

## Pain Theories

Definition of Pain – “Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.”)

<u>Specificity Theory</u>	1644	Rene Descartes, “Treatise of Man”
<ul style="list-style-type: none"> <li>- The presence of dedicated pathways and specific receptors for each somatosensory modality.</li> <li>- <u>Problems with Specificity Theory</u> – psychological evidence fails to support the assumption of a one-to-one relationship between perception of pain and the intensity of the stimulus (Examples: Pavlov’s dogs, phantom limb pain, Henry Beecher’s study of battlefield wounds). These examples refute the idea of a direct, fixed line nervous system.</li> </ul>		
<u>Pattern Theory</u>	1894	Alfred Goldscheider
<ul style="list-style-type: none"> <li>- Patterns of nerve activation are produced by the summation of sensory input</li> <li>- <u>Problems with Pattern Theory</u> – does not account for evidence that the brain has control over pain perception or for the existence of specialized pain receptors.</li> </ul>		
<u>Summation (Intensity) Theory</u>	1943	Livingstone
<ul style="list-style-type: none"> <li>- Hyperalgesia – the exacerbation of pain with repeated stimuli</li> </ul>		
<u>Gate-Control Theory</u>	1965	Melzack and Wall
<ul style="list-style-type: none"> <li>- “Pain transmission is modulated by a balance of impulses transmitted to the spinal cord.” Non-painful sensory input keeps the “nerve gate” closed. For example, A-beta fibers stimulated when the site of injury is rubbed, inhibit nociceptive A-delta and C fibers at the dorsal horn of the spinal cord.</li> </ul>		

## References

1 – IASP, WHO

2 - McCance, K. L., & Huether, S. E. (2018). *Pathophysiology - E-Book: The Biologic Basis for Disease in Adults and Children*. Mosby.