Treatment of chronic back pain using indirect vibroacoustic therapy: A pilot study

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Abstract: BACKGROUND: Low frequency sound wave stimulation therapy has become increasingly popular in the rehabilitation fields, due to its ease, less fatiguing and time efficient application. OBJECTIVE: This 12-week pilot study examines the efficacy of applying low frequency sound wave stimulation (between 16-160 Hz) through both hands and feet on relieving pain and improving functional ability in patients with chronic back pain. METHODS: Twenty-three participants with chronic shoulder [eleven participants] or low back pain [twelve participants] underwent a 12-week vibration therapy program of three sessions per week. A low frequency sound wave device comprising four piezoelectric vibration type tactile transducers enclosed in separate 5-cm diameter circular plates, which generate sinusoidal vibratory stimuli at a frequency of 16-160 Hz, was used in this study. Primary outcome measure was pain sensation measured using the Visual Analogue Scale (P-VAS). The secondary outcome measures were pain-related disability measured using the pain disability index (PDI) and quality of life measured using the SF-12. RESULTS: At week 12, significant reductions in pain sensation and pain-related disability were observed, with mean reductions of 3.5 points in P-VAS and 13.5 points in the PDI score. Sixty-five percent of the participants had a reduction of at least 3 points on the P-VAS score, while 52% participants showed a decrease of at least 10 points in the PDI score. Significant improvement was observed in the SF-12 physical composite score but not the mental composite score. CONCLUSIONS: The preliminary findings showed that passive application of low frequency sound wave stimulation therapy through both hands and feet was effective in alleviating pain and improving functional ability in patients with chronic back pain.

Keywords: Chronic pain, rehabilitation, spinal degeneration, vibroacoustic therapy

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