



## USE OF ULTRASONOGRAPHY AND SHEAR WAVE ELASTOGRAPHY TO ANALYSE AND DETECT NEW CLINICAL PARAMETERS IN PERIPHERAL NEUROPATHIES

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### Background

The Peripheral Nervous System (PNS) is constantly exposed to mechanical loads imposed upon it by movement and posture of the body. Entrapment neuropathies are caused by compression of PNS, as it travels upon anatomical spaces. Currently, Cross Sectional Area (CSA) of Peripheral Nerves is the most accepted parameter as a reference for the size of the specific nerve, where increases CSA, notifies Pathology. According to the literature, more advanced measurements and considerations are desirable.

### Methodologies

Ultrasonography (US) provide a dynamic real time assessment of the nerve, and it is useful to measure longitudinal movements of the nerve. Shear Wave Elastography (SWE) transmits ultrasonic waves to interact with tissues; in responses, shear waves are produced, and their velocity can be measured and used to estimate the stiffness of the tissues.

### Expected Results and Impact

This project aims to develop a new baseline database of measurement in healthy subjects, that can help to understand how the nervous system adapt and react at the external forces.

A non-invasive quantification of the mechanical properties of the nerve during movements can provide valuable information for the diagnosis and the management of people with peripheral neuropathies.