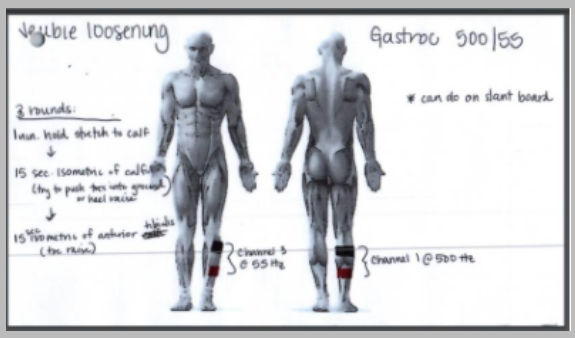
Case Study

Manual muscle activations combined with physical therapy exercises and NEUBIE for calf tightness

PERFORMED AT:
Performance PT and Wellness



DIAGNOSIS:

8 year old boy who presented with habitual toe walking. No structural changes but mother was concerned regarding his calf tightness and was advised to perform gastroc lengthening surgery to rid the patient of toe walking. Patient was able to perform age specific activities without issue and run at high speeds without pain/issue.

TREATMENT AND OUTCOME:

To treat the patient's poor dorsiflexion range of motion and calf tightness, we used the NEUBIE NMES device along with a combination of sustained low load stretching, IASTM techniques and exercises to encourage heel toe ambulation and dorsiflexion strength. Each session, IASTM and low load stretching was performed followed by manual activations to weak muscles followed by stretching protocol (500 Hz on the calf and 55 Hz on the Anterior Tibialis) during 1 minute holds, 5 second isometric contractions x3 rounds. Followed by exercises to promote heel toe ambulation pattern. Patient required 2 sessions to improve bilateral dorsiflexion from 2 degrees to 10 degrees. Patient then utilized therapy sessions to maintain range of motion and work on habitual toe walking.

CLINICAL FINDINGS:

Process: Manual Muscle Testing, ROM
Weaknesses in Anterior Tibialis along with significant tightness in Gastrocnemius (dorsiflexion was 2 degrees on right, 3 degrees on left)
Scan: hotspots found on bilateral calf musculature
Assessment Findings indicate Gastocnemius tightness leading to weakness/inhibition of Anterior Tibialis and habitual toe walking.
Treatment: IASTM and low load stretching followed by manual activations to Anterior Tibialis followed by stretching protocol (500 Hz on the calf and 55 Hz on the Anterior Tibialis) during 1 minute holds, 5 second isometric contractions x3 rounds. Exercises then performed to facilitate heel toe pattern.Patient report after the initial evaluation: improvements in dorsiflexion to 6 degrees on the right, 8 degrees on the left.

DISCUSSION:

Patient response to treatment was very positive-he was able to achieve 10 degrees of active and passive dorsiflexion after 2 visits and maintain for 8 months. His range of motion and strength has stayed normalized with inconsistent performance of stretching program at home, with traditional physical therapy he likely would have regressed in ROM without a consistent stretching program and he was able to avoid surgery for Gastroc lengthening.

PATIENT PERSPECTIVE:

PerspectiveParents were extremely pleased at his ability to gain range of motion and prevent further orthopedic intervention. He has been able to maintain his range of motion with physical therapy and improve his squatting mechanics all while continuing to play multiple sports. If he would have had surgery, it would have been financially costly and he would have been unable to participate in sports for multiple months.