Efficacy of Novel Bracing for Treating Sciatica and Cadaveric Dissection to Examine Excursion of the Sciatic Nerve

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Background/Objective:

Sciatica affects nearly half of all Americans and can often become debilitating, leading to severe pain that can limit performing activities of daily living. Brace application has not been tried for alleviation of pain. In this study, we seek to find if a novel brace can decrease pain and decrease bothersome level of symptoms for those suffering from sciatica. In addition, this study utilizes a cadaveric dissection to understand how the sciatic nerve stretches and tensions upon lower limb manipulation.

Methods:

Fourteen patients self-reported pain, functionality, and bothersome levels pre- and post-bracing. Excel's data analysis tool was utilized to run statistical tests. One cadaver (2 lower limbs) was dissected, revealing the sciatic nerve at the hip and knee, while tibial nerve at the ankle. Excursion was measured utilizing a fixed pin and an initial distance, the leg manipulated, and final distance from pin measured. Ultimately, excursion was deemed final distance minus initial distance from the pin.

Results:

The brace decreases Visual Analogue Scale (VAS) scores, increases Patient Reported Outcomes, and decreases Sciatica Bothersome Indexes. There was a significant difference in VAS pre- versus post-brace values at initial and 7-day post-visit but not at 21- or 42-day post-visit. Sciatic nerve excursion was greatest at the ankle.

Conclusion and Potential Impact:

Brace use decreases pain levels, increases functionality, and decreases bothersome level of symptoms. The distal nerve moves more upon manipulation and therefore is more prone to tensioning than the proximal nerve. Dissection data illustrates how the brace positions the limb in a way that promotes "detensioning" of the nerve, alleviating sciatica. More cadaver data is needed.