

# Evidence Essentials

## C-Brace Microprocessor Stance and Swing Control Orthosis

	Mobility need or deficit of the patient	Evidence for benefits of the C-Brace vs. locked KAFO and SCO
<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> (Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017)</li> <li>- <b>Reduction in falls</b> (Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017)</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> (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 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) compared to locked KAFO and SCO</b> (Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017)</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 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> (Deems-Dluhy et al., 2021; Deems-Dluhy et al., 2017 [stairs only]; Schmalz et al., 2016 [slopes and stairs])</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 improvement in quality of life as assessed by the OPUS and WHOQOL-BREF</b> (Deems-Dluhy et al., 2021)</li> </ul>

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### References

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- Deems-Dluhy S, Hoppe-Ludwig S, Mummidiseti CK, Lonini L, Shawen N, Jayaraman A. The impact of a MPO vs. SCO vs. locked KAFO on the functional ability of individuals with lower extremity weakness due to neurologic or orthopaedic injury or disease. 16<sup>th</sup> ISPO World Congress, Cape Town, South Africa, May 8-11, 2017.
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- Pröbsting E, Kannenberg A, Zacharias B. Safety and walking ability of KAFO users with the C-Brace® Orthotronic Mobility System, a new microprocessor stance and swing control orthosis. Prosthet Orthot Int 2017 Feb;41(1):65-77. Epub 2016 Jul 10.
- Schmalz T, Pröbsting E, Auberger R, Siewert G. A functional comparison of conventional knee-ankle-foot orthoses and a microprocessor-controlled leg orthosis system based on biomechanical parameters. Prosthet Orthot Int 2016 Apr;40(2):277-86. Epub 2014 Sep 23.

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