

# Prosthetic Rehabilitation Mobile after Amputation

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# Ottobock in China – General Information | 奥托博克中国基本介绍

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With headquarters in Beijing, we have already set up Beijing House, Shanghai House, Wu Han House, Guangzhou House, Chengdu House and Qingdao JV.

奥托博克中国的总部设在北京，并在武汉、上海、北京、广州、成都等地建有分公司，在青岛建有合资公司。

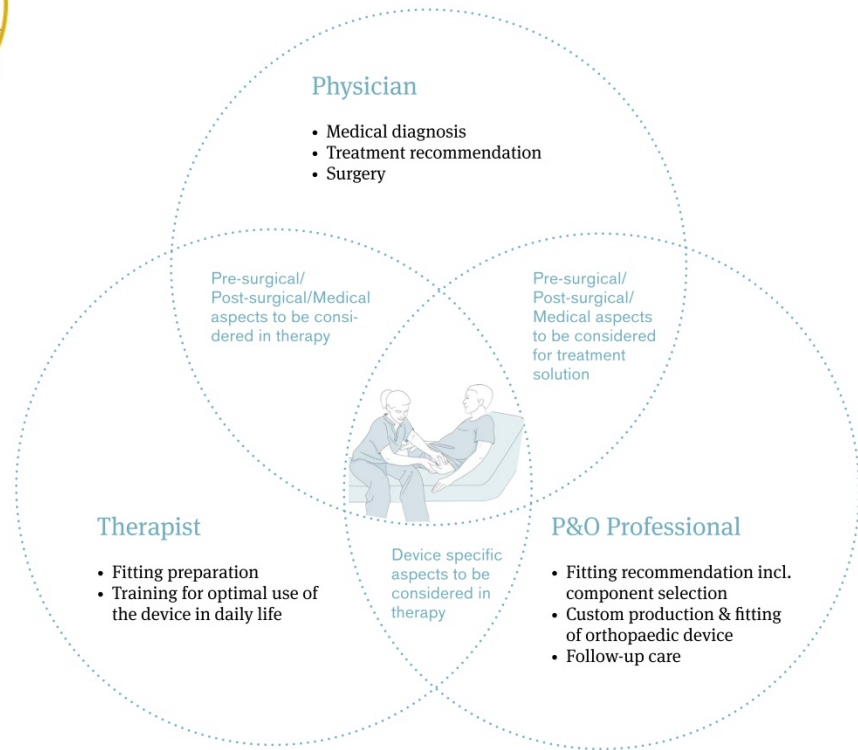
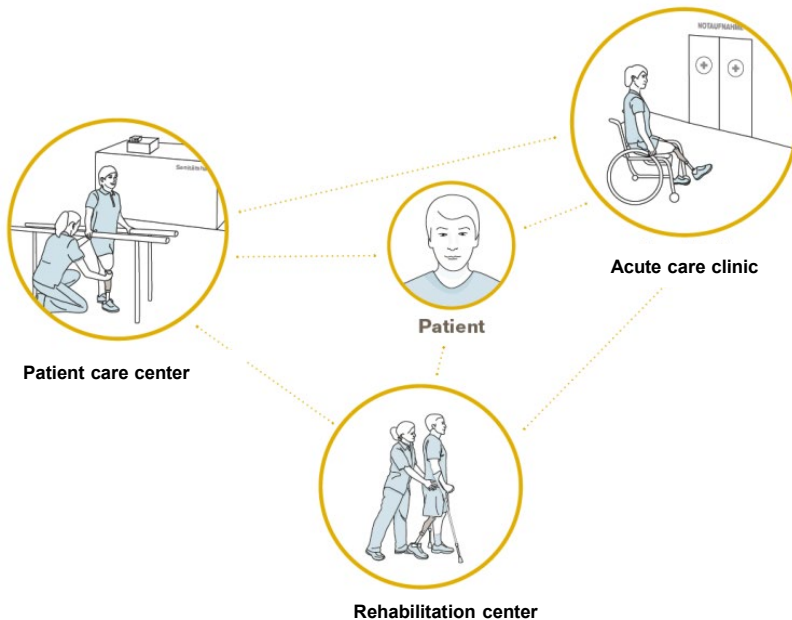
# Patient journey after amputation

## On the way to regain mobility

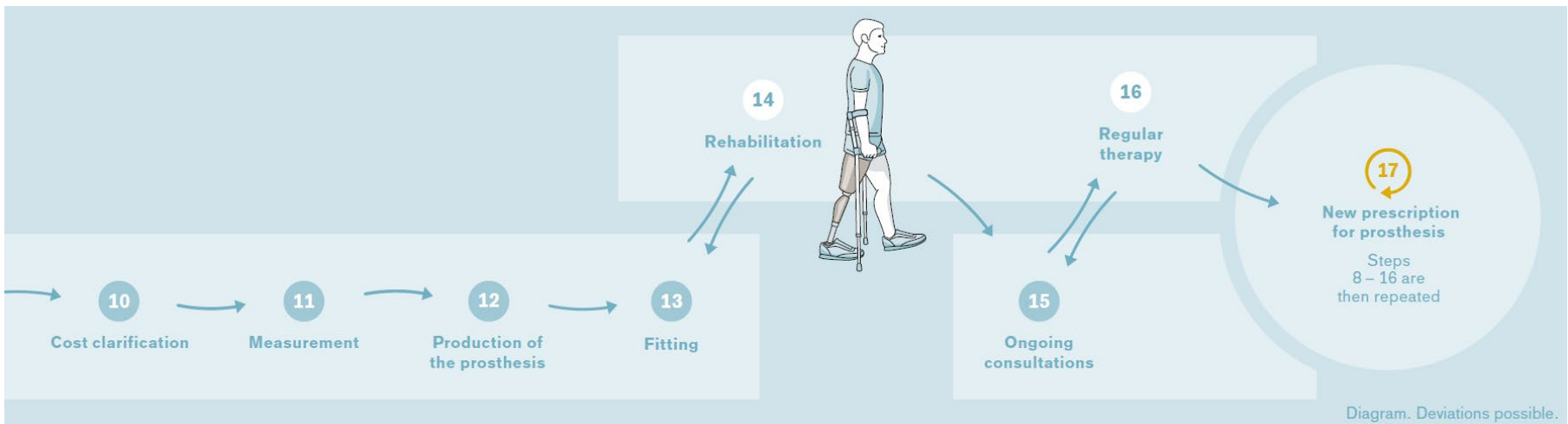
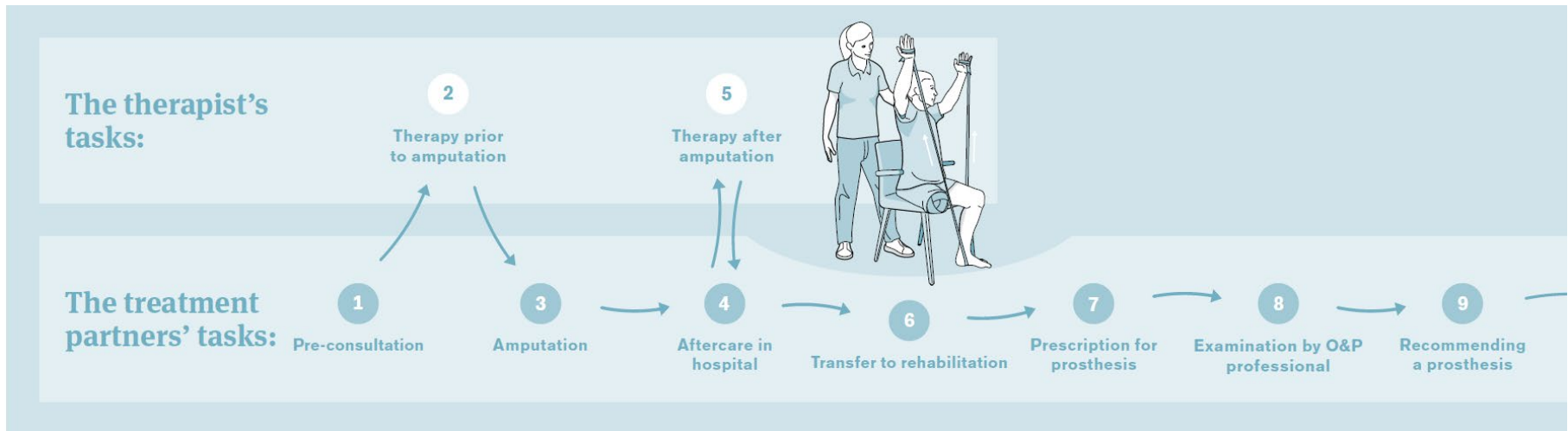


# The rehabilitation team

## Working together to maximize patient recovery



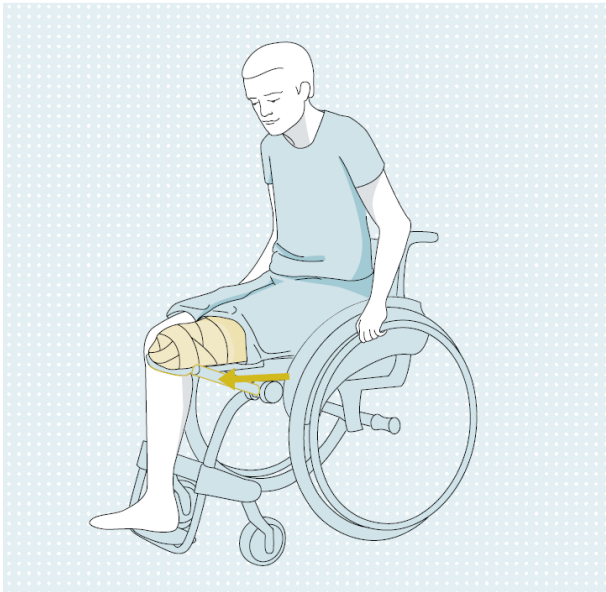
# The closer the cooperation, the better the rehabilitation outcome of the patient



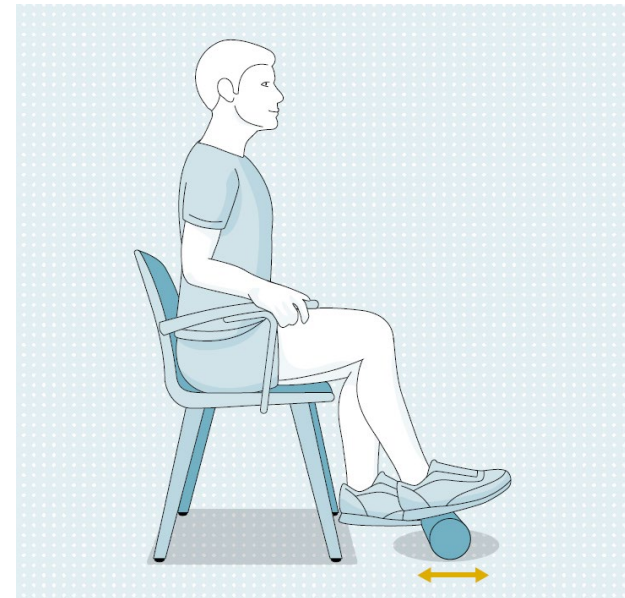
# Before Amputation

## Ensure that muscles are strengthened

**Sitting correctly**



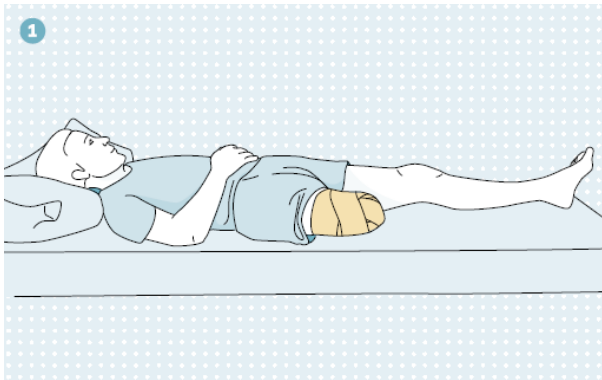
**Mobilising the contralateral leg and strengthening the muscles**



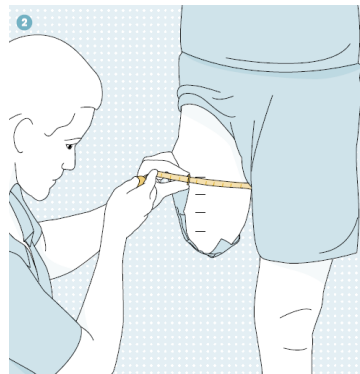
# After amputation

## 1. Oedema Therapy

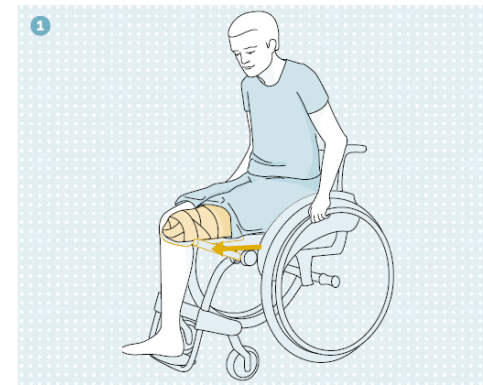
**Correct positioning/bedding**



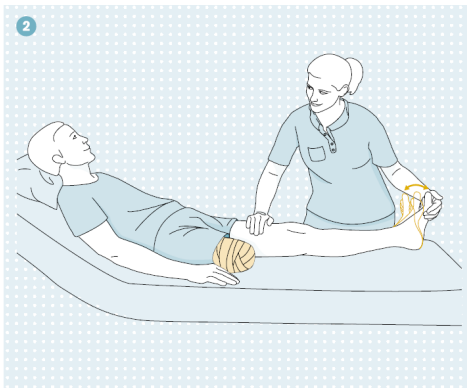
**Measuring**



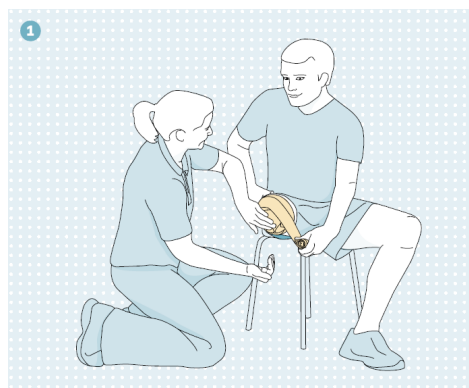
**Correct sitting**



**Mobilisation**



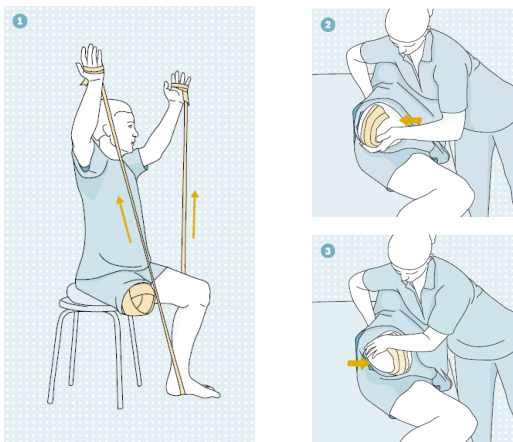
**Early Compression Therapy**



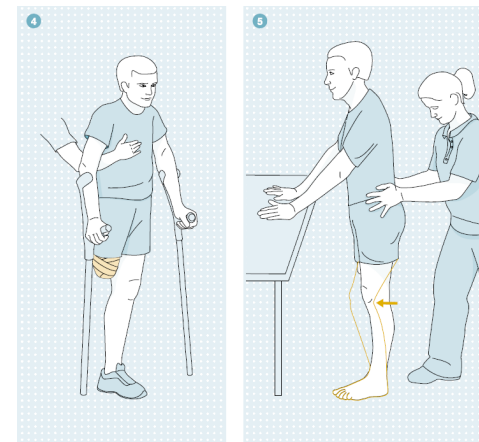
# After amputation

## 2. Muscular Training

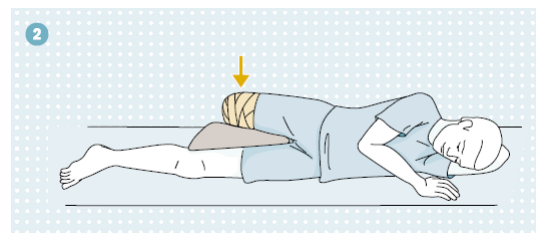
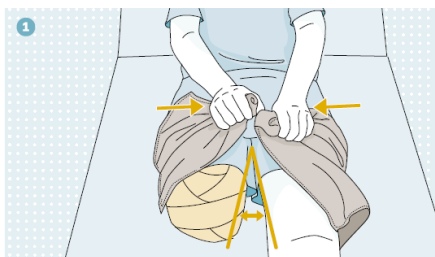
### Stretching the Residual Limb Musculature



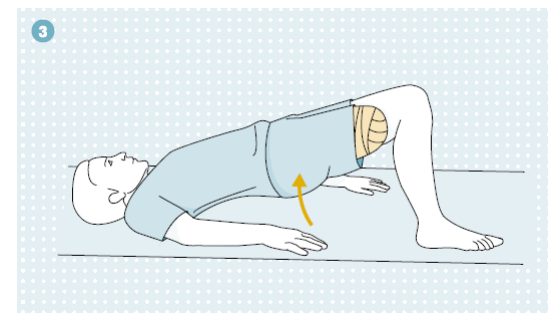
### Muscle Strengthening on the Sound Side



### Muscle Strengthening of the Residual Limb



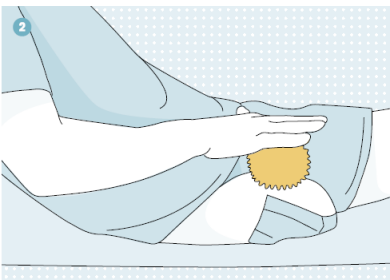
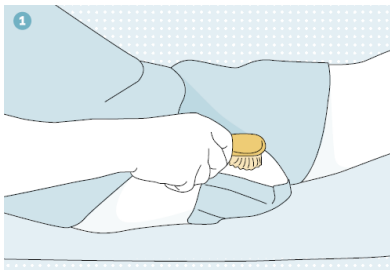
### Muscle Strengthening of the Torso



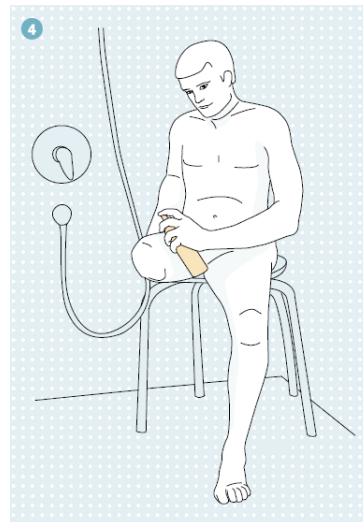
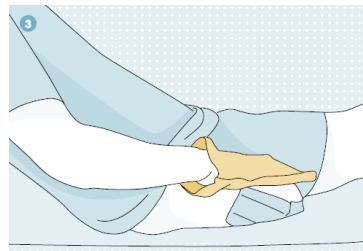
# After amputation

## 3. Skin care and scar treatment

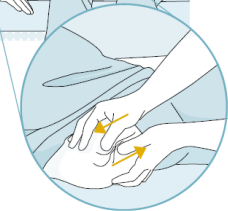
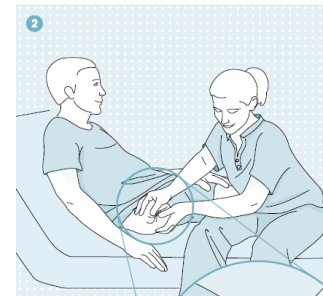
### Desensitising the Skin



### Skin Care



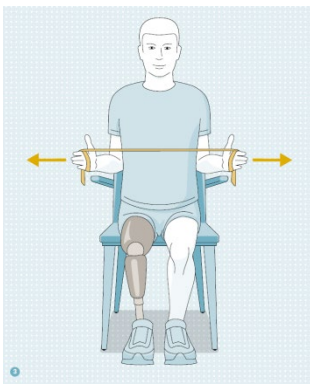
### Scar Treatment



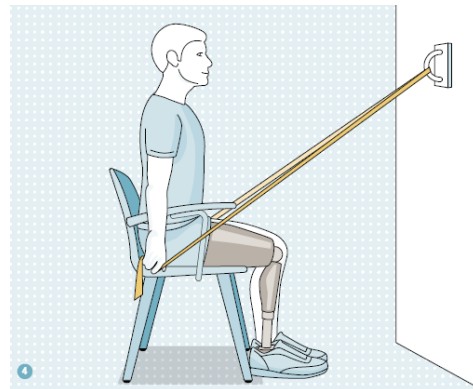
# Exercises for life at home

## Muscle strengthening and gait training

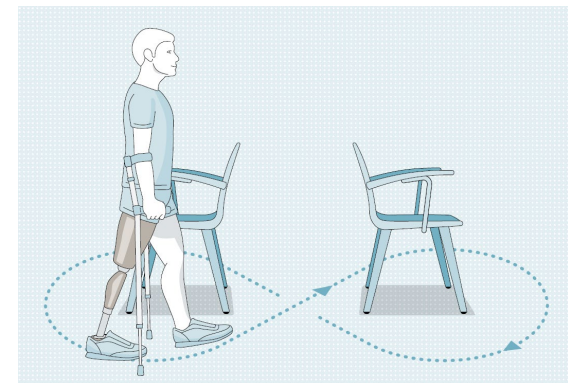
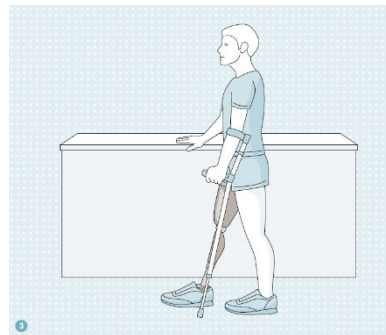
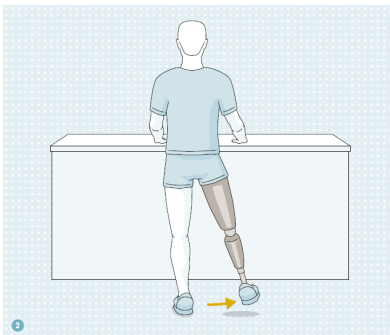
### Strengthening the interscapular musculature



### Strengthening the arms



### Supportive leg exercises and gait training



# Mobile after amputation

## Therapists need specialised know-how



- Amputation level
- Complications after amputation
- Psychological effects of an amputation
- Common terms in the field of prosthetics
- Prosthetic components and their alignment
- Gait cycle and prosthetic gait
- Analysis of gait deviations
- Functionality of locking systems, liner, sockets, knee joints and feet

# Mobile after amputation

## Standardised processes support optimised outcomes



### Tools:

- Check lists
- Rehabilitation protocols
- Treatment plans
- Documentation sheets

### Outcome-Measurement

- Standardised tests (adapted to the target group) secure quality and comparability
- Feedback to Acute care clinic to demonstrate success of rehabilitation

# Mobile after Amputation

## Why to mobilize?

Literatur: Jibby E. Kurichi, MPH,<sup>1</sup> Pui Kwong, MPH,<sup>1</sup> W. Bruce Vogel, PhD,<sup>2</sup> Dawei Xie, PhD,<sup>1</sup> Diane Cowper Ripley, PhD,<sup>3</sup> and Barbara E. Bates, MD<sup>4</sup> (2015): Effects of prosthetic limb prescription on 3-year mortality among lower extremity veteran amputees

- Prosthetic treatment reduces the mortality rate significantly within the first 3 years

**Table 3**

Distribution of characteristics comparing those who died to those who remained alive for 3-years post-surgery

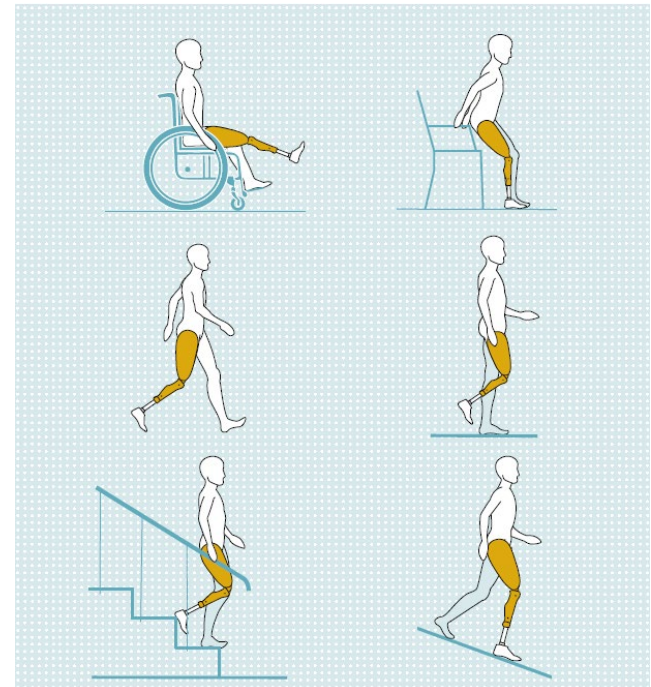
Variable	Total N (%)	Died N=2086	Alive N=2492	p-value
Receipt of a prescription for a prosthetic limb	1300 (28.4)	328 (25.2)	972 (74.8)	<0.001
No receipt of a prescription for a prosthetic limb	3278 (71.6)	1758 (53.6)	1520 (46.4)	

# Kenevo

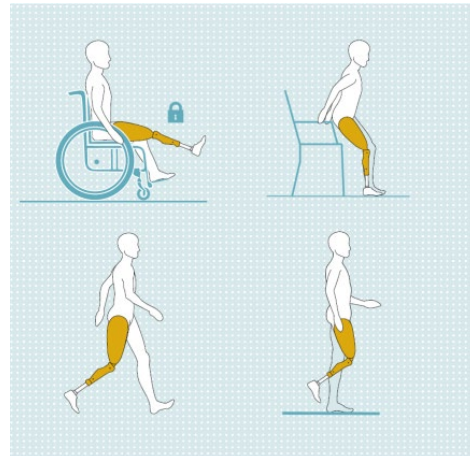
## The 3-in-1 therapeutic knee



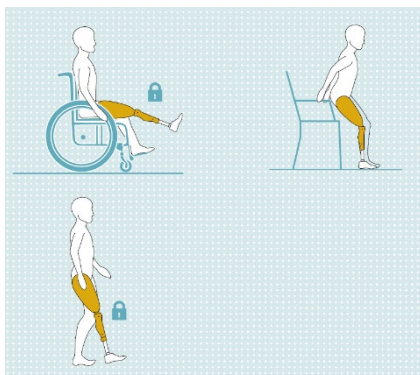
### Activity mode C



### Activity mode B&B+



### Activity mode A



# Kenevo - Clinical Evidence



## Cross-over Pilot Study (n=5):

Safety and function of a prototype microprocessor-controlled knee prosthesis for low active above knee amputees switching from a mechanic knee prosthesis: a pilot study, Disability and Rehabilitation: Assistive Technology 2017, Hasenoehrl et al.

Security

Function

## Prospective Observational Study (n=29):

Effects of a novel microprocessor controlled knee Kenevo on safety, mobility and satisfaction of lower activity transfemoral amputees.

Journal of Prosthetics and Orthotics 2017, Mileusnic et al.

Security

Satisfaction

Mobility

## Multicentric, randomised Cross-over Study (n=35):

Randomized, cross-over study comparing the efficacy of the Kenevo knee against non-microprocessor controlled knees on the risk of falling and locomotors skills of moderately active persons with leg amputation above knee or knee disarticulation.

Ann Phys Rehabil Med 2018, Lansade et al.

Security

Satisfaction

Mobility

QoL

# Mobile after amputation

## Critical success factors



- Early therapy right after amputation
- Clear roles and standardized processes for coordinated information and care/aftercare
- Well trained professionals
- Patient's motivation and expectation management

Thank you for your attention!

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