

Handicap International : The rehabilitation of amputees, victims of landmines.



Introduction

Since almost 25 years, Handicap International has been working in countries weakened by political and economic problems. Many countries have suffered from war consequences. Thousands of victims have been wounded during these conflicts and are presently disabled. Many years after the end of these conflicts, antipersonnel mines laid by the belligerents still claim numerous victims and amputees among local populations.

Handicap International has now a good experience in the field of the amputee's rehabilitation.

In all the countries where Handicap international is present, physiotherapy and gait training are important aspects of the re-education.

The amputee's rehabilitation

For Handicap International, it is obvious that the provision of prosthesis has to be integrated into global rehabilitation process from identification until reintegration.

The amputee must learn to use his prosthesis adequately and have the same opportunities as the people he will meet. He will be discharged once he recovers a maximum of autonomy, giving him a chance to lead his life as before. Re-education must be adapted to the patient's living conditions.

If disability is so severe that it prevents him from recovering his previous way of living, Handicap International tries to find solutions to promote his socioeconomic reintegration.

A close collaboration with orthopaedic surgeons

First of all, a good collaboration between the surgeon and the rehabilitation worker is absolutely necessary if we want to give the patient all the chances to recover a maximum of his potential capacities.

The stump must be adequately prepared as it affects the quality of the prosthesis, the way the amputee will feel with his prosthesis as well as the amputee's autonomy for the rest of his life.

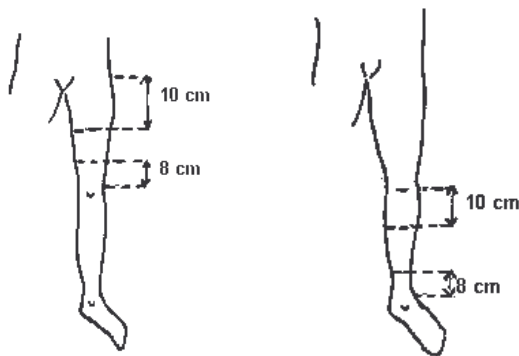
Handicap international always tries to inform local surgeons of general guidelines so that the stump can be adequately fitted with prosthesis. These guidelines are not technical (as we are not specialists in this matter). We try to focus on some points that can easily improve the quality of the stump and the amputee's life for the future.

These guidelines include recommendations on:

- ***The length of stump***
- ***The coverage of the remaining bone***
- ***Specific BKA information***
- ***The shape of the stump***
- ***The possible complications***

- ***Length of the stump***

- A. The shortest functional stump is 10 cm
- B. The longest functional stump is 8 cm above the missing joint.
- C. Between A and B, all amputations are possible. A longer stump is better for increased strength and control.

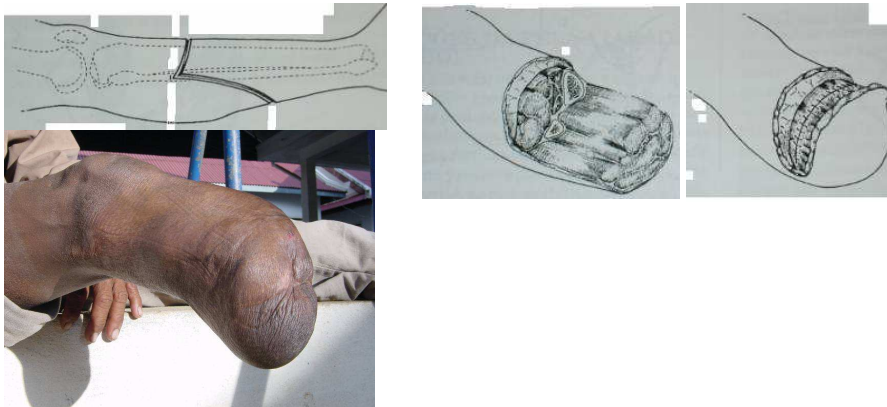


- ***Coverage of the remaining bone***

A. After he cuts the bone and before closes the stump, the surgeon must cover the bone's extremity with smooth tissue (muscle and skin) in order to protect the stump. For that, in general, the anterior muscles of the stump are stitched up with the posterior muscles.

B. If there is less than 2 cm, the extremity of the bone will be prominent below the skin and could create pain or wound. The patient will feel pain when any pressure is exerted on this area.

C. If there is too much smooth tissue (more than 2 cm); the extremity of the stump will be too floppy and will complicate the fitting of the patient.

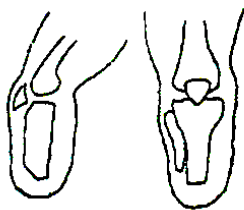


- ***Specific BKA information***

A. There are two very important rules in cutting the bones of the leg :

1. *The fibula must be shorter (2 cm) than the tibia.*
2. *The anterior part of the tibia should be removed and the remaining part rounded.*

Both of these procedures will help to relieve the pain and avoid complications for the amputee.



- ***The shape of the stump***

It is very important to give the stump a good conical shape (if possible) as the patient will generally be fit with a prosthesis in the future.



- **Possible complications**

1. **Exostosis** is an abnormal bone growth. After the amputation, it could happen sometimes, that the extremity of the cut bone grows. This bone growing appears below the skin and can cause pain or wound. The only possible treatment for exostoses is a surgery. It often happens when the tibia was not well cut.

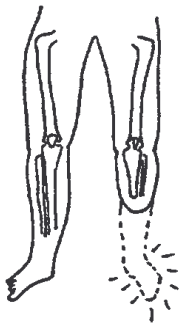


2. **Nevroma** is an abnormal growth of a nerve that was cut during the amputation. The nerve grows in “ball”. If it is closed from the skin (just below the skin), that zone could be very painful (kind of “electric choc” when we touch it). In this case also, the only solution is surgery.



3. **Infection:** Like any kind of wound, the scar after an amputation is an open door to bacteria's or virus. An infection could appear easily at the level of the scar. This infection can also go up to the bone and cause a major infection (osteomyelitis). In that case, the patient will need a new surgery otherwise the infection can become general and even kill the patient).

4. **Phantom pain:** The phantom pain is an abnormal sensation at the level of the amputated limb. The patient has the impression, for example, that the foot that was amputated is still painful (the patient feels pain in the foot that does not exist anymore). Those sensations are caused by irritations of nerves that were cut and that interpret this irritation as a painful message coming from the foot (or the leg).



Physiotherapy treatment

Handicap International will also, if possible, recommend a physiotherapy treatment during the different periods of the amputee's rehabilitation.

- ***The nursing period***

The following activities will be proposed during this period:

- A. *Breathing exercises*
- B. *Psychological support*
- C. *Good bed positioning*
- D. *Active exercises of the remaining limbs*
- E. *Sitting in bed and standing as soon as possible*
- F. *Active exercises for the stump.*



- ***During the wound healing and strengthening period***

- A. *Continuing good positioning*
- B. *Teaching stumps bandage techniques, which is very important in order to control and decrease swelling and to give the stump a good shape (so that it can easily fit into a socket in the future)*
- C. *Massaging the stump when the scar is completely healed and closed.*
- D. *Exercises for the stump*
- E. *Functional activities for the patient.*



- ***During the early prosthetic period***

The physiotherapy will have to include the following points:

- A. *Checking the general conditions :*
 - Good stump condition (no pain, wound, hard areas)
 - A complete range of motion
 - A good muscle strength
 - A good balance on normal leg.



B. The prosthetic training includes:

- Fitting the limb with the prosthesis adequately
- Correct fit (weight bearing, no pain, alignment)
- Balance exercises
- Basic gait training
- Evaluation of gait problems and corrections
- Advanced gait activities



Training of the amputee to his living conditions

We consider that the amputee's rehabilitation is not focused on the provision of prosthesis only.

The amputee's re-education and follow-up are very important. The quality of the stump surgery is as important as the quality of the prosthesis itself or as physical rehabilitation. During his rehabilitation process, the amputee must be prepared to face the difficulties he will meet in his future environment.

Handicap International will always train the amputees to walk, jump, step over obstacles, carry heavy things, walk on uneven surfaces, pick up objects, climb, etc...just as he will have to do in his everyday life.

When leaving the rehabilitation centre, the amputee must be ready to overcome the difficulties he will meet in his environment. This training is at least as important as the quality of the prosthesis provided, it is an individual rehabilitation process.



Conclusion

We can say that Handicap International supports a comprehensive rehabilitation approach. It means that a good rehabilitation programme must include an effective collaboration between the surgeon, the orthopaedic technician, the physiotherapist as well as the social worker who will check if the amputee is still able to live and work as before and if not, who will try to find another solution with him.