

The effects of rhythmic sensory stimulation on chronic pain and associated symptoms

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Biography

Mosabbir has completed a PhD in protein engineering. His dissertation was focused on engineering protein tools to respond to noninvasive stimuli such as low frequency flashing lights or oscillating magnetic fields. Since then he has transitioned into his post-doctoral work in rhythmic sensory stimulation. His work with rhythmic sensory stimulation includes low frequency sound and vibration with a focus on the effects on clinical symptoms. Dr. Mosabbir has worked under Dr. Lee Bartel to study the effects of vibrotactile and auditory rhythmic sensory stimulation on chronic pain symptoms.

Abstract

Rheumatic conditions are often associated with chronic pain, which should be considered as a disease entity in its own right. Pain is a subjective experience that relies heavily on the brain, and thus should be studied as a neurological disease with an emphasis on the brain¹. Neural oscillations in the brain of those with chronic pain show a slowing of alpha power into theta and reduced gamma power. Rhythmic sensory stimulation (RSS) is a form of non-invasive pulsed stimulation that has shown to entrain brain rhythms and may provide an avenue to normalize altered brain rhythms. RSS can be defined as a form of sensory stimulation in a pulsed form, usually within a range of low frequencies (<200 Hz). Emerging studies exploring the effects of vibratory and auditory RSS have demonstrated improvements of chronic pain and associated symptoms in several rheumatic conditions. Low frequency RSS have shown improvements in conditions such as back pain², neck pain³, fibromyalgia⁴, and Ehler's Danlos syndrome⁵. Other clinical studies have also shown improvements in symptoms often associated with chronic pain such as depression⁶, sleep disturbance, muscle tone, range of motion⁴ and movement⁷. This review will attempt to summarize the findings of studies showing the effects of low frequency RSS on chronic pain and associated symptoms. Furthermore, a discussion on the neurological basis of chronic pain will be explored and a potential mechanism for the effects seen with RSS will be discussed.

