

Helix^{3D} Hip Joint System vs other prosthetic hip joints

Stairs

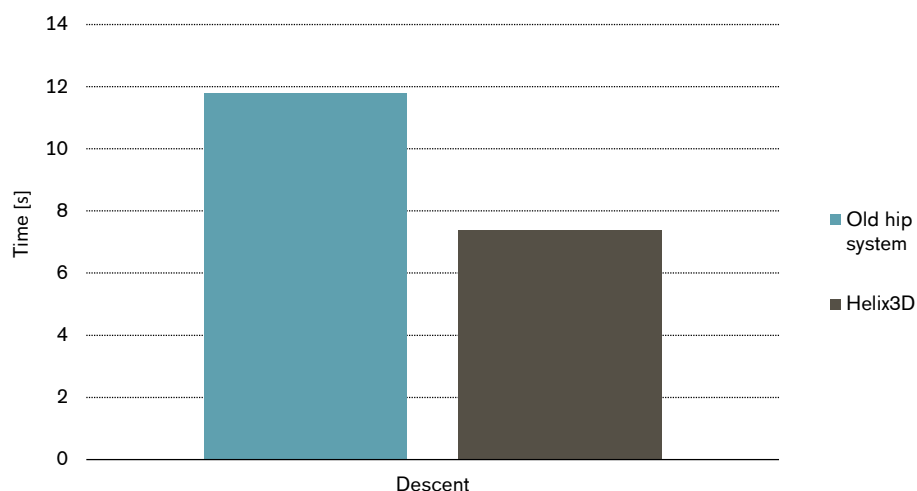
Major Findings

With Helix^{3D} Hip Joint System compared to other prosthetic hip joints:

→ **Velocity increased by 37% when descending**

→ **Stair descent was possible using the step-over-step strategy**

Decreased time required to descend stairs with Helix^{3D}



Ludwigs et al. (2013)

Clinical Relevance

Stair ambulation is an activity that is important for amputees with an activity level ranging from K2 to K4. Being able to ascend and descend stairs is a requirement to participate in daily life. Common ways of measuring amputee's ability to ambulate stairs include stair ascent and descent strategy, use of handrail and/or use of an assistive device. Since stair ascent strategy is for hip disarticulated and hemipelvec-tomy amputees restricted to step-by-step strategy based on missing hip muscles, studies focus mostly on stair descent assessment. Measuring the time required to complete stair descent task can be done as part of a clinical mobility assessment.

Summary

The time required to complete the stair descent task decreased by 37% when using Helix^{3D} Hip Joint System compared to an old hip system. Furthermore, all of the 10 subjects were able to descend the stairs with a step-over-step strategy. In comparison, only 2 subjects were able to do so with their old hip system (Ludwigs et al. 2013). Both improvements are not only the beneficial effect of Helix^{3D} but can also be explained by the effect of the change from non-microprocessor controlled knees to C-Leg. With the old hip system, 23% subjects were using C-Leg, whereas with Helix^{3D} 100% of subjects. The acclimatisation period for Helix^{3D} was determined as the time the subjects need to feel adjusted to the new prosthesis and was around 11 weeks.

References of summarized studies

Ludwigs, E., Kannenberg, A., & Wüstefeld, D. (2013). Evaluation of the Benefits of a New Prosthetic Hip Joint System in Activities of Daily Function in Patients after Hip Disarticulation or Hemipelvectomy. *Journal of Prosthetics and Orthotics*, 25(3), 118–126.

© 2014, Otto Bock HealthCare Products GmbH ("Otto Bock"), All Rights Reserved. This article contains copyrighted material. Wherever possible we give full recognition to the authors. We believe this constitutes a 'fair use' of any such copyrighted material according to Title 17 U.S.C. Section 107 of US Copyright Law. If you wish to use copyrighted material from this site for purposes of your own that go beyond 'fair use', you must obtain permission from the copyright owner. All trademarks, copyrights, or other intellectual property used or referenced herein are the property of their respective owners. The information presented here is in summary form only and intended to provide broad knowledge of products offered. You should consult your physician before purchasing any product(s). Otto Bock disclaims any liability related from medical decisions made based on this article summary.