Author Year Country PEDro Score Research Design Total Sample Size	Methods	Outcome
Choi et al. 2019 Korea RCT Crossover PEDro=8 N=10	**Population:** Mean age=40.7±11.6 yr; Gender: males=7, females=3; Time since injury=8.9±7.1 yr; Level of injury: C=10, T/L=0; Severity of injury: AIS A=6, B=4, C/D=0; Type of pain=neuropathic. **Intervention:** Participants were randomized to transcutaneous spinal direct current stimulation (tsDCS) or a sham tsDCS, underwent a washout period after the first set and were then give the other condition. **Outcome Measures:** Subjective pain perception via numeric rating scale (NRS), patient global assessment (PGA), present pain intensity (PPI) and adverse events.	1. Pain reduction was statistically significant from pre- to post-session in the sham tsDCS condition only (p=0.0102). 2. Significant change in pain intensity immediately after stimulation and at 1 h after treatment (p<0.05 for both). 3. No significant differences between active and sham tsDCS for NRS or for PGA, and no significant decrease in NRS for the active tsDCS group (p>0.05 for both). 4. Sham treatment reduced the PPI scores, but PPI distributions immediately after stimulation, 1h after and 2h after were significantly different in the sham tsDCS condition only (p=0.0452). 5. No adverse events reported.
Li et al. 2018 USA RCT Crossover PEDro=6 N=12	**Population:** Mean age=43.4±11.7 yr; Gender: males=7, females=5; Time since injury=15.5±12.3 yr; Level of injury: C=10, T=2, L=0; Severity of injury: all incomplete; Type of pain=neuropathic. **Intervention:** Participants completed both the real and sham transcranial direct cranial stimulation (tDCS) followed by active breathing-controlled electrical stimulation/conventional electrical stimulation (BreEStim and EStim respectively) and were randomized to which they would complete in the first session and three days later in the second session. **Outcome Measures:** Visual analog scores (VAS) for pain and analgesic effects.	1. 10 of the 12 participants completed both conditions because of timing conflicts. 2. Positive analgesic effects were seen in active tDCS, but only in 4 of 10 participants in the sham tDCS and in BreEStim all but one participant saw positive analgesic effects. 3. No difference in active and sham tDCS seen at the group level. 4. VAS decreased from 5.7-5.1 after active tDCS and from 6.0-5.4 after the sham tDCS. 5. Significant decrease in VAS after BreEStim in the active and sham tDCS group (p<0.00001 for both). 6. All 12 participants completed the active tDCS and BreEStim and a main effect of time was observed to be significant (p<0.00001). 7. No significant change of VAS observed after active tDCS, but a significant change was seen after active BeEStim (p<0.05).
Thibault et al. 2017 (Phase I) USA RCT PEDro=8 N=33	**Population:** Mean age=51.2±12.5 yr; Gender: males=24, females=9; Time since injury=5.2±2.0 yr; Type of pain=neuropathic. **Intervention:** Participants were randomized to either an active transcutaneous direct current stimulation (tDCS) group or a sham tDCS group for 5 sessions over 5 days with assessments at baseline, post-intervention, 1-wk and 3-mo follow-up. **Outcome Measures:** Visual analog scores (VAS) for pain, patient health	1. Linear regression models revealed that group status was associated with significant changes in VAS scores at 1-wk follow-up average (p=0.0003) and least pain (p=0.043). 2. No significant changes in PHQ-9 scores or SWLS scores at any time points (p>0.05 for all).

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	questionnaire (PHQ-9) and satisfaction with life scale (SWLS).	
Thibault et al. 2017 (Phase 2) USA RCT PEDro=8 N=9	**Population:** Mean age=49.0±14.4 yr; Gender: males=7, females=2; Time since injury=6.3±8.1 yr; Type of pain=neuropathic. **Intervention:** Participants were randomized to either an active transcutaneous direct current stimulation (tDCS) group or a sham tDCS group for 10 sessions of tDCS, once a day during weekdays for 2 wks with assessments taken after 5 and 10 sessions and 2-, 4- and 8-wk follow-up. **Outcome Measures:** Visual analog scores (VAS) for pain, patient health questionnaire (PHQ-9) and satisfaction with life scale (SWLS).	1. Linear regression models showed that group status was associated with significant changes in VAS average at 4-wk follow-up (p=0.016). 2. No significant changes identified for any other outcomes at any other timepoints (VAS, PHQ-9 and SWLS).
Ngernyam et al. 2015 Thailand RCT Crossover PEDro=8 N=20	**Population:** Mean age=44.5yr; Gender: males=15, females=5; Level of injury: paraplegia=13, quadriplegia=7; Severity of injury: incomplete=11, complete=9; Mean time post injury=54.65mo; Type of pain=neuropathic. **Treatment:** Participants received active and sham anodal transcranial direct current stimulation (tDCS) over the left primary motor area (M1) in a randomized sequence. tDCS was delivered in separate 20min sessions with a 1wk washout period in between. Outcomes were assessed pre and post each session. **Outcome Measures:** Numerical Rating Scale - Pain Intensity (NRS-PI), Peak theta-alpha frequency (PTAF).	1. For pain intensity, there was a significant main effect for time (p<0.001) and significant time x condition interaction (p=0.031). 2. Active tDCS showed a significant reduction in pain intensity after treatment (p<0.001) while sham tDCS did not (p=0.096). 3. Active tDCS showed significantly greater reduction in pain intensity immediately (p=0.043) and 24hr (p=0.041) after treatment than sham tDCS. 4. Active tDCS showed a significantly greater association between decreased pain intensity and increased PTAF than sham tDCS (p=0.003). 5. There was no significant association between change in pain intensity and duration of injury or pain for either condition.
Wrigley et al. 2013 Australia RCT PEDro=9 N=10	**Population:** Mean age=56.1yr; Duration of pain=15.8yr; Type of pain=neuropathic. **Treatment:** Participants were randomized to tDCS or sham. One 20 min treatment session was delivered each day for 5 consecutive days. A 4 week washout period took place before crossover to sham or treatment. **Outcome Measures:** Numeric rating scale	1. No significant effect of tDCS on pain intensity or pain unpleasantness
Soler et al. 2010 Spain RCT PEDro=8 N=40	**Population:** Age=21-66yr, Severity of injury: AIS A=32, B=8; Type of pain=neuropathic. **Intervention:** Patients were randomly divided into four groups: transcranial DCS and visual illusion group received direct current stimulation over C3 or C4 at a	1. The most significant reduction in NRS of pain perception was seen in the combined transcranial DCS and visual illusion group compared to the visual illusion group (p=0.008) or the placebo group (p=0.004).

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	constant 2 mA intensity for 20 min and after 5 min of transcranial DCS video with someone walking was shown and the legs of person for 15 min with a vertical mirror so patients could see themselves walking; transcranial DCS group with control visual illusion received the above mentioned transcranial DCS; however, for the visual illusion only received a video of faces or landscapes, visual illusion group and sham transcranial DCS had electrodes placed on the same area as the treatment group however the stimulator was turned off after 30 sec of stimulation and placebo group consisted of both the control visual illusion and the sham transcranial DCS. **Outcome Measures:** Numeric Rating Scale (NRS)	2. Pain reduction was also greatest in the transcranial DCS and visual illusion group than the other three groups at first and last follow up; however, no difference was seen at second follow-up. 3. Visual illusion group was shown to have significant improvement in neuropathic pain intensity at last day of treatment ($p=0.02$); however, this effect was not maintained over the long-term period. 4. Combined transcranial DCS and visual illusion group also showed significant improvement in ability to work, perform daily tasks, enjoyment, interference of pain in sleep ($p<0.05$). 5. Transcranial DCS sessions were found to be safe, with minor side effects including mild headache.
Fregni et al. 2006 USA RCT PEDro=9 N=17	**Population:** Type of pain=neuropathic. **Treatment:** Subjects received either sham (10 sec of stimulation with same procedure but then turned off) or active tDCS (2 mA, 20 min for 5 days). **Outcome Measures:** VAS	1. Treatment produced significant decrease in pain scores over time ($p<0.0001$). 2. The largest pain reduction was noted after session five; effect decreased during follow-up, though pain scores remained lower than baseline scores. 3. There was no significant effect of treatment on either anxiety or depression scores in either group. 4. Effects on cognitive function similar for tDCS and sham.
Yoon et al. 2014 Korea PCT N=16	**Population:** Mean =44.1yr; Gender: male=12, female=4; Time since injury>6months; Type of pain=neuropathic. **Treatment:** SCI individuals with chronic neuropathic pain received either active or sham transcranial direct current stimulation for 20 minutes, 2 times a day for 10 days. **Outcome Measures:** Numeric Rating Scale (NRS); Patient Global Impression of Change (PGIC)	1. Individuals in the active group had significant reduction in pain intensity post treatment ($p=0.016$). 2. 2 individuals in the treatment group experienced reduction in pain intensity of greater than 30%, with the group average of 22.9% reduction. 3. No significant difference was seen between the two groups in PGIC.
Kumru et al. 2013 Spain Cohort N=52	**Population:** Age=25-69yrs; Gender: male=34, female=18. Type of pain=neuropathic and musculoskeletal, with a subanalysis of neuropathic. **Treatment:** Three cohorts of individuals (group 1(N=18)=SCI neuropathic pain;	1. SCI individuals with neuropathic pain had a 37.4% improvement in pain intensity post treatment. 2. 13 of 18 individuals in the neuropathic group reported 50%

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	group 2(N=20)=SCI non-neuropathic pain; group 3(N=14)=healthy matched) underwent daily transcranial direct current stimulation along with visual illusion therapy for 2 weeks The visual illusion involved the participant seated viewing a video of the matching gender walking on a treadmill. **Outcome Measures:** Numeric Rating Scale (NRS)	decrease in pain intensity post treatment. 3. Evoked pain perception was significantly lower in the neuropathic pain group compared to SCI nonneuropathic and healthy controls. 4. Pain threshold was significantly higher in the neuropathic pain group compared to the other two groups.