Reference

Gailledrat E, Moineau B, Seetha V, DeAngelis MP, Saurel B, Chabloz P, Nougier V, Pérennou D.

Department of Physical Medicine and Rehabilitation, Grenoble University Hospital, Institute of Rehabilitation, France.

Does the new Helix 3D hip joint improve walking of hip disarticulated amputees?

Annals of physical and rehabilitation medicine 2013; 56(5):411-418.

Products

Helix^{3D} vs 7E7

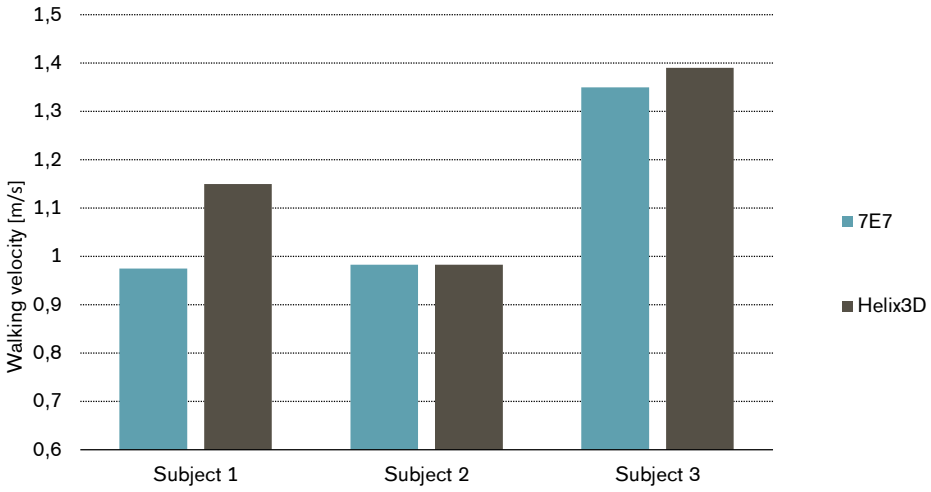
Major Findings

With Helix^{3D} Hip Joint System compared to 7E7:

- → **Increased satisfaction for 2 out of 3 subjects**
- → **Increased walking velocity for 2 out of 3 subjects**
- → **Increased length of single limb support on prosthetic side for 2 out of 3 subjects**

Caution: The prosthetic set up of the Helix^{3D} prosthetic hip system was not in compliance with the methods recommended by the manufacturer (Ottobock). Moreover, 4 days of acclimatisation period might have been too short to evaluate Helix^{3D}, since it takes time to get used to the hydraulic control system.

Increased walking velocity only after 4 days of using Helix^{3D}



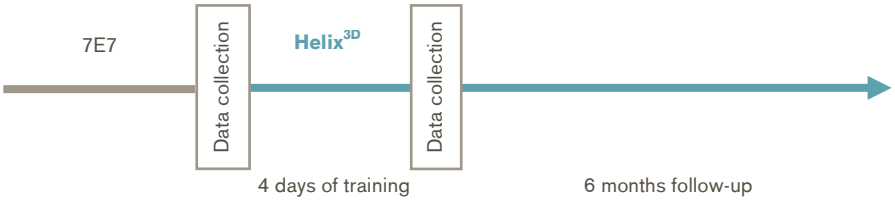
Walking velocity was determined by the two minute walk test.

Population

Subjects:	3 hip disarticulated amputees
Previous prosthesis:	7E7
Amputation causes:	67% trauma, 33% osteosarcoma
Mean age:	37 yrs
Mean time since amputation:	not reported
MFCL:	not reported

Study Design

Clinical case report:



Only one out of three subjects continued with the follow-up. No measurements were taken after the follow-up period since the amputee showed an ischiatic wound.

Results

Activities								Participation	Environment
Level walking	**Stairs**	**Ramps, Hills**	**Uneven ground, Obstacles**	**Cognitive demand**	**Metabolic energy consumption**	**Safety**	**Activity, Mobility, ADLs**	**Preference, Satisfaction, QoL**	**Health Economics**

Category	Outcomes	Results for Helix^{3D} compared to 7E7:	Sig.*
Level Walking	Two minute walk test (TMWT)	Distance increased for 2 subjects by 18% and 3%. Unchanged distance for one subject.	n.a.
	Motion analysis	Length of single limb support on prosthetic side relative to gait cycle increased for 2 subjects by 11% and 1.6%.	n.a.
	Walking aid	Number of subjects who use a cane when ambulating decreased from one to none.	n.a.
Preference, Satisfaction, Quality of Life (QoL)	Satisfaction Questionnaire (SatPro)	Increased score for 2 out of 3 subjects. For one subject the score increased by 51%, for the other subject by 3%.	n.a.

* no difference (0), positive trend (+), negative trend (–), significant (++/––), not applicable (n.a.)

Author's Conclusion

"This three cases study showed that experimental and clinical assessments and satisfaction scales must be associated for the validation of technical innovations in amputees. It also suggested the need for further developments of the Helix^{3D} equipment protocol before getting clinically relevant for hipdisarticulated amputees. A prolonged training period might be also necessary to improve confidence in the prosthesis equipped with Helix^{3D}, especially when equipping hip-disarticulated patients used to another prosthesis." (Gailledrat et al. 2013)