

Author Year; Country Score Research Design Total Sample Size	Methods	Outcome
<p>Hu et al. 2013 China Pre-post Level 4 N=20</p>	<p>Objective: To observe the effects of manual therapy on bowel function of patients with spinal cord injury.</p> <p>Population: Thoracic SCI (13M, 7F); Mean (SD) age: 39.70 (5.25) yrs.</p> <p>Treatment: Abdominal massage was applied to the surface of the abdomen along the small intestine, the ascending, transverse, descending and sigmoid colon, for 60 sessions during the bowel routine (5 times/wk for 12 wks).</p> <p>Outcome Measures: Bowel time, dosage of glycerine enema.</p>	<p>1. A statistically significant improvement was found in the mean (SD) time of bowel movement (decreased from 94.0 (16.4) min to 60.5 (10.5) minutes) and dosage of glycerine enema (decreased from 68.15 (8.9) mL to 31.5 (11.8) mL) after abdominal massage treatment for 3 months.</p>
<p>Ayas et al. 2006 Turkey Pre-post Level 4 N=24</p>	<p>Objective: To investigate the effect of abdominal massage on clinical aspects of bowel dysfunction and colonic transit time in patients with spinal cord injury. Twenty-four patients were placed on a standard bowel program (phase I), after which abdominal massage was added to the regimen (phase II). Parameters of gastrointestinal system function and colonic transit times were evaluated.</p> <p>Population: Age: mean 39.8yrs, range 33.1-46.6yrs; Level of injury: C4-L3, 10 participants with supraconal lesions, 14 with caudal/conal lesions; 15 with complete SCI and 9 with</p>	<p>1. Mean (SD) frequency of defecation significantly increased from 3.79(2.15) (range 2.75-4.55) to 4.61(2.17) (range 3.67-5.54) per week.</p> <p>2. Mean (SD) total colonic transit time significantly decreased from 90.60(32.67) (range 75.87-110.47) hours to 72(34.10) (range 58.49-94.40) hours with abdominal massage.</p>

	<p>incomplete SCI; FIM score: mean 76.3, range 68.9-83.7; Duration of injury: mean 136.5 days, range 70.1-203</p> <p>Treatment: Addition of abdominal massage beginning at the cecum and extending along the length of the colon to the rectum (phase II) to a standard bowel program (phase I)</p> <p>Outcome Measures: Colonic transit times, frequency of defecation</p>	
<p>Janssen et al. 2014 Netherlands Post-test Level 4 N=21</p>	<p>Objective: To evaluate the effects of noninvasive abdominal massage using an electromechanical apparatus on bowel function in individuals with SCI and chronic bowel problems. This easy-to-use apparatus can be applied by the patients at home without the help of a therapist.</p> <p>Population: N=21 people (18M, 3F) with cervical SCI (N=15 completed study) Mean (SD, range) age 56.5 years (11, 38-79) Mean (SD) time since injury 221 months (146) AIS-A/B/C-D: 8/2/11 13 tetraplegia, 8 paraplegia 8 complete, 13 incomplete</p> <p>Treatment: Daily electromechanical abdominal massage for 20min for 10 weeks</p> <p>Outcome Measures: Questionnaire on defecation, side effects, and user satisfaction.</p>	<ol style="list-style-type: none"> 1. Fecal consistency: 13/15 reported no change, 2/15 reported softer consistency. 2. Fecal shape: 14/15 reported no change, 1/15 reported sausage-shaped. 3. Fecal amount: 8/15 reported no change, 3/15 reported increase, 1/15 reported decrease, 3/15 reported variable. 4. Time to defecation: 6/15 reported no change, 6/15 reported shorter, 3/15 reported variable. 5. Fecal incontinence: all reported no change. 6. Flatulence: 12/15 reported no change, 2/15 reported fewer, 1/15 reported more 7. Overall treatment evaluation: 2/15 reported very good, 2/15 reported good, 4/15 reported adequate, 7/15 reported insufficient. 8. Only frequencies were reported in this study.