

Table 3. Exercise-based Interventions

Author Year Country Research Design Score Total Sample Size	Methods	Outcome
<p>Jorjafaki et al. 2022 Iran RCT PEDro=4 N=45</p>	<p>Objective: To compare the effectiveness of virtual reality-based rehabilitation exercises and reflexology in reducing the fatigue rate of veterans with paraplegia.</p> <p>Population: 45 veterans with paraplegia, with a use of a wheelchair for daily work, with a history of exercise for at least the last 6 months, and with a fatigue level of 45.57 Mean age 54.3 years Level of injury: T12-L4</p> <p>Treatment: Participants were randomly assigned to one of three groups:</p> <ul style="list-style-type: none"> • Experimental condition I (n = 15): Upper limb VR games (e.g., Xbox/Kinect boxing). Sessions lasted 50 min, were performed 3 times per week, for 6 weeks. • Experimental condition II (n = 15): Reflexology massage therapy. Sessions lasted 30 min (10 min of relaxation techniques and 15 min of reflexology massage), were performed 3 times per week, for 6 weeks. • Control condition (n = 15): No details provided. <p>Outcome Measures: FSS was measured at baseline</p>	<ol style="list-style-type: none"> 1. Decrease in fatigue severity in both VR and massage groups ($p \leq 0.001$) comparing with control group. 2. No difference in reducing fatigue between massage (28.9 ± 20.65) and VR (27.8 ± 93.97) ($p = 0.99$).

	and after the program (6 weeks).	
<p>Nightingale et al. 2018 UK RCT PEDro=5 N=21</p>	<p>Objective: To assess the influence of a home-based exercise intervention on indices of health-related quality of life in persons with SCI.</p> <p>Population: 21 participants with SCI and non-physically active 15M, 6F Mean (SD) age 47 (8) years Injury level: Below T4 (paraplegia) Mean (SD) time since injury 16 (11) years</p> <p>Treatment: Participants were randomly assigned to one of the following two groups:</p> <ul style="list-style-type: none"> Experimental group (n = 13): Home-based exercise intervention with arm-crank (moderate intensity: 60%-65% VO₂ peak). Sessions lasted 45 min, were performed 4 times per week, for 6 weeks. <p>Control group (n = 8): Lifestyle maintenance</p> <p>Outcome Measures: FSS and global fatigue (FSS visual analog fatigue scale) were measured at baseline and immediately after the program (6 weeks).</p>	<ol style="list-style-type: none"> The change of the FSS was significantly different between groups (interaction effect; $P = 0.036$), with a significant reduction in the intervention group ($P=0.027$). Trend for an interaction effect ($P = 0.084$) in global fatigue. These measures of fatigue demonstrated large effect sizes in favor of intervention: <ol style="list-style-type: none"> FSS: Cohen d [90% CI] = -0.99 [-1.75, -0.22]. Global fatigue: Cohen d [90% CI] = 0.92 [0.08, 1.76]
<p>Vestergaard et al. 2022 Denmark Pre-post N=8</p>	<p>Objective: To assess safety and feasibility of hybrid high-intensity interval training (HIIT) using Functional Electrical Stimulation (FES) leg cycling and arm ski ergometer in people with SCI.</p>	<ol style="list-style-type: none"> There was a decrease in fatigue ranging from: <ol style="list-style-type: none"> 15% (for general fatigue). 26% for physical fatigue. 42% for reduced activity.

	<p>Population: 8 participants with paraplegia 7M, 1F Mean (SD) age 42.8 (15.11) Etiology: Traumatic or non-traumatic Level of injury: T4 (n = 1), T5 (n = 1), T7 (n = 1), T8 (n = 2), T10 (n = 1), L1 (n = 1), and L2 (n = 1) Motor completeness of injury: Complete (n = 3), incomplete (n = 5) Mean time since injury 14.5 years</p> <p>Treatment: Hybrid HIIT protocol, in the form of FES leg cycling combined with arm ski ergometer. Dosage: 4 x 4 min intervals/session, 3 time per week, 8 weeks Intensity: 90% peak watts</p> <p>Outcome Measure: MFI-20 was measured at baseline and after the program (8 weeks).</p>	<p>d. 33% for reduced motivation. e. 20% for mental fatigue.</p>
<p>Shem et al. 2016 USA Pre-post N=26</p>	<p>Objective: To evaluate the feasibility, benefits, and long-term effects of a seated Tai Chi Chih program for people with spinal cord disorder who cannot safely participate in a standing Tai Chi exercise program.</p> <p>Population: 26 participants with spinal cord disorder and sufficient arm movement to be able to participate in the Tai Chi program 14M, 12F Mean (SD) age 49.8 (13.0) Etiology: Traumatic and non-traumatic Level of injury: C3 (n = 1), C4-C5 (n = 1), C5 (n = 2), C5-C6 (n = 3), C6 (n = 1), C6-C7 (n = 4), T8 (n = 1), T12-L1 (n = 1), L3-L4 (n = 1), N/A (n = 10) Tetraplegia (n = 16),</p>	<ol style="list-style-type: none"> 1. There were no detectable changes in MFIS between the first and the last sessions (MFIS average change = 2.00, SD = 7.57). 2. Only nine participants completed half of the sessions and the long-term surveys.

	<p>paraplegia (n = 6), unknown (n = 4) AIS: AIS A (n = 4), AIS B (n = 2), AIS C (n = 2), N/A (n = 18) Mean (SD) time since Injury 25.1 (18.9) years</p> <p>Treatment: Customized seated Tai Chi program (T'ai Chi Chih). Sessions lasted 90 min, were performed once per week and for 12 weeks.</p> <p>Outcome Measure: MFIS was measured at baseline, after each session and after the program (12 weeks).</p>	
<p>Curtis et al. 2015 Canada Pre-post N=11</p>	<p>Objective: To evaluate a modified yoga program for people with SCI, in terms of both participant experiences and also with respect to program satisfaction.</p> <p>Population: 11 participants with SCI 1M, 10F Mean (SD) age 48.4 (15.0) years Etiology: Traumatic (n = 6), non-traumatic (n = 3), and not reported (n = 2) Level of injury: Tetraplegia (n = 2), paraplegia (n = 6), unknown (n = 1), not reported (n = 2) Motor completeness of injury: Complete (n = 3), incomplete (n = 6), unknown (n = 1), not reported (n = 1) Mean (SD) time since injury 157.4 (191.8) months.</p> <p>Treatment: Modified Yoga program. Session lasted 25- to 60-min, were performed once a week, and for 8 weeks.</p> <p>Outcome Measure: FSS was measured at baseline and after the program (8 weeks).</p>	<p>1. There were not statistically significant differences between baseline and exit scores on fatigue (p > 0.05).</p>