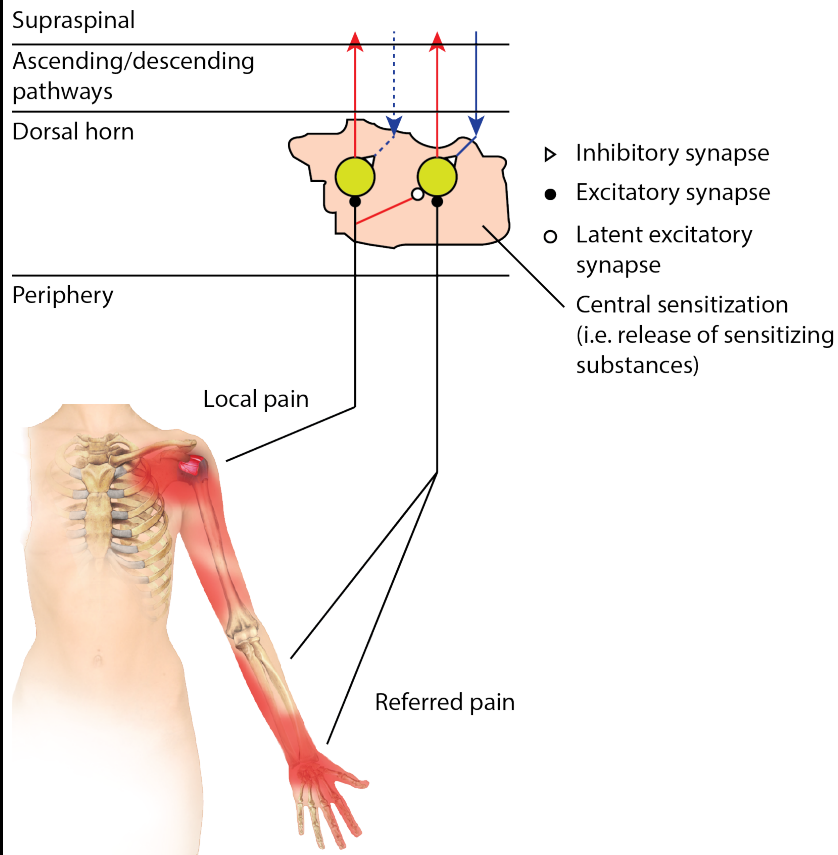


Neurophysiological Model for Referred Pain



This model includes two collections of dorsal horn neurons.

The first dorsal horn neuron has receptive fields in local soft tissue and the second dorsal horn neuron has receptive fields in distal deeper tissues associated with referred pain.

Injury from a mechanical, chemical, or thermal stimulus causes nociceptive activity to excite the first dorsal horn neuron(s). Latent collateral synaptic connections are then opened and either excite the neighboring neurons or facilitate the synaptic afferent input from the referred pain area, either of which causes the perception of referred pain; i.e., central sensitization.

The time needed for this sensitization to occur may account for the delay between perceiving the local pain and perceiving the distal, deeper referred pain.

A possible explanation for the progressive inhibition of referred pain is that the descending inhibitory control mechanism (desensitization) features a relatively stronger inhibition on heterogeneous somatosensory structures than the source of pain does.

The 7 Key Features of Referred Pain

- It is felt distant to the initial local pain.
- It is semi-directional.
- It is a deep sensation.
- It needs a stronger stimulus than local pain.
- It is delayed, compared to local pain.
- It diminishes before local pain.
- Stimulus at the referred pain site isn't needed (e.g., phantom limb pain).