Reference

Wong CK, Wilska J, Stern M.

Program in Physical Therapy, Columbia University Medical Center, New York, USA.

Balance, Balance Confidence, and Falls Using Nonmicroprocessor and Microprocessor Knee Prostheses: A Case Study after Vascular Amputation With 12-Month Follow-Up

Journal of Prosthetics and Orthotics 2012; 24(1):16-18.

Products

C-Leg and NMPKs

Major Findings

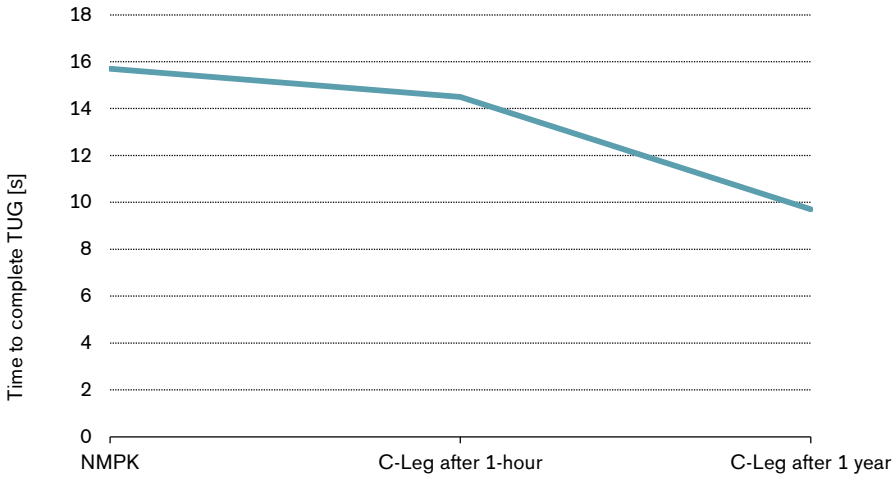
With C-Leg compared to NMPKs:

→ Improved balance and decreased risk of falling

Time required completing the timed up and go (TUG) test decreased by up to 38%
The BERG balance scale score improved by up to 6 points
The activities-specific balance confidence (ABC) scale score improved by 10%
Falls during a 2 months period were reduced from 2 to 0

→ Stair descent strategy improved from step-to-step to step-over-step

Decreased risk of falling with C-Leg



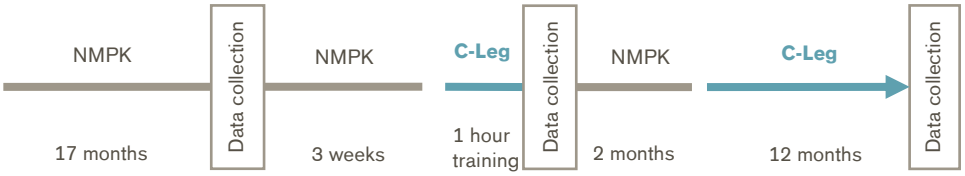
The timed up and go (TUG) test is an indicator for risk of falling.

Population

Subjects:	1 unilateral, transfemoral amputee
Previous prosthesis:	NMPK
Amputation causes:	vascular
Mean age:	53 yrs
Mean time since amputation:	1.7 yrs
MFCL:	K3

Study Design

Case Report:



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 C-Leg compared to NMPKs	Sig.*
Stairs	Questionnaire	Stairs descent strategy changed from step-to-step strategy to step-over-step strategy.	n.a.
Safety	Timed up and go (TUG)	The TUG time decreased immediately following the 1-hour training session by 8% (15.7s to 14.5s) and decreased after 1 year by 38% (15.7s to 9.7s).	n.a.
	BERG balance scale	The BERG score increased immediately following the 1-hour training session by 3 points (from 46 to 49) increased after 1 year by 6 points (46 to 52 with a maximum of 56 points)), representing clinically meaningful improvement. The increased BERG balance scale score represents a reduced risk of falling.	n.a.
	Activities-Specific Balance Confidence (ABC) Scale	The ABC score increased immediately following the 1-hour training by approximately 10% (from 84 to 92%) and was maintained at 1-year follow-up.	n.a.
	Questionnaire	Reported falls regarding a two months period were reduced from 2 to none.	n.a.
Activity, Mobility, Activities of daily living (ADLs)	Questionnaire	The subject returned to swimming/bowling and he participated in trial walking and jogging with amputee group.	n.a.

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

Author's Conclusion

"For this man with transfemoral amputation because of vascular disease, balance, balance confidence, falls, and participation in leisure activities all improved during a year of MPK. Future research to identify and reduce risk of falls for people with vascular transfemoral amputation is needed before clinical conclusions can be drawn." (Wong et al. 2012)