

Author Year Country Research Design Score Total Sample Size	Methods	Outcome
<p>Li et al. 2014 China Prospective Controlled Trial N=32</p>	<p>Population: <i>Non SCI group:</i> Mean age: 35.2 yr. <i>SCI group:</i> Mean age: 38.3 yr; Level of injury: T7-L2. Intervention: Patients in each group compared a flat cushion (FC) to a new custom contoured cushion (CCC) created through a method that employs interface pressure measurements representing the buttocks and upper-thigh topology to machining the cushion directly. A new optimized algorithm of converting pressure distribution to the cutting depth according to the load-deflection characteristics of the cushion foam. Outcome measures: Subjective evaluation of pressure relief and comfort on lateral stability (LS), Anteroposterior stability and comfort degree, Objective evaluation of maximum pressure (MP), Average Pressure (AP), Average pressure gradient (AVP), Balance coefficient (BC).</p>	<p>Subjective Evaluation:</p> <ol style="list-style-type: none"> For SCI group, the CCC had high-pressure relief scores than the FC on LS ($p<0.01$), APS ($p<0.005$), and CD ($p<0.01$). For control group, the CCC had higher-pressure relief scores than those of FC on LS, APS and CD, ($p<0.005$) for all. Across both groups the CCC allowed form pressure redistribution and decreased interface pressure between the buttocks and cushion. <p>Objective evaluation:</p> <ol style="list-style-type: none"> Using a Tekscan sensor for both Fc and CCC. Parameters were calculated through MP, AP, APG and BC that assess pressure distribution. FC had increased pressure across all MP, AP, APG and BC. CCC produced a lower MP and AP ($p<0.01$), as well as APG and BC ($p<0.05$) compared to FC which shows how CCC would prevent pressure sores in high-risk individuals.
<p>Brienza & Karg 1998 USA Prospective Controlled Trial N=12</p>	<p>Population: Age range: 21-52 yr; Gender: males=10, females=2; Level of injury: C4-5 to L1-2; BMI range: 17-32.3 kg/m². Intervention: Assessed forces for three different surfaces (flat foam, the initial contour and final optimized contour) with the force sensing array (FSA) pad between the cushion and buttocks. Compared SCI to seniors group. Outcome Measures: Electronic Shape Sensor, Computer Automated Seating System.</p>	<ol style="list-style-type: none"> There was no difference in tissue stiffness between SCI and seniors group on any of the surfaces. There was a significant difference in pressure for the initial contour condition between SCI and seniors ($p=0.027$, $p=0.017$, respectively), but not within other conditions. The mean maximum depth was significantly deeper for the final contour as opposed to the initial contour ($p<0.001$). Also, the mean maximum depth was deeper in the SCI group than the seniors group within the final contour condition ($p=0.016$, $p=0.053$, respectively). Significant differences in interface pressure were found between flat and initial contour ($p=0.023$) and flat and final contour ($p=0.006$). No difference was found between the initial and final contour condition.
<p>Sprigle et al. 1990b USA</p>	<p>Population: Level of injury: paraplegia, tetraplegia, C4-5 to T12. Intervention: Personal wheelchair cushion and custom contour cushion</p>	<ol style="list-style-type: none"> CCC significantly lower pressure as compared to the subjects' usual cushion ($p<0.05$). Posture and balance were improved, without interfering with

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Pre-Post N=10	(CCC), with two different foam stiffness (45 ILD, 55 ILD). Outcome Measures: Pressure distribution; eight Clinical variables: balance, posture, level transfer ability, comfort, propulsion, pressure relief/repositioning, spasticity/posture effect, skin reaction.	functional abilities, when using the CCC. 3. CCC did not receive more than two negative responses regarding the eight variables.
Sprigle et al. 1990a USA Post-Test N=11	Population: Level of injury: paraplegia, tetraplegia, C5 – L3. Intervention: Two flat and two custom contour cushions (CCC) with two different foam stiffness (45 ILD, 55 ILD). (ILD Indentation Load Deflection) Outcome Measures: Pressure distribution – Oxford Pressure Monitor TM700; ILD test.	1. Pressure increased as the stiffness of the cushion increased ($p < 0.05$). 2. CCC had a significantly decreased pressure distribution ($p < 0.05$), as compared to the flat cushion. 3. CCC also had less soft tissue damage due to seat interface, less harming effects of loading and increased deflation, as compared to the flat cushion. 4. Three important attributes to CCC found: increased enveloping; decreased foam compression; uniform pressure distribution.