

## Neurofeedback Treatment for Pain Associated with Complex Regional Pain Syndrome Type I

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### ABSTRACT

**Introduction.** Complex Regional Pain Syndrome Type I (CRPS-I) is a devastating pain condition that is refractory to standard care. Preliminary evidence suggests the possibility that neurofeedback training might benefit patients with chronic pain, including patients with CRPS-I. The current study sought to address the need for more information about the effects of neurofeedback on pain in persons with chronic pain by (1) determining the average decrease in pain in patients with CRPS-I following neurofeedback training, (2) identifying the percent of patients reporting pain decreases that are clinically meaningful, and (3) documenting other benefits of neurofeedback training.

**Method.** Eighteen individuals with CRPS-I participating in a multidisciplinary treatment program were administered 0–10 numerical rating scale measures of pain intensity at their primary pain site, as well as pain at other sites and other symptoms, before and after a 30 minute neurofeedback training session. A series of t-tests were performed to determine the significance of any changes in symptoms observed. We also computed the effect sizes and percent change associated with the observed changes in order to help interpret the magnitude of observed improvements in symptoms.

**Results.** There was a substantial and statistically significant pre- to post-session decrease in pain intensity at the primary pain site on average, with half of the study participants reporting changes in pain intensity that were clinically meaningful. Five of seven secondary outcome measures also showed statistically significant improvements following neurofeedback treatment.

**Conclusions.** The findings suggest that many patients who receive neurofeedback training report significant and substantial short-term reductions in their experience of pain, as well as improvements in a number of other pain- and nonpain-specific symptoms. The findings support the need for additional research to further examine the long-term effects and mechanisms of neurofeedback training for patients with chronic pain.