

Case Study

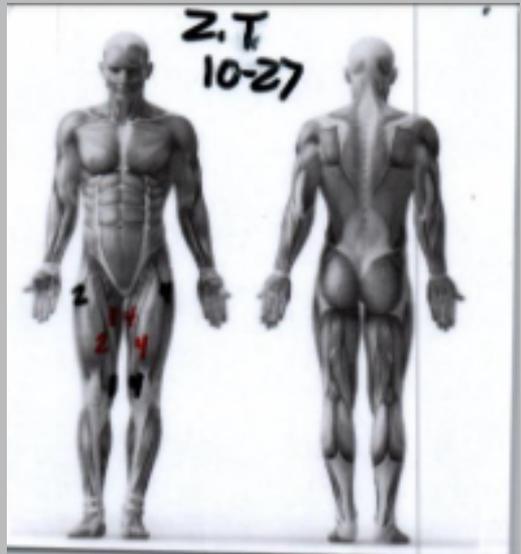
Manual muscle activation combined with physical therapy exercise and NEUBIE to improve muscle activation and low back pain in order to restore mobility

PERFORMED AT:

Performance PT and Wellness

DIAGNOSIS:

Patient is an 86 year old man who presented with inability to walk due to significant RLE weakness. He was working on his shed at home, tried to lift something heavy, felt a pull in his back and had low back pain.



TREATMENT AND OUTCOME:

To treat the patient's inability to walk following low back pain and significant right quadricep weakness following a fall and impingement of L5 nerve root and DDD. Each session we performed muscle activation techniques, mapping of low back and RLE for hot spots followed by AROM activities such as lumbar flexion, knee flexion/extension and nerve glides followed by use of NEUBIE for quad strengthening at 55 Hz. Patient required 24 visits to go from wheelchair bound during community ambulation to ambulating without an AD.

CLINICAL FINDINGS:

Process: Manual Muscle Testing, AROM, dermatomal testing, reflex testing

Weaknesses: significant weakness of right quadriceps 1+/5, 3+/5 strength of hip IR, ER, flexion, extension.

Myotomes: L3: Quadriceps 1+/5 and L5 Gastroc/Hamstring: 3+/5. Dermatomal absent to light touch at L3 and L4. 1+ patellar reflex.

ROM: lumbar flexion to 50 degrees, lumbar extension to 0 degrees.

Scan: hot spots found in the lumbar paraspinals, along the quadriceps muscle belly, adductors and gluteus medius

Assessment: At the evaluation, findings indicated significant nerve dysfunction of L3, L4 and L5 myotomes and dermatomal changes at L3 and L4. Dysfunctional at these levels caused poor quad activation leading to decrease in strength after 9 months of deteriorating level of mobility. Quadriceps weakness caused the patient to be unable to stand without significant UE assistance or use of AD due to fear of LE buckling and fall. Significant muscle tension and hot spots noted along lumbar paraspinals contributing to impingement symptoms in the lumbar spine causing LE weakness.

Treatment: muscle activations to weak areas followed by Neubie mapping each session and priming at 500 Hz during AROM/AAROM of lumbar spine, hips and knees followed by strengthening at hot spot areas at 55 Hz for 5 minutes (10 sec on/off cycle) followed by pads placed along muscle belly of quadriceps at 55 Hz for 5-10 minutes (10 seconds on/off cycle) Restorative setting utilized for 5-8 minutes after sessions.

DISCUSSION:

Patient response to treatment was very positive. He did not have to have any further testing with Cleveland Clinic (who ended up discharging him as they told him there was nothing they could do for him). He regained his functional strength and mobility allowing him to perform his activities of daily living and decrease his reliance on his wife. He showed a significant improvement in LE strength, especially of his quadriceps and improved his balance, decreasing his future fall risk. The approach taken allowed us to help him regain strength and mobility that he most likely would not have achieved with traditional physical therapy.

PATIENT PERSPECTIVE:

After the first session he was able to walk longer distances with his FWW and perform pre-gait activities without therapist assistance. Over the next 9 weeks he was able to regain most of his quadriceps strength and ambulate without any assistance. He was surprised at how the NEUBIE helped his quad activation and with the machine on, made functional transfers, stair negotiation and walking easier.