myelin – (MI-e-lin) sheath Multilayered lipid and protein covering, formed by Schwann cells and oligodendrocytes, around axons of many peripheral and central nervous system neurons. Two types of neuroglia produce myelin sheaths: Schwann cells (in the PNS) and oligodendrocytes (in the CNS) (J. Tortora & Derrickson, 2012).

Nystagmus – (ni-s-ta-g_mu-s) [Gr. nystagmos, to nod] Involuntary back-and forth or cyclical movements of the eyes. The movements may be rotatory, horizontal, or vertical and often are most noticeable when the patient gazes at objects moving by rapidly or at fixed objects in the peripheral field of view. ETIOLOGY: Lesions of the labyrinth, vestibular nerve, cerebellum, and brainstem commonly produce rhythmic eye
movements. Drug intoxications (e.g., with alcohol or phenytoin) also may be responsible (Venes, Biderman & Fenton, 2009).

Oxybutynin – (Cystrin, Ditropan, Lyrinel) Product names: Cystrin, Ditropan, Lyrinel XL Oxybutynin is an anticholinergic drug that is used to improve bladder storage capacity. In MS it is used in the treatment of urinary frequency and urgency (Multiple Sclerosis Trust).

Paresthesia – (pa˘r_e˘s-the__ze___-a˘ ) [Gr. para, beside, _ aisthesis, sensation] An abnormal or unpleasant sensation that results from injury to one or more nerves, often described by patients as numbness or as a prickly, stinging, or burning feeling (Venes, Biderman & Fenton, 2009).


Prone – face down position.

PNF – “Proprioceptive Neuromuscular Facilitation”, Exercise based on diagonal patterns of extremity & spine movement. Activity combination of passive stretching & isometrics contractions, it can also strengthen muscles, increase endurance, neuromuscular contractions and increase joint stability (A. Vizniak, 2011).

R – right.

Relative humidity (%) – Relative humidity in percent (%) is the ratio of the quantity of water vapour the air contains compared to the maximum amount it can hold at that particular temperature (Government of Canada).
Proprioception – (proˌ̆ priˈo-ˌsĕpˌhu̇n) [L. proprius, one’s own, capio, to take] The awareness of posture, movement, and changes in equilibrium and the knowledge of position, weight, and resistance of objects in relation to the body. 

Rhythmic Initiation – Developed for patients with Parkinsonism suffering from rigidity. Clinician moves the patient through the desired movement using passive range of motion, followed by active-assistive, active, & finally active-resisted range of motion (A. Vizniak, 2011).

sl. – slightly.

Slow Reversal – technique involves the patient moving an extremity through the desired range of motion with continuous resistance with no rest periods occur between contractions. For example, the clinician applies resistance to the patient's arm as he/she moves it from its starting position to the desired end range. Then, the clinician applies immediate resistance as the patient returns his/her arm back to the original starting position (A. Vizniak, 2011).

Spasticity – (spaˌ̆ s-tiˌsˌteˌ) A motor disorder characterized by velocity-dependent increased muscle tone, exaggerated tendon jerks, and clonus. Spasticity is the result of an upper motor neuron lesion (i.e., found in the spinal cord or brain rather than in one of the peripheral nerves) (Venes, Biderman & Fenton, 2009).

Station pressure (kPa) – The atmospheric pressure in kiloPascal (kPa) at the station elevation. Atmospheric pressure is the force per unit area exerted by the
atmosphere as a consequence of the mass of air in a vertical column from the elevation of the observing station to the top of the atmosphere (Government of Canada).

Supine – face up position.

Tapotement – drumming hand movements on broad areas using fists, fingertips & heels, ulnar border or flat hand over fleshy areas. There are 9 subtypes of tapotement techniques: Pincement; Fingertip tapping; Point percussion; Clapping; Cupping; Loose digital ulnar border percussion; Hand digital ulnar border percussion; Knuckle percussion; Pounding (A. Vizniak, 2011).

Temperature (°C) – The temperature of the air in degrees Celsius (°C). At most principal stations the maximum and minimum temperatures are for a day beginning at 0600 Greenwich (or Universal) Mean Time, which is within a few hours of midnight local standard time in Canada (Government of Canada).

Tremor – (tre´m_or, trẹ̄_mor) [L. tremor, a shaking] 1. A quivering, esp. a continuous quivering of a convulsive nature. 2. An involuntary movement of a part or parts of the body resulting from alternate contractions of opposing muscles. SEE: subsultus. Tremors may be classified as involuntary, static, dynamic, kinetic, or hereditary (Venes, Biderman & Fenton, 2009).

Tx. – treatment.

Vertigo – (ve˘r_tr̝-gọ̄, ve˘r-tr̝̄_gọ̄) [L. vertigo, a turning round] The sensation of moving around in space (subjective vertigo) or of having objects move about the person (objective vertigo). Vertigo is sometimes inaccurately used as a synonym for dizziness, lightheadedness, or giddiness. It may be caused by a variety of entities,
including middle ear disease; toxic conditions such as those caused by salicylates, alcohol, or streptomycin; sunstroke; postural hypotension; or toxemia due to food poisoning or infectious diseases (Venes, Biderman & Fenton, 2009).

WNL – within normal limits.
Appendix B – Peripheral Joint examination
Peripheral Joint Exam

Legend

- : Active ROM
- : Passive ROM
$: : Hypermobility
: : Pain in ROM

<table>
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<tr>
<th>Movement</th>
<th>Quality</th>
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2. Abnormal End-feels

3. Restriction Pattern

Capsular | Non-capsular |
---------|--------------|

4. Resisted ROM Testing

Direction | R: Grade - L | Pain (yn)
----------|--------------|---------
Flex.     | 2+ 2         |
Ext.      | 4/4          |
IR        | 4+ 4         |
ER        | 4+ 4         |
Abd.      | 3+ 3        |
A0/4      | 4 3+4/4      |

5. Joint Play (C-L) Assessment

4a. Manual Muscle Test (MMT)

Clinic instructor: [Signature]
Date: July 3/13.

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Dainis Viskers
October 19, 2013
## Peripheral Joint Exam

### Legend
- \( \downarrow \) : Active ROM
- 1 : Passive ROM
- \( \uparrow \) : Hypermobility
- P : Pain in ROM

### Contra-Indications or Precautions

### Additional Notes

### Patient Name

### Date: 10/19/2013

### 1. Joint Examined: R - L -
- ER - Flex. - IR - IR - Flex. - ER
- Abd - Add - Abd - Ext - Ext

#### Pre-treatment

### 2. Abnormal End-feels

<table>
<thead>
<tr>
<th>Movement</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

### 3. Restriction Pattern

<table>
<thead>
<tr>
<th>Capsular</th>
<th>Non-capsular</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>√</td>
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</tbody>
</table>

### 4. Resisted ROM Testing

<table>
<thead>
<tr>
<th>Direction</th>
<th>R : Grade - L</th>
<th>Pain (y/n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flex.</td>
<td>4</td>
<td>3+</td>
</tr>
<tr>
<td>Ext.</td>
<td>4</td>
<td>N</td>
</tr>
</tbody>
</table>

### 4a. Manual Muscle Test (MMT)

### 5. Joint Play (C-L) Assessment

### 6. Special Tests

### 7. Differential Diagnosis

### 8. Joint Examined: R - L -
- ER - Flex. - IR - IR - Flex. - ER
- Abd - Add - Abd - Ext - Ext

#### Post-treatment

### Clinic Instructor:

### Class: L

### Tests: L

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Appendix C – “SOAP” forms
**SOAP Term 5-6**

**Date:** 7-21-2013  
**Visit:** 6

**S**  
**VAS:** 7/10  
- improving  
- no change  
- worsening

**O**  
**Muscles:**  
- Front leg 7/10  
- Back of leg 4/10  
- Hip flexors 3/10  
- Lower back 2/10

**A**  
**Functional/Special Test:**

**P**  
**PTT:** 3 days, 6 wks, 1 mth  
**PRN**

**Home care:** (FO - frequency, intensity, duration):  
- Stretch  
  - Strengthen  
  - Postural  
- Heat  
- Cold

**Outcome markers post Tx:**  
- Cadaver involvement in hip flexor  
- Walking  
- Hip flexor involvement in hip flexor

**Treatment Goals:**  
- Painful activity while walking  
- Stabilized hip  
- Bilateral hip strengthening

**Student:** Dainis Viskers  
**Clinic Instructor:** [Signature]

---

**SOAP Term 5-6**

**Date:** 3-21-2015  
**Visit:** 7

**S**  
**VAS:** 7/10  
- improving  
- no change  
- worsening

**O**  
**Muscles:**  
- Front leg 7/10  
- Back of leg 4/10  
- Hip flexors 3/10  
- Lower back 2/10

**A**  
**Functional/Special Test:**

**P**  
**PTT:** 3 days, 6 wks, 1 mth  
**PRN**

**Home care:** (FO - frequency, intensity, duration):  
- Stretch  
  - Strengthen  
  - Postural  
- Heat  
- Cold

**Outcome markers post Tx:**  
- Cadaver involvement in hip flexor  
- Walking  
- Hip flexor involvement in hip flexor

**Treatment Goals:**

---

**Student:** Dainis Viskers  
**Clinic Instructor:** [Signature]
Appendix D – McGill Questionaire forms

Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)

21. Tingling or "pins and needles"  22. Numbness

21. Tingling or "pins and needles"  22. Numbness

Coming into the clinic I feel very tired due to the high humidity. All nurses understand this symptom — 28° 3Fume 20° 13°

And refer to this "mastery" (for concentration), for energy as "MS fog" — which in my case is brought on with high humidity.

http://www.google.ca/blanks.html

19/02/2013
<table>
<thead>
<tr>
<th>Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The following chart provides you with a list of words that describe some of the different qualities of pain and related symptoms. Please put an X through the numbers that best describe the intensity of each of the pain and related symptoms you feel during the past week. Use 0 if the word does not describe your pain or related symptoms.</td>
<td></td>
</tr>
<tr>
<td>1. Throbbing pain</td>
<td>0</td>
</tr>
<tr>
<td>2. Shooting pain</td>
<td>0</td>
</tr>
<tr>
<td>3. Stabbing pain</td>
<td>0</td>
</tr>
<tr>
<td>4. Sharp pain</td>
<td>0</td>
</tr>
<tr>
<td><strong>Both Feet</strong></td>
<td>0</td>
</tr>
<tr>
<td><strong>Cone</strong></td>
<td>0</td>
</tr>
<tr>
<td>5. Dull aching pain</td>
<td>0</td>
</tr>
<tr>
<td>6. Numbness, tingling, or pins and needles</td>
<td>0</td>
</tr>
<tr>
<td>7. Hot, burning pain</td>
<td>0</td>
</tr>
<tr>
<td>8. Freezing cold ache</td>
<td>0</td>
</tr>
<tr>
<td>9. Heavy pain</td>
<td>0</td>
</tr>
<tr>
<td>10. Tender</td>
<td>0</td>
</tr>
<tr>
<td>11. Spiking pain</td>
<td>0</td>
</tr>
<tr>
<td>12. Stabbing pain</td>
<td>0</td>
</tr>
<tr>
<td>13. Irritability</td>
<td>0</td>
</tr>
<tr>
<td>14. Pain from skin to bone</td>
<td>0</td>
</tr>
<tr>
<td>15. Punishing, cruel</td>
<td>0</td>
</tr>
<tr>
<td>16. Electric shock pain</td>
<td>0</td>
</tr>
<tr>
<td>17. Cold freezing pain</td>
<td>0</td>
</tr>
<tr>
<td>18. Piercing</td>
<td>0</td>
</tr>
<tr>
<td>19. Pain caused by light touch</td>
<td>0</td>
</tr>
<tr>
<td>20. Sticking</td>
<td>0</td>
</tr>
<tr>
<td>21. Tingling or pins and needles</td>
<td>0</td>
</tr>
<tr>
<td>22. Nummular</td>
<td>0</td>
</tr>
</tbody>
</table>

**After the session with Dainis I felt reawakened!**
**My feet were stronger, I gained more balance, better heel/toe action. Totally a nice and very pleasant moment.**

http://www.google.ca/blank.html

19/02/2013
Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)

The questionnaire provides you with a list of words that describe some of the different qualities of pain and related symptoms. Please circle the numbers that best describe the intensity of each of the pain and related symptoms you felt during the past week. Rate 0 if the word does not describe your pain or related symptoms.

RIGHT KNEE

1. Throbbing pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

2. Shooting pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

3. Stabbing pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

4. Sharp pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

LEFT (both)

5. Cramping pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

6. Growling pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

7. Heaving pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

8. Aching pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

9. Heavy pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

10. Tender
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

11. Spiking pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

AS FATIGUE

12. Tiring-exhausting
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

13. Sickenning
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

14. Fearful
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

15. Intermittent
gut
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

LEADING THE
HEAD IN
DOWNWARD
MOTION

16. Electric-shock pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

17. Cold freezing pain
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

18. Piercing
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

19. Pain caused by light touch
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

20. Itching
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

LEFT FEET

21. Tingling or 'pins and needles'
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

22. Numbness
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

RIGHT SHOULDER

23. The
   - Rate 0-10 possible
   - 0 1 2 3 4 5 6 7 8 9 10

# 10 - WALKER & CANE USE

http://www.google.ca/blank.html

19/02/2013
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Leg pain</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Shortness of breath</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Stomach pain</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Headache</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Jaw pain</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Ear pain</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Throat pain</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Neck pain</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Scalp pain</td>
<td></td>
</tr>
</tbody>
</table>

**Severity:**
- 0 = None
- 1 = Mild
- 2 = Moderate
- 3 = Severe
- 4 = Extreme

**Rating:**
- 0 = None
- 1 = Slight
- 2 = Noticeable
- 3 = Disturbing
- 4 = Extreme

**Notes:**
- Please mark any pain that you do not experience.
- Please mark any pain that is not present.
- Please mark any pain that is not severe.
- Please mark any pain that is not extreme.

**Additional Information:**
- Please provide any additional comments or observations related to your pain management.

**Date:**
- October 19, 2013

**Signed:**
- Dainis Viskers
# Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)

The questionnaire does not contain a list of words that describe some of the common unpleasant sensations. Please read each item and select a number that best describes the intensity of each of the pain and related symptoms you felt during the past week. Use 0 if the word does not describe the pain or related symptoms.

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Throbbing pain</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>2. Shooting pain</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>3. Slabbing pain</td>
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<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>4. Sharp pain</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>5. Cramping pain</td>
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<tr>
<td>6. Growing pain</td>
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<td>5</td>
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<td>7. Hot-burning pain</td>
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<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
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<tr>
<td>8. Aching pain</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>9. Heavy pain</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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<td>10</td>
</tr>
<tr>
<td>10. Tender</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>11. Spiriting pain</td>
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<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
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<td>9</td>
<td>10</td>
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<tr>
<td>12. Tingling-exhustating</td>
<td>none</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>13. Sickening</td>
<td>none</td>
<td>0</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tr>
<tr>
<td>14. Fearful</td>
<td>none</td>
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<td>2</td>
<td>3</td>
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<td>10</td>
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<tr>
<td>15. Punishing-cruel</td>
<td>none</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>9</td>
<td>10</td>
</tr>
<tr>
<td>16. Electric shock pain</td>
<td>none</td>
<td>0</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>17. Cold-freezing pain</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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<td>10</td>
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<tr>
<td>18. Piercing</td>
<td>none</td>
<td>0</td>
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<td>2</td>
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<td>5</td>
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<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>19. Pain caused by light touch</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>10</td>
</tr>
<tr>
<td>20. Itching</td>
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<td>0</td>
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<td>4</td>
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<td>7</td>
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<td>9</td>
<td>10</td>
</tr>
<tr>
<td>21. Tingling or &quot;pins and needles&quot;</td>
<td>none</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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</tr>
<tr>
<td>22. Numbrance</td>
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<td>0</td>
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<td>2</td>
<td>3</td>
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<td>5</td>
<td>6</td>
<td>7</td>
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<td>9</td>
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</tr>
</tbody>
</table>

* SF-MPQ-2 items are arranged in order of their difficulty of description (MPQ). The items may not be used in all studies. The SF-MPQ-2 can be found at www.medicine.ubc.ca.

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http://www.google.com/blank.html

19/02/2013
Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)

This questionnaire provides you with a list of words that describe different qualities of pain and related symptoms. Please put an X through the number that best describes the intensity of each of the pain-related symptoms you felt during the last week. Use 0 if the word does not describe your pain at all and 10 as the most intense.

<table>
<thead>
<tr>
<th></th>
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<tr>
<td>SHOULDER</td>
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<td>3</td>
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</tbody>
</table>

http://www.google.ca/blank.html

19/02/2013
### Short-Form McGill Pain Questionnaire-2 (SF-MPQ-2)

The questionnaire provides you with a set of words that describe several aspects of pain and related symptoms. Please put an X through the numbers that best describe the intensity of each of the pain and related symptoms you felt during the past week. Use 0 if the word does not describe your pain at all and 10 if it describes your pain completely.

<table>
<thead>
<tr>
<th>Pain Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Throbbing pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>2. Shooting pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>3. Stabbing pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>4. Sharp pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>5. Gnarling pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>6. Holoburning pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>7. Aching pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>8. Heavy pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>9. Tender</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>10. Splitting pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>11. Tingling-exhausting pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>12. Sickening</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>13. Fearful</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>14. Punishing-cruel</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>15. Electric-shock pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>16. Cold-freezing pain</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>17. Parching</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>18. Pain caused by light touch</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>19. Tingling or pins and needles</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>20. Numbness</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
</tbody>
</table>

*Note: The McGill Pain Questionnaire (MPQ) is copyrighted and its use is subject to the Cambridge University Press licence agreement.*
**Short Form McGill Pain Questionnaire-2 (SF-MPQ-2)**

Please rate each item below on a scale of 0-10, with 0 being no pain and 10 being the worst pain you have ever had. Please rate each pain location you have selected on a scale of 0-10, with 0 being no pain and 10 being the worst pain you have ever had.

1. **Throbbing pain**
   - **Location:**
   - **Rating:**

2. **Shooting pain**
   - **Location:**
   - **Rating:**

3. **Stabbing pain**
   - **Location:**
   - **Rating:**

4. **Sharp pain**
   - **Location:**
   - **Rating:**

5. **Crawling pain**
   - **Location:**
   - **Rating:**

6. **Growing pain**
   - **Location:**
   - **Rating:**

7. **Hot-burning pain**
   - **Location:**
   - **Rating:**

8. **Aching pain**
   - **Location:**
   - **Rating:**

9. **Heavy pain**
   - **Location:**
   - **Rating:**

10. **Tender**
    - **Location:**
    - **Rating:**

11. **Splitting pain**
    - **Location:**
    - **Rating:**

12. **Tiring-exhausting**
    - **Location:**
    - **Rating:**

13. **Sickening**
    - **Location:**
    - **Rating:**

14. **Fearful**
    - **Location:**
    - **Rating:**

15. **Punishing-cruel**
    - **Location:**
    - **Rating:**

16. **Electric-shock pain**
    - **Location:**
    - **Rating:**

17. **Cold-frightening pain**
    - **Location:**
    - **Rating:**

18. **Irritating**
    - **Location:**
    - **Rating:**

19. **Pain caused by **
    - **Location:**
    - **Rating:**

20. **Licking**
    - **Location:**
    - **Rating:**

21. **Tingling or 'pins and needles'**
    - **Location:**
    - **Rating:**

22. **Numbness**
    - **Location:**
    - **Rating:**

---

**Notes:**

- All MS symptoms were reduced after the session.
# Appendix E – Patient history, intake forms and initial scan exam

<table>
<thead>
<tr>
<th>Patient History Terms</th>
<th>Patient History</th>
<th>Date: 11Jan 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCCMT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cues for Students:**

- Review intake questionnaire ("CFS" red lines)
- Chief Concern:

1. Why is this patient seeking massage therapy?
   - Hip pain/hot
2. Location/Radiation
3. Onset
4. Chronology/Timing/False episodes
5. Quality (sharp, dull, shooting, tight, aching)
6. Severity/Scale of 0 – 10 with "0" no pain and "10" the highest amount of pain
7. Modifying factors:
8. Associated symptoms (IFWS)
9. Treatment history:
10. Prior injuries:
11. Medications:

**Constitutional Factors:**

1. Hereditary/family health conditions:
2. Exercise/interests/activities
3. Sleep patterns:
4. Stress factors:

**Patient Treatment Goals:**

**Anything else he/she would like to add:**

---

Patient information is considered strictly confidential under the policies of the Personal Information Protection and Electronic Documents Act (PIPEDA).
Initial Scan Exam (ISE)

Palpation summary (4 T's & location)
- Spasm:
  - Tenderness on pressure, slightly reduced tone in hamstring
  - High gait produces back hyperflexion, decreased tone in hamstring

Functional tests
- Neurovascular
  - Can sit on the chair & get up on his own without difficulty
Felt fatigued because of hot weather
NS sxs were noticeably decreased for 2-3 following days after flu last feb.
### Initial Scan Exam (ISE)

![Diagram of human skeleton with labelled angles and lines indicating movement or posture.

### Palpation summary (4 T's & location)

<table>
<thead>
<tr>
<th>Region</th>
<th>Functional Test</th>
<th>Findings (Male/CM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Extremities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ankle (anterior posterior)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Extremities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoulder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elbow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Functional tests

<table>
<thead>
<tr>
<th>Region</th>
<th>Functional Test</th>
<th>Findings (Male/CM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Extremities</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Elbow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wrist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hi, [name]!

Hi Dainis,

Sorry about the delay but I just got back from a week away.

I was diagnosed in 1990 with Secondary Progressive. The diagnosis was done by an MS neurologist at the UBC MS clinic. He tested physical responses followed by an MRI of the brain and brain stem. As far as medication go I only started MS drugs in 1992. Currently I take Ditropan for bladder control and Baclophen for spasticity. During our study I was on said drugs and still am. I take Ditropan 10 mg as needed which varies according to my schedule...if I am at home then I don't take any Ditropan and I take 40 mg of Baclophen a day.

My most debilitating MS symptom is spasticity, which affects my gait. I am not working and have not since the diagnosis. I taught at a trade school. I had no need to see a doctor or other health care professionals at the time of our sessions. All my annual visits to my medical team took place after the study session...hence no correlation to the improvements in my MS was due to external factors, the improvements I felt / saw were direct results from my treatment by you!

Whip lash from an automobile accident in the 1970's with no hospitalization.

I am proactive with my MS and partake in weekly sessions of swimming and yoga/tai chi.

I hope this helps you complete!

tc

From: Dainis Viskers
Sent: Saturday, October 12, 2013 5:27 PM
To: [name]
Subject: Re: Hi, [name]
Dainis Viskers
October 19, 2013

PATIENT INTAKE FORM

Please complete this form in order to assist us in becoming familiar with your health history, and to ensure that massage therapy services provided are not contraindicated for you.

1. Are you currently receiving treatment from any of the following healthcare practitioners?
   ○ Chiropractor, ○ Massage Therapist, ○ Medical Doctor, ○ Physiotherapist, ○ Other: Yes

2. Are you over the age of 16? Yes No
   Please note: Massage therapy cannot be given if you are under the age of 16 years without the consent of a parent or legal guardian.

3. Are you presently involved in a WCB or ICBC litigation/claim involving an injury? Yes No
   Please note: Massage therapy cannot be given at WCCMT if you are on an ICBC/WCB claim.

4. Have you had a bad/negative reaction to heat or cold? Yes No

5. How did you hear about the WCCMT student clinic?
   ○ Friend, ○ Student, ○ Co-worker, ○ Family, ○ Website, ○ Advertising, ○ Other:

Please check ☑ if any of the following apply to you:

<table>
<thead>
<tr>
<th>General</th>
<th>Skin</th>
<th>Nervous System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergies</td>
<td>Bruise easily</td>
<td>Epilepsy</td>
</tr>
<tr>
<td>Hay Fever</td>
<td>Dry/Oily</td>
<td>Multiple Sclerosis</td>
</tr>
<tr>
<td>Depression/Anxiety</td>
<td>Eczeema</td>
<td>Sensation</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Hives/Rash</td>
<td>Tingling</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Psoriasis</td>
<td>Other</td>
</tr>
<tr>
<td>Headaches</td>
<td>Other Cardiovascular</td>
<td></td>
</tr>
<tr>
<td>Loss of sleep</td>
<td>Arteriosclerosis</td>
<td>Respiratory</td>
</tr>
<tr>
<td>Weight loss/gain</td>
<td>Anemia</td>
<td>Asthma</td>
</tr>
<tr>
<td>Other</td>
<td>Cold feet</td>
<td>Bronchitis</td>
</tr>
<tr>
<td>Muscle/Joint/Bone</td>
<td>Heart Disease</td>
<td>Chest Pain</td>
</tr>
<tr>
<td>Arthritis</td>
<td>Emema</td>
<td>Chronic cough</td>
</tr>
<tr>
<td>Low Back Pain</td>
<td>Difficult breathing</td>
<td>Difficulty breathing</td>
</tr>
<tr>
<td>Aid Back Pain</td>
<td>Emphysema</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Muscle weakness</td>
<td>Other</td>
<td>Other</td>
</tr>
<tr>
<td>Neck Pain</td>
<td>Rheumatic fever</td>
<td></td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>Stroke</td>
<td>Genitourinary</td>
</tr>
<tr>
<td>Sore/Achy</td>
<td>Swelling of ankles</td>
<td>Bladder infection</td>
</tr>
<tr>
<td>Stiff/Tight</td>
<td>Varicose veins</td>
<td>Incontinence</td>
</tr>
<tr>
<td>Other</td>
<td>Other</td>
<td>Kidney Disorder</td>
</tr>
</tbody>
</table>

Patient information is considered strictly confidential under the guidelines of the Personal Information Protection and Electronic Documents Act (PIPED).
PATIENT INTAKE FORM

Give a brief detailed description of the problem you are currently experiencing:

M.3

How long have you had this condition? [ ] 6 months [ ] 1 year [ ] 2 years [ ] 3 years [ ] 4 years [ ] 5 years
Is it getting [ ] worse [ ] better?

Does it bother you (check appropriate box) [ ] work, [ ] sleep, [ ] both:

What seemed to be the initial cause:

Are you currently satisfied with your:

- Physical health & fitness? [ ] Yes [ ] No
- Mental and emotional happiness? [ ] Yes [ ] No
- Diet? [ ] Yes [ ] No
- Ability to relax? [ ] Yes [ ] No

Do you exercise regularly? [ ] Yes [ ] No

How is most of your day spent? [ ] Standing [ ] Sitting [ ] Other:

When was your last physical exam? [ ] 05/10

Please describe your stress level [ ] Healthy - Easy Going [ ] Nature

Past Health History:

- Have you ever:
  - Been hospitalized (surgeries etc.): [ ] Yes [ ] No [ ] If yes explain briefly EX: Fractured Leg
  - Suffered from depression/ anxiety: [ ] Yes [ ] No
  - Had any broken bones: [ ] Yes [ ] No [ ] EX: Arm
  - Had any scars orsprains? [ ] Yes [ ] No [ ] EX: Wrist Sprain
  - Used orthotics: [ ] Yes [ ] No

Please list any medications you are currently taking and why:

ALGOFAN, PERCOCET (Spasm)

Alcohol, tobacco, and recreational drug use: [ ] Social Amount - NO DRUGS

Is there anything else your student therapist should know? [ ] No

Consent and Release:

I acknowledge that the above information is accurate and true to the best of my knowledge. I fully understand that this is a teaching massage clinic and accordingly, an clinician may be present during any aspect of my treatment. Our clinic makes every effort to ensure that your experience here is safe, effective and enjoyable.

The West Coast College of Massage Therapy Inc., its employees, servants and agents (the "college"), do not accept liability for any claim as to the method or manner of treatment given, or any complaint related to supposed conditions arising from therapy. In good and valuable consideration, the undersigned does hereby release and forever discharge the College, its successors and assignees, from any other legal obligations and compensation of whatsoever kind and however arising from or out of any treatment which will be provided to the undersigned.

Please sign below to show that you fully understand and agree to the above disclaimer and stated conditions of receiving treatment at the West Coast College of Massage Therapy Clinic.

Signature: [ ] Date: [ ]

Patient information is considered strictly confidential under the guidelines of the Personal Information Protection and Electronic Documents Act (PIPEDA)

Instructor signature: [ ]

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CONFIDENTIAL CASE HISTORY

TODAY'S DATE: [Embedded date]

CONSENT AND RELEASE:
Please acknowledge that this is a teaching clinic and, accordingly, a clinical instructor may be present during any aspect of your treatment. The time allotted for your appointment includes time for an interview and assessment of your condition and/or need as well as your therapy. Our supervisory staff are experienced, registered massage therapists and will ensure that you are provided with appropriate care. If you wish to discuss any aspect of your treatment with a clinical instructor, please inform the clinic reception or your massage therapy student intern at any time.

Our clinic makes every effort to ensure that your treatment is safe and effective. The West Coast College of Massage Therapy Inc., its employees, servants and agents (the "College"), does not accept liability for any claim as to the method or manner of treatment given, or any complaint related to supposed conditions arising thereby.

In consideration of good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned does hereby release and forever discharge the College, its successors and assigns, of and from any and all manners of action, causes of action, suits, contracts, claims, demands, damages, costs, expenses and all other legal obligations and compensation of whatsoever kind and howsoever arising from or out of any treatment which will be provided to the undersigned.

Please sign below that you fully understand and agree to the above disclaimer and stated conditions of receiving treatment at the West Coast College of Massage Therapy Clinic.

[Signature]
Date: [Embedded date]

Where did you hear about the WCCMT Clinic? [Free text]

For what condition or reason are you attending this Clinic? [Free text]

Are you currently taking any medications? [Yes/No] Yes: If yes, list medication and why you are taking it.

Are you currently receiving treatment from any of the following health care practitioners: [Free text]

Have you previously received Massage Therapy? [Yes/No] Yes: this clinic [Yes/No] Yes, BC RMT [Yes/No] Yes, other

Are you presently involved in a WCB or ICBC litigation or claim involving an injury? [Yes/No] Yes

NOTE: NO ICBC / WCB CLAIMS TREATED IN THIS CLINIC. WE APOLOGIZE FOR ANY INCONVENIENCE.

PLEASE TURN FORM OVER
PLEASE INDICATE ON THE FIGURE BELOW WHERE YOU ARE EXPERIENCING ANY PROBLEMS:

☐ OSTEOPOROSIS
☐ ARTHRITIS
☐ DISC PROBLEM(S)
☐ JOINT DISLOCATION
☐ FRACTURES
☐ SKIN CONDITIONS
☐ ASTHMA
☐ BRONCHITIS
☐ EMMHYSEMA
☐ SINUS, ALLERGIES, Colds
☐ ANEMIA
☐ ANEURYSM
☐ HEMOPHILIA
☐ BRUISE EASILY
☐ BLOOD CLOTS
☐ VARICOSE VEINS
☐ HIGH OR LOW BLOOD PRESSURE
☐ PAINTING/ DIZZINESS
☐ CHEST PAINS
☐ HEART CONDITION
☐ SHORTNESS OF BREATH
☐ MENSTRUAL DIFFICULTIES
☐ H.I.V. POSITIVE
☐ A.I.D.S. / A.R.C.
☐ CANCER
☐ CONTAGIOUS DISEASE
☐ DIABETES
☐ EPILEPSY
☐ NEUROLOGICAL CONDITION
☐ BURIED VISION
☐ EAR PROBLEMS
☐ JAW PAIN
☐ FATIGUE/ LOW ENERGY
☐ DEPRESSION/ ANXIETY
☐ INSOMNIA
☐ DIGESTIVE DISORDERS
☐ PREGNANCY

PLEASE ANSWER 'YES' OR 'NO' TO THE FOLLOWING:

☐ PHYSICAL HEALTH & FITNESS? YES
☐ MENTAL & EMOTIONAL HAPPINESS? NO
☐ ENERGY LEVEL? NO
☐ DIET? YES
☐ ABILITY TO RELAX? NO

HAVE YOU EVER HAD A MAJOR ACCIDENT, SURGERY OR ILLNESS?

IF YES, PLEASE DESCRIBE IN POINT FORM BELOW.
☐ EXTENSIVE MUSCLES ON LEFT, FRACTURED
☐ AUTOPSY REPORTS LAST 1996 ??
☐ NS

Thank you for taking the time to complete this form. We realize that there are many questions asked on this form, and answering each one is important to receiving appropriate treatment. Thanks again.

[Signature]
Date