

## 9. AMPUTATION OF LIMBS

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### 9.2 Introduction

- 9.2.1** Removal of limbs or parts of limbs may be necessary at any age as a result of various conditions, mostly peripheral vascular disease, but causes may include malignant disease, injury (trauma), or congenital deformity. A common reason for amputation in adults, particularly in elderly people, is gangrene of part of the lower limb as a complication of peripheral vascular disease - often associated with diabetes mellitus [see Chapters 13 and 17]. 60% of all amputees are over 60 years old. Congenital absence of limbs or parts of limbs may have much the same effect as amputation.
- 9.2.2** An artificial limb, or part of a limb, is known as a prosthesis. It is important to realise that such a prosthesis may be functional ie. able to reproduce much of the function of the lost limb, or may be mainly cosmetic. Many upper limbs prostheses are purely cosmetic, though some have a relatively good degree of functional capability. Where a large part of an arm is lost, both functional and cosmetic prostheses may be used at different times, and training in their fitting and use is required. In general, lower limb prostheses are all functional, but their effective use depends on the level of amputation, the person's age, build, motivation and state of health.
- 9.2.3** Modern developments, using the latest technology, aim to produce a more functional prosthesis, using remaining nerves and muscle groups in the residual limb for their control, though this is, as yet, only widely used when there has been loss of part of the upper limbs.

### 9.3 Upper Limb Amputations

- 9.3.1** Levels vary from loss of the tip of a finger to the removal (or absence) of a whole limb or limbs, including the whole shoulder (forequarter amputation).

### 9.4 Care Needs

- 9.4.1** Care needs will depend very much on the remaining natural function of the limb and the type of prosthesis fitted. Loss of significant parts of both upper limbs is likely to be very disabling and to result in care needs.
- 9.4.2** Care needs may also depend on the dominance of the affected limb. Loss involving the dominant limb (ie. the right arm in a right-handed person) is likely to be more disabling than loss to the same extent of the other, non dominant limb.
- 9.4.3** Loss of a thumb is more disabling than loss of a finger, because many day-to-day tasks depend on an adequate grasp between finger and thumb. Loss of a thumb or of a single finger is however unlikely to result in care needs unless there are added complications such as arthritic changes involving the hands.
- 9.4.4** In some cases the use of simple aids can help the person manipulate common household utensils.
- 9.4.5** Care needs may be associated with fitting a prosthesis, and in the case of a functional prosthesis a period of training in its use is likely to be needed.

## **9.5 Mobility Considerations**

- 9.5.1** Mobility will rarely be affected, but there may be balance problems, particularly if large parts of both upper limbs are absent.

## **9.6 Lower Limb Amputations**

- 9.6.1** Levels can vary from the loss of the tip of a toe to amputation through the hip joint, or even including the removal of part of the pelvis (hemipelvectomy).
- 9.6.2** Occasionally, complications may arise, such as swelling (oedema) of the stump, infection, friction which may lead to blisters and sore areas, or skin problems which rarely may be related to materials within the prosthesis. Bony spurs or regrowth of bone or neuromas (painful nerve swellings) may develop at the stump leading to a need for it to be refashioned. Following any of these complications, it may be necessary to leave the limb off, as continued use could lead to worsening of the condition. The person would be required to return to the Disablement Service Centre for treatment that may include renewal of the socket, either as a temporary or more permanent measure.
- 9.6.3** It is normal for the person to feel that the lost limb is still there (phantom sensation) and occasionally this may be painful (phantom pain). Pain in the

residual limb may arise as a result of painful swelling at the end of cut nerves (neuroma). In addition to problems with the residual limb there may be problems in other areas such as the back or the remaining limb. In particular, peripheral vascular disease severe enough to lead to amputation is likely to affect the remaining limb also. The onset of arthritis may be accelerated due to extra dependence on the remaining limb.

- 9.6.4** Sometimes, long term (10 - 15 years after amputation) sequelae may arise due to twisting of the spine (scoliosis) causing chronic back pain, balance problems, chronic irritation of the stump and the earlier onset of arthritis in the weight-bearing limb.

## **9.7 Care Needs**

- 9.7.1** Care needs may be associated with help in fitting the prosthesis, care for the stump, and dealing with complications. Except in very young and very elderly people, such needs are likely to be minimal. Usually, the higher the level of amputation the greater the needs.
- 9.7.2** Until the person adapts to the prosthesis help may be needed to get in and out of bed, out of a bath and going upstairs and downstairs. The length of time over which help will be needed will vary from person to person with age and general health. Adaptation is more difficult in elderly people and they may also have the problem of arthritis in the other joints. If the person has had both legs amputated, then their care needs may be greatly increased.

## **9.8 Mobility Considerations**

- 9.8.1** Following the majority of amputations in otherwise fit persons, a prosthesis is fitted once the wound has healed, and the person is trained to walk, using aids such as a stick or walking frame as necessary.
- 9.8.2** The functional level achieved will depend on a number of factors: the age, physical and mental fitness of the person; their motivation; the level of amputation and construction of the stump; and the availability of rehabilitation programmes. A young person, otherwise fit, will usually regain useful mobility following a period of rehabilitation of anything from one month to a year. Rehabilitation will be delayed by the presence of complications or obesity.
- 9.8.3** Some people, particularly elderly persons and those with bilateral above-knee (A/K) amputations, never learn to become independently mobile, and remain wheelchair users.
- 9.8.4** The level of amputation will affect functional achievement. In hemipelvectomy or amputation through the hip joint, although prostheses are satisfactory, they tend to be heavy. Walking is likely to be extremely fatiguing, and the quality of walking will be less than that of a person whose

amputation is at a lower level. With above - knee amputations, provided the stump is of adequate length. it is possible in most cases to fit a prosthesis, and a person with an amputation below knee (B/K) level can normally be fitted with a prosthesis. Amputation of the forefoot or toes may require no more than the fitting of special footwear.

- 9.8.5** Balance problems may occur with amputation at any level, even the toes, especially the great toes. Such problems however are normally short term. Balance problems may be increased if the remaining limb is damaged or diseased.

## **9.9 Duration of Needs**

- 9.9.1** Needs will vary with many factors, including age, general health, reason for amputation, level of amputation and the presence of other disabilities. Following amputation, there is often a "grief" reaction to the loss of the limb and, if this is particularly severe in an individual, the rehabilitation process may be prolonged and counselling will be required.
- 9.9.2** In cases of particular difficulty, advice from a Medical Services doctor may prove useful.

## **9.10 Further Evidence**

- 9.10.1** The most appropriate sources would be the GP, physiotherapist or Disablement Services Centre.