Therapeutic Exercise and Vibration Training for a Military Veteran Mimicking Relapse-Remitting Multiple Sclerosis

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BACKGROUND & PURPOSE:

Multiple Sclerosis (MS) is a neurological, inflammatory, demyelinating disease that affects the central nervous system. MS results in pain, paresthesia, muscle weakness and rapid muscle fatigue. Relapse-Remitting Multiple Sclerosis (RRMS) is the most common sub-type of MS where the patient alternates between flare-ups and symptom relapses, followed by a remission of symptoms.

The purpose of this case report is to describe the combination of therapeutic exercise and vibration training to improve stair navigation for a patient with mimicking RRMS.

CASE DESCRIPTION:

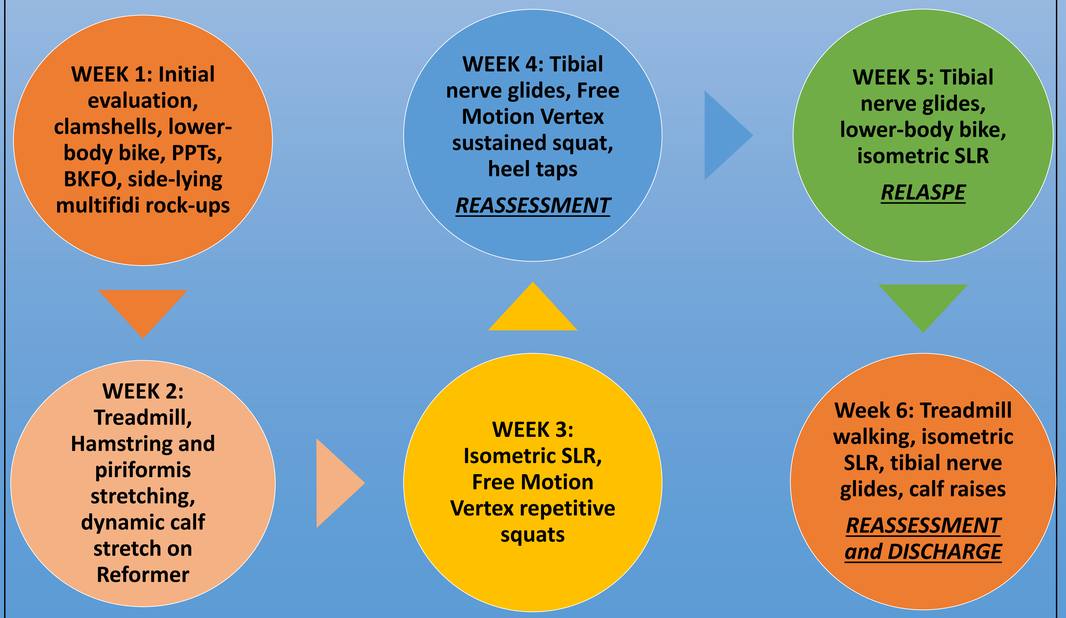
- 29-year-old male Navy veteran and full-time student referred to physical therapy for a two-year history of chronic low back pain, bilateral lower extremity (BLE) numbness and tingling, as well as BLE pain into the medial leg.
- MRI completed 11/25/16 indicated mild L4-L5 and L5-S1 degenerative disc and mild narrowing of the spinal canal at L4-L5
- Nerve Conduction Study (NCS) and Electronic Myelogram (EMG) results are negative
- Patient is an avid runner with no previous medical history of back or leg pain prior to active-duty in the military

PATIENT GOALS:

To decrease chronic low back pain; to decrease paresthesia and lower leg tremors; to be independent with advanced HEP for mobility, strengthening and conditioning; to be able to perform a 20 pound F/W lift with proper body mechanics; to ambulate 10+ minutes over variable terrain and up/down 1-2 flights of stairs with normal gait

INTERVENTIONS:

For 6 weeks (11 visits), the patient was provided therapeutic exercise including: isometric straight-leg raises, multifidi and hip abductor strengthening, core stabilization, as well as neuromuscular re-education with tibial nerve glides and vibration training. Cryotherapy was the modality of choice after each treatment session.



OUTCOMES:

At discharge:

- Decreased low back pain, demonstrated by a 20 pound F/W lift and 100% lumbar spine mobility
- 0% on the *Quebec Back Pain Disability Scale*
- Hamstring length 75 degrees bilaterally.
- Lower leg paresthesia, lower leg pain, gait deviations during stairs and relapse-remitting fatigue

DISCUSSION:

Lumbar radiculopathy was not an appropriate diagnosis for his lower leg complaints, but by providing therapeutic exercise, his chronic lumbar pain improved and his mobility was restored. Vibration training and therapeutic exercise were not sufficient alone to create improvement in his lower legs. Due to his clinical presentation of thermosensitivity, lower leg tremors, and other neurological factors, he was referred to neurology for further testing and for a diagnosis not diagnosable by PT such as Relapse-Remitting Multiple Sclerosis.

CLINICAL RELEVANCE:

Lumbar radiculopathy was initially the diagnosis for this patient due to his complaints of low back pain and decreased sensation at the bilateral L4 dermatome, but with further examination, lumbar radiculopathy was refuted as a diagnosis due to the patient's LE tremors. RRMS is a debilitating disease due to the variability in its presentation and the fluctuation between relapses and remission. There is a lack of research on the combination of therapeutic exercise and vibration training on a patient presenting with mimicking RRMS. Due to the severity of this diagnosis, more research must be done to provide relief to patient's presenting with RRMS without positive imaging findings.

For references, please scan: