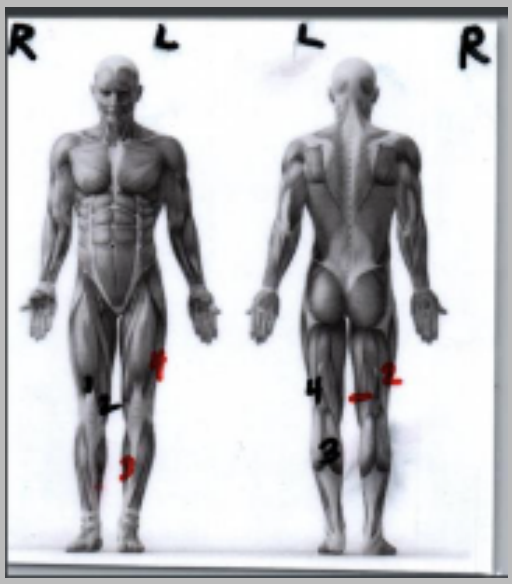
Case Study

Manual muscle activation combined with physical therapy exercise and NEUBIE for pain and weakness following bilateral total knee replacements

PERFORMED AT:
Performance PT and Wellness

DIAGNOSIS:

53 year old male presenting with bilateral total knee replacements utilizing standard walker and requiring MOD to MAXx1 for transfers. Patient had a long history of knee pain, doctoring for 12 years prior to replacements. Patient was in the hospital for4 days post-op due to pain and poor functional mobility.



TREATMENT AND OUTCOME:

To treat the patient's postoperative knee pain, weakness and lack of range of motion following bilateral total knee replacements we used the NEUBIE NMES device with a combination of manual techniques, muscle activations and exercises and after 6 weeks, Blood Flow Restriction Therapy. Each session, manual activations were performed on weak muscles of both legs, joint mobilizations were completed to improve range and exercises performed while being stimulated by the NEUBIE device to both improve range of motion (500 Hz) and quad strength (55 Hz). After 6 weeks of traditional therapy combined with NEUBIE treatments, he was able to be progressed to BFR for continued strengthening as the patient was a basketball coach and teacher and performed repetitive stair negotiation daily.

CLINICAL FINDINGS:

Process: Manual Muscle Testing and scanFindingsWeaknesses: 2+/5 quad strength as patient was unable to complete a Straight Leg Raise bilaterally, significant pain and knee range of motion lacking 9 degrees from extension to 72 degrees of flexion bilaterally
Scan: hot spots found at RLE: distal quad, medial hamstring, distal adductor and mid belly of calf. LLE: VMO, distal adductor, lateral hamstring and lateral calf.
Assessment: Findings indicate significant Quadriceps weakness bilaterally, limited ROM into both extension and flexion, common s/p total knee replacement. Edema noted around bilateral knees as well, increasing pain. Due to poor quad strength bilaterally, patient had difficulty with all transfers and ambulation, requiring MOD to MAXx1 for transfers and bed mobility. Significant tightness along noted in hamstrings and calf musculature likely due to (body's natural defense mechanism and tightening of hamstring/calf to protect knee from further injury (surgery)).
Treatment: Manual activations to weak areas followed by NEUBIE stimulation along RLE and LLE in mapped spots during exercises (heel slides, quad sets, sit to stands, assisted SLR and hamstring/calf stretching) followed by quad strengthening at 55 Hz during SLR, sit to stands and quads sets and/or swelling reduction with bilateral LEs elevated with ice packs and NEUBIE stimulation at 5 Hz.Patient report after initial use: Less pain surrounding knees after use improving his tolerance to PROM and his overall range.

DISCUSSION:

Patient response to treatment was very positive, he has not returned for any further treatment since discharge and is able to stand for long periods of time during the school day without difficulty.

He was able to progress faster after surgery with use of the NEUBIE which helped reduce his significant amount of post-op pain, improve his tolerance to functional mobility and reduce the strain on his wife to assist with ADLs. The use of the NEUBIE allowed him to begin higher level strengthening quicker and returned him to coaching sooner than expected. Additional therapies were utilized such as joint mobilizations, Blood Flow Restriction therapy and Integrated Dry Needling but the Neubie is what helped him regain his initial function after surgery.

PATIENT PERSPECTIVE:

I just feel like I'm way ahead and I'm ecstatic. The neubie machine has been really good with awakening the muscles and getting them to work correctly, which they haven't done in awhile--especially with dealing with knee pain for 12+ years.