

<b>Author, Year Country Study Design Number of Studies Included for Review</b>	<b>Method Databases Search Level of Evidence Research Question</b>	<b>Results</b>
<p>Donenberg et al. (2019) USA Systematic review of published articles N=11</p>	<p><b>Method:</b> Comprehensive literature search of articles discussing the effectiveness of locomotor training (LT) in children following spinal cord injury (SCI). Forms of LT included boy-weight supported treadmill or over ground training, functional electrical stimulation, robotics, and virtual reality. Articles were restricted to children between the ages of 15 mo to children 18 yr.</p> <p><b>Databases:</b> PubMed, PEDro, CINAHL, Cochrane, PsycINFO, Web of Knowledge.</p> <p><b>Level of evidence:</b> Evidence was categorized according to the American Academy for Cerebral Palsy in Developmental Medicine (AACPDMD) levels of evidence. <i>Level 4:</i> 2 papers, <i>Level 5:</i> 9 papers.</p> <p><b>Questions/measure/hypothesis:</b> Examine the effectiveness of LT in children with SCI through measuring improvements in ambulation.</p>	<ol style="list-style-type: none"> <li>1. Outcomes assessed: Gait Speed, TUG, WISCI II, FES, Robotics, LEMS, NRS, ABT</li> <li>2. Age, completeness, and level of injury remain the most important prognostic factors to consider with the LT intervention.</li> <li>3. There was a greater likelihood for recovery of locomotion for adults with incomplete SCI when training begins closer to the time of injury.</li> <li>4. All forms of LT used in studies within this review had positive changes in locomotion. No one form of LT has been determined to be superior.</li> <li>5. Children might benefit from LT to develop or restore ambulation following SCI.</li> </ol>
<p>(Gandhi et al., 2017) Canada Systematic Review N=13 (N=13 pediatric SCI)</p>	<p>“A systematic review to summarize the who, what, when and how of walking interventions in children with SCI”</p> <p>OMs: Gait Speed, Robotics, TM and OG walking, WeeFIT, TUG, WISCI II, ABT, Observational gait analysis</p>	<ol style="list-style-type: none"> <li>1. Outcome Assessed: Training parameters and walking outcomes, total training duration (duration × frequency × number of weeks)</li> <li>2. The training durations, frequencies, and modes used with the children varied; however, overground walking practice was included in 10/13 pediatric studies.</li> <li>3. Improvements in walking capacity, speed, and distance were comparable between children and adults.</li> <li>4. There was a trend for greater gains with greater total training durations.</li> <li>5. There is a paucity of high-quality research examining interventions targeting walking after pediatric SCI; however, intensive training, including practice overground, results in notable improvements.</li> </ol>
<p>(Funderburg et al., 2017) USA Scoping Review N=26 (N=10 pediatric SCI)</p>	<p>“This is a scoping review of the literature on interventions for gait in individuals with pediatric spinal cord impairments.”</p> <p>OMs: Gait Speed, WeeFIM, TUG, WISCI II, orthoses, FES, ABT</p>	<ol style="list-style-type: none"> <li>1. Four categories of interventions were identified: <ul style="list-style-type: none"> <li>• Orthoses/assistive devices</li> <li>• Electrical stimulation</li> <li>• Treadmill training</li> <li>• Infant treadmill stepping</li> </ul> </li> <li>2. Studies on orthotic intervention, electrical stimulation, and treadmill training reported benefits for various components of gait.</li> <li>3. The majority of studies (77%) were classified as levels of evidence III and IV.</li> </ol>
<p>(Damiano &amp; DeJong, 2009) USA Systematic Review N=29 (N=6 pediatric SCI)</p>	<p>“A systematic review was undertaken to explore the strength, quality and conclusiveness of the scientific evidence supporting the use of treadmill training and body weight support in those with pediatric motor disabilities.”</p> <p>OMs: ABT, Home activities</p>	<ol style="list-style-type: none"> <li>1. A total of 29 studies were identified, 6 of which concern individuals with pediatric SCI.</li> <li>2. The studies identified for those with SCI were either individual case reports or individual subject data from a multiple case series.</li> </ol>

		<ol style="list-style-type: none"><li>3. All six studies included other types of intervention including stretching, overground training or other non-specific physical and/or occupational therapy rehabilitation exercises.</li><li>4. Most outcome results were positive, with some showing large and clearly clinically significant changes such as progression from no ability to step, to walking independently with an assistive device by the end of training.</li></ol>
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