

SPRING 2020

Pain regulation by gut microbiota: molecular mechanisms and Therapeutic potential

Key Points:

- Gut-brain axis refers to bidirectional communication between the gut and the brain.
- The gut microbiota, or gut bacteria, can directly affect signals from the spine, and regulate inflammation of the body's nervous systems.
- **Inflammatory pain:** Studies suggest that targeting gut microbiota or using specific probiotics may be promising for reducing and preventing inflammatory pain
- **Abdominal organ pain:** Specific probiotics, or favorable gut bacteria, help gastrointestinal disorders, such as abdominal pain, bloating/distension and diarrhea. Diet changes are often effective in irritable bowel syndrome
- **Nerve pain:** Studies show that abnormal gut microbiota may contribute to neuropathic pain, or nerve pain, and feeling down
- **Headaches:** Studies suggest that gut microbiota may play a possible role in the cause of headaches, especially migraines, gut microbiota has a significant impact on brain function.

What this means for you?

- Gut microbiota, or gut bacteria, may play a critical role in many types of chronic pain including inflammatory pain, visceral or organ pain, neuropathic or nerve pain, and headaches.
- You can affect your gut microbiota, or gut bacteria, positively by proper diet (foods) and avoiding harmful diet (foods) offers a promising therapy for certain chronic pain.

British Journal of Anesthesia, Vol 123, No 5; November, 2019: pp 637-654.

Obesity and Chronic Pain: Systematic Review of Prevalence and Implications for Pain Practice

Key Points:

- Obesity is defined as an excess in body fat that negatively affects health. It is defined by the WHO as a Body Mass Index (BMI) > 30. 35% of U.S. adults.
- Obesity increases the risk for developing chronic pain and worsened mood
- Types of chronic back increased by obesity include: low back and leg pain, osteoarthritis involving large and small joints of the arms and legs, chronic widespread pain / fibromyalgia, headaches, abdominal and pelvic pain, and chronic nerve pain.
- The causal relationship is complicated; obesity increases the risk for chronic pain, and chronic pain increases the risk for obesity due to reduced physical activity
- Inflammation is thought to be a common link between obesity and chronic pain.

What this means for you?

- Lifestyle modifications including a healthier diet, increased physical activity, and reduced stress can improve obesity and chronic pain.
- Cognitive behavioral therapy (CBT) and improved coping skills can decrease obesity and chronic pain.
- Acupuncture can help weight loss and pain by reducing inflammation and obesity-linked hormone levels.

Narouze S and Souzdanitski D. Regional Anesthesia and Pain and Medicine 2015 (40): 91-111.