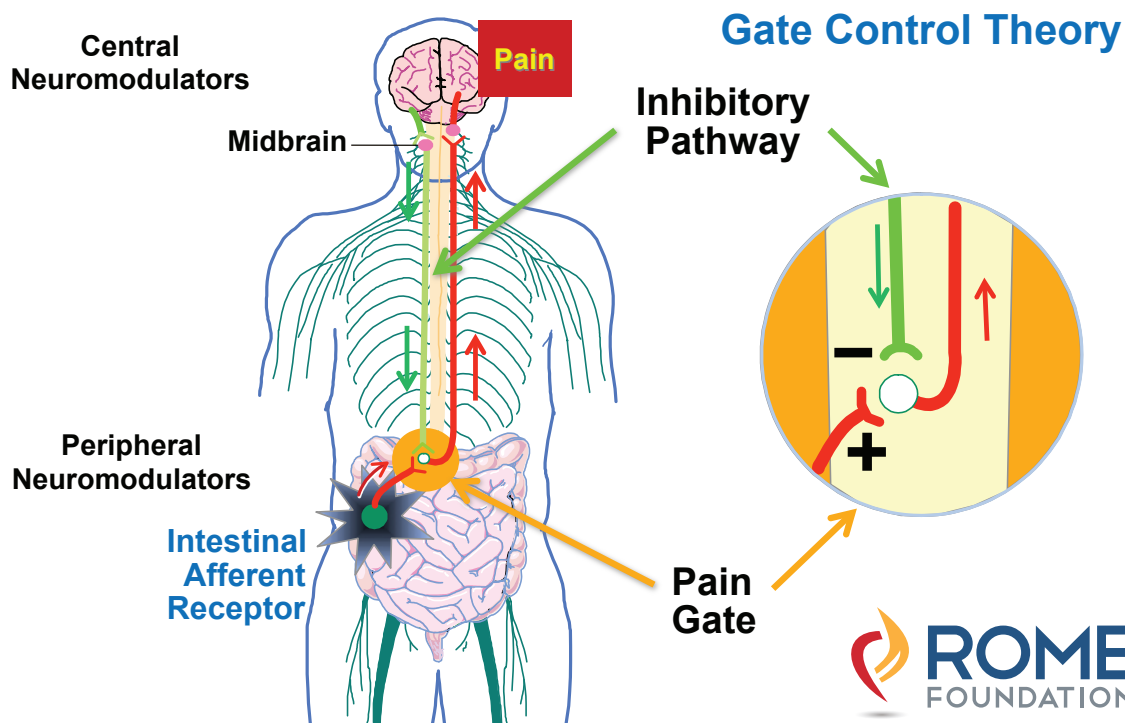


BRAIN-GUT AXIS



BRAIN-GUT AXIS & THE GATE CONTROL MECHANISM FOR GI PAIN

This image demonstrates the brain-gut axis and the Gate Control mechanism for GI pain. Pain that begins in the gut ascends to the dorsal horn of the spinal cord. Then, second-order neurons go to the midbrain and limbic structures. Finally, third-order neurons go to the cortex (e.g., cingulate cortex and other areas) where the pain is experienced.

The gate control theory of pain relates to the brain's ability to reciprocally facilitate or block ("gate") the ascending signal from the dorsal horn going to the brain, thereby reducing the experience of the pain. This can occur by distraction, focused attention, meditation, hypnosis, or medications like neuromodulators.

Chronic GI pain results from dysregulation of this brain-gut pathway. It can occur by increased signaling from the GI tract due to visceral hypersensitivity, upregulation at the level of the cord and brain (central hypersensitivity), and also a failure of the brain to sufficiently block or downregulate the ascending signal at the dorsal horn of the cord. The use of neuromodulators and behavioral treatments can help reset this dysregulated system and reduce pain.

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Scan this QR Code to watch a short video about brain gut axis or visit <https://romedross.video/Brain-GutAxis>