Low Profile Tension Seat for Wheelchair Users who Propel with One or Both Feet

Stephen Sprigle, PhD, PT

Problem
Wheelchair users who propel with one or both feet must be able to adequately reach the ground. Wheelchair cushions add to the seat surface height which can further hinder foot propulsion.

General design specifications:
- support the buttocks using a tension member
- attach directly to the wheelchair frame like traditional seat upholstery
- maintain folding capability

Evaluation
• Interface Pressure measurement to insure adequate pressure distribution
• User trials to evaluate impact on posture, comfort and maneuverability

Interface Pressure 15 subjects
Peak Pressure Index

<table>
<thead>
<tr>
<th>Peak Pressure Index</th>
<th>Average</th>
<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
<td>79.85 Average</td>
<td>36.50 Min</td>
<td>153.25 Max</td>
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Design
A simple support surface was designed to replace the wheelchair seat upholstery. Using a tension support and a thin, flexible support element.

Flexible support element has a cut-out - sized to pelvic anthropometry- and designed to allow tension member to support the buttocks

Prototype seat mounted to frame and folded

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SAVE THE DATE:
The mobilityRERC’s State of the Science Conference will be held July 1 & 2 during Annual RESNA Conference