



BSI Standards Publication

**Prosthetics and orthotics — Terms relating  
to the treatment and rehabilitation of  
persons having a lower limb amputation**

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## National foreword

This British Standard is the UK implementation of ISO 21065:2017.

The UK participation in its preparation was entrusted to Technical Committee CH/168, Prosthetics and orthotics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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**Prosthetics and orthotics — Terms  
relating to the treatment and  
rehabilitation of persons having a  
lower limb amputation**

*Prothèses et orthèses — Termes associés au traitement et à la  
réadaptation de personnes amputées du membre inférieur*



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Tel. +41 22 749 01 11  
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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

This document was prepared by Technical Committee ISO/TC 168, *Prosthetics and orthotics*.

## Introduction

Currently there is no internationally accepted terminology to describe the phases of treatment and rehabilitation of persons having a lower limb amputation and the treatments which are used during these phases.

As a consequence the members of the clinic teams in different parts of the world have adopted their own terminology to meet their own needs. This situation makes it difficult to compare the clinical practices adopted in different treatment centres.

This document proposes a terminology which is designed to overcome this problem. It is suitable for use in clinical records and will facilitate the analysis of treatment outcomes.





# Prosthetics and orthotics — Terms relating to the treatment and rehabilitation of persons having a lower limb amputation

## 1 Scope

This document specifies a vocabulary for the description of the phases of treatment and rehabilitation of persons having a lower limb amputation and the treatments which are used during these phases.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **pre-operative care**

treatment provided from the time the decision to amputate is made until surgery is performed

### 3.2

#### **surgery**

treatment provided when the person is in the operating room

### 3.3

#### **stump residuum**

that part of the limb remaining after amputation surgery

### 3.4

#### **immediate post-operative care**

treatment provided after surgery where the focus is recovery from the procedure, achieving medical stability, preventing complications and initiating mobility

Note 1 to entry: This is normally up to three days.

### 3.5

#### **complication**

adverse event affecting the expected progress of treatment

### 3.6

#### **debridement**

surgical removal of non-viable and necrotic tissues

### 3.7

#### **phantom pain**

pain felt as if in the amputated part of the limb

**3.8**  
**early rehabilitation**

treatment, provided once the person is medically stable, to achieve optimum conditions for rehabilitation with or without a prosthesis

**3.9**  
**early walking aids**  
**EWA**

prefabricated assistive devices applied to the stump

Note 1 to entry: They can be used to assess suitability for prosthetic fitting, to promote early mobilization and gait re-education and to control oedema and promote healing. They are intended for use during the early rehabilitation phase.

**3.10**  
**temporary prostheses**  
**preparatory prostheses**

individually manufactured prostheses, to permit early mobilization and gait re-education prior to provision of a definitive prosthesis

**3.11**  
**definitive prostheses**

individually manufactured prostheses intended for continuing use

**3.12**  
**rehabilitation with a prosthesis**

treatment provided to the person who is being supplied with a prosthesis

**3.13**  
**rehabilitation without a prosthesis**

treatment provided to the person who is not being supplied with a prosthesis

**3.14**  
**continuing care**

education and treatment intended to maintain optimal medical, physical and functional status and quality of life

## **4 Phases of treatment and rehabilitation**

The treatment and rehabilitation of a person having a lower limb amputation, from the time the decision is made to amputate, and for the remainder of their lives, may be considered as comprising the following phases:

- preoperative care;
- surgery;
- immediate postoperative care;
- early rehabilitation;
- rehabilitation with or without a prosthesis;
- continuing care.

## **5 Modes of treatment**

### **5.1 General**

During each phase a range of modes of treatment (including education and provision of information) are routinely delivered and a number of complications may occur which will require further treatment, as specified below.

### **5.2 Pre-operative care**

#### **5.2.1 Treatments**

- Assessment (medical, functional, psychological and social) of suitability for amputation and to determine level of amputation.
- Counselling of patient, family and/or carer.
- Obtaining informed consent and marking the site(s) of operation(s).
- Medical, physical therapy and psychological treatment as appropriate.

### **5.3 Surgery**

#### **5.3.1 Treatments**

- Anaesthesia and pain management.
- Positioning.
- Amputation.
- Infection prophylaxis.
- Thromboembolic prophylaxis.
- Surgical site dressing (including rigid dressings).

### **5.4 Immediate post-operative care**

#### **5.4.1 Treatments**

- Routine postoperative medical, physical therapy and nursing care.
- Pain management.
- Surgical site management.
- Stump (residuum) management (including oedema control, muscle strengthening and contracture prophylaxis).
- Psychological support.
- Physical therapy (including positioning, mobility in bed, general strengthening, standing and balance training, falls awareness, and transfers).
- Care of the contralateral limb (including prevention of pressure ulcers and contractures, and thromboembolic prophylaxis).

#### **5.4.2 Complications**

- Surgical site infection.
- Bleeding and haematoma.
- Wound dehiscence.
- Excessive oedema.
- Other infections (e.g. pneumonia, urinary).
- Excessive wound or unexplained pain.
- Phantom pain.
- Pressure ulcers (contralateral limb).
- Venous thrombosis.
- Psychological issues.

#### **5.4.3 Treatment of complications**

- Antimicrobial therapy.
- Debridement.
- Revision amputation.
- Re-amputation.
- Intensified compression therapy.
- Additional pain management (e.g. medication, nerve block).
- Pressure relieving measures.
- Anti-coagulation therapy.
- Wound dressings (e.g. negative pressure).

### **5.5 Early rehabilitation**

#### **5.5.1 Treatments**

All the treatments used in the previous phase as appropriate, plus:

- occupational therapy (e.g. ADL, wheelchair mobility, assessment of living environment);
- physical therapy (e.g. intensified strength and mobility training, residuum conditioning, hopping and single leg walking training, falls strategy);
- education and training in stump care and hygiene;
- training using early walking aids and temporary/preparatory prostheses;
- assessment of suitability for prosthetic fitting;
- provision of information regarding prosthetic options and supply procedures.

### **5.5.2 Complications**

All the complications of the immediate postoperative phase, plus:

- joint stiffness and/or contracture;
- phantom pain;
- cognitive impairment;
- depression.

### **5.5.3 Treatment of complications**

All the treatments of complications used in the immediate postoperative phase, plus:

- psychological therapy (e.g. cognitive behavioural therapy) and medication;
- provision of pressure relieving orthoses and/or footwear;
- mirror therapy, transcutaneous electrical nerve stimulation (TENS) and alternative therapies;
- manual and mechanical joint stretching, serial casting and orthoses.

## **5.6 Rehabilitation without a prosthesis**

### **5.6.1 Treatments**

All the treatments of the early rehabilitation phase as appropriate, plus:

- discharge planning (including placement, home adaptation and assistive product provision);
- wheelchair provision and training;
- cosmetic-only prosthesis provision if appropriate;
- appropriate ADL training;
- specialized rehabilitation (e.g. recreational, sporting and vocational activities).

### **5.6.2 Complications and their treatments**

All the complications and their treatments of the early rehabilitation phase.

## **5.7 Rehabilitation with a prosthesis**

### **5.7.1 Treatments**

All the treatments of the early rehabilitation phase as appropriate, plus:

- discharge planning (including placement, home adaptation and assistive product provision);
- prosthetic provision;
- education and training in the use, care and acceptance of the prosthesis (including handling, putting on and taking off, hygiene and cleaning);
- gait training and provision of walking aids;
- wheelchair provision and training (when appropriate);
- appropriate ADL training;

- specialized rehabilitation (e.g. recreational, sporting and vocational activities).

### **5.7.2 Complications and their treatments**

All the complications and their treatments of the early rehabilitation phase.

## **5.8 Continuing care**

### **5.8.1 Treatments**

All the treatments of the non-prosthetic and prosthetic phases, as appropriate, plus:

- social support (including funding sources, information to relatives and carers);
- medical, surgical and nursing care and therapy as required;
- prosthetic, wheelchair and assistive products review and maintenance as required;
- education in the maintenance of physical fitness and a healthy lifestyle;
- information on disease management and prevention of secondary complications.

### **5.8.2 Complications**

All the complications of the earlier rehabilitation phases, plus:

- neuromata;
- redundant/excessive soft tissue;
- heterotopic bone formation;
- excessive bone growth;
- adherent scar tissue;
- stump problems related to poor surgical technique.

### **5.8.3 Treatment of complications**

All the treatments of complications in the earlier rehabilitation phases, plus:

- management of neuromata by injection or surgery;
- medication and radiotherapy;
- revision surgery.



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### BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK