

# Glossary

This glossary describes terminology used in the articles in this issue and the *Survey for Prosthetic Use* (**Appendix 1**, available online only) [1].

## STUDY POPULATION

Veterans and servicemembers with major traumatic limb loss occurring in a combat theater (excludes distal terminal amputations [fingers and toes]). Combat theaters included are Vietnam, Iraq, and Afghanistan.

### Operation Iraqi Freedom/Operation Enduring Freedom Cohort

Veterans and servicemembers from Operation Iraqi Freedom (OIF) (Iraq), 2003 to present, and Operation Enduring Freedom (OEF) (Afghanistan), 2001 to present.

### Servicemembers

Active Duty military.

### Veteran

Person discharged or retired from Active Duty military service.

### Vietnam Cohort

Veterans of the Vietnam war, 1954–1975.

## PROSTHETIC USE

### Abandonment

A veteran's or servicemember's decision to discontinue *all* use of prosthetic devices for a given limb for a prolonged time period. The use of wheelchairs, canes, crutches, or other types of assistive technology may continue.

### Current Prosthetic Use

The donning of any prosthetic device, either active or passive, to replace the loss of a limb. Use is measured as daily, weekly, monthly, or once or twice a year. Current prostheses used are reported by limb, level of limb loss, and type of device.

### Prosthesis

An artificial substitute or replacement of a part of the body, such as a hip, a joint, (such as a knee), or a limb (leg or arm). A prosthesis is designed for function, cosmesis, or both. Note: For this survey to capture the total number and types of prostheses prescribed and used by participants since their initial amputation, the time that prostheses were acquired is divided into two categories: the first 12 months and 13 months to present.

- An *immediate postoperative prosthesis* is applied in the operating room at the time of final surgical closure.

- An *early postoperative prosthesis* is applied any time between surgery and suture removal.
- A *preparatory/training prosthesis* is applied when the wound has healed and the immediate postoperative edema has resolved. The survey combines immediate/early postoperative stages and preparatory/training and other prostheses received in the 12 months following the first amputation because this is the most difficult time for fitting prosthetics because of residual-limb changes.
- A *definitive prosthesis* is applied once limb volume has stabilized. The survey identified this stage of prosthetic rehabilitation as 13 months to present and requested respondents to identify all prostheses received after the first year.

**Prosthetic Device**

A device that refers to the collective body of components (prosthetic devices) that constitute an artificial limb [2].

**Prosthetic Use History**

Reported prosthetic devices used in the first 12 months and in subsequent years.

**Rejection**

Discontinuing use of a prosthetic device for a given limb because of the user's dissatisfaction with the form, fit, or function of that prosthetic device. Rejection of a specific prosthetic device does not constitute abandonment (defined as discontinued use of *all* prosthetic devices for a given limb).

**Repair**

The effort (time and materials) required to restore an artificial limb to a proper and sound condition for function; for example, the effort required to fix a cracked or broken prosthetic socket.

**Replacement**

The effort (time and materials) required to substitute all the components within an artificial limb. Two primary reasons for replacement are (1) the cost of repairing individual components is greater than total replacement and/or (2) functionality can be achieved only by using different components. Recommended guidelines for replacement of prostheses (every 3–5 years) are based on Food and Drug Administration review.

**PARTICIPANTS' LIMB-LOSS CATEGORIES****Multiple-Limb Loss**

One or more limbs amputated at or above the level of a partial hand and one or more limbs amputated at or above the level of the mid-foot.

**Unilateral Lower-Limb Loss**

A single amputation at or above the mid-foot level.

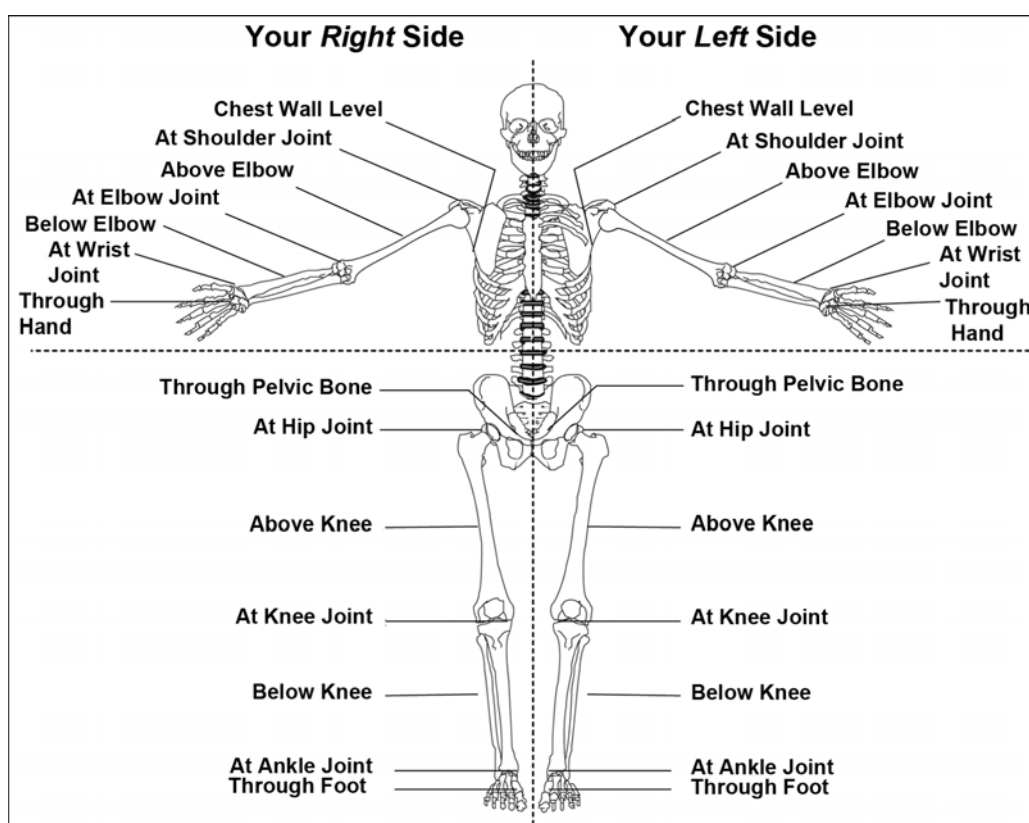
**Unilateral Upper-Limb Loss**

A single amputation at or above the partial hand level.

## LIMB-LOSS LEVELS

The following is a list of lower- and upper-limb-loss levels used for the survey, with the International Organization for Standardization (ISO) nomenclature [3] given in parentheses and shown in the **Figure**:

- Through foot (partial foot amputation).
- At ankle joint (ankle disarticulation).
- Below knee (transtibial amputation).
- At knee joint (knee disarticulation).
- Above knee (transfemoral amputation).
- At hip joint (hip disarticulation).
- Through pelvic bone (transpelvic amputation).
- Through hand (partial hand amputation).
- At wrist joint (wrist disarticulation).
- Below elbow (transradial amputation).
- At elbow joint (elbow disarticulation).
- Above elbow (transhumeral amputation).
- At shoulder joint (shoulder disarticulation).
- Chest wall level (forequarter amputation).



**Figure.**  
Limb-loss levels for survey participants.

## **PROSTHETIC DEVICE CATEGORIES FOR THIS SURVEY**

### **Advanced Technology Devices**

Upper-limb myoelectric devices and lower-limb microprocessor technologies, including prosthetic components and cover.

### **Cosmetic Covers**

External coverings of a prosthesis that, in addition to protecting the components, appear lifelike, durable, and lightweight; feel like normal skin; and are shaped and colored to closely match the contralateral limb [4]. Cosmetic devices reported by the survey participants who were ambulatory and had lower-limb loss above the ankle were excluded, because they were typically non-weight-bearing cosmetic coverings.

### **Cosmetic Devices**

Passive devices that enable the prosthetically restored limb to accomplish tasks more effectively. They do not enable the limb or body to actively articulate or maneuver (i.e., passively made arms and hands or partial hands). In contrast, other prosthetic categories are considered to function to enable the body to perform a task using the prosthesis (i.e., hook, myoelectric, and body-powered prostheses).

### **Hybrid Devices**

For upper-limb prostheses, this category combines advanced technology and body-powered components with or without a cosmetic cover. For upper-limb prostheses, it combines advanced technology and mechanical components with or without a cosmetic cover. This category is grouped for analysis with advanced technology prostheses.

### **Mechanical Devices**

Device category for body-powered prosthetic devices without external power, including prosthetic components and cover. One example is vacuum-assisted socket system for below-the-knee loss.

### **Specialty Lower-Limb Devices**

Devices designed for a specific activity rather than general or everyday use. Most often, these activity-specific devices are used for sports activities such as skiing, running, or rock climbing [5]. One example is cycling prostheses.

### **Waterproof Lower-Limb Devices**

Prosthetic devices that are waterproof rather than moisture- or water-resistant to allow complete immersion in water.

## **ASSISTIVE TECHNOLOGY**

### **Assistive Technology**

Technology or device designed, made, or adapted to help a person perform a particular task [6]. Assistive technology for mobility includes wheelchairs (electronic, manual, electronic scooters) and assistive devices (canes, crutches, walking canes with attached seats, rolling walkers with knee support, self-balancing electric vehicle). Wheelchair use

was grouped into sole use (without prostheses) or supplementary wheelchair use (with prostheses).

### **Terminal Devices**

Upper-limb components designed for a specific activity rather than general or everyday use. Most often, these activity-specific devices are used for household chores, work, and sports activities. For example, specially designed cooking utensils, screwdrivers, or golf grips represent various available adaptations. This category does not include hands or hooks.

### **REFERENCES**

1. Reiber GE, McFarland LV, Hubbard S, Maynard C, Blough DK, Gambel JM, Smith DG. Service-members and veterans with major traumatic limb loss from Vietnam war and OIF/OEF conflicts: Survey methods, participants, and summary findings. *J Rehabil Res Dev*. 2010;47(4):275–98.
2. Medicare claims processing manual. Chapter 20—Durable medical equipment, prosthetics, orthotics, and supplies (DMEPOS). Section 10.1.4.1—Prosthetic Devices [Internet]. 2008 [cited 2009 Feb 17]. Available from: <http://www.cms.hhs.gov/manuals/Downloads/clm104c20.pdf/>.
3. Day HJ. The ISO/ISPO classification of congenital limb deficiency. In: Bowker JH, Michael JW, editors. *Atlas of limb prosthetics: Surgical, prosthetic, and rehabilitation principles*. 2nd ed. St. Louis (IL): Mosby Year Book; 2002.
4. Zahedi S. Research in lower limb prostheses. In: Smith DG, Michael JW, Bowker JH, editors. *Atlas of amputations and limb deficiencies*. 3rd ed. Washington (DC): American Academy of Orthopaedic Surgeons; c2004. 668 p.
5. Smith DG, Michael JW, Bowker JH; American Academy of Orthopaedic Surgeons. *Atlas of amputations and limb deficiencies: Surgical, prosthetic, and rehabilitation principles*. 3rd ed. Rosemont (IL): American Academy of Orthopedic Surgeons; 2004. 637 p.
6. Definition of assistive device [Internet]. Atlanta (GA): MedicineNet.com; 1998 [updated 1998 Mar 26; cited 2009 Feb 17]. Available from: <http://www.medterms.com/script/main/art.asp?article-key=2372/>.

