

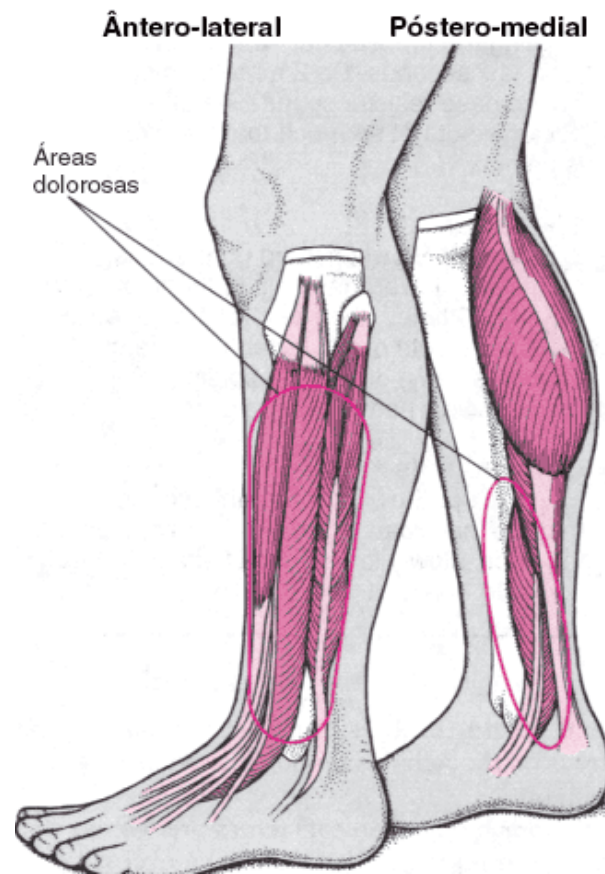


Electrical Stimulation Braces

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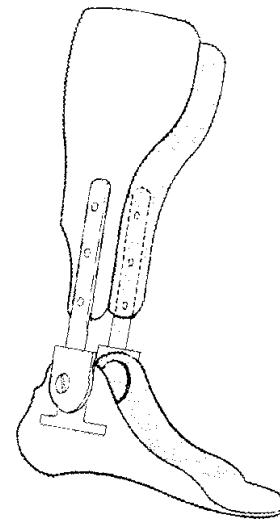
Foot Drop

Foot drop is when the muscles in the front of the calf don't function to pick up the foot in swing phase of gait



Ways to Manage

- Various types of braces

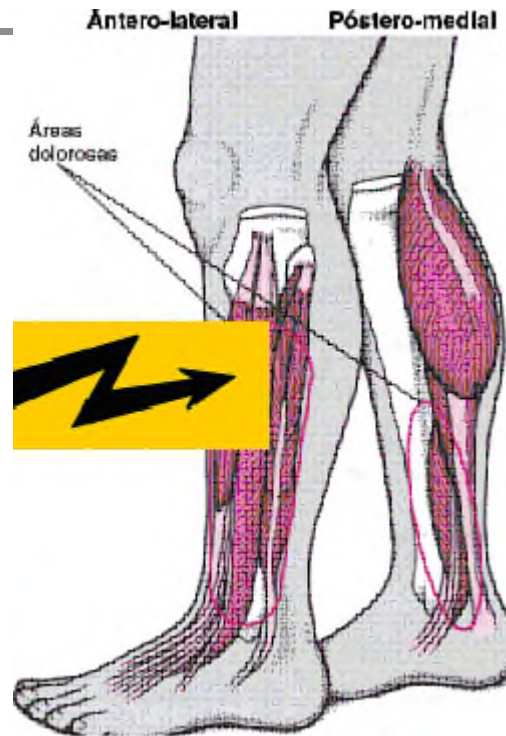




Harnessing the power of electricity

- Muscles respond to electricity, they already have electrical activity.
- By controlling the electrical flow we can get the muscle to contract.
- Thus we are trying to do what the body does naturally.

FES (Functional Electrical Stimulation)



Early Days

- A safety harness was part of Petrofsky's first walking experiments. Since no one at the time had ever had a paraplegic or quadriplegic walk they didn't know if the bones or muscles could sustain full body weight. To ensure the safety of participants, Petrofsky used a modified parachute harness, offset by weights, so the load of the subject's body could be gradually introduced.
- The harness, worn like a parachute harness, was attached to an overhead support platform. The weights offset the body weight so less than half the subject's body weight would be applied to the joints. As the subject's bones and joints thicken and strengthen from the walking, an increasing percentage of the weight would be allowed, until the joints could support the full body weight.



Early Days



Early days



Today

- Two Systems have created a reproducible and controlled stimulation for dorsiflexion of the foot.
- Bioness and Walkaide





General Preview





Where we go from here

- MOPC is not sure where all this will go, but we do know this is a trend for the future....
- We are excited to grow with the integration of braces and electrical stimulation to restore mobility and muscle balance to people with disabilities.