

# Effet de la fonction de marche chez les amputés avec le pied Xtend Foot par rapport aux prothèses avec pieds en fibre de carbone classiques



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# SU Sahlgrenska – La Maison R

## Le laboratoire de la marche

- Inauguré en 2017.
- Un centre de recherche en orthopédie, rééducation et soins
- Situé à Mölndals sjukhus - 7000 m<sup>2</sup>
- Centre d'amputation, d'ostéo-intégration et de prothèses contrôlées par l'esprit. Laboratoire de marche comprenant l'enregistrement et l'analyse des schémas de marche des patients.
- Centre de formation clinique pour pratiquer

### SU Sahlgrenska – Les faits:

- 17 000 employés
- Le plus grand hôpital en Suède
- 2000 lits
- 3 campus : Sahlgrenska, Östra et Mölndal.
- Soins de base de 700 000 habitants
- Soins hautement spécialisés pour 1,7 million d'habitants (ouest de la Suède)



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# Les auteurs de l'étude



**Roland Zügner**

PHD, spécialiste en physiothérapie en orthopédie à Västra Götalands regionen. 26 publications.



**Roy Tranberg**

Docent, Phd, CPO. 47 publications.



**Henrik Malchau**

MD, PhD, Professor at Harvard Medical School at Massachusetts General Hospital. 291 publications.

**Effect of walking function in amputees with Xtend Foot compared to regular foot prostheses**

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**Background**  
There is a projected increase in number of amputees in the United States. During the next three decades there will be a two-fold increase in number of American living with limb amputation secondary to a vascular disease. According to the Swedish register (SwedAmpl) there are about 3300 amputations every year in Sweden in lower extremities and 80 % is due to diabetes or vascular disease. The last 20 % is due to trauma or tumor. Rates of prosthesis use in patients with lower limb amputation vary from 45% to 55%.

**Purpose**  
The purpose of the study was to compare the walking ability in amputees supplied with Xtend foot vs. regular foot prostheses.

**Patients & Method**  
Three non-ribial and three non-femoral amputated patients were included. Patients were asked to walk both with their current prosthesis and the new Xtend Foot. Primary outcomes were kinematics in trunk and arms and lower extremities together with kinetics in lower extremities. Secondary outcomes were balance, 5 minute walk, time up and go (TUG) and MDAI (Pain-M).

**Preliminary results**  
**Walking with the Xtend Foot showed:**

- 300% lower step in 10 meters (15 vs 14)
- longer walking distance in 6 minutes (412 vs. 377 m)
- faster TUG (10.4 vs. 11.7 sec)

**Patient comments about Xtend-Foot:**

- "Possibly to walk faster and with more energy"
- "Better balance, movement and joint load"
- "Softer and smoother"



**Conclusion**  
In this small scale the Xtend Foot improved walking ability in patients with non-ribial and non-femoral amputees. Larger studies are needed to validate findings in the study.

**Take home message**  
The benefits experienced by patients when walking with the Xtend Foot will most probably improve the activity of daily living

The Sahlgrenska Academy  
UNIVERSITY OF GÖTHEBURG



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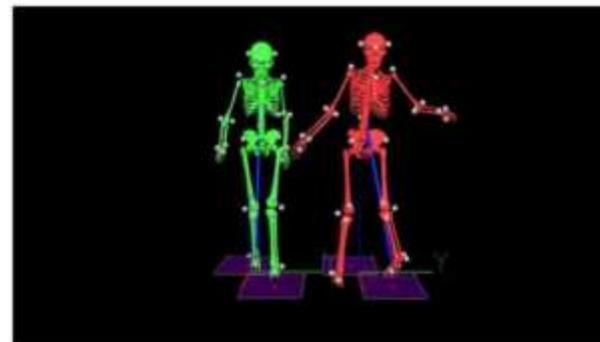
# Méthodologie

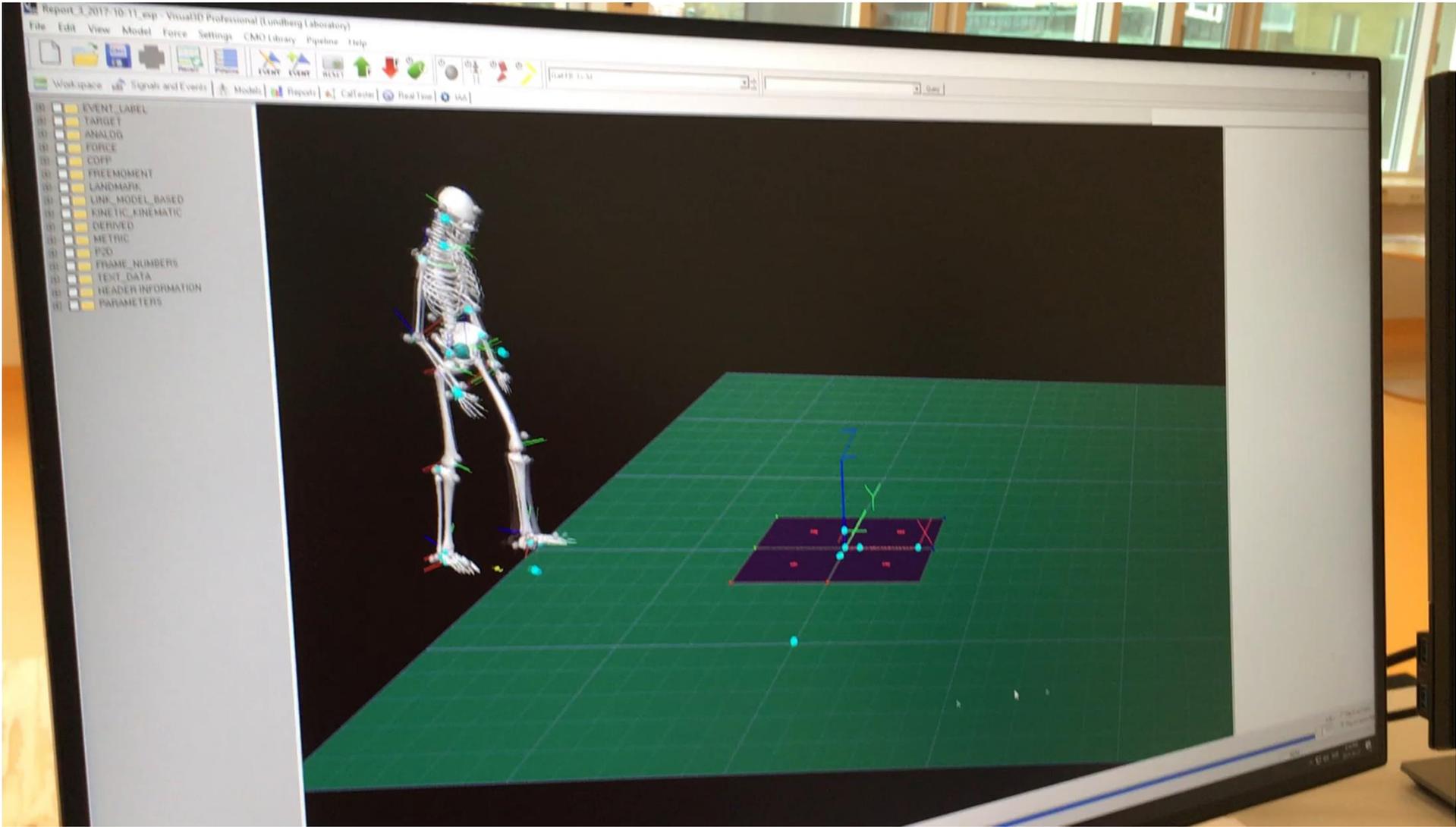
Sélection des patients :

- 3 patients trans-tibiaux et 3 patients trans-fémoraux

Outils de recherche :

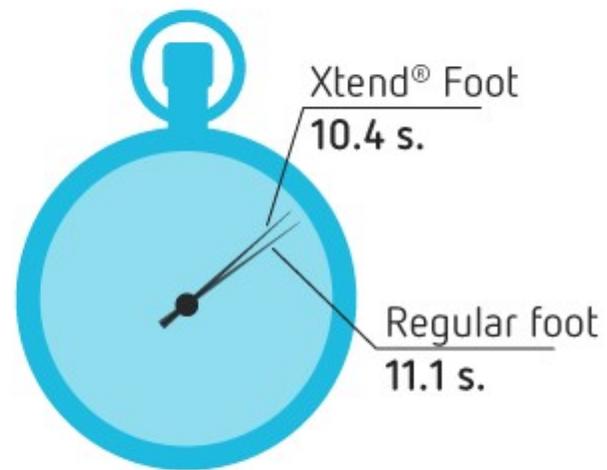
- Cinématique du tronc, des bras et des membres inférieurs
- Cinétique des membres inférieurs
- Equilibrée
- 6-min walk-test
- 10 meter walk-test
- Time up and go (TUG)
- PROM (Plus-M)



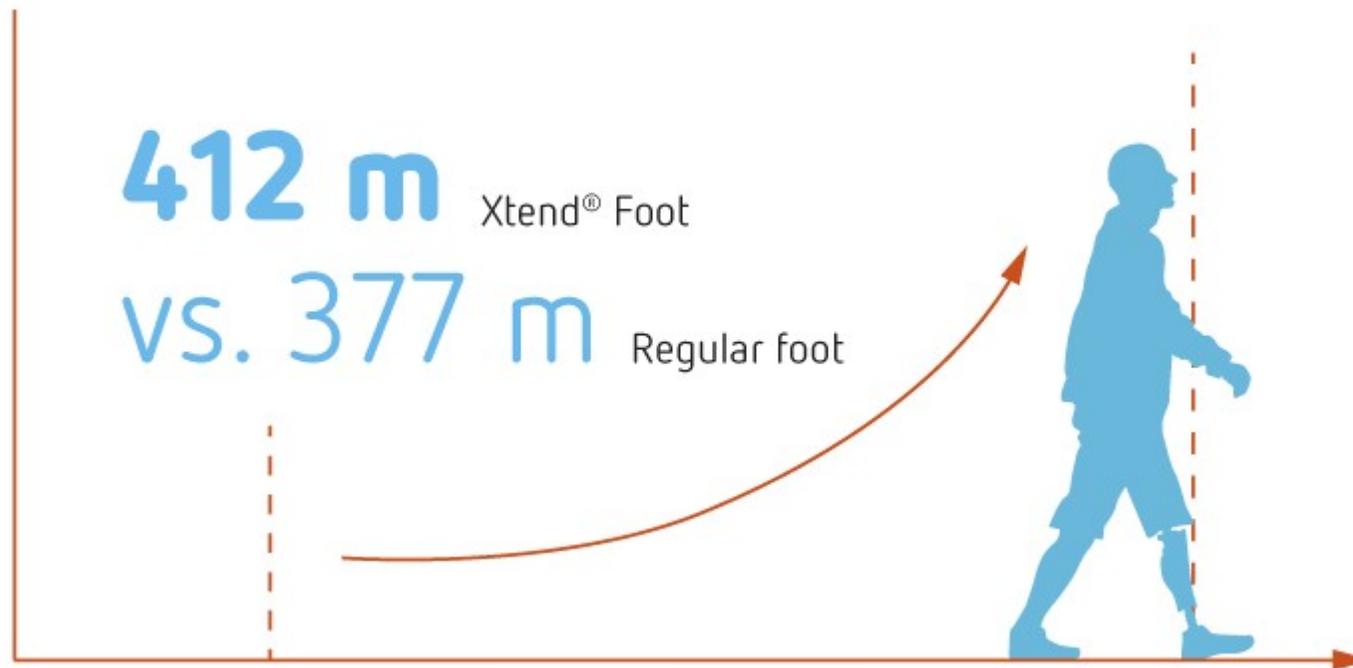




## Time up and go test – Xtend® Foot vs regular carbon foot

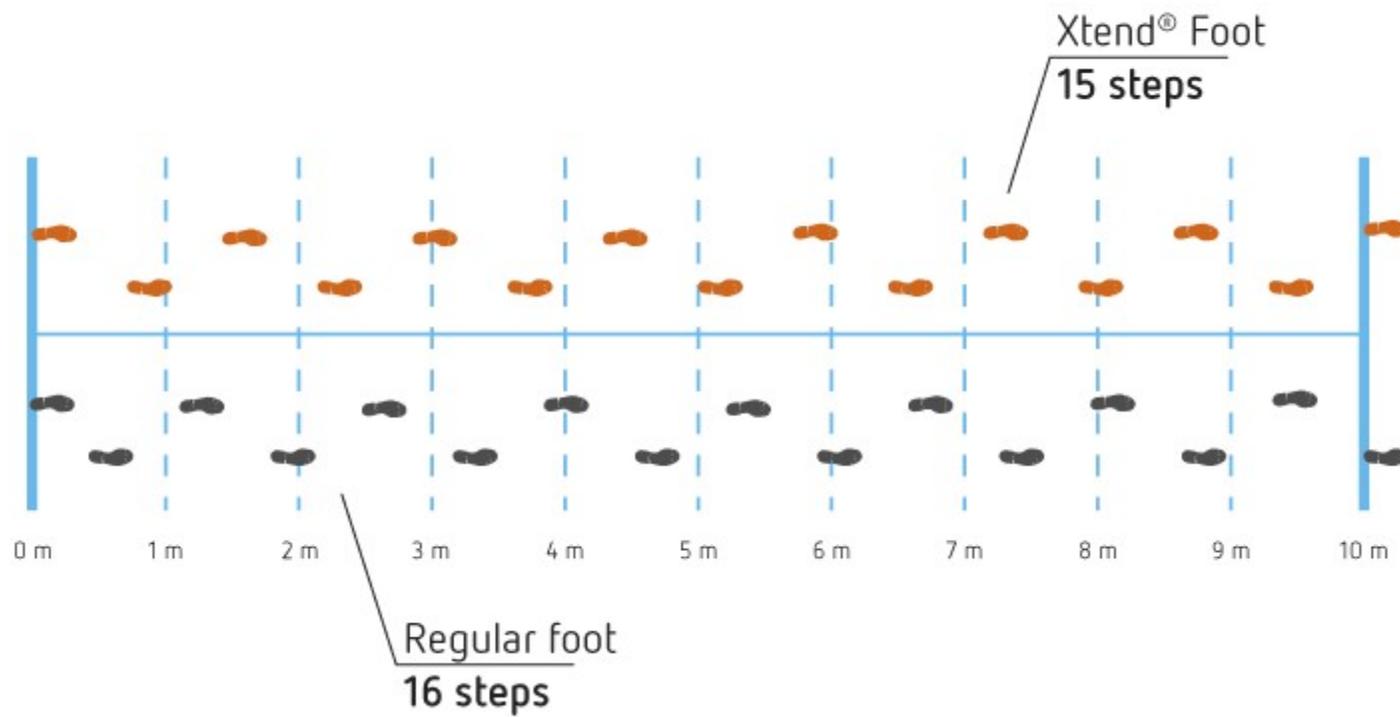


6 minute walk test – Xtend® Foot vs regular carbon foot



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## 10 meters test – Xtend® Foot vs regular carbon foot



# Message à emporter

Les bénéfices ressentis par les patients lors de la marche avec le Xtend Foot amélioreront très probablement l'activité de la vie quotidienne.



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# Deux études en cours par l'hôpital universitaire Sahlgrenska de Göteborg

Environ 30 patients dans chaque étude

- Étude 1, TT réhabilité – amputés
- Étude 2, nouveau TT - amputés pas encore réhabilités



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Merci beaucoup!

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