

**Evidence Essentials.**

**C-Brace Microprocessor Stance and Swing Control Orthosis.**

	<b>Mobility need or deficit of the patient</b>	<b>Evidence for benefits of the C-Brace</b>
<b>Safety</b>	Patient stumbles and falls repeatedly	<ul style="list-style-type: none"> <li>- <b>Significant improvement in balance (Berg Balance Scale) compared to locked KAFO and SCO</b> (Ruetz et al., 2023; Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017)</li> <li>- <b>Significant reduction of more than 35% in the Timed Up and Go time indicating improved balance and functional mobility</b> (Lundstrom et al. 2024)</li> <li>- <b>Significant reduction in falls, up to 78% compared to locked KAFO and SCO in randomized cross-over trials and 91% compared to baseline after routine fittings in clinical practice</b> (Ruetz et al., 2023; Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017; Lundstrom et al. 2024)</li> <li>- <b>Significant reduction in risk of falling</b> (Timed Up and Go and Activity Specific Balance Confidence Scale) (Lundstrom et al. 2024; Ruetz et al., 2023)</li> <li>- <b>Significant reduction in fear of falling</b>, 33% reduction indoors and 59% outdoors (Ruetz et al., 2023)</li> <li>- <b>Significant reduction of more than 50% in the number of subjects falling more than once</b> (Ruetz et al., 2023)</li> <li>- <b>Nearly physiologic knee swing flexion (important for sufficient toe clearance)</b> (Schmalz et al. 2016)</li> <li>- <b>Reduction in walking aids</b> (Lundstrom et al. 2024; Schmalz et al., 2016; Hobusch et al., 2018)</li> </ul>

<b>Mobility</b>	Patient feels limited or restricted in his/her mobility by current locked KAFO or SCO	<ul style="list-style-type: none"> <li>- <b>Significant improvement of more than 35% in fast walking speed</b> (Lundstrom et al. 2024)</li> <li>- <b>Significant improvement in self-selected walking speed and walking capability (distance walked in the 6 min walk test)</b> (Deems-Dluhy et al., 2021; Hobusch et al., 2018)</li> <li>- <b>Significant improvement in Functional Gait Assessment (FGA) and Dynamic Gait Index (DGI) compared to locked KAFO and SCO</b> (Ruetz et al., 2023 [DGI]; Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017 [FGA])</li> <li>- <b>Significant improvement in patient-reported overall orthotic function, ambulation, paretic limb and well-being as measured with the modified PEQ</b> (Pröbsting et al., 2017)</li> </ul>
<b>Mobility</b>	Patient feels limited or restricted in performing activities of daily living with the current locked KAFO or SCO	<ul style="list-style-type: none"> <li>- <b>Significant improvement of more than 150% in average ratings for individual goal attainment (Patient-specific Functional Scale)</b> (Lundstrom et al. 2024)</li> <li>- <b>Significant improvement in patient-reported safety and ease of performing ADLs</b> (Pröbsting et al., 2017)</li> </ul>
<b>Mobility</b>	Patient has difficulty descending slopes and stairs	<ul style="list-style-type: none"> <li>- <b>Significant improvement in the quality of slope and stair descent</b> (Ruetz et al., 2023; Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017 [stairs only]; Schmalz et al., 2016 [slopes and stairs])</li> </ul>
<b>Pain</b>	Patient has pain limiting or restricting activities of daily living or interfering with the enjoyment of social activities	<ul style="list-style-type: none"> <li>- <b>Significant reduction of more than 20% in average pain (Numerical Pain Rating Scale) with C-Brace compared to baseline and significant reduction in Pain Interference (PROMIS Pain Interference 6a)</b> (Lundstrom et al. 2024)</li> </ul>
<b>Mobility</b>	Patient has physical limitations at work	<ul style="list-style-type: none"> <li>- <b>Significant reduction of 30% in Work Limitations Questionnaire WLQ-25 Physical score compared to locked KAFO or SCO</b> (Ruetz et al., 2023)</li> </ul>

<b>Quality of life</b>	Patient reports reduced quality of life while using a locked KAFO or SCO	<ul style="list-style-type: none"> <li>- <b>Significant improvements in all 5 dimensions of the EQ-5D-5L (Mobility, Usual Activities, Pain, Self-Care and Anxiety/Depression) and significant improvement of 33% in the overall Health Utility Index</b> (Lundstrom et al. 2024)</li> <li>- <b>Significant improvement in 5/9 domains of SF-36 including a 50% improvement in Physical Functioning and 20% in Health Change compared to locked KAFO or SCO</b> (Ruetz et al., 2023)</li> <li>- <b>Significant improvement in quality of life as assessed by the OPUS and WHOQOL-BREF</b> (Ruetz et al., 2023 [OPUS only]; Deems-Dluhy et al., 2021)</li> </ul>
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## References

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