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Richardson et al. 2019 USA RCT PEDro=8 N=59	**Population:** Mean age=44.8±10.8 yr; Gender: males=47, females=12; Time since injury=14.9±11.0 yr; Level of injury: paraplegia=34, tetraplegia=25; Severity of injury: complete=38, incomplete=21; Type of pain=neuropathic. **Intervention:** Participants were randomly assigned to a 20 min virtual reality (VR) walking treatment group, or a 20 min VR wheeling control group. **Outcome Measures:** Pain (numeric rating scale (NRS), neuropathic pain scale (NPS)) and personality factors (absorption scale of the multidimensional personality questionnaire-brief form (MPQ-BF) and Tellegen Absorption Scale (TAS)).	1. No significant interaction between treatment and pain type on change in pain level (p=0.48) and no significant difference in mean pain changes between treatment groups (p=0.30). 2. Significant pre-post pain reduction in the VR walking condition (p<0.01) but not in the VR wheeling condition (p=0.07). 3. When correction factors were applied for Type-1 error for multiple (simultaneous) testing of pain reduction across treatments and pain subtype, pain reduction was revealed to be significant for neuropathic pain (NP) (p=0.0037), musculoskeletal (MS) (p=0.0035) and complex neuropathic or mixed pain (cNP) (p=0.0025). 4. Other significant predictors of pain reduction were duration of injury (p=0.049) and anticonvulsant (p=0.013). 5. The odds of a given pain site of an individual attaining clinical reduction in pain following the VR walking condition was increased by a factor of 3.69 compared with those in the VR wheeling group (p=0.04), and those with an education longer than 12 years also had higher odds of attaining significant responses. 6. Significant reduction in pain unpleasantness, but not intensity, in the VR walking group compared to the VR wheeling group (p<0.01 and p=0.27 respectively). 7. Reduction in NP pain unpleasantness, as assessed by NPS, was significantly greater in the VR walking group as opposed to the VR wheeling group when adjusted for age and duration of injury (p<0.01). 8. Higher abbreviated TAS scores were associated with greater reductions in NP intensity in the walking condition compared to the wheeling condition. 9. Odds of attaining a clinical reduction (30% or more reduction) in the VR walking condition were increased by a factor of 13.06 compared to the wheeling condition (p=0.01). 10. Other significant predictors of achieving clinical reduction were age (p=0.02) and time since injury (p<0.01).

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		11. For every year higher than the sample mean age, and every year increase in duration of injury, the odds of attaining clinically significant reduction increase by a factor of 12% and 22% respectively ($p<0.01$). 12. Significant reductions in the VR walking group compared to the VR wheeling group in cold pain ($p=0.04$), deep pain ($p=0.02$) and sensitivity in the skin ($p=0.04$), whereas changes in sharp pain ($p=0.31$), hot pain ($p=0.90$), dull pain ($p=0.10$), itchy pain ($p=0.18$) and surface pain ($p=0.37$) were all non-significant between groups. 13. After Type-1 error corrections for simultaneous testing was complete, participants in the VR walking group still experiences a significant reduction in NP experienced as sharp ($p<0.0005$), hot ($p<0.0001$), dull ($p<0.0001$), sensitivity ($p<0.0001$), deep ($p<0.0001$), and more surface-like ($p<0.0001$) from pre- to posttreatment. 14. Surface pain was the only factor that was significantly reduced following VR wheeling ($p=0.0015$).
Lovas et al. 2017 Australia RCT PEDro=4 N=40	**Population:** Mean age=46.0±11.6 yr; Gender: males=34, females=6; Time since injury=18.4±12.1 yr; Level of injury: paraplegia=30, tetraplegia=9; Severity of injury: complete=20, incomplete=19; Type of pain=neuropathic and musculoskeletal. **Intervention:** Participants were randomized to either a Swedish upper body massage group (MT) or n active concurrent control guided imagery (GI) relaxation group for 5 wks with one session per wk. **Outcome Measures:** Short-form McGill pain questionnaire (MPQ) and Chalder's fatigue scale (CFS).	1. No significant differences between groups for pain severity scores ($p>0.05$). 2. Pain scores reduced significantly over time from pre-treatment to post-treatment in both groups ($p<0.01$). 3. No significant interaction effect between groups and intervention over time ($p<0.05$). 4. No significant between-group differences in overall CFS scores ($p>0.05$). 5. Fatigue scores reduced significantly over time ($p<0.01$). 1. No significant interaction effect between groups and intervention over time ($p>0.05$).
Ozkul et al. 2015 Turkey RCT Crossover PEDro=5 N=24	**Population:** Mean age=32.33; Gender: males=18, females=6; Level of injury: paraplegia=6, quadriplegia=18; Severity of injury: incomplete=7, complete=17; Mean time post injury=12.46mo; Type of pain=neuropathic. **Treatment:** Participants received transcutaneous electrical nerve stimulation (TENS) and visual illusion (VI)	1. There was a reduction in VAS-PI immediately after VI ($p=0.07$) and TENS ($p=0.08$), but there was no statistically significant group effect. 2. There was a significant reduction in pain 2wk post TENS ($p=0.04$) but not 2wk post VI ($p>0.05$). 3. On NPS, VI significantly decreased the following pain types: hot

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	in a randomized sequence. Each treatment was delivered for 2wk with a 1wk washout period in between. Outcomes were assessed pre and post each treatment period. **Outcome Measures:** Visual Analogue Scale - Pain Intensity (VAS-PI), Neuropathic Pain Scale (NPS), Brief Pain Inventory (BPI).	(p=0.047), sharp (p=0.02), unpleasant (p=0.03), and deep (p=0.047); TENS did not show any significant effects. 4. On BPI, VI significantly decreased the negative effect of pain on moving ability (p=0.04) and TENS significantly decreased the negative effect of pain on mood (p=0.03), relationships (p=0.04), and sleep (p=0.04).
Soler et al. 2010 Spain RCT PEDro=8 N=40	**Population:** Age=21-66 yr, 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 4 at a 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 s of stimulation and placebo group consisted of both the control visual illusion and the sham transcranial DCS. **Outcome Measures:** Numeric Rating Scale (NRS)	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). 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.
Pozeg et al. 2017 Switzerland PCT N_{SCI}=20 $N_{healthy}$=20	**Population:** SCI (treatment) group: Mean age=47.3±12.0 yr; Gender: males=18, females=2; Time since injury=17.1±18.1 yr; Level of injury: C=0, T=20, L=0; Severity of injury: AIS A=15, B=3, C=2, D=0; Type of pain=neuropathic. Healthy Control (HC) group: Mean age=43.0±11.8 yr; Gender: males=18, females=2; Type of pain=neuropathic. **Intervention:** Participants were familiarized and tested on a virtual leg illusion (VLI) device and had asynchronous and synchronous visuotactile stimulation to the participant's back immediately above the lesion or at	1. Synchronous visuotactile stimulation allowed for significantly stronger experience of ownership over the virtual legs (p=0.037) and significantly stronger referred touch (p<0.001) without significantly effecting ratings of control items (p=0.112). 2. Significant main effect of group on the ratings of illusory ownership (p=0.028) showing SCI patients felt less ownership over the illusory legs than HC group. 3. No significant group differences found in ratings of illusory touch,

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	the shoulders, which displayed virtual legs. **Outcome Measures:** Illusory leg ownership with illusory global body ownership (induced in the full body illusion (FBI)), Cambridge depersonalization scale (CDS) and anomalous body experience (ABE).	referred touch, or control items ($p \geq 0.153$ for all). 4. No significant effect of back location or interaction effects ($p \geq 0.063$). 5. No significant differences observed with regards to illusion or control ratings between the patients with SCI with and without preserved tactile leg sensations ($p \geq 0.096$), between the participants with SCI with or without neuropathic pain ($p \geq 0.075$), or between participants with SCI with complete and incomplete lesions ($p \geq 0.103$). 6. Exponentially decaying relationship between duration of SCI and magnitude of illusory leg ownership was found to be significant ($p=0.016$) as well s between duration of SCI and the magnitude of illusory referred touch ($p=0.036$), but only in the synchronous condition, all other conditions not significant ($p \geq 0.081$). 7. No significant correlations found between the illusory ratings and the level of SCI (all $p \geq 0.125$). 8. No significant main effects of synchrony, back location or interactions on the pain change ratings between post-illusion and baseline ratings (all $p \geq 0.147$), but significant pain reduction when lower back was stimulated synchronously with the virtual legs when pain change was compared against zero and only in this condition (0.04); this comparison was found to be insignificant via multiple comparison testing. 9. Significant main effects of synchrony on full body illusion where synchronous visuotactile stimulation induced stronger illusory body ownership ($p<0.001$) and stronger illusory touch ($p<0.001$) compared to asynchronous stimulation, but no significant modulation of the ratings of control items ($p=0.823$). 10. Contrasting the VLI, no significant main effects or group (all p≥o.558) or interaction effects (all $p \geq 0.146$) on any of the FBI questionnaire items. 11. No differences in illusion or control ratings found between participants with SCI with and without preserved tactile leg sensations (all $p \geq 0.481$), between participants with SCI with

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		and without neuropathic pain (all p≥0.332) or between participants with SCI with complete and incomplete lesions (p≥0.173). 12. No significant correlations found between ratings on body ownership and illusory touch with SCI duration or with SCI level (all p≥0.052). 13. Synchrony of visuotactile stimulation did not modulate the pain change via the pain ratings (p=0.92), but the FBI significantly reduced the pain compared to baseline measures in both the synchronous (p=0.02) and asynchronous (p=0.02) conditions. 14. No significant differences vetween SCI and HC groups for the total CDS or ABE subscale scores (all p≥0.26), but participants with SCI rated significantly higher on, “parts of my body feel as if they didn’t belong to me” (p=0.028) and “I have to touch myself to make sure I have a body or a real existence” (p=0.009).
Jordan et al. 2016 USA Cohort N=35	**Population:** Age:47.5 yr; Type of pain=neuropathic. **Intervention:** Participants received illusory therapy through a 20 min first person view video of an actor walking along a path. Participants were asked to imagine either walking or wheeling depending on their group allocation. **Outcome Measures:** Change in painful sensation on a 11-point numeric rating scale.	1. Significant decrease in pain was seen among those in the virtual walking vs. virtual wheeling condition (p=.03). 2. A decrease in at-level pain was seen pre-post among those in the virtual walking group (p=.08).
Kumru et al. 2013 Spain Cohort N=52	**Population:** Age25-69yrs; Sex: 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; 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)	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% 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.
Villiger et al. 2013 Switzerland Pre-Post N=14	**Population:** Age:52.7yr; Severity of injury: AIS C=2, D=12; Type of pain=neuropathic and mixed. **Intervention:** Intense virtual reality training was provided to patients with	1. Decrease in pain intensity and unpleasantness was found post treatment and follow-up (p<0.05).

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	chronic incomplete SCI. Participants were asked to complete four tasks designed to work lower limbs through virtual controlled movement sensors for 45 mins for 16 to 20 sessions over a 4-wk period. **Outcome Measures:** Neuropathic Pain Scale (NPS)	2. Of those with neuropathic pain, 5 out of 9 participants reached MCID post treatment and retained improvement at follow up.
Gustin et al. 2008 Australia Pre-Post N=15	**Population:** SCI, Type of pain=neuropathic. **Intervention:** All participants were trained in movement imagery for seven days. Each participant was asked imagine right ankle plantarflexion and dorsiflexion for 8 min. **Outcome Measures:** McGill Pain Questionnaire **(**MPQ), Visual Analogue Scale (VAS)	1. Individuals with neuropathic pain reported a significant increase in pain intensity during movement imagery, $p<0.01$. 2. Individuals without neuropathic pain reported a significant increase in non-pain intensity during movement imagery, $p<0.01$.
Moseley 2007 UK Pre-Post N=5	**Population:** Mean age=32.2yr; Level of injury: T=1, L=4; Type of pain=neuropathic. **Treatment:** Individuals with SCI (n=5) engaged in: (1) virtual walking exercise; (2) guided imagery with a psychologist who took them through a scene in which they were pain free and doing something they liked; (3) watching an animated film. During the second part of the study, participants performed 10 min of virtual walking on 15 consecutive weekdays. **Outcome Measures:** McGill Pain Questionnaire **(**MPQ); Visual Analogue Scale (VAS)	1. Pain decreased by approximately 65% with virtual walking; less so for guided visual imagery and film viewing. 2. The amount of time to return to pre-task pain VAS after virtual walking was 34.9 min; after guided imagery 13.9 min; and after watching a film 16.3 min. 3. The decrease in perceived foreignness of the legs was 43mm during virtual walking, 4mm during guided imagery, and 3mm while watching the film. 4. Change in foreignness was related to change in pain during virtual walking ($p=0.04$). 5. During the 3-week trial of virtual walking, overall pre-task pain gradually decreased; and pain relief gradually increased; these effects persisted at 3 months follow-up.