

**Research Summary – Action Research Arm Test (ARAT) – Upper Limb**

<p><b>Author Year</b> <b>Country</b> <b>Research Design</b> <b>Setting</b></p>	<p><b>Demographics and Injury Characteristics of Sample</b></p>	<p><b>Validity</b></p>	<p><b>Reliability</b></p>	<p><b>Responsiveness Interpretability</b></p>
<p><a href="#">Lili et al. 2023</a></p> <p>Observational cross-sectional study to determine which aspects of independence in activities of daily living are correlated with upper extremity functioning in individuals with SCI</p> <p>Outpatient clinic at Sahlgrenska University Hospital in Gothenburg, Sweden</p>	<p>N = 25 participants with SCI                      Mean (range) age: 58.4 (44.6-72.2) years                      18 males, 7 females                      Etiology: Traumatic (n = 20), non-traumatic (n = 5)                      Level of injury: Cervical (n = 17), thoracic (n = 8)                      ASIA: A-B (n = 14), C-D (n = 11)                      Mean (SD) time since injury: 17.5 (15.4) years</p>	<p><b>Correlation analysis (Spearman coefficients) between SCIM-III subscales or SCIM-III total and ARAT:</b></p> <ul style="list-style-type: none"> <li>- SCIM-self-care: 0.56 (P&lt;0.01)</li> <li>- SCIM-mobility: 0.33</li> <li>- SCIM-respiration/sphincter: -0.01</li> <li>- SCIM-total: 0.29</li> </ul>		

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<p><a href="#">Lili et al. 2021</a></p> <p>Observational cross-sectional study to determine which kinematic variables obtained during a drinking task were associated with clinical assessments of upper extremity functioning in people with SCI</p> <p>Outpatient clinic at Sahlgrenska University Hospital, Sweden</p>	<p>N = 25 participants with SCI                      Mean (SD) age: 58.4 (13.8) years                      18 males, 7 females                      Etiology: Traumatic (n = 20), non-traumatic (n = 5)                      Injury level: cervical (n = 17), thoracic (n = 8)                      ASIA: A (n = 10), B (n = 4), C (n = 3), and D (n = 8)                      Mean (SD) time since injury: 17.5 (15.4) years</p>	<p><b>Significant correlations between ARAT and the kinematic end-point measures of:</b></p> <ul style="list-style-type: none"> <li>• Movement time:                             <ul style="list-style-type: none"> <li>○ Reaching: r = -0.41 (p &lt; 0.05)</li> <li>○ Forward transport: r = -0.71 (p &lt; 0.01)</li> <li>○ Drinking: r = -0.15 (p &gt; 0.05)</li> <li>○ Backward transport: r = -0.58 (p &lt; 0.01)</li> <li>○ Returning: r = -0.31 (p &gt; 0.05)</li> <li>○ Total movement time: r = -0.70 (p &lt; 0.01)</li> </ul> </li> <li>• Smoothness:                             <ul style="list-style-type: none"> <li>○ Reaching and forward transport: r = -0.89 (p &lt; 0.01)</li> </ul> </li> </ul>		

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		<ul style="list-style-type: none"> <li>○ Backward transport and returning: <math>r = -0.71</math> (<math>p &lt; 0.01</math>)</li> <li>○ Total number of movement units: <math>r = -0.82</math> (<math>p &lt; 0.01</math>)</li> <li>● Movement velocity and strategy:                             <ul style="list-style-type: none"> <li>○ Peak hand velocity (reaching): <math>r = 0.02</math> (<math>p &gt; 0.05</math>)</li> <li>○ Time to peak hand velocity (reaching): <math>r = -0.04</math> (<math>p &gt; 0.05</math>)</li> <li>○ Peak elbow angle velocity (reaching): <math>r = -0.10</math> (<math>p &gt; 0.05</math>)</li> </ul> </li> <li>● Movement pattern:                             <ul style="list-style-type: none"> <li>○ Elbow extension</li> </ul> </li> </ul>		

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		(reaching): $r = 0.16$ ( $p > 0.05$ ) ○ Elbow flexion (reaching): $r = 0.66$ ( $p < 0.01$ ) ○ Arm abduction (drinking): $r = -0.34$ ( $p > 0.05$ ) ○ Wrist angle (reaching and forward transport): $r = -0.60$ ( $p < 0.01$ ) ○ Interjoint coordination (reaching): $r = -0.09$ ( $p > 0.05$ ) ○ Trunk displacement: $r = -0.52$ ( $p < 0.01$ )		
<a href="#">Kowalczewski et al. 2011</a>  Study to examine the ReJoyce Automated	N = 13 participants with tetraplegia Age: Between 24 and 56 years Injury level: C5-C6	<b>Correlation between RAHFT and ARAT:</b> $r^2 = 0.88$  <b>Correlation between ARAT and Fugl-Meyer Assessment:</b> $r^2 = 0.53$		

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Hand Function Test (RAHFT) and see how well it correlated with the ARAT and Fugl-Meyer Assessment in people with tetraplegia  Centre for Neuroscience at University of Alberta, Canada				