## **Phantom Limbs**

People who have lost an appendage or organ/ tissue perceive the limb/organ tissue as though it were still there

This phenomenon is often associated with great pain this the phantom lib/organ (70% of amputees) The phantoms are very real to amputees vivid sensory qualities (pressure, warmth, cold, and various pain) and precise location in space perceived as a part of ones self

During body movements, the phantom lib moves in perfect coordination with the body and other limbs suggest that the somatosensory cortex area maintains connections with the motor areas of the frontal lobe and cerebellum

Amputation is not essential for the occurrence pf a phantom, brachial plexus avulsion nerves of arm ripped out

Treatments of pain have concentrated on stopping sensory signals from remaining nerves on the stump from reaching the thalamus and going to the somatosensory cortex

This procedure reduces pain for a short period of time but does not abolish the phantom limb Newest research points to the cause of phantom limbs being due to brain areas connected through a network or neuromatrix:

Your body image, how your body feels, where your body is in sPace, how you perceive it, how it feels when you move

All constructs of this network of neurons spanning your cortex (specifically the parietal and frontal lobe) 0-1

Essentially, the feeling that all parts of the body are uniquely one's own the phantom limb is perceived as an integral part of ones self (see hough physically it is not real) however, people who suffer lesions/ damage to the pariset light damage of the body is part of themselves and even ignore the space on the side Evident that the brain processes that a Onlie the experience of our bodies must import a special signal

that provides the basis or experience of ones self

The neuromatrix is y methally designed and at ord through sensory experiences

Phantoms are experienced by children who are born without a limb (these change size and shape over time)

Neuroplasticity allows for reorganization

The neuromatrix responds to sensory inputs from your body and generates a characteristic pattern of impulses that make up you body image, neurosignature.

Even in the absence of sensory stimuli this neurosignature is active = phantom limb and pain Example: Cramping plain- messages from neuromatrix to produce movement. Without feedback from the limb, the neurosignature gets stronger in an attempt to move the limb= output message results in pain.