Maximizing Patient Outcomes Using Pain Neuroscience Education. Persistent pain affects 100 million Americans and imposes societal costs estimated between $560-635 billion annually. Treatment approaches focused on medications, injections and surgeries have not proven effective for many patients dealing with persistent pain. Studies have shown that neuroscience education can decrease fear and positively affect patient’s perceptions of their pain, make improvements in pain, cognition and physical performance, and increase pain thresholds during physical tasks.

Neuroscience education can also improve outcomes of therapeutic exercises. Neuroscience education is defined as an educational session(s) outlining the neurobiology and neurophysiology of pain. Rather than focusing on the tissue injury and nociception, neuroscience education describes how the nervous system has the capacity to modulate the pain experience. Peripheral nerve sensitization, central sensitization, synaptic activity and brain processing are all explained in laymen’s terms. An underlying theme is that the nervous system processes many inputs (not just nociception) including psychological and cognitive information in its construction of the pain experience. By reconceptualizing persistent pain as the nervous system’s interpretation of threat (rather than being indicative of ongoing tissue injury), patients will be more inclined to exercise, move and increase their physical function. This increase in movement, in turn, gives positive feedback to the brain and induces positive neuroplastic changes that begin to decrease the constant brain-derived pain experience. This form of education differs from the older models that relied on anatomic and biomechanical models in that the discussion is now focused on the nervous system’s role in processing and creating the pain rather than targeting a specific tissue responsible for the pain. The goal is to reduce pain and disability by educating patients in the biological processes underlying their pain, decreasing the threat of that pain, and encouraging healthy activity and habits that begin to re-train the brain.

**Learning Objectives**

Upon completion of this session, the learner will be able to:

1. Explain pain neuroscience concepts in plain language to patients with chronic pain in order to reduce maladaptive pain cognitions and self-imposed movement restrictions.
2. Discuss and recommend healthy, adaptive movement and exercise options with chronic pain patients and the biological rationale for using movement as treatment.
3. Apply 3 self-management techniques in patient education that reduces perception of pain intensity and improves functional impairments.

**Disclosures**

Conflict of Interest for Presenter:

- The presenter(s) of this session declare no conflict of interest. As faculty/presenter for this activity, presenter attests that they will provide the best available evidence for this content and present information fairly and without bias.