Supplemental Methods

Behavioural Tests/Scores

CRPS Severity Score (CSS) is a well-validated continuous score for CRPS severity. It corresponds to the Budapest CRPS criteria and monitors symptoms over time. It includes 17 signs and symptoms (8 reported by the patient, 9 observed at examination date). Reported and observed symptoms are added together and calculated as the CSS (0-17) with increasing score meaning increasing amount of symptoms [2].

For the measurement of the cutaneous sensory threshold (CST, Freyhair filaments) patients were blind-folded and after informing them about test location (thumb, forearm and above biceps on the affected and non-affected side), they were asked to give a feedback whenever they perceived a touch. Monofilaments were applied in decreasing order (3 per filament) until the participant no longer perceived the stimulus. As a control, Monofilaments were applied in increasing order until participants perceived a touch. CST was defined as the last monofilament rating number that was perceived by the patient.

Spatial Tactile Resolution (STR) was assessed using a grating orienting task with plastic domes. Domes were presented in two different orientations (along/across) in a decreasing order, starting from the widest grooved dome (3.0 mm). STR was defined as the minimum groove spacing (in millimetres) for which the blind-folded patient was able to report the orientation correctly in at least 15 of 20 trials.

Roeder Manipulative Aptitude Test was assessed for testing manual dexterity. After familiarizing with the test by putting 3 rods into the holes, patients were told to fulfil two rows of 10 holes while time was measured.
Electrophysiological measurements

For EMG recording 10mm Ag/AgCl electrodes were used, with one electrode placed on the belly of the first dorsal interosseus muscle and the other on muscle attachment. EMG signals were amplified (CED 1902; Cambridge Electronic Design, Cambridge, United Kingdom), band-pass filtered (20 - 1000 Hz), sampled at 2 kHz (CED 1401), and stored for offline analysis (Signal V.08, Cambridge Electronic Design, Cambridge, United Kingdom).

Single and paired-pulse magnetic stimuli were generated by two Magstim 200 stimulators connected to a BiStim unit (Magstim Company, Dyfed, UK). The eight-formed stimulus coil was held tangentially to the scalp above the precentral gyrus, in an orientation by which the induced current flow was in a posterior to anterior direction. Using a coil pointer and a skin marker, the optimal spot was marked on the scalp [3].

Resting motor threshold (RMT) was defined as the minimum intensity for eliciting MEPs of at least 50 μV peak-to-peak amplitude in four of eight trials in the relaxed FDI muscle. Active motor threshold (AMT) was defined as the minimum intensity for eliciting MEPs in four of eight trials whilst the FDI muscle is pre-activated by holding a rubber ball softly between thumb and forefinger with an EMG-amplitude of about 100 μV. To define the test-stimulus intensity, the maximal possible MEP in FDI was determined with the help of continuously increasing the output stimulus starting from the intensity needed to elicit RMT (recruitment curve). A non-conditioned test-stimulus intensity (TS) was selected that produces 50% of the maximal MEP in FDI to ensure that the MEP amplitude is on the linear part of the stimulus response curve [1]. The condition stimulus (CS) was set 80% of AMT. The conditioned stimulus was preceding the test stimulus with 2 ms [4]4. Motor evoked potential area (mV x ms) were determined using a 20 ms window from MEP onset. MEP area of the condition stimulus and the test stimuli were ranked separately, ordered and trimmed before calculation of the means [5]. SICI was calculated as a percentage %SICI=100-(CS/TS*100) of mean conditioned and non-conditioned stimulated MEPs area.
Supplemental References


Supplemental Figure:

Trial profile

14 suitable patients consented the study

2 patients excluded (1 with CRPS type 2, 1 with severe depression)

12 patients participated in the 1st and 2nd session

Figure S1: Trial profile