

Prevention of disability in Buruli ulcer: basic rehabilitation

Practical
field guide

Valérie Simonet



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PRACTICAL FIELD GUIDE

Valérie Simonet

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Presentation of the guide

What is prevention of disability (POD)?

- POD is a set of measures to ensure that persons affected by the disease do not present with sequelae that prevent them from resuming their former activities or developing in their school, professional, social or family environment.
- POD mainly comprises awareness-raising, antibiotic treatment, surgery, wound care, rehabilitation, nutrition and psychological support.

What is this guide?

- A tidy toolbox where you can easily find the commonest tools for rehabilitating Buruli ulcer (BU) affected persons. Wound care is also included because it is a closely related topic.
- A training tool for peripheral health centres in areas where BU is endemic.
- A teaching tool for people affected by BU and their families.

Using this guide

- The guide should be integrated into a practical training workshop.
- Carers who receive this training should previously have attended general BU control workshops and worked with BU people.
- The chapters are presented as 9 modules. These correspond to the skills that carers at peripheral health centres must acquire to prevent BU disability at their level.
- At the start of each module, the learning objectives help trainers and learners to understand what must be done to acquire the skill.
- Module 8 contains ready-reference cards designed to be copied and given to people affected by BU and their families. They are an important tool for teaching the essential interventions to be carried out at the village level.
- An asterisk (*) indicates that a word is explained in the glossary at the end of the guide.
- For additional background material, refer to the WHO manual *Buruli ulcer/Prevention of Disability (POD)*, which expands on most of the concepts dealt with in this guide.

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All asterisks in the text refer to definitions listed in the glossary

module 1

I understand my role in preventing BU-related disabilities

Objectives

- ◆ Understand why disability should be prevented, and how
- ◆ Understand my role in preventing disability
- ◆ Understand the role of the persons and their families
- ◆ Understand the role of community health workers



Why is it so important to prevent disability?

For as long as there is a wound, the person believes that the limb is protected by not moving it.

NOTE

A limb that can no longer move normally will eventually stiffen!

Buruli ulcer (BU) is a disease that very often results in disability, i.e. a limitation of the activities that the person must perform or in which he/she participates as member of a family or community.

Loss of mobility or deformity is very often the result of ignorance resulting in inappropriate behaviour.



*I don't want it to hurt.
I want a scar to form over the wound,
so I avoid moving my knee.*



*At first I had a wound, and now,
I can't move my arm any more.*

**Most disabilities
are avoidable**

Why is it so important to prevent disability?

When the wound is closed, the person believes he/she is cured

Deformity of the affected part of the body is possible.
Anyone affected by BU can develop a disability

if certain essential interventions explained in this guide are not performed.

NOTE
"Scarring" does not
mean: "cure" !

The scar is active for
one to two years after
the wound has closed:
it may thicken, stick
and shorten and thus
seriously limit mobility.



A scar has formed, but unless the parents are taught how to carry out certain essential interventions, this child will be unable to flex his/her fingers to grasp objects properly.



When the wound closed, the scar shortened and the person did not receive the necessary training to avoid deformity. Two years later, this deformity has become irreversible.

How can I prevent disabilities?

If certain preventive interventions are carried out, loss of mobility can be avoided!

To avoid most of the disabilities, it is enough to perform certain essential interventions (see explanation below).

They are effective only if performed regularly.

Devoting a bit of time to these interventions every day for a few months can spare a person a lifetime of disability.



*I had a large wound on my leg.
I had it treated, did some exercises,
wore a splint and learned to walk again.*



Now I can move normally.

What is my role in preventing disability?

1 I make sure that, to the extent possible, BU persons who report or are referred to the health centre avoid developing disabilities

- I assess the situation.
- As much as I can, I carry out essential POD interventions where feasible.
- I teach essential POD interventions to affected persons and their families.
- I teach POD basics to community health workers in the affected person's village.

For BU persons and their families, it can be very difficult and costly to receive outpatient treatment at a health centre or hospital.

Essential POD interventions should be performed daily over several months.

Persons affected by BU and their families must therefore be able to perform essential POD interventions in their village.

2 I liaise between the community and the referral centre or hospital

- I monitor persons affected by BU after hospitalization.
- I identify and refer complex cases.

Health workers learn that it is important for people to know how to look after their skin.



Community health workers raise public awareness, help people and their families to take care of themselves and refer individuals who would benefit from case management to the health centre. They are occasionally called upon to perform local wound care.

Brief training for community health workers is therefore necessary so that they can then encourage people in the village to perform POD activities.

However, it is my role to assess progress and decide which interventions are suitable for the person affected by BU.

module 2

I identify the principal problems that might lead to disability

Objectives

- ◆ Identify the person's problems
- ◆ Record these problems in the medical file



How can I identify the person's problems?

During the initial consultation, I spend time with the person and his/her family in order to evaluate:

- the activities limited by the disease. We shall work together to minimize or eliminate these problems using essential POD interventions.

I use the **Assessing activity limitations form** in module 9 (p. 88);

- the physical problems I can identify from the list established in the **Basic form**, module 9 (p. 87).

I indicate the site of the problems on the diagram using the corresponding symbols.

open wound



oedema



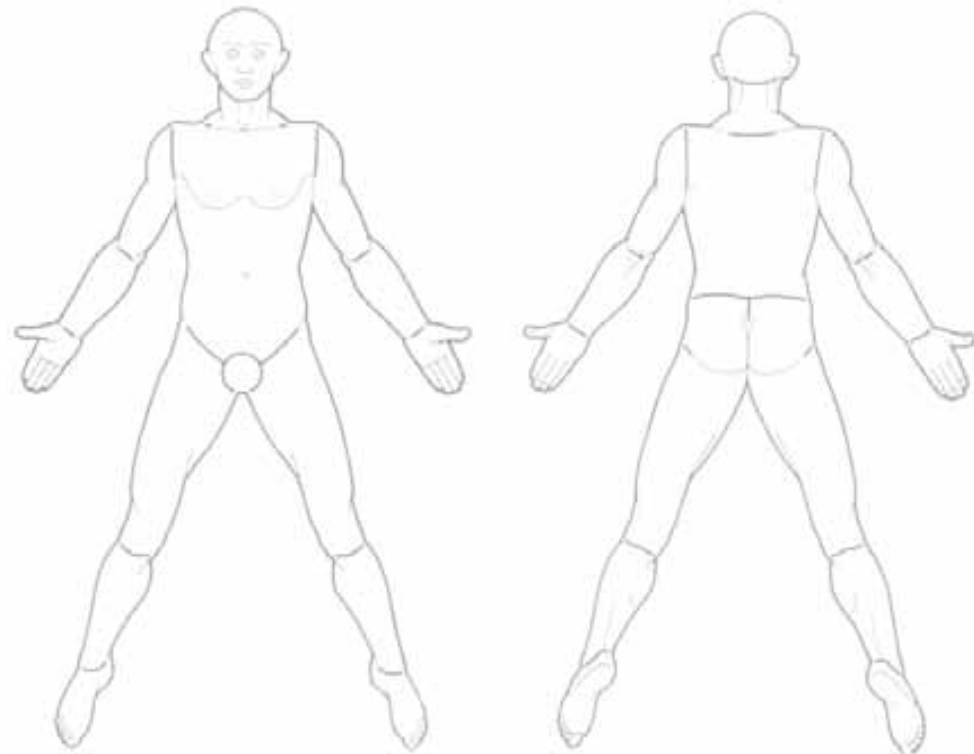
scar



loss of mobility



amputation



NOTE

Inability to open or close the eyes or mouth properly, turn the head or bend the torso in either direction also represent loss of mobility. These points should be checked if there is a lesion on the face, neck or torso.

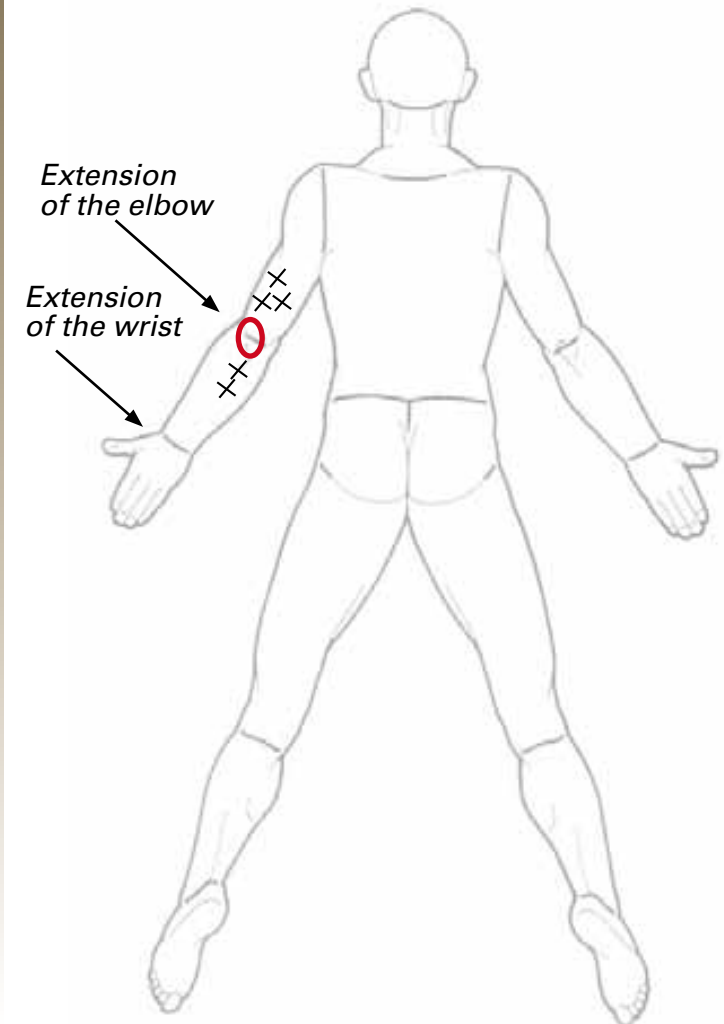
How should I record problems in the medical file?

Example 1



When I ask the girl to move her arm, I note that she cannot extend her elbow or wrist.

Here is how I record the problems



To know which essential interventions to perform, I must refer:

- to module 3 for the wound ○
- to module 5 for the scar XXX
- to module 6 for mobility ↘

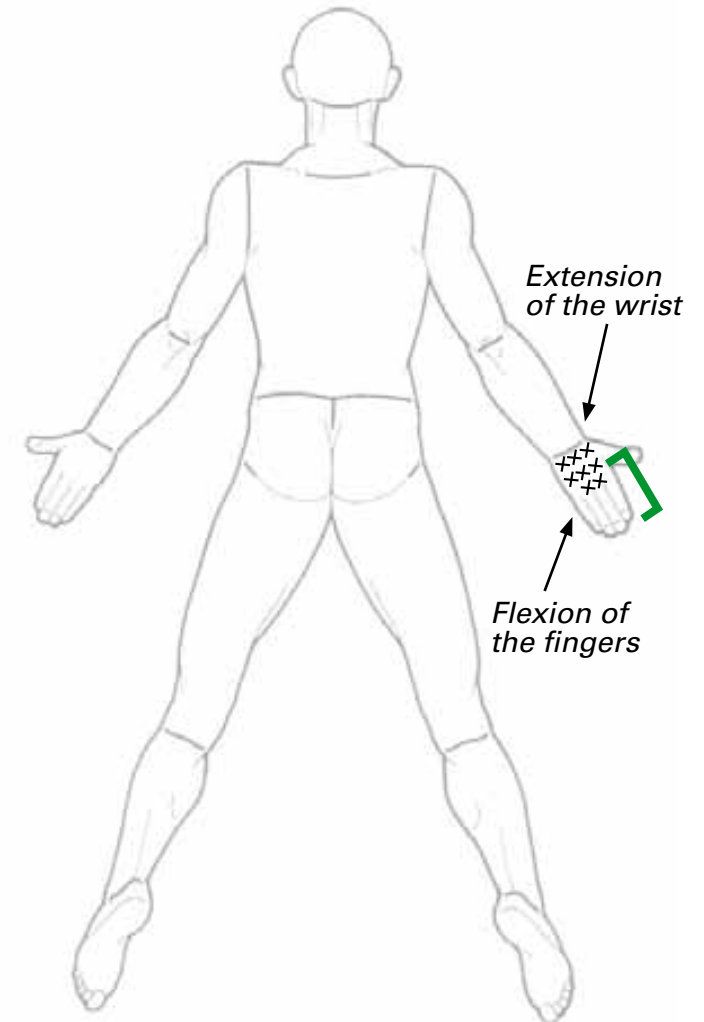
How should I record problems in the medical file?

Example 2



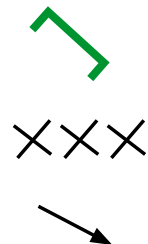
Compared with his left side, I note that this child has problems flexing the fingers and extending the wrist on his/her right side.

Here is how I record the problems



To know which essential interventions to perform, I must refer:

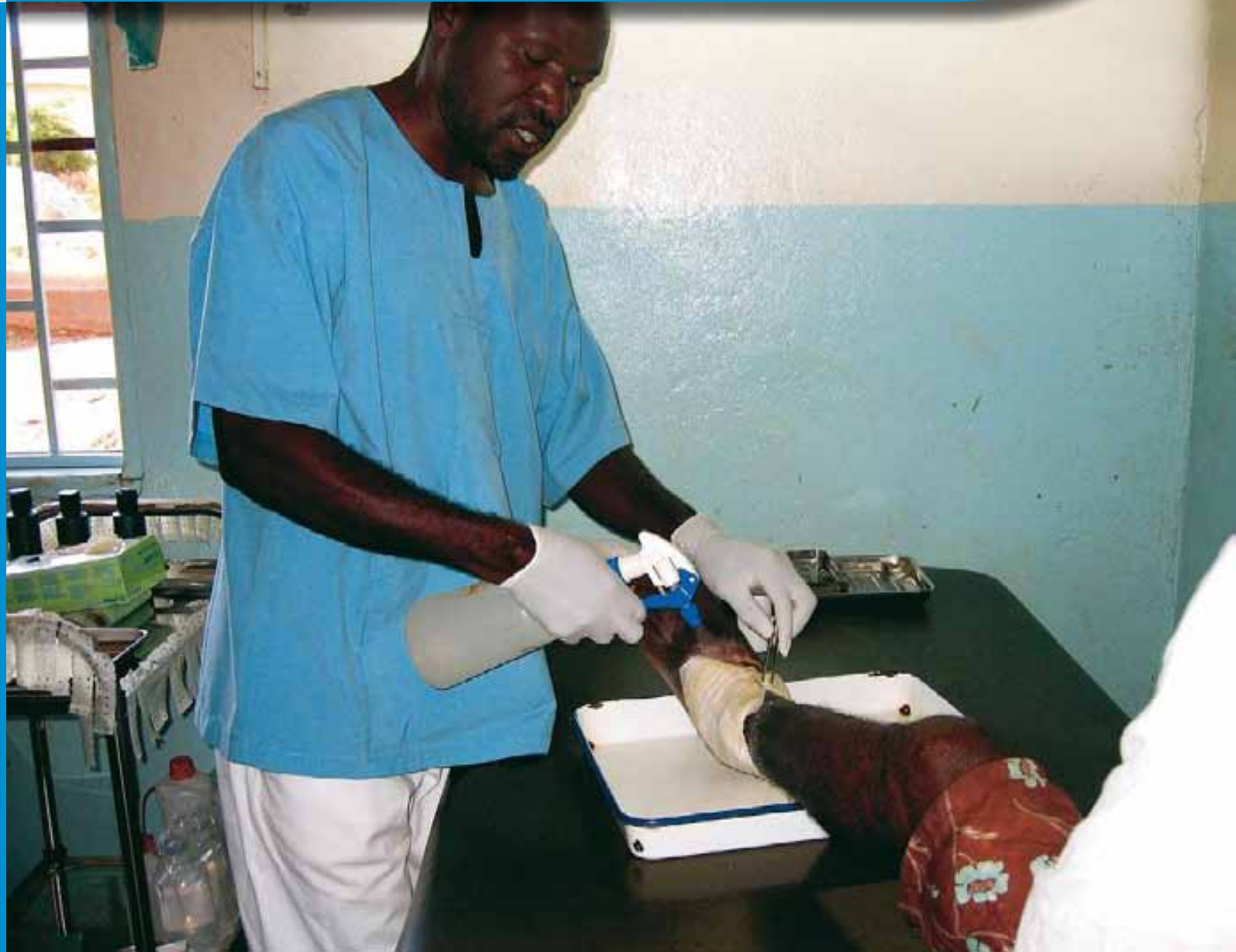
- to module 4 for oedema
- to module 5 for the scar
- to module 6 for mobility



I treat the wounds

Objectives

- ◆ Identify actions to implement
- ◆ Correctly perform management of an uninfected wound
- ◆ Give nutritional advice



How can I identify the actions to implement?

WHAT I SEE

Granulation:
pale pink to deep dark
"beefy" red, granular
appearance



WHAT I DO

- Cleanse with saline solution
 - Hydrate the edges of the wound
 - Protect and moisturize*
- This wound is then ready to receive a graft.

**A properly cared-for
wound heals more
quickly and reduces the
risk of loss of mobility!**

Extensive budding:
raising of the
granulation tissue
forming an irregular
surface of small buds



- Cleanse with saline solution
- Hydrate the edges of the wound
- Use a corticosteroid
- Protect and moisturize*

**Hard or soft fibrin
deposit:** pale ivory,
yellowish, brownish,
greenish, much
exudate, moist
necrosed tissue



- Cleanse with saline solution
- Remove fibrin without injuring healthy tissue
- Hydrate the edges of the wound
- Protect and moisturize*
- If there is much exudate, an absorbent dressing should be used and changed before there is "strike-through"

* With moist
compresses, Vaseline
compresses or a more
sophisticated dressing
such as hydrogel

How can I indentify the actions to implement?

WHAT I SEE

Hard or soft necrosed tissues: blackish or brownish, no bleeding, thick, dry



Infection: yellowish, brownish or greenish exudate, often with unpleasant odour, pain, redness, warmth, swelling, inflamed lymph glands



** With moist compresses, Vaseline compresses or a more sophisticated dressing such as hydrogel*



WHAT I DO

- Cleanse with saline solution
- Moisten the area with compresses for about 10 minutes
- Gently remove the necrosed tissue
- Hydrate the edges of the wound
- Protect and moisturize*
- If there is much exudate, an absorbent dressing should be used and changed before there is "strike-through"

- Use antiseptic for limited time only
- Course of oral antibiotics (not topical)
- Hydrate the edges of the wound
- Protect and moisturize*
- If there is much exudate, an absorbent dressing should be used and changed before there is "strike-through"

Remarks:

- A saline solution substitute can easily be made up by adding three tablespoons of salt to one litre of **boiled water**. This solution cannot be stored and must be used the same day.
- A **spray** provides an excellent means of moistening compresses and wounds.

AVOID PAIN!

The intensity of the pain and repetition of painful episodes reinforces the pain pathways and makes people more "sensitive" to pain. People do not become accustomed to pain, they become even more sensitive to it. Pain also triggers anxiety and makes it difficult for an individual to take part in rehabilitation exercises, particularly children.

How should I manage uninfected wounds?



Moist compresses are applied to the wound and dead tissue carefully removed.

Remarks concerning recent grafts

The first dressing should not be touched for approximately 5-7 days (as per surgeon's instructions). If part of the graft has not taken 10 days after the operation, it will no longer take and the necrosed parts will need to be gently removed as they slow down scarring. Over the next three weeks, if there are still some parts on which scars have not yet formed, the need for further grafts may be considered.

- If necessary, I administer an analgesic half an hour before changing the dressing (see «AVOID PAIN!» in the previous page).
- I settle the person, explain the procedure and treat him/her as a partner (it is preferable to participate rather than passively submit).
- I generously moisten the compresses already on the wound with saline solution and wait a few minutes before removing them. The persons may remove the compresses if they wish so, first having washed and dried their hands.
- I remove all the necrosed tissue, dead skin and fibrin that it is possible to remove without causing bleeding.
- I use antiseptics only with persons with immunodeficiency or with bone, tendon or cartilage involvement.
- I ask the person to move joints 2 or 3 times in all directions with full range of motion, then reapply dressing.
- I dry the skin around the wound and apply a hydrating agent (hydrating cream, palm oil, shea nut butter, etc.) to the edges of the wound (closed skin) in order to prevent drying out and maceration.
- I apply a new dressing to open wounds: Vaseline-permeated gauze or absorbent dressings if there is much exudate.
- I replace the bandage, observing these basic principles:
 - leave any joints not affected free to move;
 - always separate fingers and toes;
 - avoid tourniquet effect;
 - light compression on the dressing (using a bandage) facilitates quicker scar formation and controls oedema: the chapter on oedema control contains information about bandaging techniques. Where no oedema is present, only one layer of bandage is necessary.

Fibrin deposits and necrosed tissues are not signs of infection. They should be gently removed from the wound to encourage quicker scarring but it is USELESS and even HARMFUL to use antiseptics if no infection is present. Antiseptics will attack the scar tissue and delay scarring.

What nutritional advice should I give to the person and his/her family?

To help the skin heal rapidly, the person's diet should be high-calorie, high-protein, and rich in vitamins A and C. The person should have the opportunity to consume a portion of one of the following foods every day:

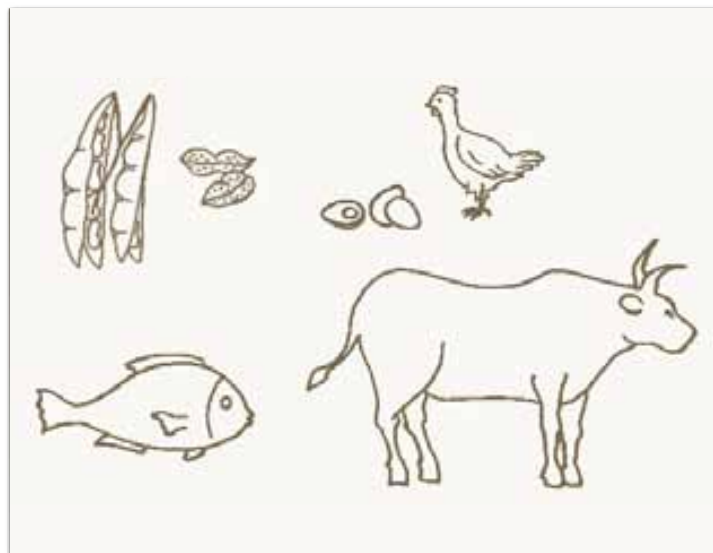
beef, mutton, pork, chicken or bushmeat, termites, palm worms, fish, eggs, soya, beans or groundnuts.

The following foods should preferably be incorporated into meals, taking care to ensure variety:

potatoes, sweet potatoes, sweetcorn, rice, milk, oil, yams, plantains, sugar cane, tomatoes, cabbage, carrots, green vegetables, onions, manioc, millet, cocoyams, okra, fruit.



Parents should be encouraged to pay attention to their child's nutrition.



I control oedema

Objectives

- ◆ Understanding why oedema control is necessary
- ◆ Proper positioning of the limb affected by the oedema
- ◆ Teaching essential exercises
- ◆ Applying a compression bandage
- ◆ Familiarization with contraindications to the interventions
- ◆ Assessing the effectiveness of the intervention
- ◆ Appropriate reaction if the oedema worsens



Why should I control oedema?

- An oedema is an accumulation of liquid inside a limb with visible swelling.
- Oedema is one form of BU, but it also occurs after surgery and should be treated upon leaving the operating theatre by raising the limb that has been operated on.
- If no therapy is undertaken, the liquid in the oedema will eventually fibrose into an inelastic and adherent structure. The part affected by the oedema will then harden and limit mobility.
- The oedema should be painless apart from the feeling of tension it causes in the tissues. If the oedema is painful to the touch, explore the possibility of another cause for the oedema, in particular whether there is an infection somewhere.

In prevention, the limb must ALWAYS be placed in a raised position immediately following surgery, day and night for several days.

Contraindications to essential interventions for oedemas

The limb may be raised at any time. However, compression and exercises should be avoided in the following cases:

- if infection is suspected;
- if the person shows signs of right-side cardiac deficiency: breathlessness, difficulty breathing when lying down;
- in case of recent venous thrombosis (less than 8 weeks).

How can I control oedema?

1. I ask the person to place his/her limb in a raised position

Always place the limb where the oedema is located in a raised position so as to prevent accumulation of liquid in the extremities and facilitate drainage

2. I teach the person exercises to be performed several times a day

Slow and repeated movements of maximum amplitude are of great assistance in draining the oedema. Exercises performed with the limb positioned above the heart are even more effective.

3. I apply compression bandages

Compression is essential where oedema is severe or does not subside. Compression is applied by means of elasticated bandages worn day and night, reapplied daily for two or three weeks.

To reduce swelling of the hand or arm, I teach the person the following:

Slowly repeat ALL the exercise 15 times, taking deep breaths each time.

Raise your hand as often as possible



During the day.



At night, keep your hand raised (above the heart) using a cushion or a pile of clothes.

Move your hand 6 times a day as follows



Keeping your hand above your head, open it as far as possible...



...then close it as far as possible, very firmly.

To reduce swelling of the foot or leg, I teach the person the following:

Raise your leg as often as possible

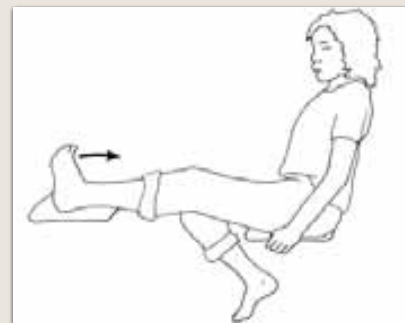


During the day.



At night, keep your leg raised using a cushion or a pile of clothes under your leg or mattress, or by raising the foot of the bed on wedges.

Move your foot 6 times a day as follows



Point your foot as far back as possible...



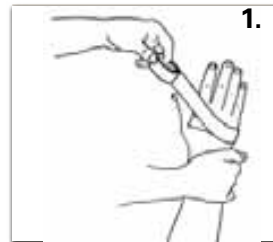
...then point it as far forward as possible.

How should I apply a compression bandage on upper limb oedemas?

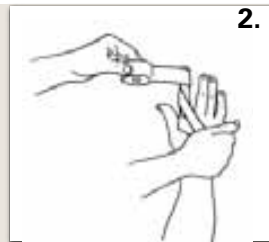
I prefer to apply bandages when the person is lying down to benefit from the effects of the exercises performed earlier. The bandage should be applied by barely stretching it, but smoothed on to the limb each time round.

If a bandage hurts or causes a change in colour of the extremities or numbness, it must immediately be removed and replaced. The wearer should be aware of this, but should not replace the bandage him/herself unless taught how to do so.

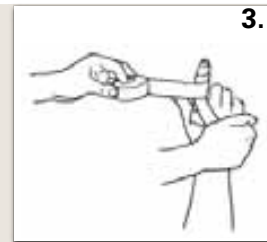
Fingers should be bandaged using strips of elasticated bandage approximately 2–4 cm wide. These should be cut from wider strips if necessary.



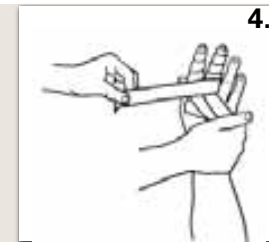
- 1.
- ◆ Bandage once around the hand above the thumb.



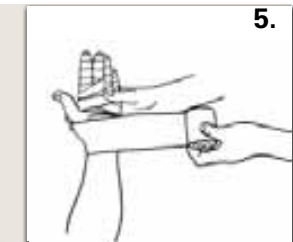
- 2.
- ◆ Start from the back of the hand, moving towards the tip of the finger.
 - ◆ Run the bandage down, wrapping it spirally around the finger.



- 3.
- ◆ Fingertips exposed.
 - ◆ At the base of the finger, finish bandaging on the back of the hand.
 - ◆ Wrap once round the hand above the thumb.



- 4.
- ◆ Proceed likewise for the other fingers.
 - ◆ If the bandage comes to an end, start a fresh one, bandaging first round the hand above the thumb.



- 5.
- ◆ Hand: wider bandage (4-6 cm).
 - ◆ Once around the base of the thumb.
 - ◆ Reminder: avoid stretching the bandage, but smooth it during application.



- 6.
- ◆ Ask the person to keep the fingers separated.
 - ◆ Bandage 3 times round the hand above the thumb.
 - ◆ Then once above the thumb.
 - ◆ Then twice above the thumb.



- 7.
- ◆ Bandage towards the elbow.
 - ◆ Overlap each time round by $\frac{2}{3}$ at the level of the wrist.
 - ◆ Gradually reduce the overlap.
 - ◆ Overlap each time round by $\frac{1}{4}$ at the end of the bandage.
 - ◆ If the oedema involves the whole arm, continue bandaging as far as the shoulder.



- 9.
- ◆ Use a new bandage.
 - ◆ Start again from diagram 5, applying a single layer.
 - ◆ Add a piece of foam or cotton on the back of the hand.

Checking:

I know that the bandage is effective if it is firmest on the hand, becoming gradually and regularly softer towards the elbow or shoulder.

How should I apply a compression bandage for lower limb oedemas?

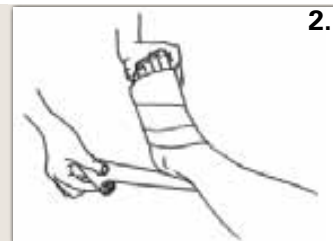
It is preferable to apply bandages when the person is lying down to benefit from the effects of the exercises performed earlier. The bandage should be applied by barely stretching it, but smoothed on to the limb each time round.

Start with the toes if they are swollen, using the same technique as for the fingers, beginning by wrapping once round the foot below the toes.

If a bandage hurts or causes a change in colour of the extremities or numbness, it must immediately be removed and replaced. The wearer should be aware of this, but should not replace the bandage himself unless taught how to do so.



- ◆ Wrap once round the instep.
- ◆ Then 3 times below the toes.



- ◆ Wrap once around the instep.
- ◆ Then twice below the toes.
- ◆ Bandage towards the ankle.
- ◆ Bandage low round the ankle.



- ◆ Bring the bandage back round the instep, covering the heel slightly more.
- ◆ Reminder: avoid stretching the bandage, but smooth it each time round.



- ◆ Cover the heel.



- ◆ Use a new bandage.
- ◆ Start again from diagram 1, applying a single layer.
- ◆ Place a piece of foam under the inner and outer malleoli.



- ◆ Bandage up towards the knee.
- ◆ Overlap each time round by about $\frac{2}{3}$ at the level of the ankle.
- ◆ Gradually reduce the overlap.
- ◆ Overlap each time round by $\frac{1}{4}$ at the end of the bandage, below the knee.
- ◆ If the oedema involves the whole leg, continue bandaging as far as the top of the thigh.

Checking:

the bandage is effective if it is firmer on the foot, becoming gradually and regularly softer towards the knee or thigh.

How should I assess the effectiveness of the intervention?

Material: tape measure or string to be measured later.

- I always take the measurement at the same site, using the same reference points. For example: 10 cm above the wrist. I take the measurement at the same time of day, on bare skin.

- I tighten the tape or string slightly while measuring, then release it until it no longer slips.
- I note the result, indicating the date and exact location of the measurement, so as to be able to compare measurements.

To discover objectively whether the proposed essential interventions have had the expected effect on the oedema, I measure the circumference of the limb.

If there has been no improvement, I try to understand why and change the treatment.

An improvement can be objectively demonstrated to the persons who will then be motivated to continue with their exercises.



Place the tape measure or string correctly, always in the same way.



Always note the circumference on the same sheet and date it.

What should I do if the oedema worsens or does not subside?

I assess the following points:

- Is the limb properly raised all day long?
- Are the compression bandages too tight, do they form a tourniquet somewhere, are they tighter proximally or distally?

- Is the person doing his/her exercises? Is he/she doing them properly, in a raised position?
- Is there any suspicion of infection? If so, remove the compression bandages and proceed to investigate.

If the oedema nevertheless gets worse or fails to improve, I contact a POD specialist.

I take care of the scar

Objectives

- ◆ Understand the need for scar management
- ◆ Compress
- ◆ Hydrate
- ◆ Extend
- ◆ Mobilize
- ◆ Know when to recommend the use of a splint
- ◆ Teach people and their families how to perform essential interventions

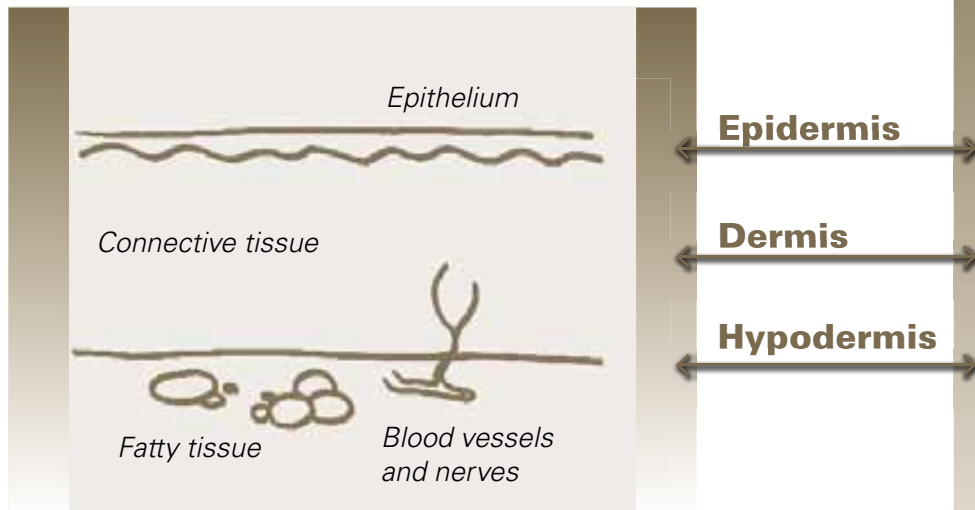


Why should I treat the scar?

Very often in BU, the skin lesion is too extensive to be sutured and affects, at least, the dermis.

Here are the four observable outcomes in this type of scarring if left untreated

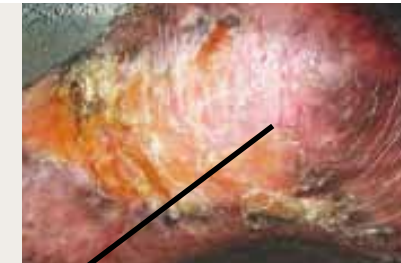
Diagram of healthy skin



1. The dermis thickens



3. The epidermis dries out



2. The dermis shortens



4. The dermis adheres to the tissues below



Each of these outcomes can have serious consequences for mobility!

How should I treat the scar?

1 I compress the thickening skin

- **Why:** to ensure that the range of movement is not inhibited by thickening of the skin and to make the scar less disfiguring.
- **How:** by using an elasticated bandage (with foam if required) or a pressure garment, to be worn day and night for at least one year.



This child is applying a compression bandage by himself.

2 I stretch the shortening skin

- **Why:** to ensure that the range of movement is not inhibited by shortening of the skin.
- **How:** by showing persons how to place their limbs as often as possible in an antideformity position*. By making a splint to be worn at night if necessary. By compressing to prevent the formation of "bowstring" scars at the joints (see following page for explanation).



The scar prevents this person from performing a plantar movement of the foot and interferes with walking. A plaster splint designed to be worn at night can be made to gradually stretch the skin.

3 I lubricate the dried-out skin

- **Why:** to make the skin more elastic and less fragile (dry skin forms wounds more rapidly and delays mobility).
- **How:** by using a vegetable oil or hydrating cream, massaged gently into the skin once a day.



This little girl is hydrating her skin by herself using vegetable oil (surface massage).



This person is correctly mobilizing her scar in all directions (deep massage).

4 I mobilize the skin that tends to adhere in depth

- **Why:** to avoid the formation of adhesions that limit mobility
- **How:** with fingers flat on the scar, slowly move the skin around several times a day. Hold the skin in stretched position for 30–60 seconds in each direction. Maintain sufficient pressure to prevent the fingers from sliding over the skin, but mobilize in depth. Avoid mobilizing wounds.

Mobilization through a compression bandage is possible.

How should I treat the scar?

In all cases, I ensure full movement

- **Why:** because for one or two years, scar formation can threaten mobility. Preventing loss of mobility in the first place is easier than trying to recover a mobility that has already been lost.
- **How:** by comparison with the other side, check each week that the affected joints are fully mobile. If there is a mobility problem, see module 6 on how to restore and preserve lost mobility.

For how long should these interventions be carried out?

For as long as the scar is still forming ("immature" scar). When the scarring process has finished, the skin has assumed its final shape and can no longer stretch. It is recommended, however, that persons should continue to hydrate their skin to keep it flexible, avoid as far as possible exposing depigmented skin to sunlight, and seek immediate assistance if the appearance of the scar changes, even several years later (potential risk of cancer).



Example of a bowstring scar: when the child lifts his arm, the shortened skin rises under the armpit like a drawn bowstring. Unless something is done, it will shorten more and more and the child will not be able to lift his arm any more. The first essential intervention is to apply compression at this point.

I teach the persons and their families essential interventions so that they can perform them in their village.

Evolving immature scar	Definitive mature scar
<ul style="list-style-type: none"> ■ As a rule, less than one year old ■ Thick and firm ■ Not easily pliable ■ Red or pinkish ■ Blanches when pressed 	<ul style="list-style-type: none"> ■ As a rule, more than one year old ■ Soft ■ Flat ■ Normal vascularization (does not blanch when pressed)
	<p><i>Several stages of scarring can occur on the same limb. Here, the scar is mature up to wrist, thick on the back of the hand and immature on the fingers.</i></p>

Contraindications to essential interventions for scars: pain

When a position or mobilization causes pain, excessive tension is being applied to the tissues. This is USELESS and HARMFUL: instead of the skin gradually lengthening, cellular reaction will respond to the pain through shortening of the skin. Pulling too hard can thus aggravate loss of mobility.

How should I apply a compression bandage to a scar?

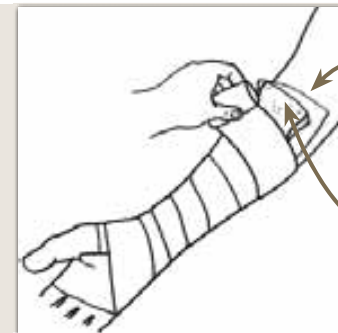
I apply compression bandages for scars in the same way as compression bandages for oedemas, the sole difference being that only one layer of bandage is needed.

Compression may be applied by bandaging at first, or by pressure garments. The latter are more practical for the persons to put on and remove when they go back to the village.



In this case, compression is applied using a compression stocking.

For greater efficiency, I insert a small piece of foam under the bandage or clothing to increase pressure on the scar. I don't place the foam directly on the skin, but on a compress, a piece of cloth or the first layer of the bandage, to avoid damaging the skin.



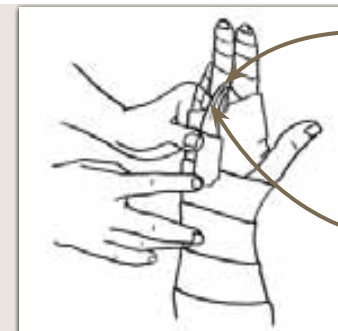
Clean tissue.

Foam (at the site of the scar).

I don't hesitate to cover a relatively large area in order to avoid oedema (for example from the metacarpo-phalangeal joints* to the elbow in the case of a wound on the forearm).

On the hand, when the scar is close to the fingers, I prevent palmature (scar tissue building up in the web) by inserting a small piece of foam between each finger.

Then, cover with an elastic bandage held in place by sticking plaster to compress the inside of the webs.



Foam (if this might touch the skin, wrap it in a compress).

Elastic bandage held in place by sticking plaster

To prevent scars from limiting movement and to make them less disfiguring, I teach the person the following interventions

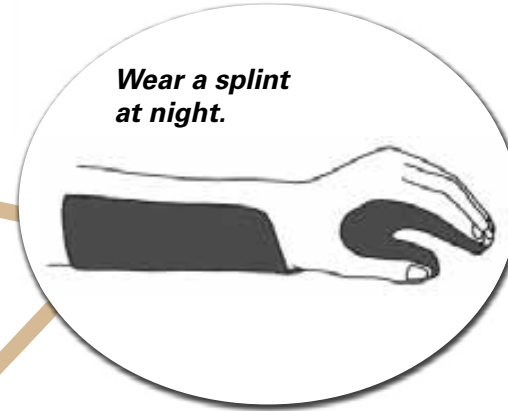
Wear a compression bandage day and night.



Hydrate the skin once a day.



Wear a splint at night.



Check mobility weekly. If mobility is lost, contact the health centre.

Mobilize the scar for a few minutes several times a day.



Maintain the recommended position as often as possible.



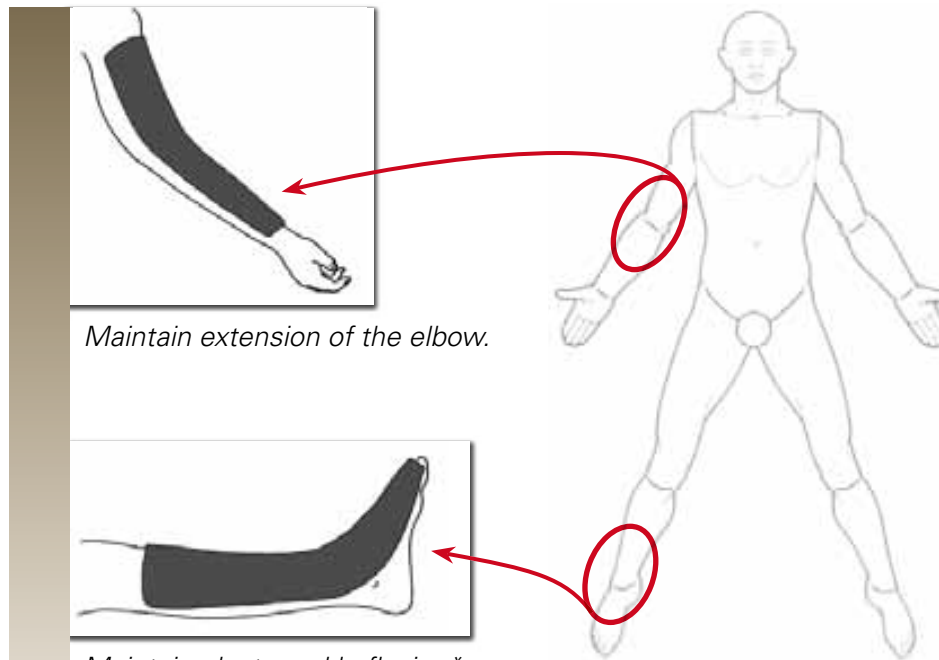
When should I recommend a splint to the person?

Wounds at certain sites will almost certainly have an adverse effect on mobility.

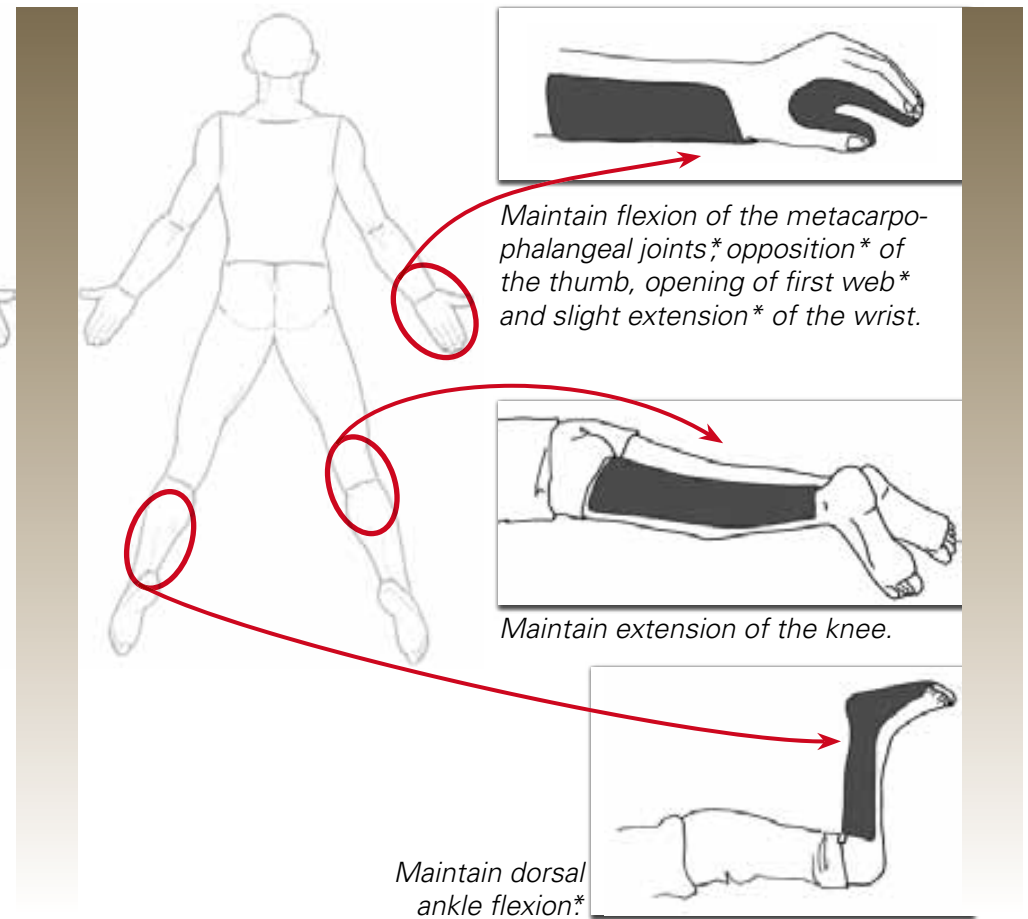
Therefore, in prevention contexts, I make a splint whenever one of the sites in red is affected, in order to maintain an antideformity position*.

The splint should be worn at night, until the complete maturation of the scar, even if there is no sign of loss of mobility yet.

These splints should preferably be made of plaster, but they can also be made of metal wire or other materials, the important point being that there should be good compression in the crux of the joint and that the splint should press against the entire surface of the skin without causing injury. For a guide on how to make splints, see module 7.



If the scar affects other sensitive sites such as the armpit, neck, face, torso or fingers, I contact a POD specialist.



I help the person to recover some mobility

Objectives

- ◆ Understand why the person affected by BU loses mobility
- ◆ Putting the limb in the antideformity position
- ◆ Encouraging use of the affected limb in activities of daily living
- ◆ Teaching the persons and their families appropriate exercises
- ◆ Assessing the effectiveness of case management
- ◆ Reacting correctly if loss of mobility worsens
- ◆ Familiarization with contraindications to the interventions proposed here



Reasons for loss of mobility in persons affected by BU

Very often, persons affected by BU no longer move enough because of the wound or pain. They assume the most comfortable position for

them but stiffen in this position which is usually not functional. This fact should be explained to the persons and their families.

How should I help people to recover their mobility?

1 By teaching the antideformity position best suited to their mobility problem

Suitable positions are listed below (problems 1-11). These antideformity positions enable the tissues to stretch gradually and retain the mobility acquired

during exercises. The importance of these positions should be explained to the persons and their families.

When we no longer make certain movements, we lose the ability to make them because the skin, muscles and joint tissues become shorter. This is known as contracture. It then becomes necessary to stretch them again. The positions that counteract the shortening are known as **"antideformity positions"**.



Example : both these people are unable to extend their knee.

His leg is bent over the edge of the table: this position encourages contracture.



Her leg is supported in the extended (antideformity) position.

Contraindications to essential interventions designed to encourage mobility

There are no contraindications regarding positioning. However, the affected limb should not be used in the event of:

- Recent graft in the vicinity of the joints being mobilized (less than 10 days)
- Inflammation
- Infection
- Osteomyelitis and/or unconsolidated fractures
- Recent lesion of the tendons or muscles (less than 8 weeks)

How should I help people to recover their mobility?

2 By encouraging the use of the affected limb in everyday activities

In all cases, the person must try to use the affected limb as normally as possible and avoid neglecting it. This will strengthen the muscles and joints, make them more supple and help them to recover movements they have difficulty making. Explanations alone are insufficient. I encourage the persons to demonstrate performance of an activity in order to understand their difficulties and learn how to use their limb. I encourage them to persevere.

Reminder: mobilization should not cause pain!

It should involve effort but under no circumstances should cause pain. For frightened children, fear is sometimes hard to distinguish from pain, so I have to be patient. I should win their confidence before deciding whether they are in pain or just frightened. I keep an eye on the person during mobilization and I adapt the tension to his/her reactions.

3 By teaching daily exercises

Three exercises are proposed for each type of mobility loss. I explain to the family that, as far as possible, all the exercises should be performed. If performed regularly, these are an effective way of regaining mobility.



This young girl is using her right arm to hold the bucket and in doing so she is naturally extending her elbow, which will help her to regain mobility and strength.

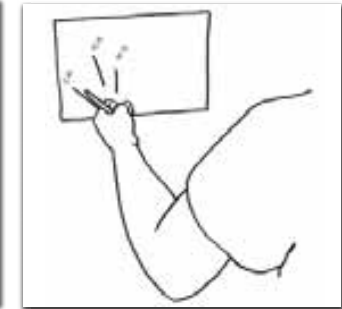
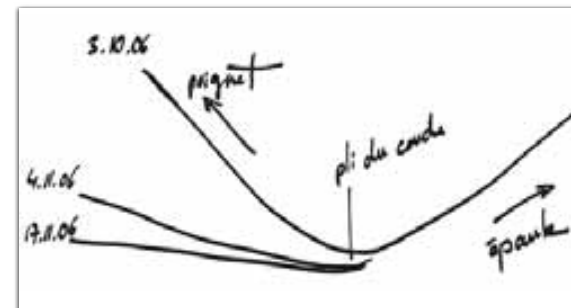
Pain is a sign that mobilization is applying too much tension to the tissues (pulling too hard), is not being done correctly (failure to mobilize along the physiological axis of the joint) or there is some other problem, for example an infection. Where pain occurs, there is a significant risk that progress will be hindered rather than helped.

How should I assess the effectiveness of the intervention?

1 For mobility of the major joints: elbow, forearm, wrist, knee, ankle

I measure regularly the angle made by the joint to assess improvements in mobility. If there has been no improvement, I try to understand why and change the treatment. If there has been improvement, I can objectively demonstrate it to people to motivate them to continue with their exercises.

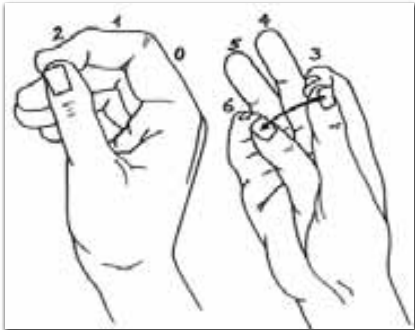
Material: sheet of paper on a rigid backing (card or thin sheet of wood), ball-point pen.



- I put the person's limb in the position I wish to measure, at maximum range of movement.
- I place the sheet against the joint (or the joint against the sheet, because it is easier to measure the ankle if the person is lying on his/her side).
- I draw the angle made by the joint, making sure I hold the ball-point pen perpendicular to the sheet. I always measure on the same side of the limb. Note: extension of the knee is measured while the person is lying on his/her front.
- I remove the sheet and note the segments on each side of the angle (for example: in the case of the elbow joint, I note the side on which the shoulder and the side on which the wrist are located).
- I note the date alongside the corresponding measurement.
- I note the range of movement assessed (example: extension of elbow).
- I use the same sheet to take the next measurement; I align the proximal segment on the drawing and draw the angle made by the joint, noting the date alongside the corresponding measurement.
- For supination*, the persons should place their elbow flexed at 90° on the table with a pencil in their clenched fist. I ask them to turn their forearm as far as possible so that the pencil points outwards. I draw the angle made by the pencil on a sheet of paper placed opposite the fist. I make sure the persons do not move their elbow inwards and that they are holding the pencil firmly.

How should I assess the effectiveness of the intervention?

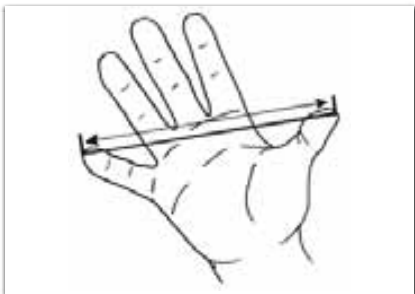
2 For mobility of the fingers



I measure the **mobility of the thumb** by asking the person to touch the different points numbered from 1 to 6 (on the figure) and note the last position he/she is capable of touching.



I measure the **mobility of the fingers** by asking the person to clench the fingers; I measure the distance between the tip of the finger and the fold on the palm when the fingers bend.



I measure the **opening of the thumb web** by asking the person to spread the thumb and fifth (little) finger as far as possible; I measure the distance between the tip of the thumb and tip of the little finger.

I always note down the results on a sheet of paper, indicating what was measured and when.

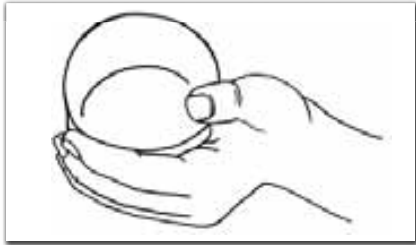
What should I do if mobility improves slowly, not at all, or gets worse?

First of all, I check the following:

- Is the splint correctly positioned?
- Are the persons wearing the compression bandage and splint, are they doing the exercises correctly and performing day-to-day activities correctly?
- Is their rehabilitation helper using the right procedures?
- Has the splint been worn for long enough?
- Is something causing pain (poorly made splints or exercises incorrectly carried out)?

If I have checked all of these and made adjustments without any success, or if other factors seem to be limiting progress (oedema that fails to disappear, new wounds, too old a scar that no longer lengthens, etc.), I contact the referral centre.

PROBLEM 1: Grasping and holding objects in the palm of the hand



● Antideformity position

- If the persons can hold a glass in the palm of their hand without using their thumb, the hand does not need to be positioned.
- If the persons cannot hold the glass, they will need to wear a splint at night to help flex the metacarpo-phalangeal joints*.

● Using the hand in day-to-day activities

I encourage the persons to use their hand in any day-to-day activity that makes them flex their fingers. For example:

- Pouring groundnuts into a receptacle
- Crushing tomatoes

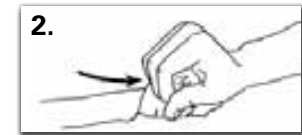


Using a pestle or machete (pad out the handle with rags or leaves)

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

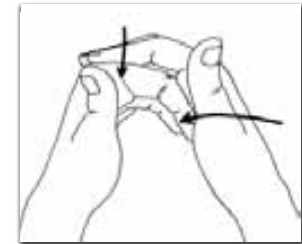
Drawing in a net

1. Without moving your wrist on the table, draw in a strip or piece of material by stretching and...
2. ...flexing the fingers as far as possible, slowly.



Squeezing an orange

Using your unaffected hand, bend your fingers while applying firm pressure at the points indicated. Imagine you are squeezing an orange. Maintain the position for one minute, try to flex a bit more and hold the position again.



Squeezing an orange (two people)

The helper holds the fingers in the flexed position by pressing firmly at the points indicated. Hold this position for one minute, try to flex a bit more and hold the position again.



PROBLEM 2: Grasping and holding an object between the thumb and the other fingers



● Antideformity position

Hand splint to be worn at night to gradually move the thumb opposite the other fingers.

● Using the hand in day-to-day activities

I encourage the person to use his/her hand in any day-to-day activity that makes him/her grasp objects between the fingers and thumb:

- Buttoning up a shirt
- Holding manioc or a potato in one hand while the other hand peels or grates
- Holding a glass
- Writing

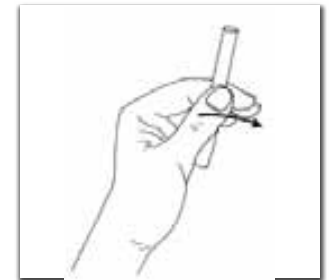


Shelling groundnuts

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

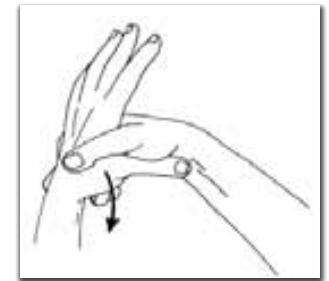
Rolling a stick

Hold a pencil or cylindrical stick between the thumb and the index finger and roll it as far as possible towards the tip of the index finger. Hold this position. Let go and do the exercise again several times.



Opening a crocodile's jaws

Grasp the base of the thumb and push it away from the rest of the hand as indicated. Hold this position for one minute, try to push further and hold again.



Opening a crocodile's jaws (two people)

The helper grasps the base of the thumb and pushes it away from the rest of the hand as indicated. Hold this position for one minute, then try to push further and hold again.



PROBLEM 3: Stretching the wrist



Crushing tomatoes

● Antideformity position

- I ask the person to keep his/her wrist extended for as long as possible at all times.
- I ask the person to refrain from turning his/her palm downwards while walking.
- Hand splint to be worn at night.

● Using the hand in day-to-day activities

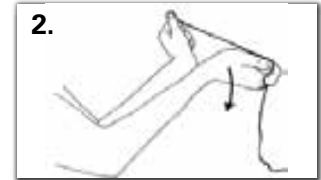
I encourage the person to use his/her hand in any day-to-day activity that makes them stretch their wrist. For example:

- Washing themselves and drying their face and head
- Cleaning the table

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

Unwinding a bobbin

1. With elbows and wrists together, grasp the end of the cord in the healthy hand.
2. Keeping the elbows and wrists together, pull the cord as far as possible by stretching the wrists to maximum extent. Repeat the exercise.



Pressing on the palm

Place the palm of the hand on a table. Keeping the elbow stretched, push your body as far forward as possible. Hold this position for one minute, try to push further and hold again.



Pressing on the palm (two people)

Place the palm of the hand on a table. Keeping the elbow stretched, push your body as far forward as possible. Hold this position for one minute, try to push further and hold again.



PROBLEM 4: Turning the palm upwards (supination*)



● Antideformity position

- I ask the person to avoid letting the wrist hang with the palm facing downwards.
- I ask the person to keep the palm facing upwards as frequently as possible.

● Using the arm in day-to-day activities

I encourage the persons to use their arm in any day-to-day activity that makes them turn their palm upwards. For example:

- Washing the lower part of the back
- Cutting with a machete

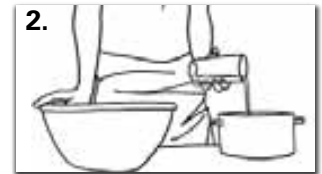


Holding objects in the hollow of the hand

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

Pouring water

1. Using a glass, scoop water from a bowl and...
 2. ...pour the water while tipping the glass back, as shown in the picture.
- Repeat several times.



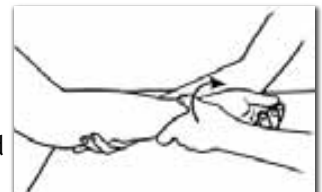
Palm facing the sun

With the elbow flexed, grasp your forearm with your healthy hand below the wrist and turn the palm to face upwards. Hold this position for one minute, try to turn further and hold again.

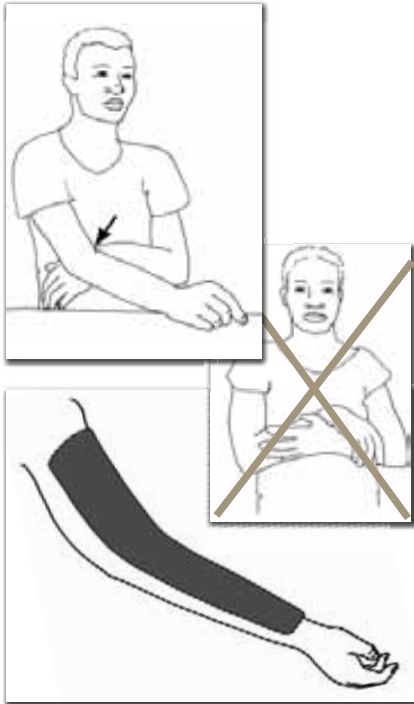


Palm facing the sun (two people)

The helper grasps the 's arm with both hands, as shown in the picture. Holding the forearm below the wrist, turn the palm to face upwards. Hold the position for one minute, try to turn further and hold again.



PROBLEM 5: Stretching the elbow



Using both hands to put on trousers

● Antideformity position

- I ask the person to keep the elbow stretched for as long as possible at all times. Cushions or clothes can be used to position the limb at night.
- Elbow splint to be worn at night if mobility does not improve within two weeks despite daily exercises.

● Using the arm in day-to-day activities

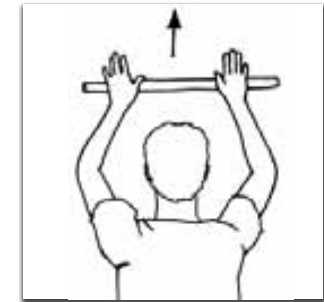
I encourage people to use their arm in any day-to-day activity that makes them stretch the elbow. For example:

- Carrying buckets of water
- Hanging washing on a line
- Swinging the arms as normally as possible when walking

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

Pushing towards the ceiling

Against a wall, roll a stick as high up as possible towards the ceiling with both hands. Release when too tired and start again, trying to roll the stick higher and higher on the wall.



Pushing towards the ground

With your elbow resting on your knee or a table, stretch out your arm as far as possible. With the other hand, positioned just below the wrist, push your forearm towards the ground.



Unfolding the arm (two people)

The helper rests his elbow on your shoulder. With one hand he holds your arm near the elbow; the other, positioned close to the wrist, stretches the elbow. Hold this position for one minute, try to push further and hold again.



For these mobilizations, a compression garment must be worn if a scar is present in the crux of the elbow!

PROBLEM 6: Flexing the elbow

● Antideformity position

No specific position or splint. Special attention should be paid to exercises and using the arm in day-to-day activities.

● Using the arm in day-to-day activities

I encourage the people to use their arm in any day-to-day activity that makes them flex their elbow. For example:

- Washing and drying the face, head and upper body
- Eating and drinking



Doing your hair

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

Stick exercise

Slowly pass a stick over your shoulder and down your back from the affected to the healthy hand. Start again, moving your hands closer to the middle of the stick.



Arm wrestling

With the valid one, push the affected hand towards your shoulder. Hold the position for one minute, try to push further and hold again.



Arm wrestling (two people)

The helper stands right next to you. He/she braces your elbow against his/her thigh with one hand while the other holds your arm below the wrist and pushes your hand towards the shoulder. The helper holds this position for one minute, tries to push further and holds again.



PROBLEM 7: Lifting your arm up in the air



● Antideformity position

I ask the person to keep his/her arm raised as high as possible at all times.



● Using the arm in day-to-day activities

I encourage the person to use his/her arm in any day-to-day activity that makes him/her lift the arm up in the air. For example:

- Hanging out washing on a line above them
- Harvesting mangoes



Balancing a bucket on the head

If the scar is located by the armpit region, I need to contact a specialist in POD.

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

Writing in the air

Facing a wall, write your name or draw a landscape with your finger as high up as possible. Then repeat just above this level. Repeat 10 times, reaching as high as possible.

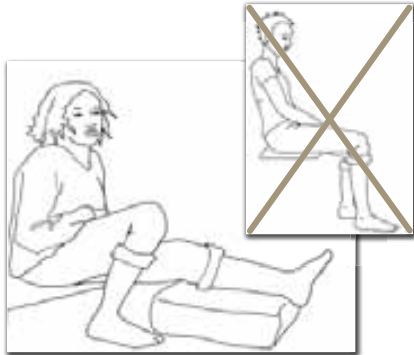


Elbows backwards

Standing, or even better, lying flat on the back: grasp your hands together behind your neck and stretch out the elbows backwards as much as possible, or even touch the ground with the elbows if lying down on the floor.



PROBLEM 8: Stretching the knee



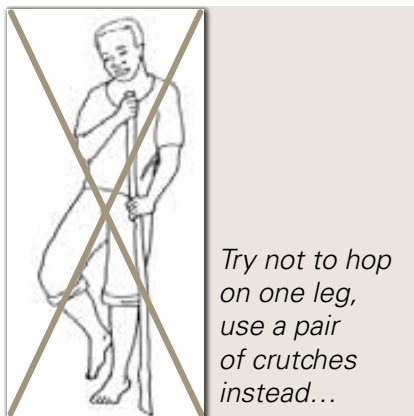
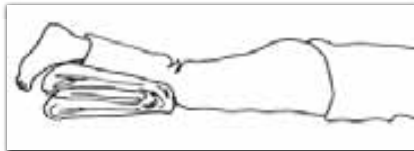
● Antideformity position

- I ask the person to stretch his/her knee as far as possible, night and day.
- Knee splint to keep at night if mobility does not improve within two weeks despite daily exercises.

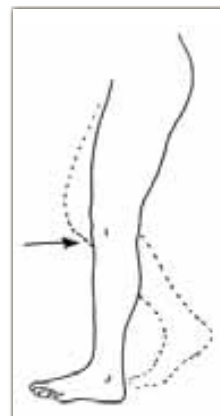


● Using the leg in day-to-day activities

I encourage the person to use his/her leg as normally as possible.



Try not to hop on one leg, use a pair of crutches instead...



... and when walking, try to stretch the leg at each stride. Walk as normally as possible, with rolling footsteps (contact with the ground from the heel to the toes)

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

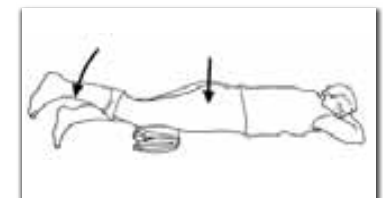
Touching the moon

While sitting, try to reach an object suspended as high up as possible with the tip of the toe. Do not raise your thigh. Release when tired and repeat, trying to stretch further.



Face-down siesta

Lying face down, with a cushion under your thigh, allow your knee to extend. If you are able to bear it, someone may place a weight on your calf (for example, a small sandbag). If your buttocks rise, ask someone to hold your pelvis down on the ground.



Unfolding the leg (two people)

A helper places a pile of clothing or a cushion under your knee. The helper uses one hand to press down above the knee, while the other pulls the heel upwards. The helper holds this position for one minute then tries to pull further, holding again.



PROBLEM 9: Flexing the knee



● Antideformity position

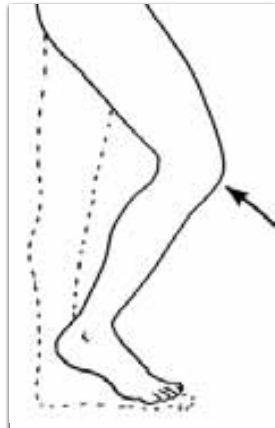
While seated, I ask the person to draw his/her leg back towards the chair.

● Using the leg in day-to-day activities

I encourage the person to use his/her leg as normally as possible.



Keep both feet at the same level as often as possible by cutting grass, using the latrines or picking up objects from the ground.



Make sure you bend your leg at each step while walking.

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

The sole of the shoe

Standing upright, lift up your foot as high as you can, as if you were looking at the sole of your shoe. Release when tired, then repeat trying to lift higher.



The invisible chair

Bend your knees as much as you can keeping your heels on the ground, as if you were going to sit down. When you are tired, come back to the standing position and then repeat, trying to squat even further.

Bending the leg (two people)

Placing one hand below the knee and the other above the ankle, the helper presses on the leg. The helper holds this position for one minute then tries to push further, holding again.

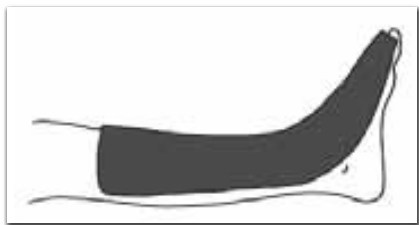


After some improvement has been noted, the leg is stopped by the edge of the table. At this point the exercise should be done lying down. The helper places one hand below the knee and the other on the ankle, then pushes towards the thigh.

PROBLEM 10: Pointing the foot downwards (performing a plantar ankle flexion*)

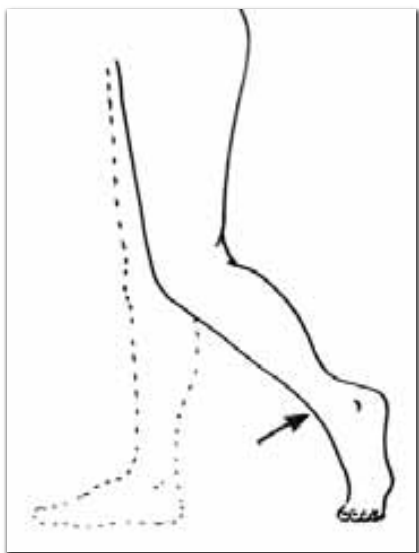
● Antideformity position

Plantar flexion splint to be worn at night.



● Using the leg in day-to-day activities

I encourage the person to use his/her leg as normally as possible.

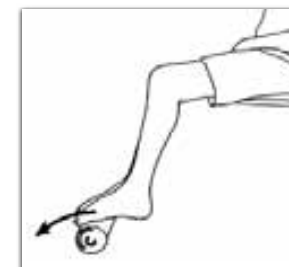


Try to point your foot down when you walk

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

The bottle

With the tips of your toes resting on a full bottle, roll the bottle forward as far as you can. Maintain contact between your toes and the bottle for as long as possible. Release when tired and then repeat, trying to push the bottle further.



Prayer position

Sit on your heels with a small pile of clothes under the ankle. Every day, try to reduce the height of the pile of clothes.

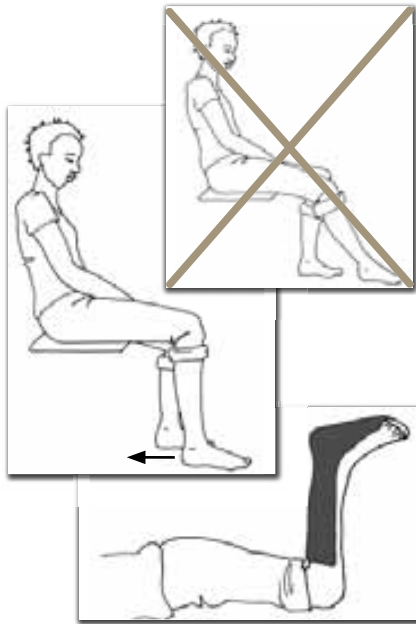


Unfolding the ankle (two people)

The helper places one hand on the ankle and the other around the instep, pushing towards the ground. The helper holds this position for one minute and then tries to push further, holding again.



PROBLEM 11: Pointing the foot upwards (performing a dorsal flexion* of the ankle)



● Antideformity position

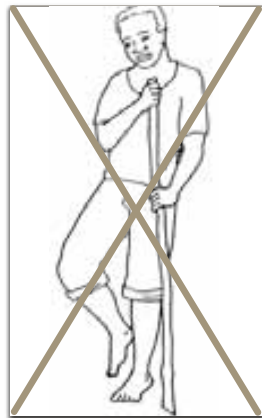
- While seated, I ask the person to draw his/her leg back towards the chair.
- Dorsal flexion splint to be worn at night if mobility does not improve within two weeks despite daily exercises.

● Using the leg in day-to-day activities

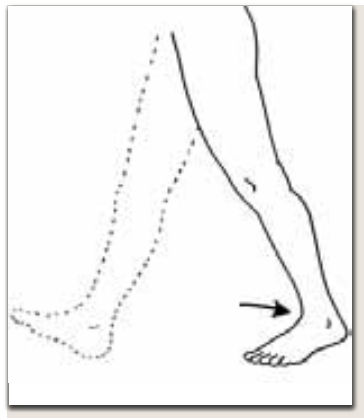
I encourage the person to use his/her leg as normally as possible.



Cutting grass, picking up objects from the ground or using the latrines, keeping the heel on the ground as much as possible.



Avoid walking on tiptoe.

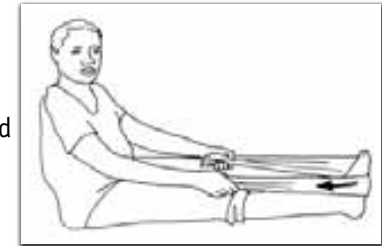


Try to flex the foot fully when walking.

EXERCISES TO BE DONE 3 TIMES A DAY FOR A FEW MINUTES

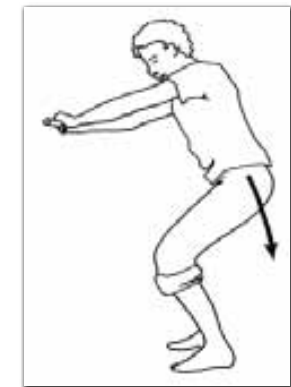
Pulling the oxen's tails

Sitting on the ground with your leg stretched out and your lower back against a wall, pull the top of your foot towards you using a strap. Hold this position, then try to pull further and hold again.



The invisible chair

Bend your knees as much as possible, keeping your heels on the ground, as if you were going to sit down. When you are tired, come back to the standing position and then repeat, trying to squat even further.



Folding the ankle (two people)

The helper places the heel in the palm of one hand and pulls while the forearm pushes the sole of the foot. The helper holds this position for one minute, then tries to push further and holds again.



I make the splints

Objectives

- ◆ Making plaster splints
- ◆ Making foam splints



How can I make plaster splints?



1.

I cut the approximate shape of the splint through 6 to 8 plaster bandages. The edges need to be long enough to cover half the thickness of the limb, with about 3 cm left over to form a plaster rim which will strengthen the splint. A piece of felt may be inserted under the splint to make it more comfortable, although this is not essential.



2.

I soak the plaster bandages in water and wring them out. I place the bandages on the limb after smoothing them to soften the surface of the plaster. I adjust the position and form the rims.



3.

I wrap a bandage round the splint to keep it in place.



4.

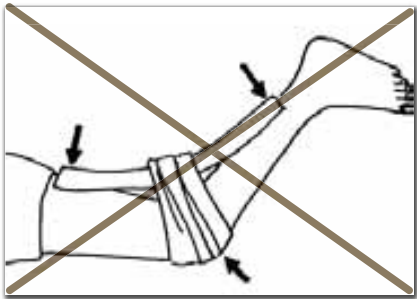
I keep the splint in the correct position before the plaster begins to warm and until it has set.

In which position should I mould the splints?

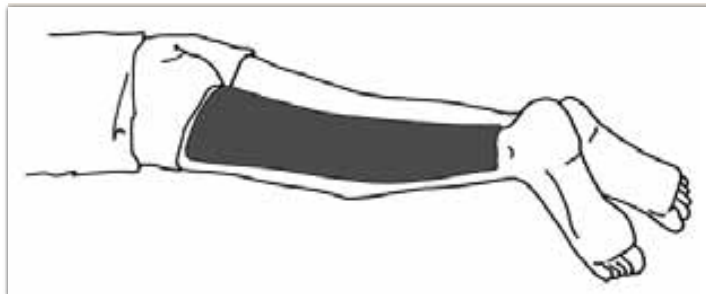
Splints can be made of various materials: plastic, metal wire, or plaster. The essential point is that they must be suited to the position of the limb. The splint must press on the entire surface. It is then held in place by a bandage.

The procedure described below focuses on the moulding of plaster bandages. However, the same principles apply for all other types of splints.

Moulding positions

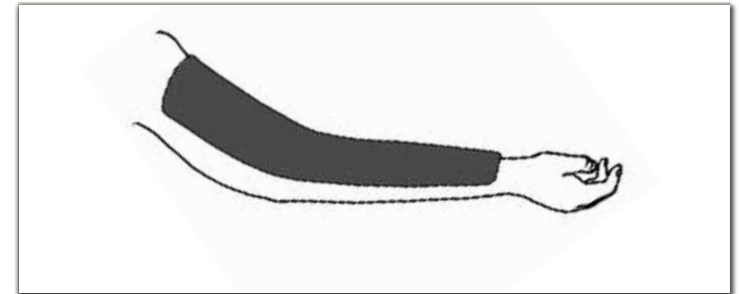


NOTE
A poorly fitting splint
can cause injury and
dislocation!



To extend the knee:
the person lies face down, with the leg extended as far as possible. I mould from the top of the thigh to the ankle. I include the foot if there is also a loss of mobility in the ankle.

Checking: the bottom of the splint must not hinder the ankle and the top must not hinder the buttocks or crotch.



To extend the elbow:
the person lies on the back.
I mould from below the armpit
to the wrist.

Checking: the top of the splint must not hinder the armpit, the bottom of the splint must not hinder movements of the wrist.

In which position should I mould the splints?

- If the splint causes any injury, pain or oedema, I have to adapt it immediately.
- I mould again the splint to adjust them to the gain in mobility, between 1 and 4 times a month

Reminder: the splint can be tight or tensed up but should never cause pain.

- I explain to the persons and their families why and when the splint should be worn. To put the splint back in place, the position of the person should be the same as the one adopted when the splint was moulded.
- I show how to put the splint on and then, ask the person or his/her family to repeat the demonstration themselves two or three times. I correct and advise.



To restore plantar flexion of the ankle*
(help the foot to point down): the person lies on his/her back. I mould from the knee to the toes.

Checking: if the person has difficulty pointing the toes down, I continue the splint to the tips of the toes..



To restore dorsal flexion of the ankle*
(help the foot to point down): the person lies face down, with the knee bent. I avoid bending too far when moulding or the splint will be impossible to wear. I mould from the tip of the foot to the knee.

Checking: the top of the splint must not hinder the bend of the knee.



The hand, whatever the problem:

the person places his/her elbow on the table, if possible with the palm of the hand open and facing me. I keep the wrist slightly extended, with the fingers partly bent, taking care at the same time to keep the metacarpophalangeal joints well flexed, the thumb web well open, and the thumb opposed. I ask the person to try to keep the right position.

How can I make foam-based splints?

Splints made from plaster are the most effective. However, if it is not possible to make plaster splints, other kinds of material may be used. The examples below are made from foam (from mattress or cushion foam about 1 cm thick), wooden boards and elasticated bandages.

There are other ways to make splints; this is just one example that is effective, easy to make and reduces the risks that could occur if the splint is not properly made.

To stretch the knee (same procedure for the elbow)



If wire splints are available, they should be positioned in the same way as a plaster, taking care to bend the splint to accommodate the limb (do not insert a flexed limb into a straight splint!).

1 I roll a piece of foam that has been folded in two.

The length of the roll should correspond to the length of the leg (or the arm in the case of an elbow splint).

Width : approximately 60–80 cm

2 I place a wooden board on the roll of foam and fasten them together with a bandage.

The foam should just overlap both sides of the board.

Wooden board (about 1 cm thick)

3 The splint is put in place using elasticated bandages with the foam part against the leg.

To avoid oedema, I start bandaging from the toes.

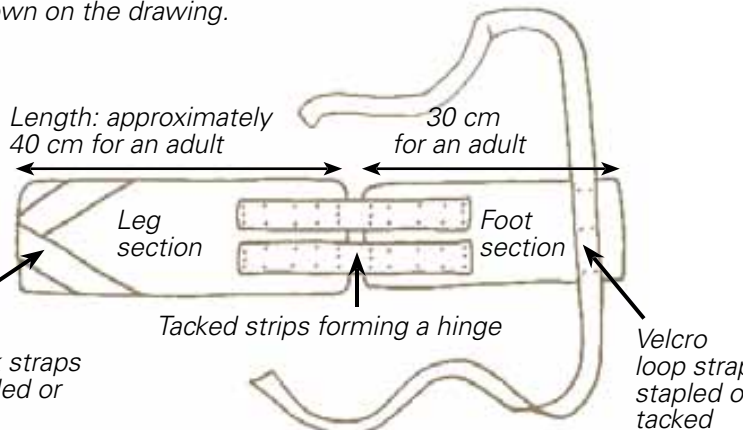
4 I reinforce the bandage around the joint to press the knee firmly against the splint.

If there is also loss of mobility in the ankle, start by putting the splint on the ankle and then add a knee splint.

How can I make foam-based splints?

To restore dorsal flexion of the ankle* (help the foot to point upward)

1 I fasten together two wooden boards of about 1-cm wide as shown on the drawing.



Length: approximately 40 cm for an adult

30 cm for an adult

Leg section

Foot section

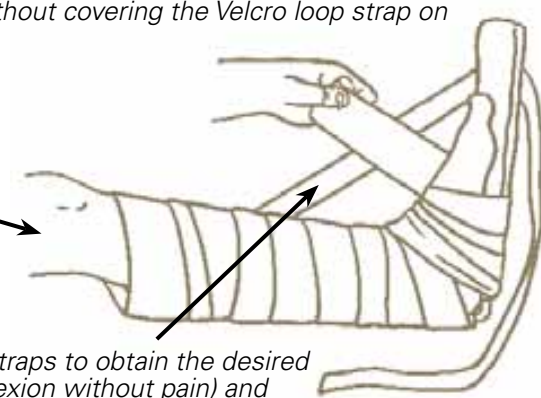
Tacked strips forming a hinge

Velcro hook straps glued, stapled or tacked

Velcro loop strap, stapled or tacked

2 I pad the boards with foam and cover with imitation leather or elasticated bandages, without covering the Velcro loop strap on the leg section

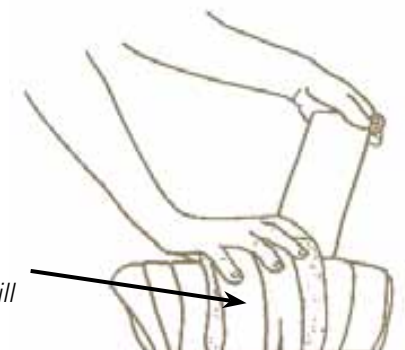
I attach the foot and leg on to the splint using elasticated bandages... (the board should not interfere with mobility of the knee)



... then I pull on the Velcro straps to obtain the desired position (maximum dorsal flexion without pain) and I attach them to the Velcro hooks on the leg section.


To restore plantar flexion of the ankle* (help the foot to point down)

1 As described above, I make up a roll of foam and a small board with elasticated bandages.



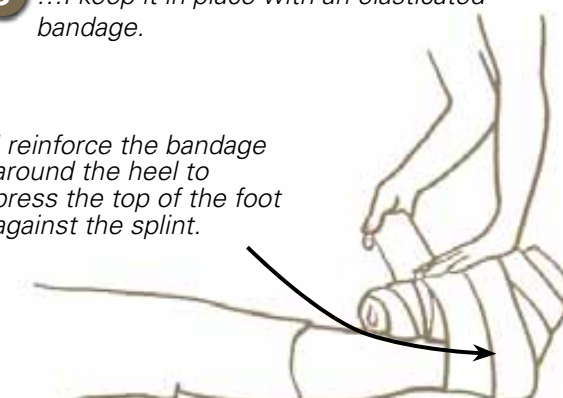
I add a layer of extra foam to fill out the crux of the ankle

2 I put the splint on the front of the foot and...



3 ...I keep it in place with an elasticated bandage.

I reinforce the bandage around the heel to press the top of the foot against the splint.



How can I make foam-based splints?

For the hand

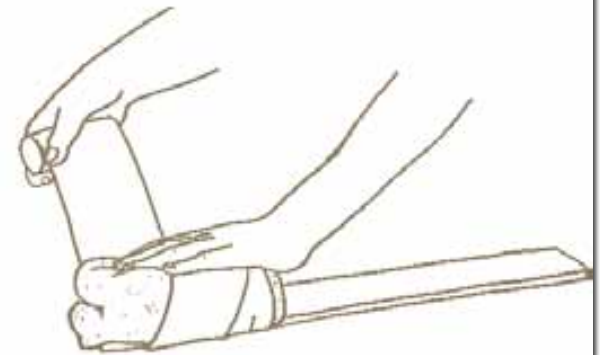
1 I fold and re-fold a piece of foam measuring 40–60 cm ...



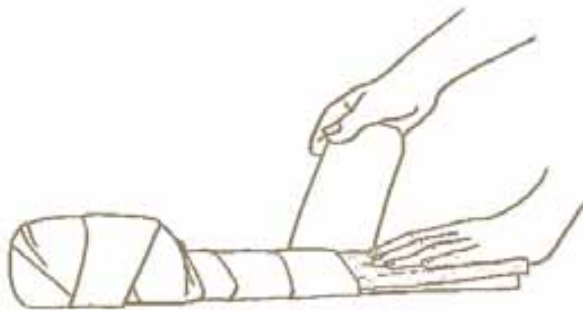
2 ...until I obtain a wad approximately as high as the width of the palm



3 I attach the folded foam to a small board.



4 I pad the rest of the board with the foam.



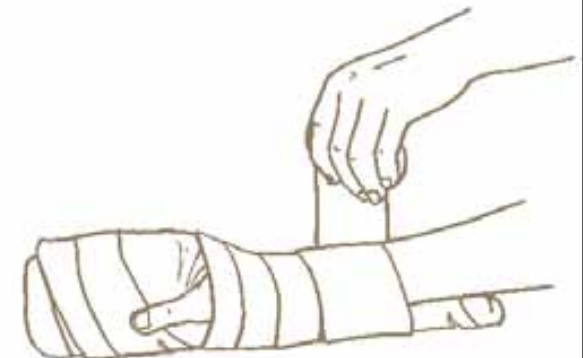
5 I place the hand in the position shown.

If I want the fingers to bend more (because the person has difficulty bending the last two phalanges), I reduce the length of the foam wad.



This length may be reduced. But the height must remain the same to ensure proper flexing of the metacarpo-phalangeal joints.*

6 I fasten the hand to the splint with an elasticated bandage.



module 8

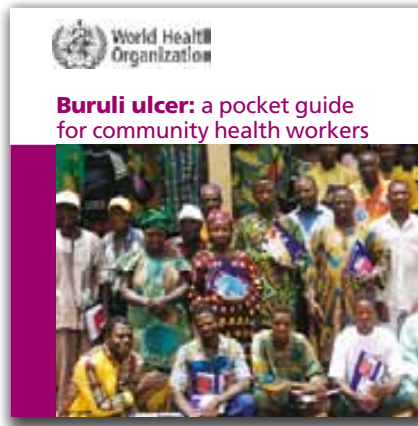
I teach people and their families interventions to be carried out in their village

Objectives

- ◆ Explaining the importance of preventing disability to people and their families
- ◆ Encouraging people and their families to commit themselves to these interventions
- ◆ Supervising people and their families when carrying out the essential interventions
- ◆ Providing people with a reference booklet



How can I explain the importance of preventing disability to affected persons and their families?



- First of all, I check they have understood what BU is, how to recognize it, and how it is transmitted. This information can be obtained from the WHO booklet "*Buruli ulcer: pocket-guide for community health workers*".
- I then explain why it is necessary to prevent disability.
- I suggest and demonstrate essential interventions using ready-reference cards. These cards are for people to keep (consolidated into a booklet) and take back to their village. The affected persons are thus reminded of what they need to do, and the regional community health worker will also know.

The reference booklet is merely a support tool to remind the affected person of the action he/she must take. However, I should supervise the interventions to ensure they have been learned correctly. Group teaching is an option. People can then take a chance to share their experiences.

How can I encourage people and their families to commit themselves to POD interventions?

- I always involve the affected persons and their families in the decisions that are taken.
- I set goals with them.
- I indicate improvements when performing evaluations.
- I make sure that the person feels fully capable of carrying out the interventions as requested.

(Note the person may agree but without being fully convinced; I check by asking the person to perform the intervention.)

- When obstacles or difficulties come up, I help the persons to find ways of overcoming them by themselves.
- I encourage them to participate actively in day-to-day activities.

How can I supervise affected persons and their families when carrying out essential interventions?

As far as possible, at least one close relative capable of helping the person when they return to the village should also be trained, as they will require support and even physical assistance for certain exercises or putting on a splint, especially children.

Teaching affected persons and their families

- Tell them why
- Show them how
- Get them started
- Encourage them to continue
- Correct them if necessary
- Get them to repeat the exercise several times
- At each check-up, make sure they are able to do the whole exercise from start to finish without your help



The helper accompanying this person is learning how to mobilize properly the scar. By doing so at the health centre, it will be then easier to repeat it back in the village.



The helper accompanying this person is learning how to put on the splint correctly. She is already putting the splint on at the health centre, so that she will be able to repeat the procedure back in the village.

How I can manage to provide people with a reference booklet

The principal essential interventions concerning scars, oedemas and the 11 mobility-related problems outlined in module 6 are presented further down. I photocopy these A4 sheets on both sides and then fold them in two, to get an A5 format. The core booklet (i.e. the first two A4 sheets, entitled "Basic information") is distributed to everybody and

the interventions that apply to the individual person are ticked. Then I select the relevant sheets from among the ready-reference cards, I photocopy both sides, fold them in two and add them to the booklet, inside. People are thus provided with their own personalized booklet. I can use staples or a thread to bind all the pages together

My daily exercise booklet

This booklet belongs to:

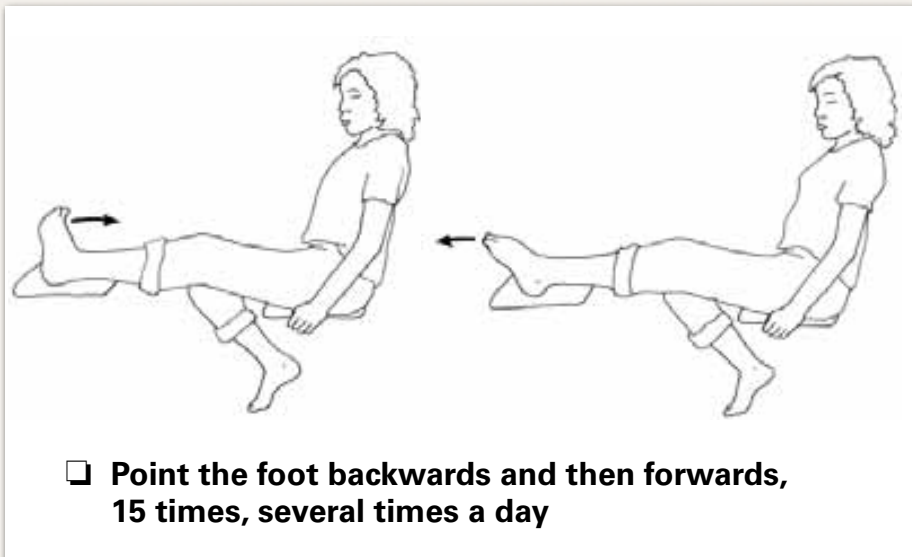
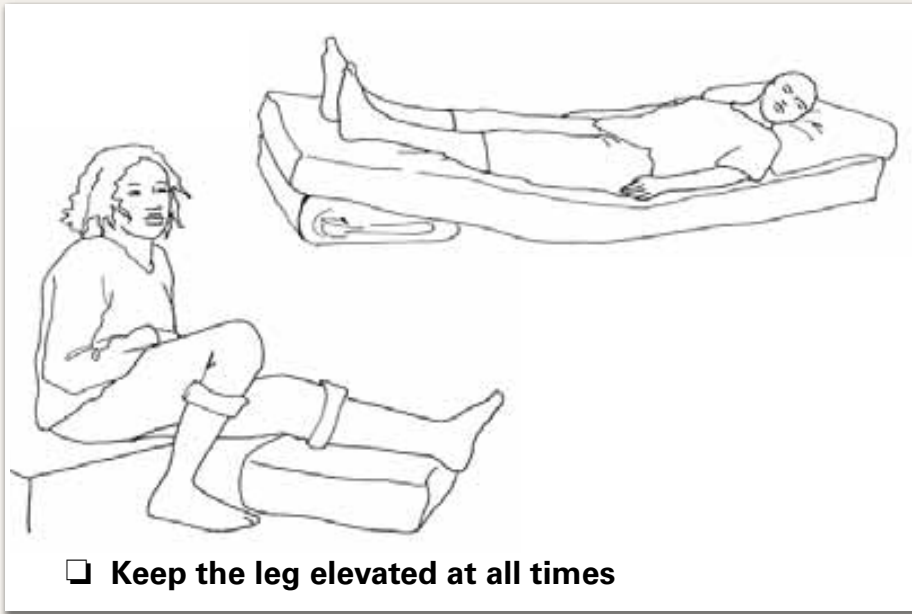
.....

Date:

In case of need, refer to:

.....

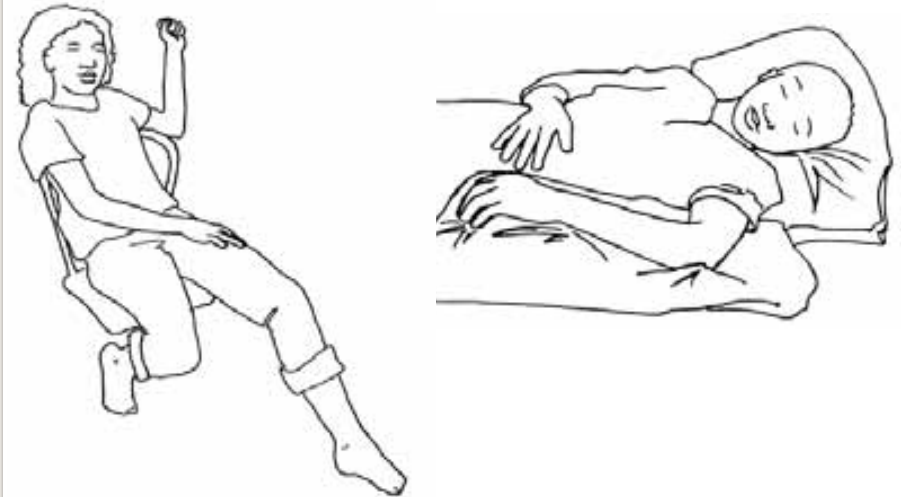
.....



Lubricate



Keep arm elevated at all times



Wear compression garment



Mobilize the scar

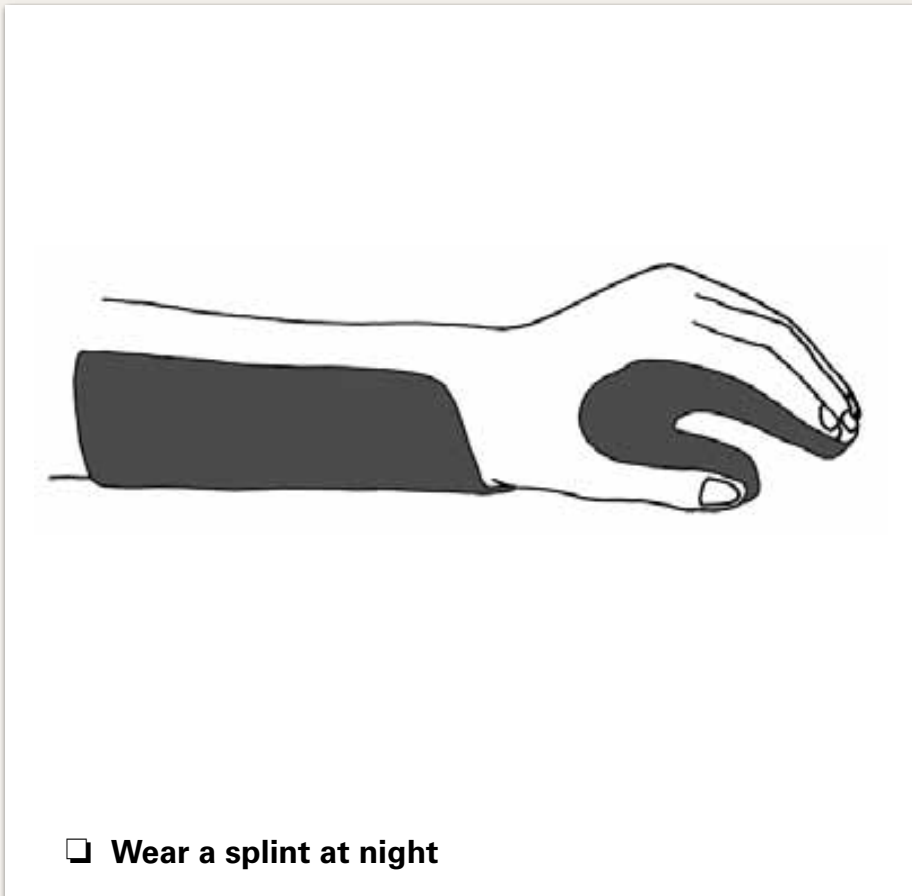


Open and close the hand 15 times, several times a day

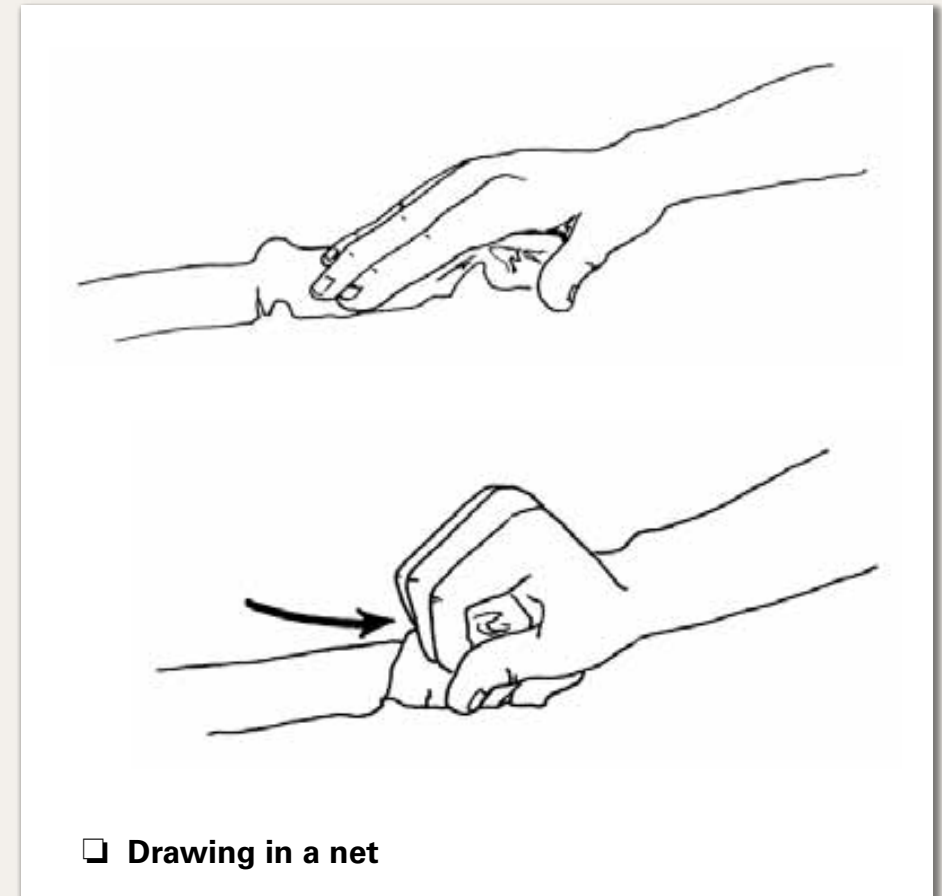


Grasp and hold an object in the palm of the hand

Grasp and hold an object in the palm of the hand



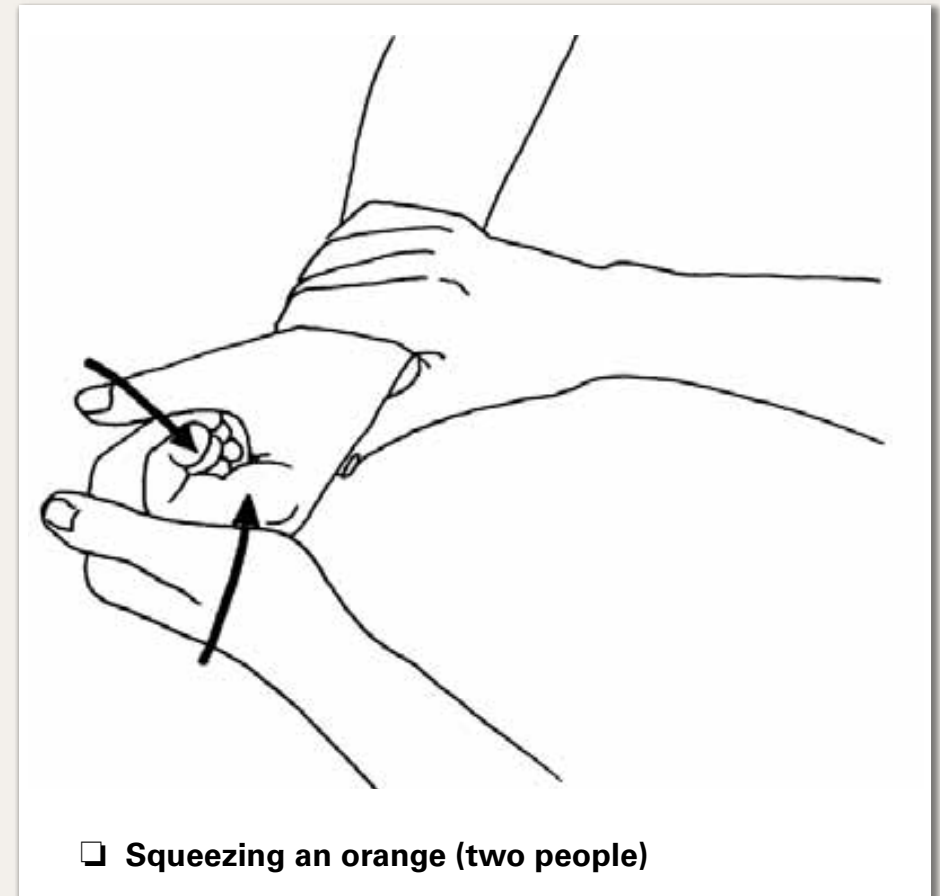
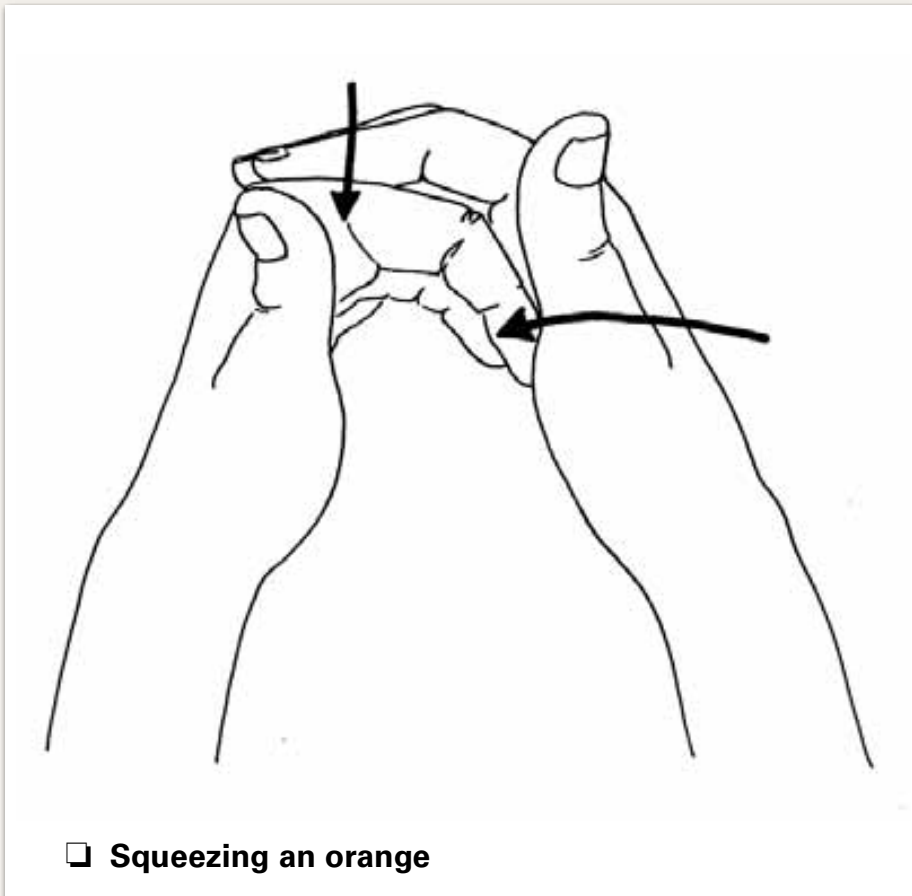
grasp and hold in the hand • 4



grasp and hold in the hand • 1

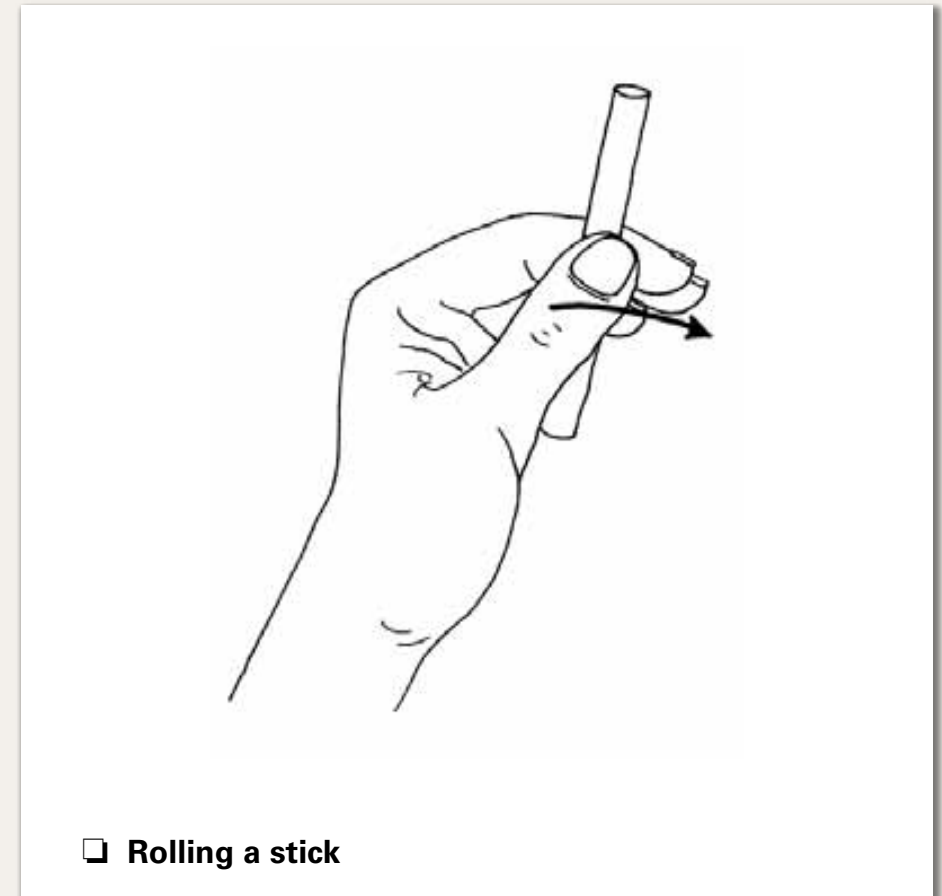
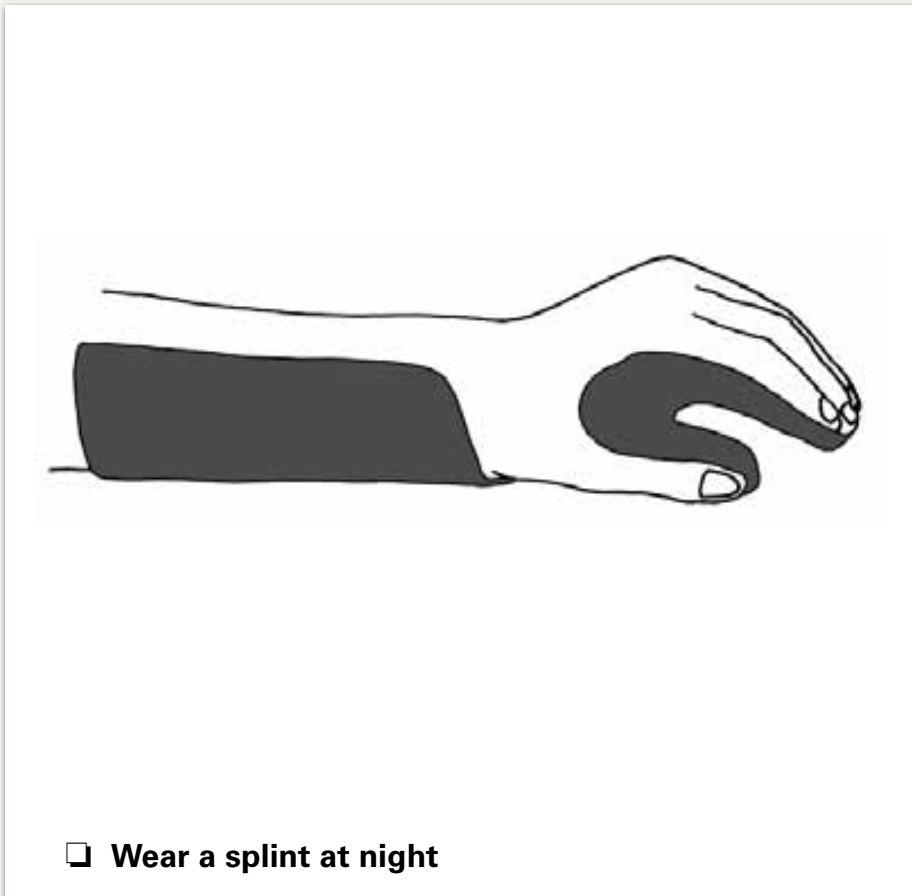
**Grasp and hold an object
in the palm of the hand**

**Grasp and hold an object
in the palm of the hand**



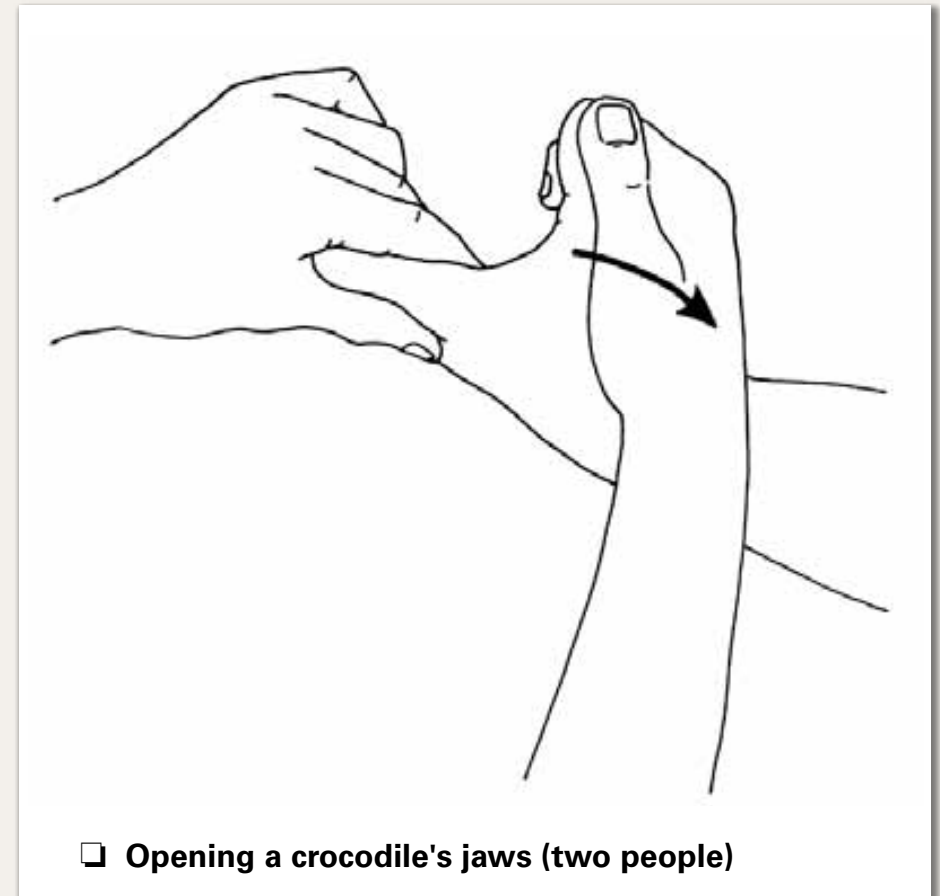
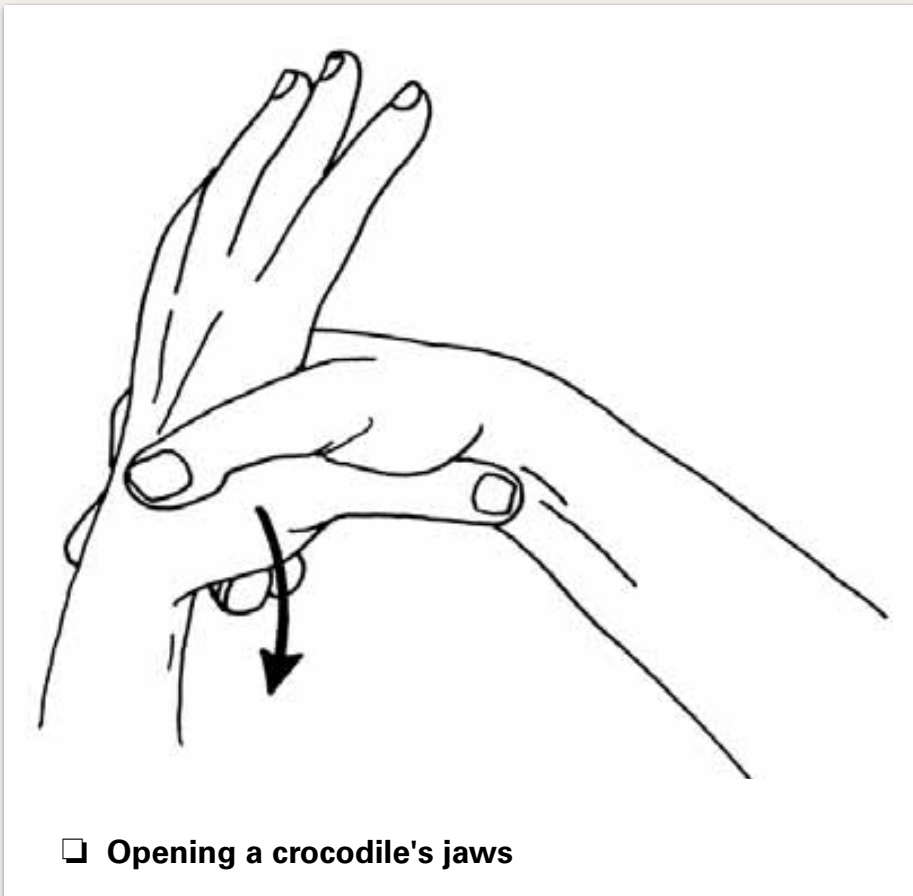
**Grasp and hold an object
between the fingers and thumb**

**Grasp and hold an object
between the fingers and thumb**



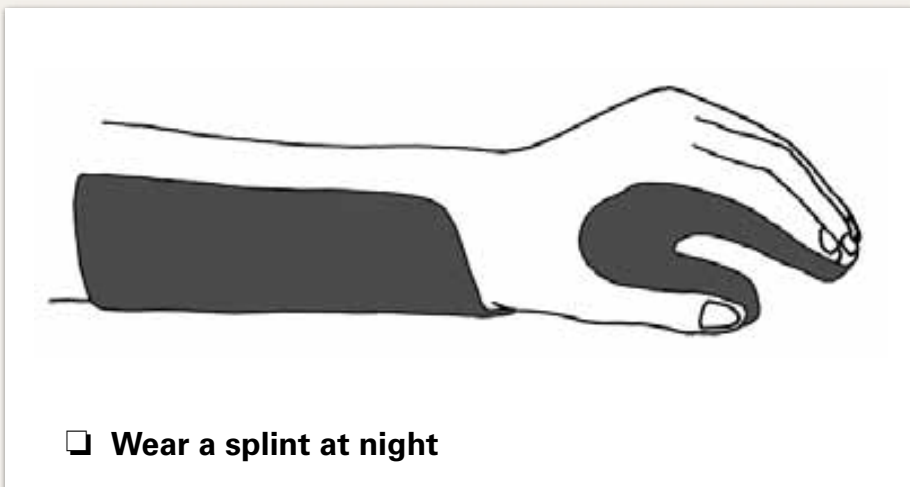
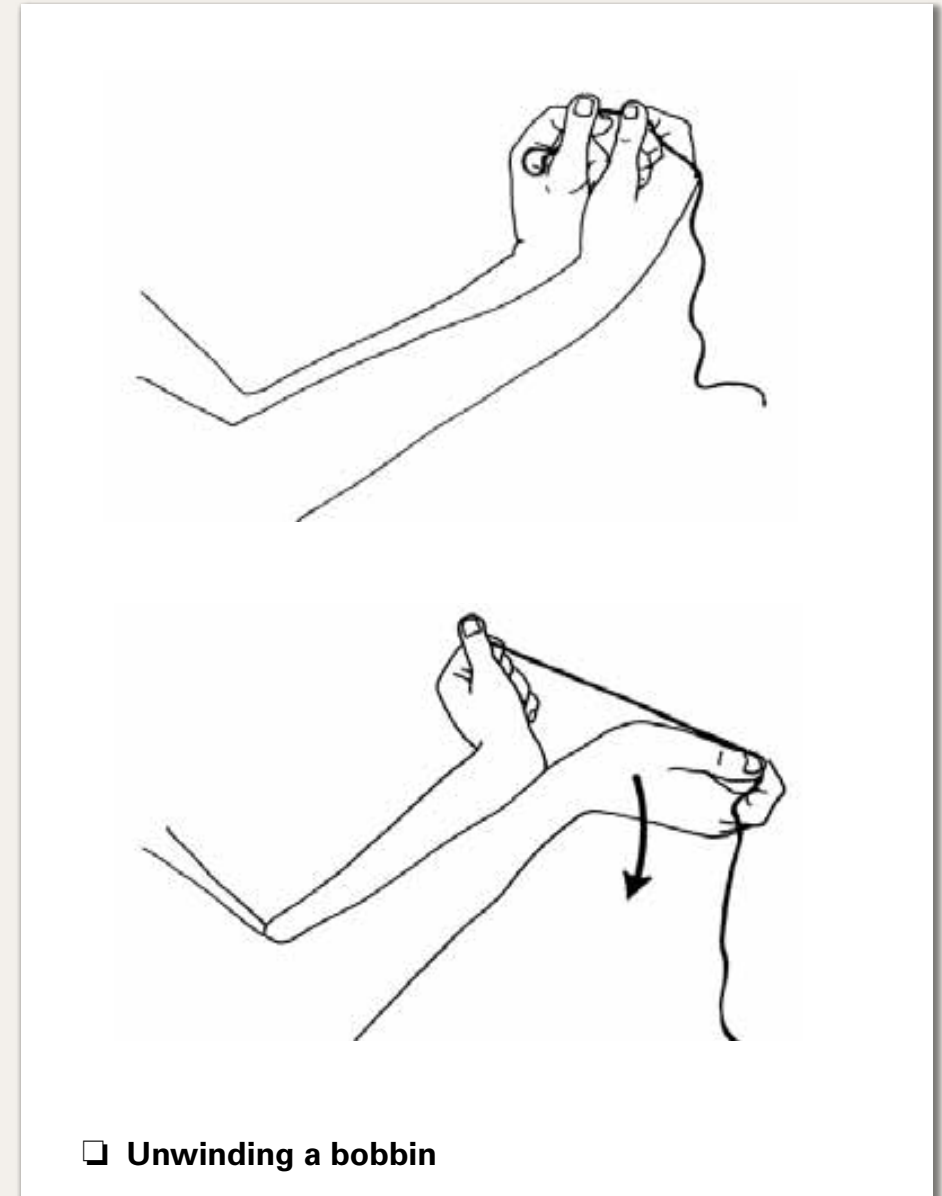
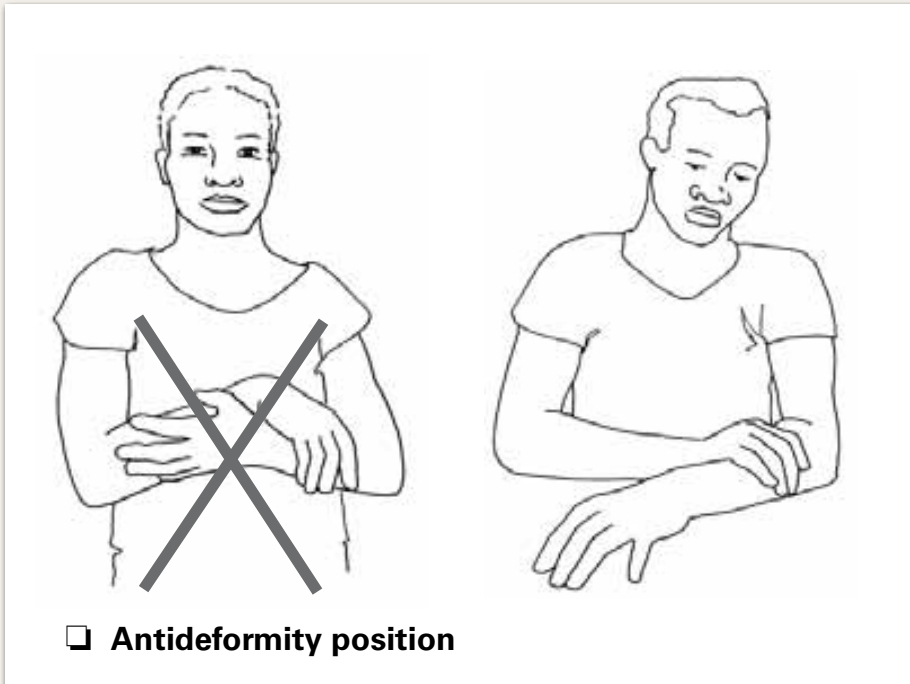
**Grasp and hold an object
between the fingers and thumb**

**Grasp and hold an object
between the fingers and thumb**



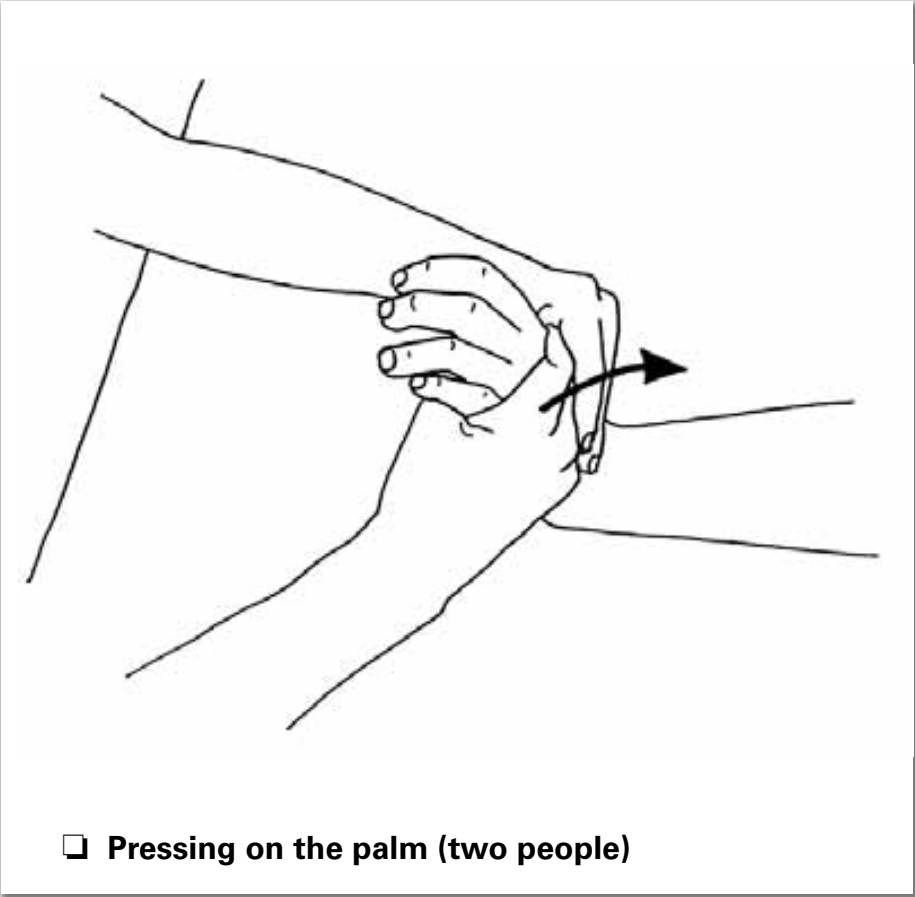
Stretching the wrist

Stretching the wrist



Stretching the wrist

Stretching the wrist



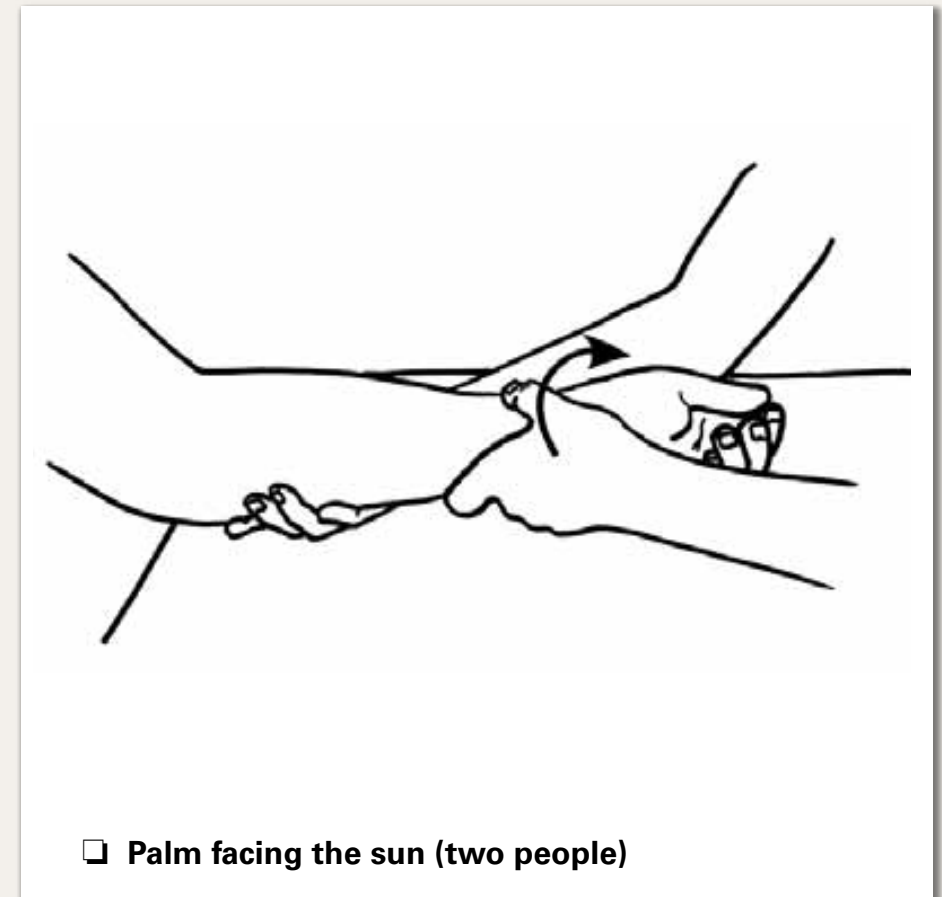
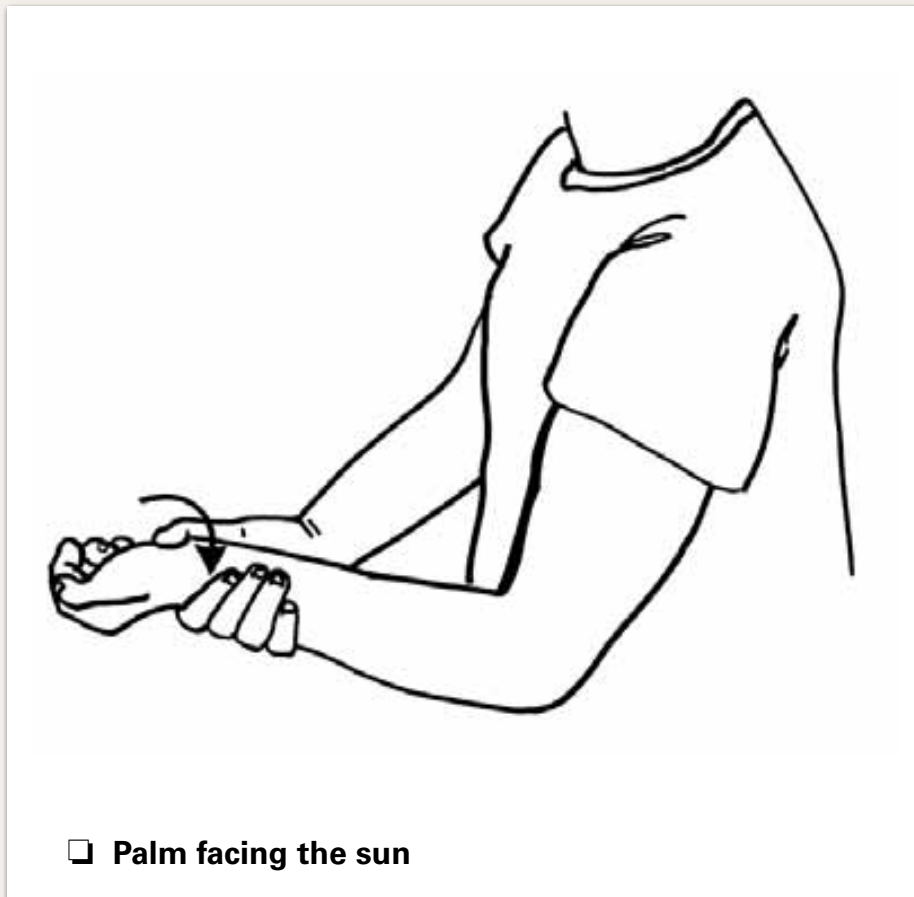
Turning the palm upwards

Turning the palm upwards

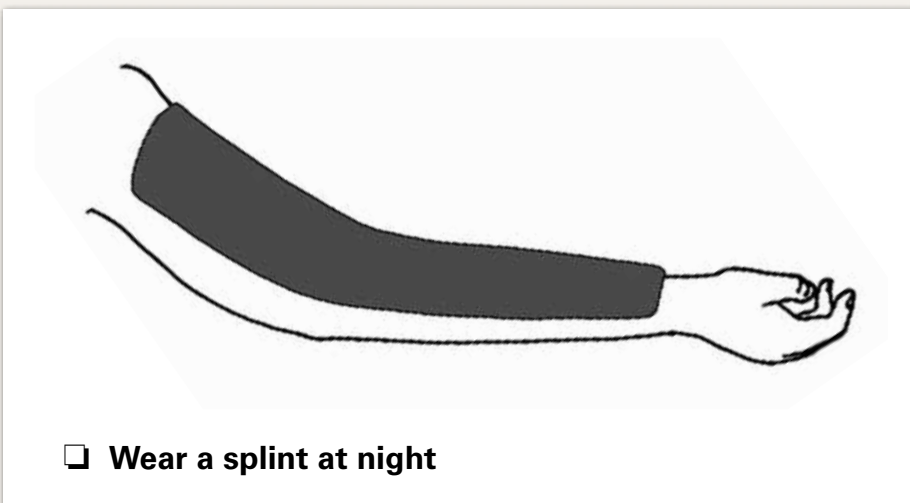
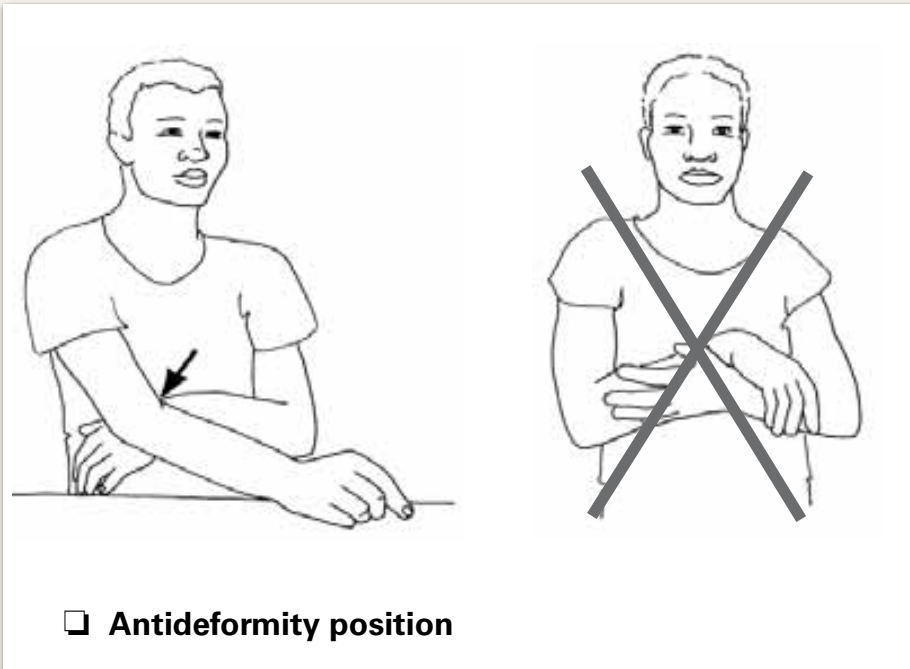


Turning the palm upwards

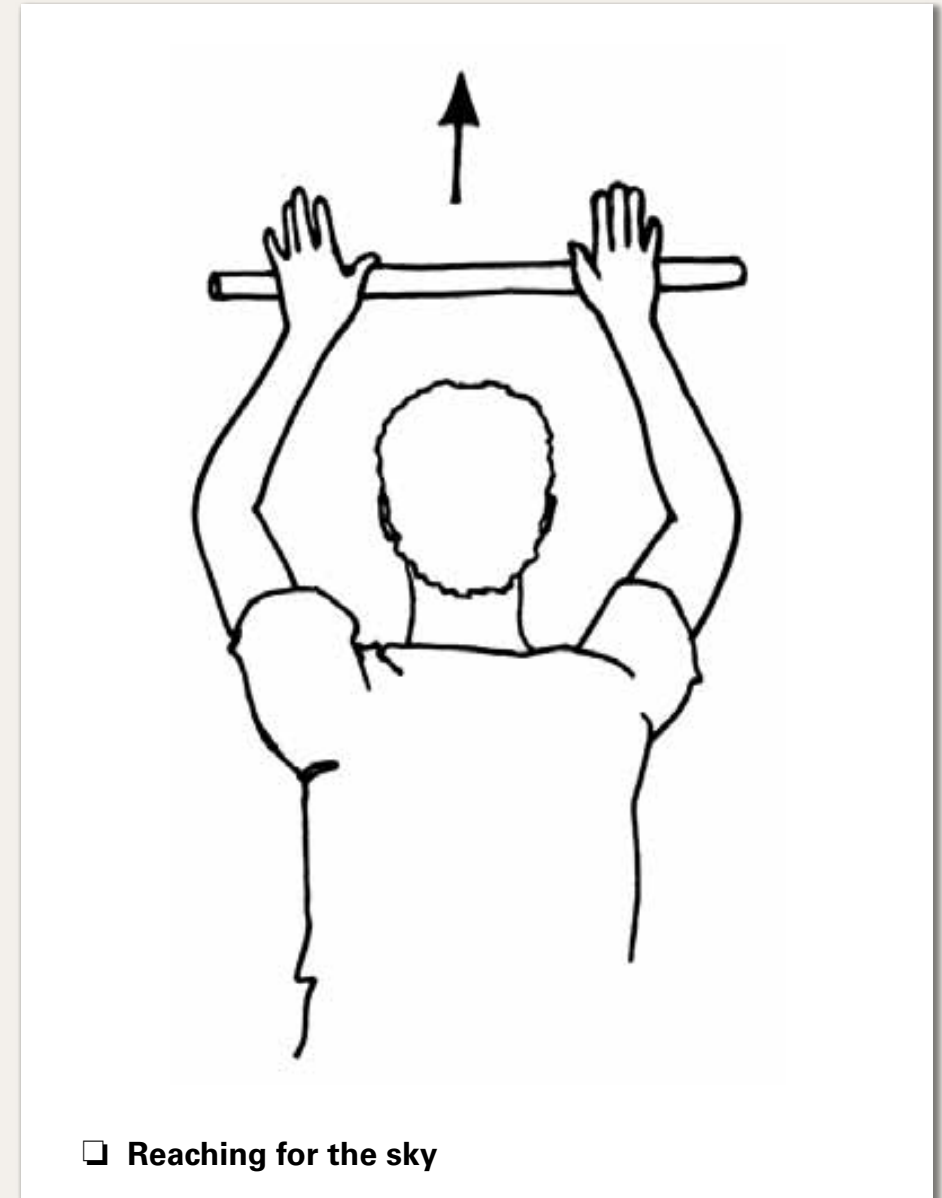
Turning the palm upwards



Stretching the elbow

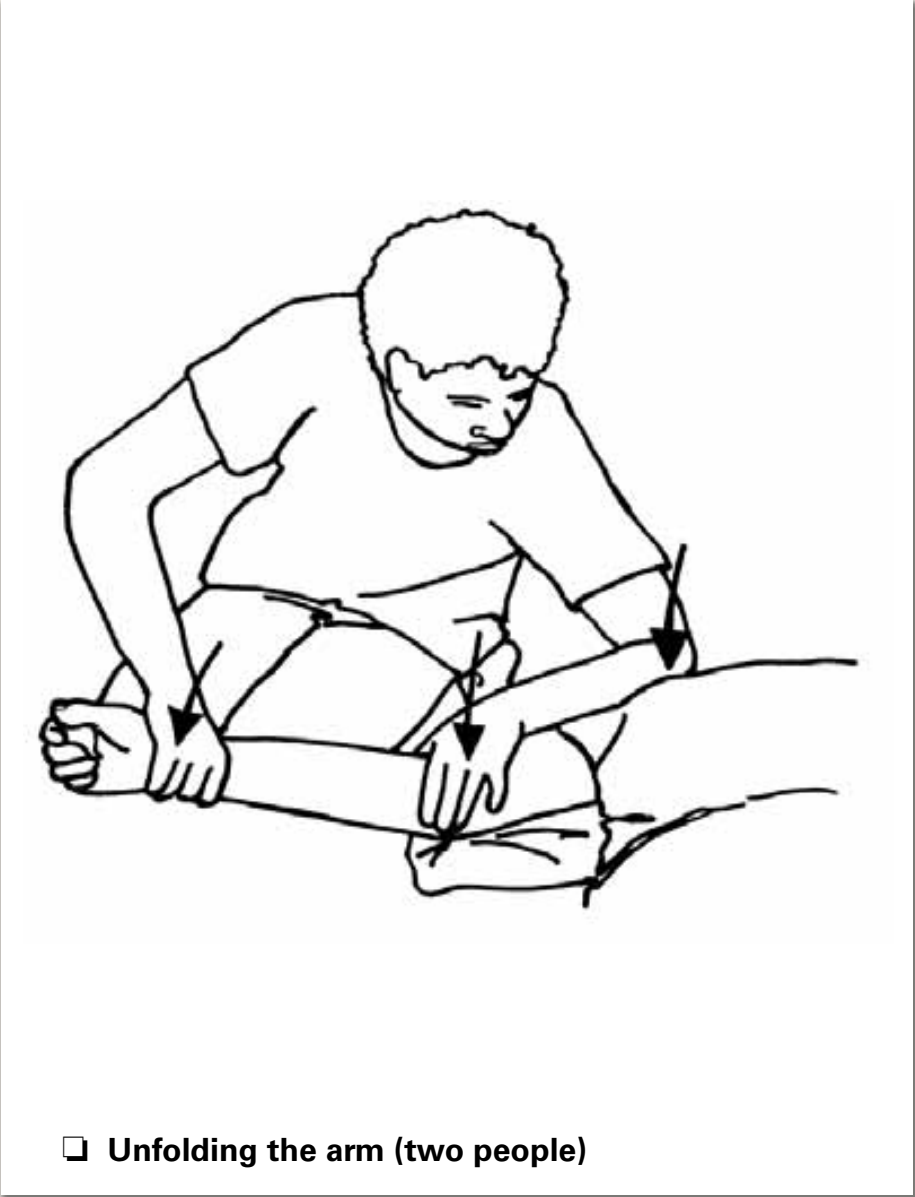


Stretching the elbow

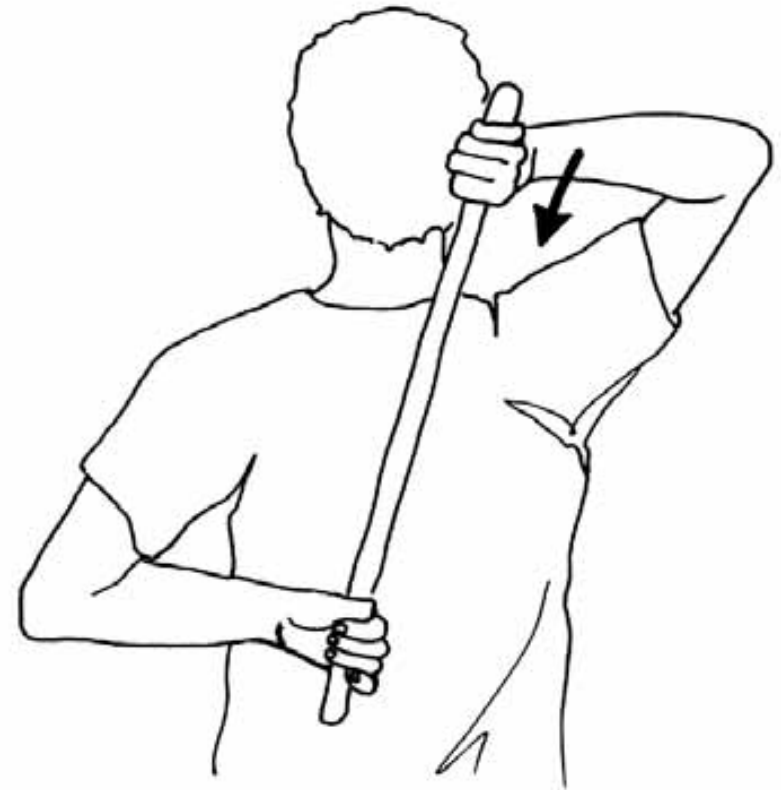


Stretching the elbow

Stretching the elbow



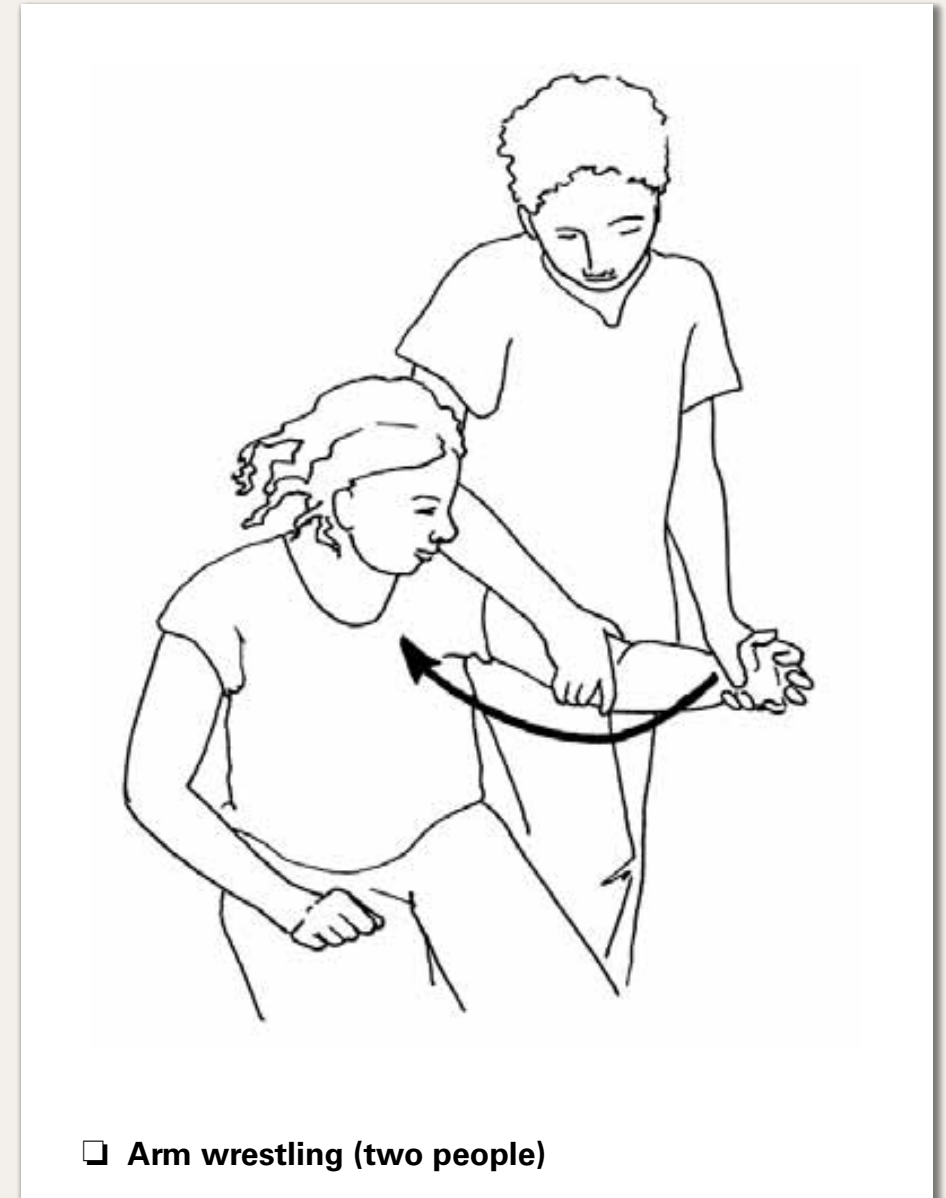
Flexing the elbow



□ The stick

Flexing the elbow

Flexing the elbow



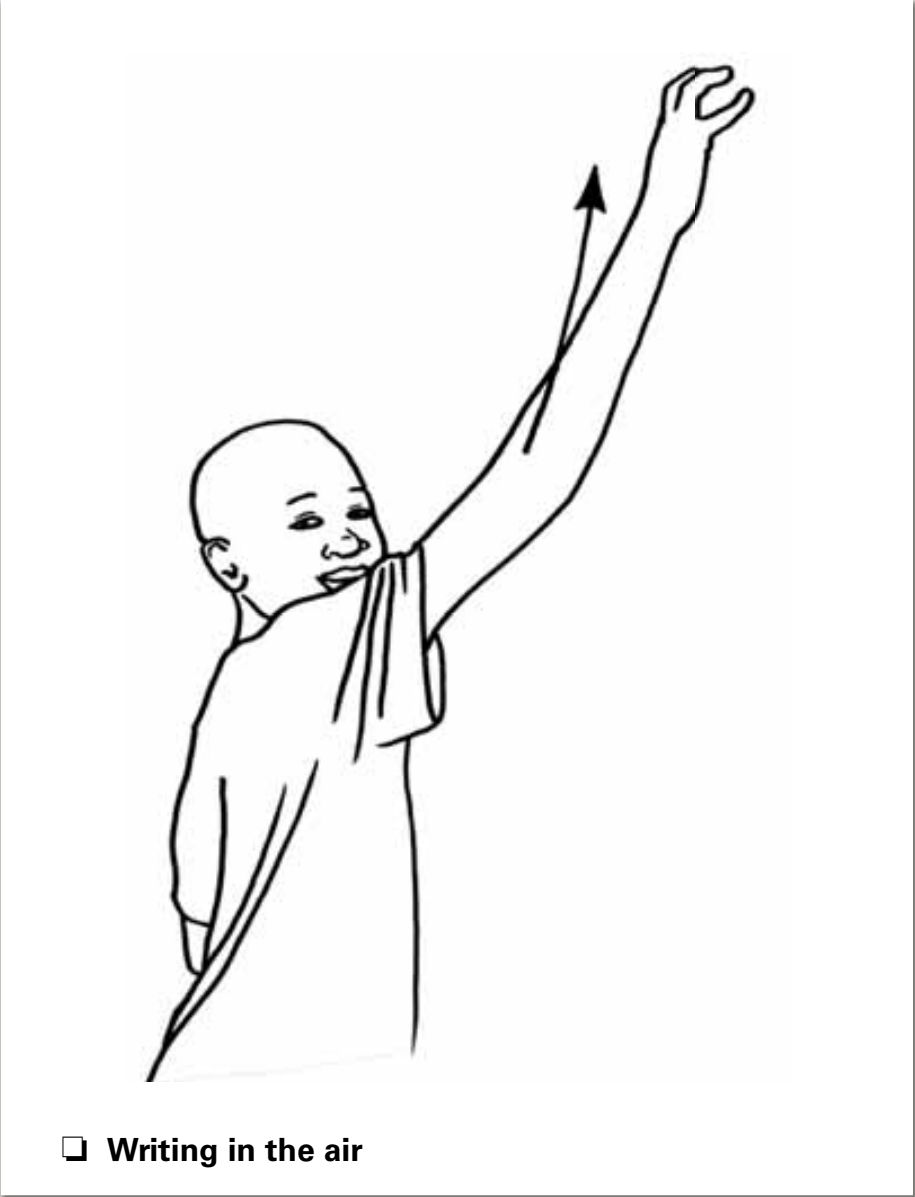


lifting the arm up • 4



lifting the arm up • 1

Lifting your arm up in the air

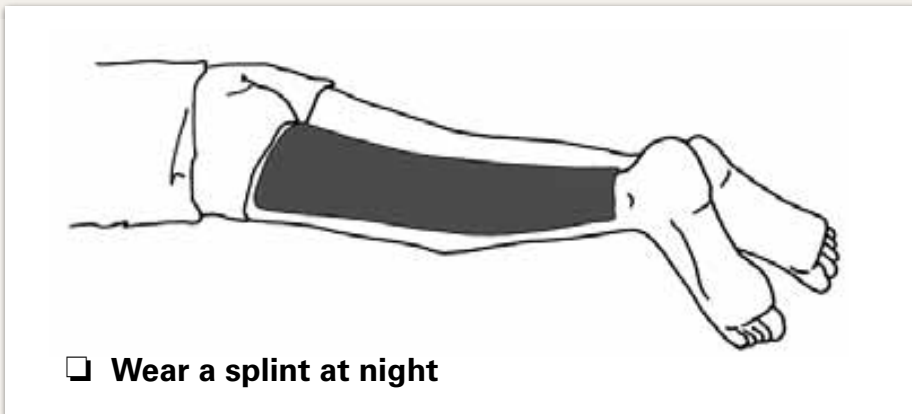
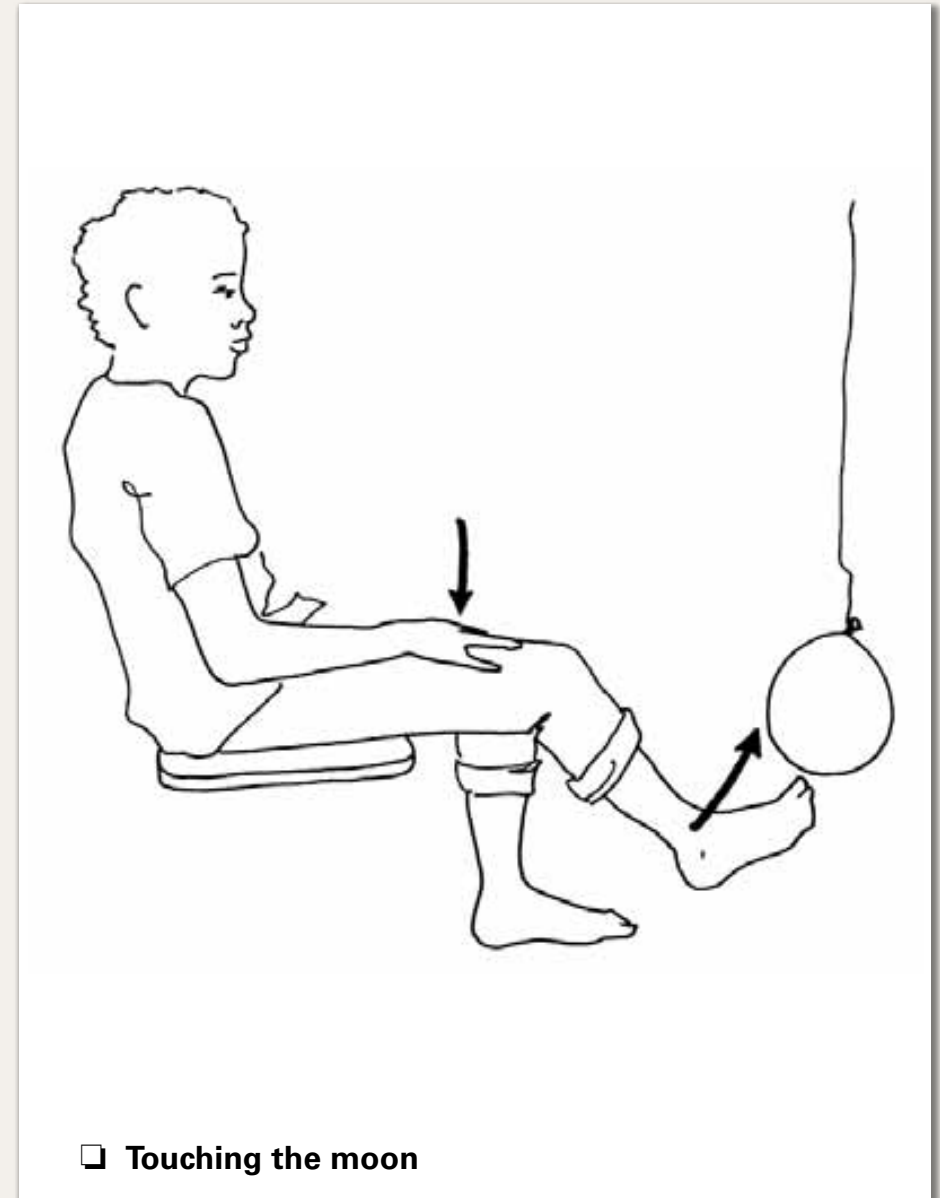
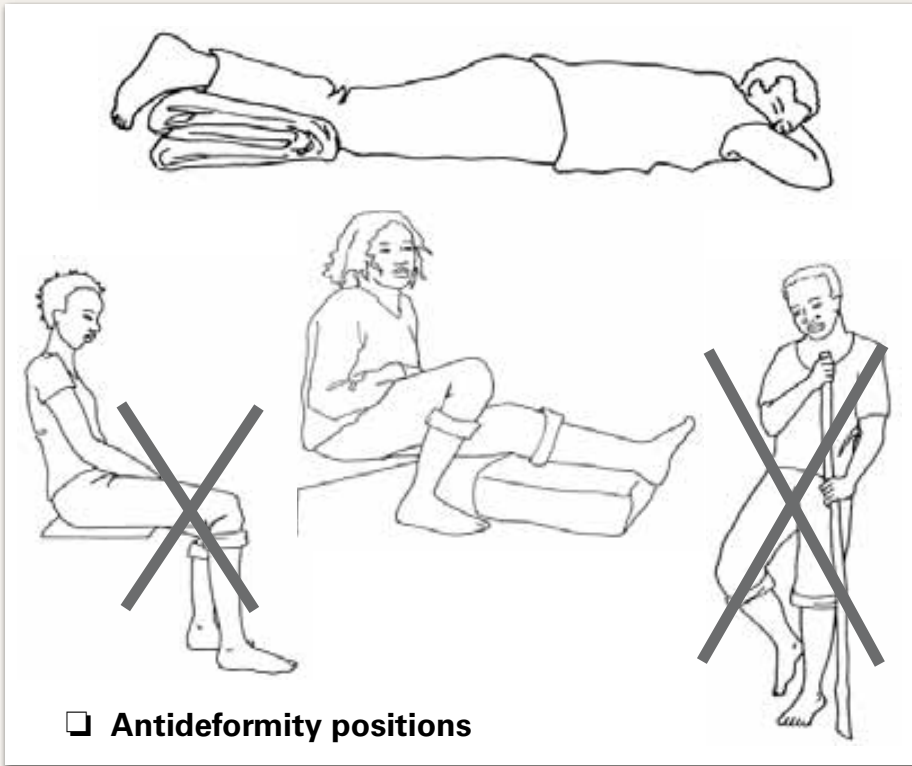


Lifting your arm up in the air



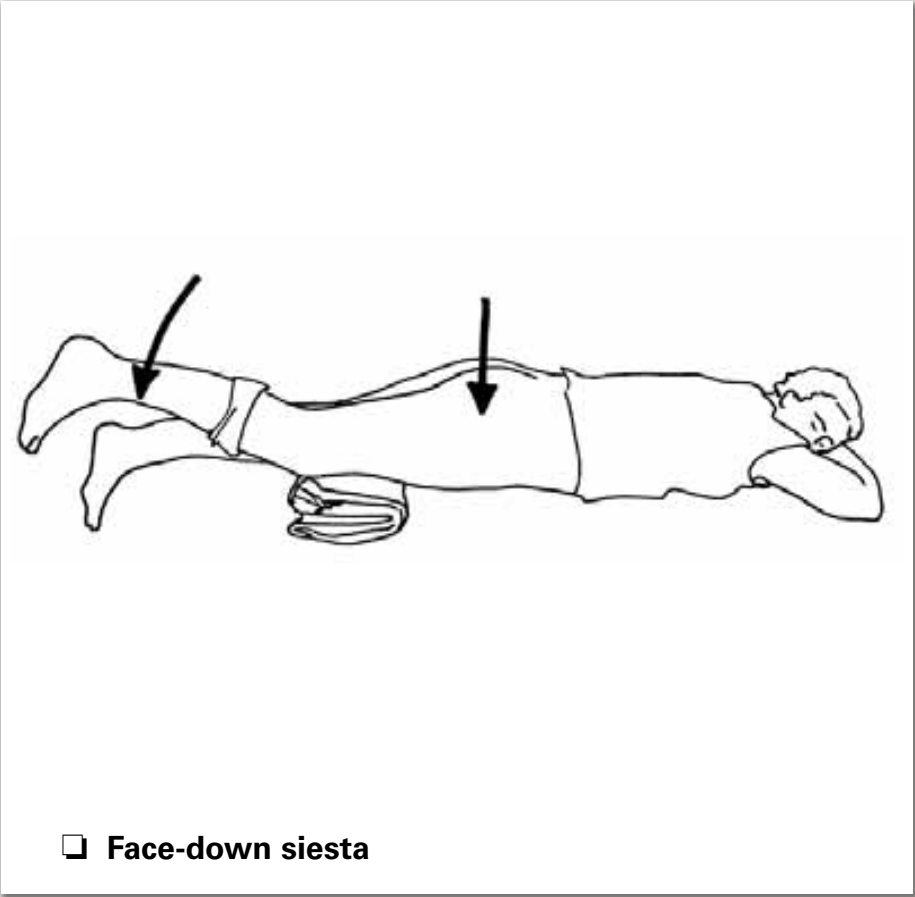
Stretching the knee

Stretching the knee



Stretching the knee

Stretching the knee



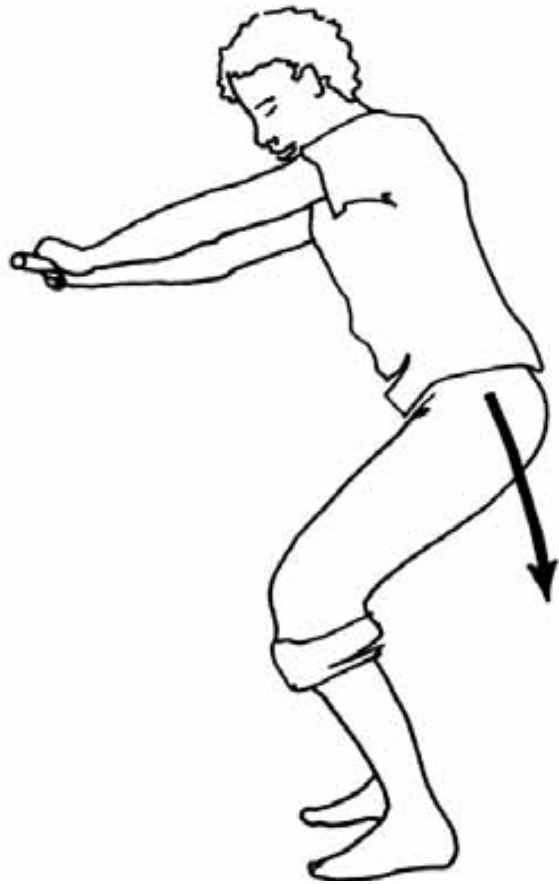
Flexing the knee

Flexing the knee



Flexing the knee

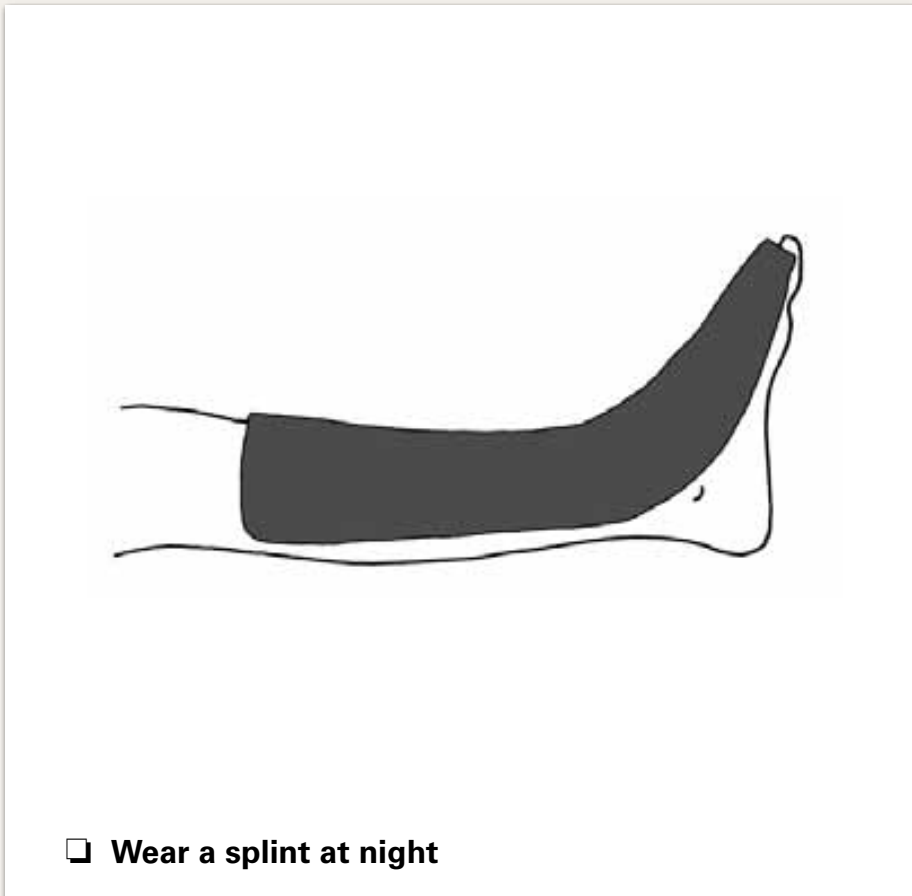
Flexing the knee



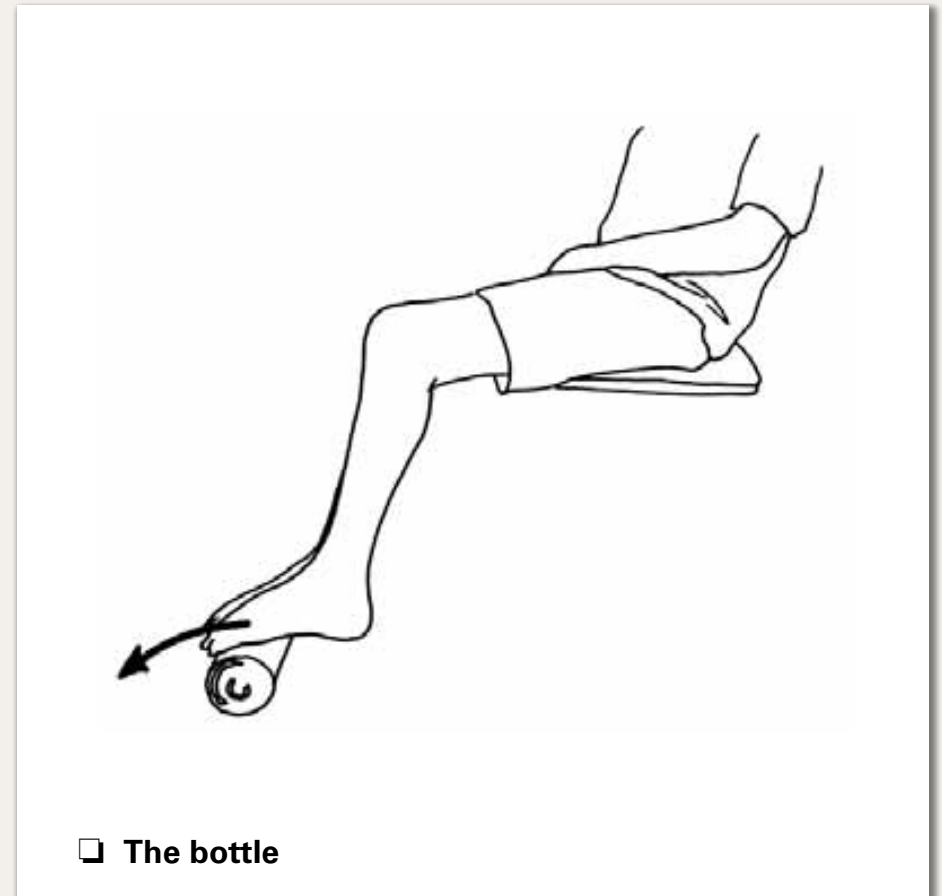
❑ The invisible chair



❑ Bending the knee (two people)



pointing the foot down • 4



pointing the foot down • 1

Pointing the foot down

Pointing the foot down

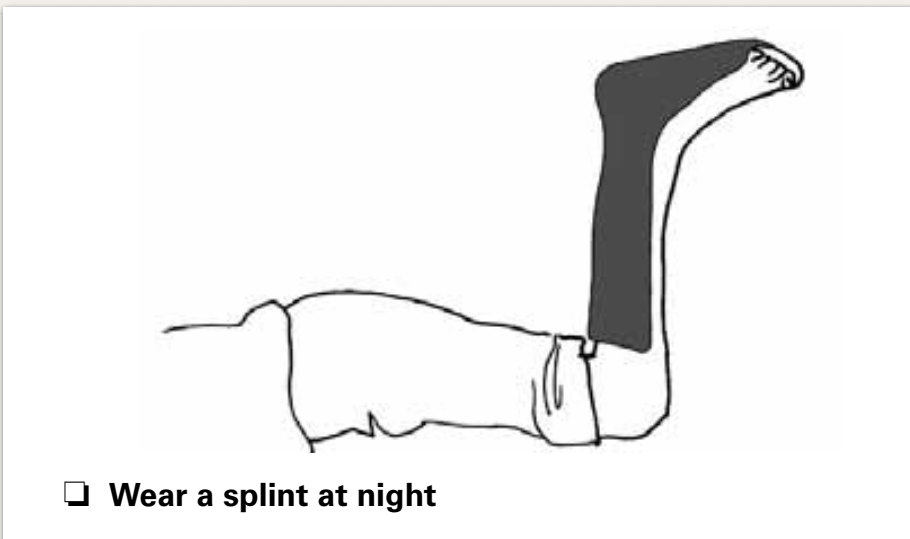
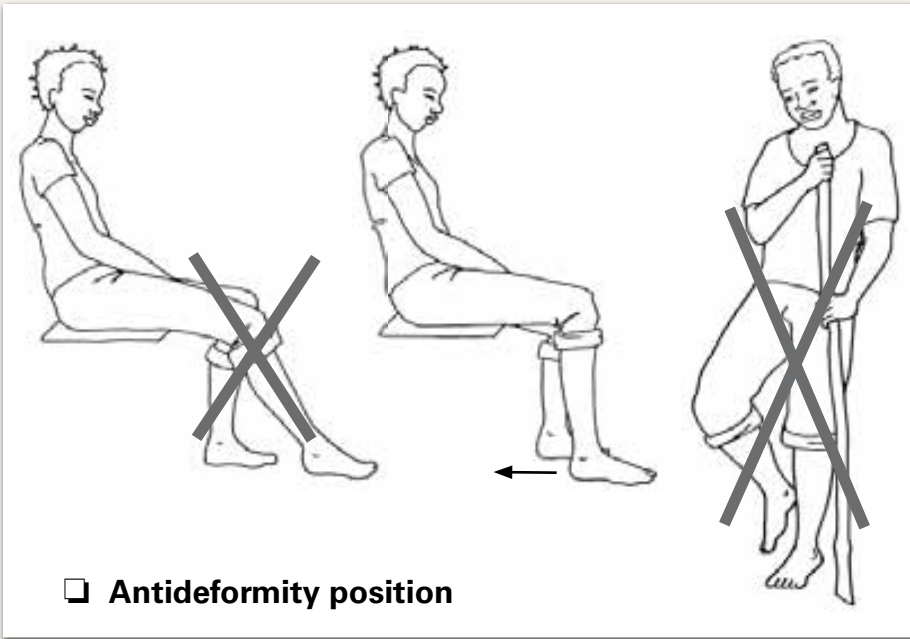


❑ The prayer

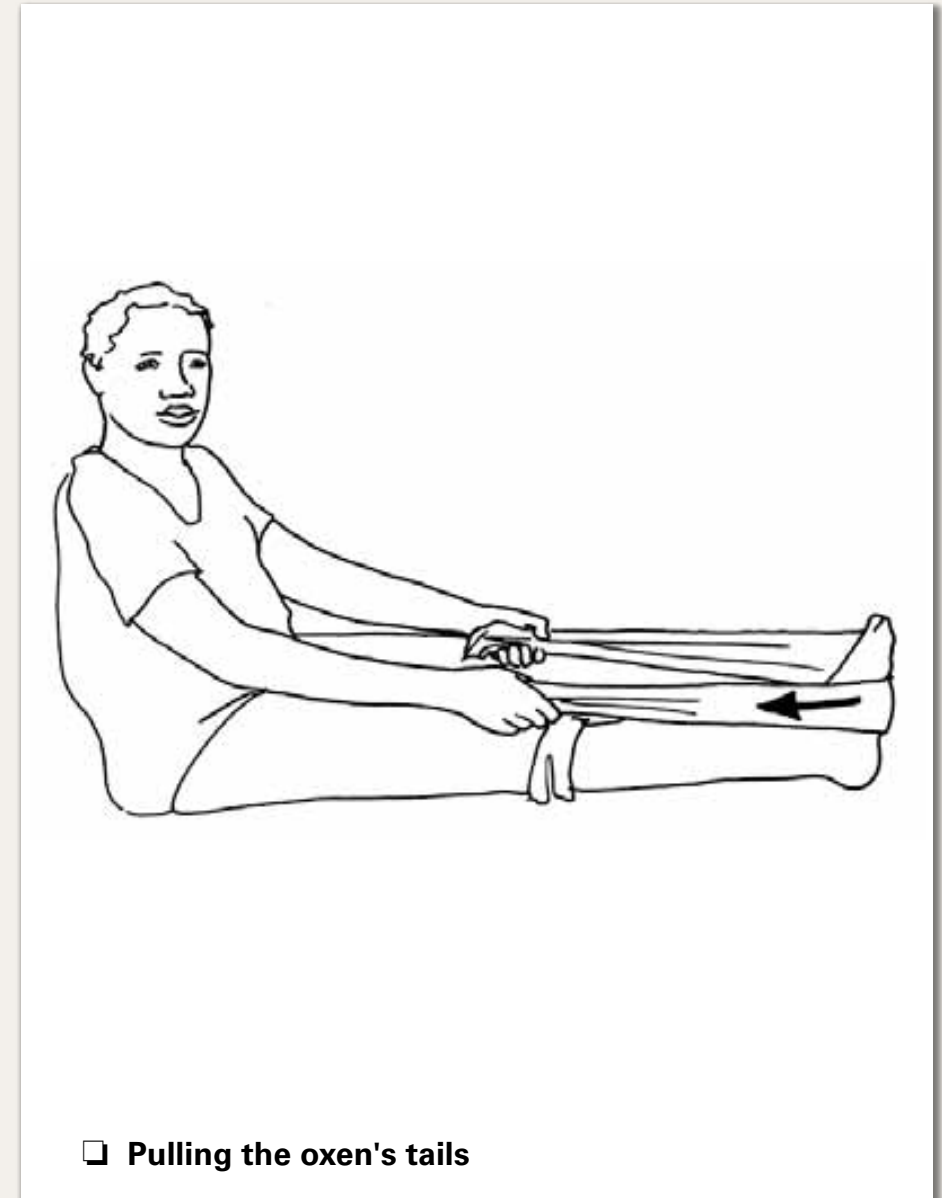


❑ Unfolding the ankle (two people)

Pointing the foot up

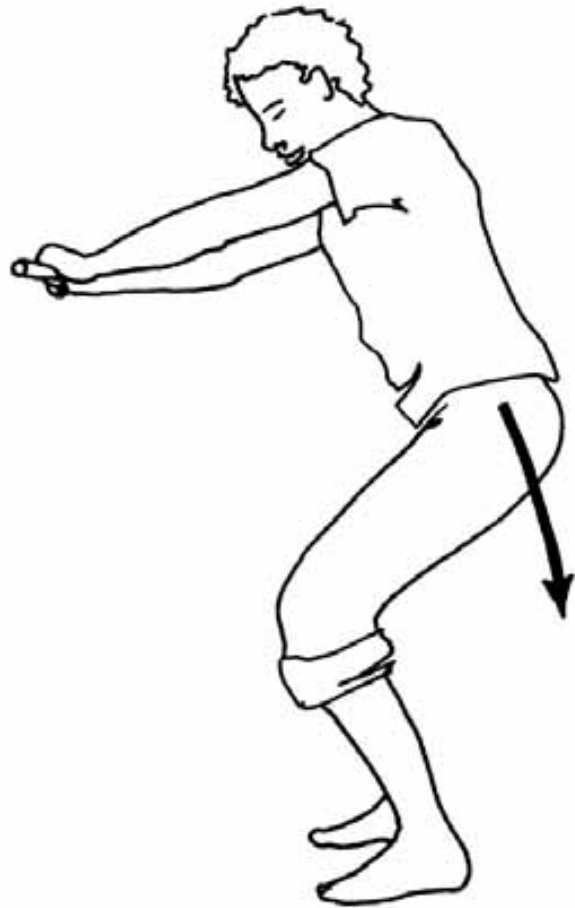


Pointing the foot up



Pointing the foot up

Pointing the foot up



❑ The invisible chair



❑ Folding the ankle (two people)

I organize the monitoring of the affected persons

Objectifs

- ◆ Organize the monitoring of the affected persons
- ◆ Enter essential information in the medical file
- ◆ Determine how often to monitor the person affected by BU
- ◆ Understand when to discontinue or modify monitoring
- ◆ Refer people if required



How should I organize the monitoring of the person?

- I ask the person to come back for a follow-up appointment, accompanied by the person who helps him/her in the village.
- If it is absolutely impossible for the person to travel to the health centre, I have to see if I can go to the village for a visit.
- If there are several people affected by BU in the vicinity of a health centre, I try to make various appointments for the same day. This will enable the person to contact other affected persons, share their experiences, observe the progress made by other people and thus be encouraged in their own efforts, while simultaneously lessening their feelings of isolation and marginalization. Monthly group sessions could be organized.



At a monitoring session, I talk to these persons and their families to learn their views on how the situation is developing and what kind of problem the encounter. People' experiences are a valuable source of information for my practice.

I review the points that need to be checked:

1. I evaluate progress by measuring, where applicable, mobility, oedema and wound size, asking the person to specify what activities are still difficult to perform, or what activities have been resumed since the last monitoring session. I date evaluations in order to compare them over time.
2. I check with them any issues that might explain slow or nonexistent progress and I discuss what could be done to improve the situation.
3. I teach the interventions that the persons and their families must still learn.
4. If necessary, I make or change splints or perform bandaging.
5. Depending on progress, I decide what kind of follow up is appropriate: continue, stop or contact a specialist.

Which essential information should I include in the person's medical file ?

All the following information should be dated!

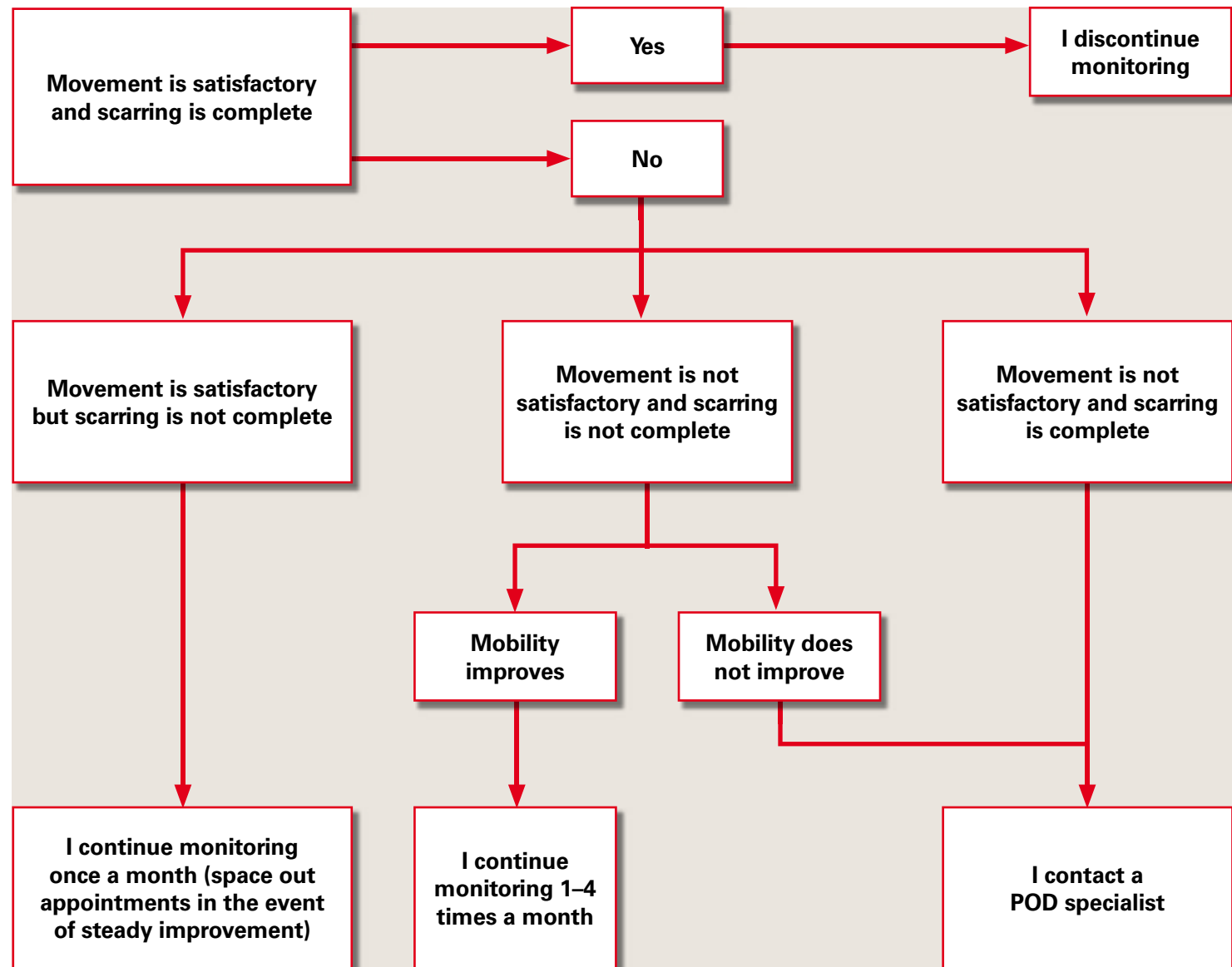
- Basic information about the person (see *Basic form*).
- The sheets detailing measurements relating to mobility and oedema, where applicable (see modules 4 and 6). These interventions should normally be scheduled on a monthly basis.
- Assessment of activity limitation, at least at the beginning and the end of monitoring.
- To numerically score improvements, I can use the form *Evaluation of change in functional mobility* in order to obtain measurable results comparable from one session to the other one.
- For other types of evaluation, I refer to the WHO manual on prevention of BU disability, "*Buruli ulcer: prevention of disabilities*".
- Points to bear in mind during monitoring sessions (see the sheet entitled "*Prevention of disability caused by BU, points to bear in mind during monitoring sessions*").
- Any additional information that might influence the course of the disease.
- The situation at the conclusion of monitoring (including details of referrals to another centre).

How can I determine the frequency of monitoring a person affected by BU?

- **Every other day** if rebandaging is necessary.
- **Once a week** if there is significant loss of mobility. People may be released from hospital provided they can be monitored at a health centre near their home.
- **Twice or three times a month** if the person has moderate loss of mobility but requires ongoing help and instruction to carry out essential interventions.
- **Once a month** if the person has moderate loss of mobility and the family is capable of carrying out essential interventions back in the village.
- **Once a month** if the person has no loss of mobility but a scar is still forming in the region of a joint.

In the case of monitoring after hospitalization, specialists at the referral centre will advise on appropriate frequency.

When should I discontinue or modify monitoring?



Movement is satisfactory when the person is once again able to do everything that he/she was doing before and not hindered in everyday movements.

In the case of a young person or child, satisfactory movement means that they will be able to perform any kind of activity in the future.

Buruli ulcer: prevention of disabilities Basic form

Data related to the affected person

Name: _____ Sexe : (M) (F)

Age: _____

Village: _____

Health area: _____

District : _____

Province: _____

Telephone contact number: _____

Presumed date of onset of condition: _____

Level of education: _____

Remarks on occupational, social or family circumstances: _____

- School/Student
- At home
- Working
- Inactive

- Married
- Divorced/separated
- Single
- Widow
- With children

Previous treatment

- health centre
- traditional medicine
- other
- none

Medical interventions

- Antibiotic treatment – start date: _____ end date: _____
- Dressings – date of fastening of the scar: _____
- Excision – date: _____
- Graft – date: _____
- Amputation – date, place: _____
- Reconstructive surgery – intervention, date and place: _____
- Other: _____



Interventions de rééducation et réadaptation

- Teaching the affected person and his/her family essential interventions in order to treat themselves
- Oedema control
- Scar management
- Exercises to gain mobility
- Making splints
- Fitted with prosthetic appliance – date and place: _____
- Provided with assistive device for long-term use – type and date obtained: _____

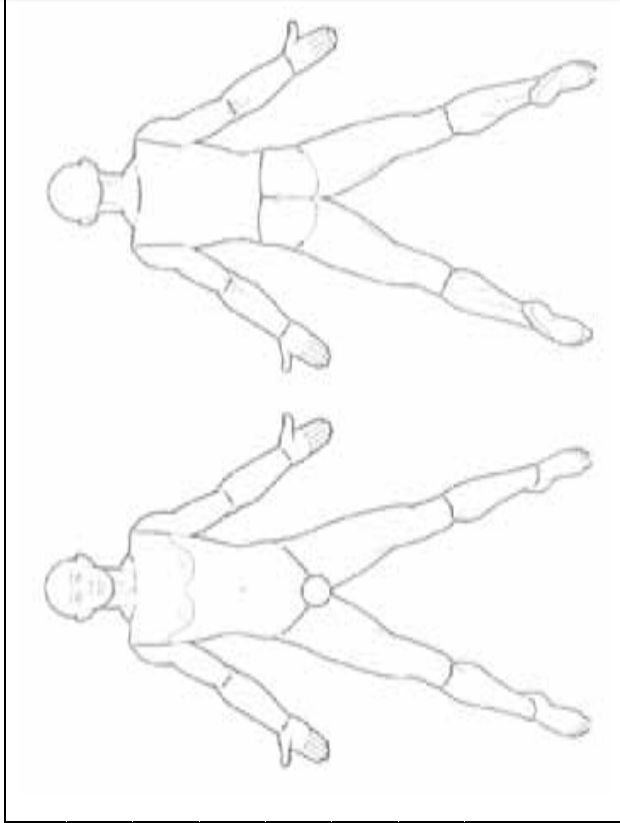
- Hospitalization – admission date: _____ discharge date: _____
- Outpatient treatment – start date: _____ end date: _____

Initial evaluation

Date: _____

Oedema	
Lesion	P
Nodule	N
Scar	O
Wound	xxx
Déficit de mobilité	
Amputation/deformity	—
Limitations of activities:	

Score of functional mobility:



Final evaluation

Date: _____

Score of functional mobility: _____

Name of contact person at referral centre: _____

Name of contact person at peripheral health centre: _____

Name of health officer: _____

Assessing activity limitations

Surname of the person that is assessed:

Score (only in blank cases)

Surname of the assessor:

2 : Yes, the person has difficulties performing that task

1 : No, the person has no difficulty performing that task

0 : The person does not usually perform that task

Tasks	Score			
	Date	Date	Date	Date
1. Does the person experience problems looking after himself/herself without any assistance?				
• Washing? Staying presentable?				
• Dressing?				
• Using the lavatory?				
2. Does the person have problems moving around unaided?				
• Walking short distances on a flat ground?				
• Walking long distances?				
• Walking on uneven grounds or on a slope?				
• Moving around with any kind of vehicle?				
• Running?				
3. Does the person have problems in his/her domestic life?				
• Going to the market?				
• Cooking?				
• Taking care of the children?				
• Cleaning?				
4. Does the person have problems in his/her social, school or professional life?				
• Participating in school activities?				
• Taking part in normal economic activities?				
• Taking part in leisure activities?				
• Participating in community activities?				
Total				

Buruli ulcer: prevention of disabilities

Points to bear in mind during monitoring sessions

Name of contact person:

Date of current monitoring session:

Affected person's name:




Date of next session:

Points to bear in mind	Yes	Required improvements, what needs to be done or points to be checked at following session
Changes		
Mobility has increased or remains good		
Oedema has subsided or disappeared		
Wound has decreased in size or disappeared		
The person is not limited in any activity or is able to perform previously impossible activities		
Points to check if there is no improvement		
The splint still fits		
The person wears their splint at night		
The person can correctly demonstrate their exercises		
The person can correctly demonstrate the antideformity positions		
The person can correctly demonstrate hydration and mobilization of the scar		
The person can evidently use his/her limb in day-to-day activities		
The person experiences pain when he/she perform some of the interventions proposed		
There is evidence of infection or osteomyelitis		
The person can rely on assistance to carry out the interventions		
The helper is able to carry out the interventions correctly		
Other points		
Interventions carried out at the current session (by the referent contact of the health centre)		
Type of exercise taught		
Type of antideformity position taught		
Application of a compression bandage taught		
Hydration or mobilization of the scar taught		
A splint has been realized		
A splint has been modified		
A dressing has been applied		
A discussion happened with the person and the family about problems encountered		
The person has been referred to a physician or a referral centre		

I assess the functional mobility of the lower limb

To assess functional mobility of the lower limb, I need a wooden cylinder of 4-cm in diameter and about 20-cm long is required.

I ask the person to adopt the three positions, A, B et C.




<p>A</p>  <p>"With your feet side by side and flat on the floor, stretch out your knees as far as possible."</p>	<p>B</p>  <p>"With your feet side by side, place your heels on the cylinder, try to keep your toes on the ground and your knees stretched out."</p>	<p>C</p>  <p>"With your feet side by side and flat on the floor, put your elbows on your knees and lower your buttocks as far as possible without lifting your heels off the ground."</p>
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Depending on the person's performance, assign a score from 3 to 1 for each position (see next page for scoring). Record the result on the form *Evaluation of change in functional mobility of the lower limb*.

The total is a numerical assessment of performance and an indicator of functionality.

Evaluation of change in functional mobility of the lower limb

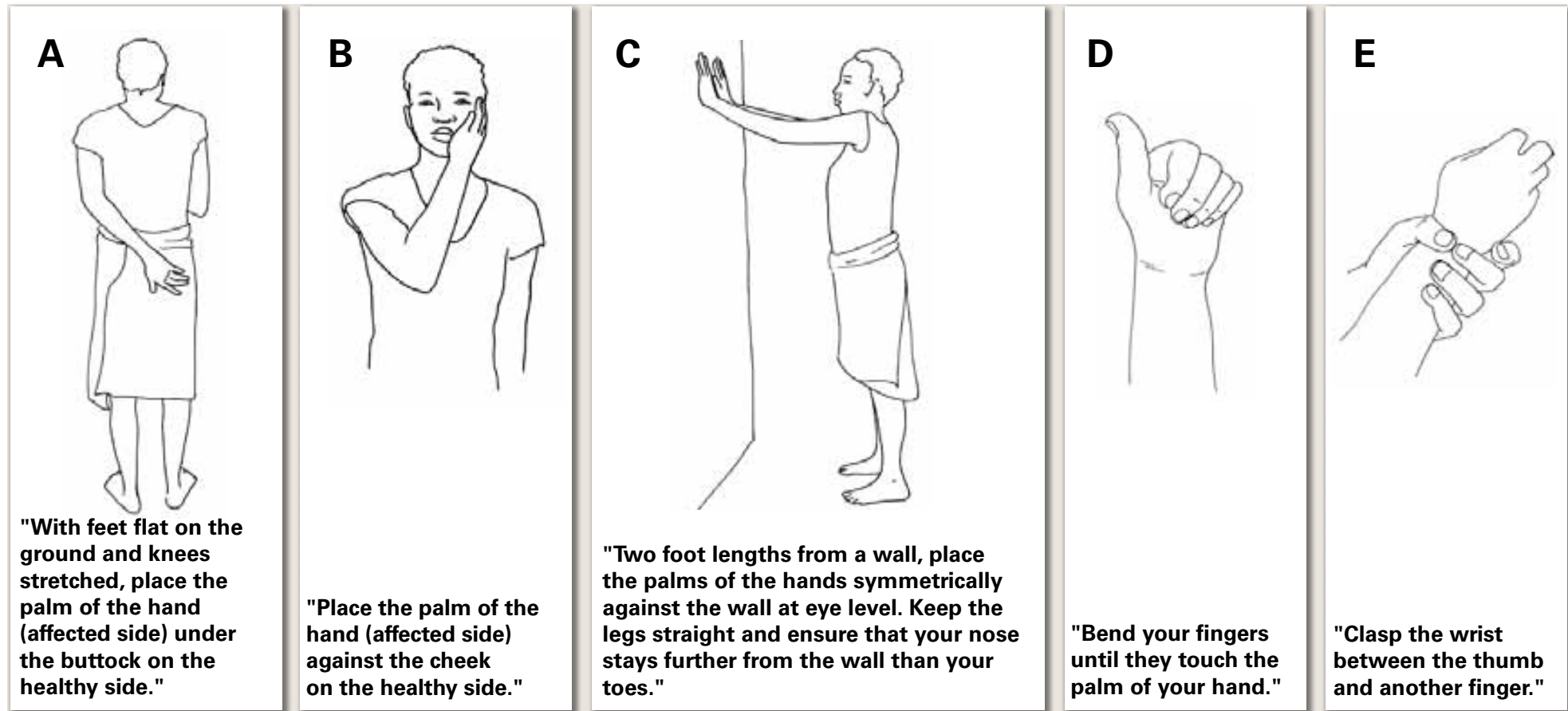
Surname, first name:

Position		Score		Date	Date	Date	Date
A		3	Is able to perform				
		2	Either one of the knees remains flexed or one foot must move forward				
		1	Impossible to keep feet flat on the floor				
B		3	Is able to perform				
		2	One of the knees remains flexed				
		1	Either the toes cannot touch the ground or both knees flex				
C		3	Head higher than buttocks				
		2	Head level with buttocks				
		1	Head lower than buttocks				
Total		9	Functional mobility				
		7 to 8	Mobility with slight impairment of function				
		5 to 6	Mobility with considerable impairment of function				
		3 to 4	Mobility with very severe impairment of function				

I assess the functional mobility of the upper limb

To assess the functional mobility of the upper limb, I need a wooden cylinder of 4-cm in diameter and about 20-cm long is required.

I ask the person to adopt the five positions, A, B, C, D and E.








Depending on the person's performance, assign a score from 3 to 1 for each position (see next page for scoring). Record the result on the form *Evaluation of change in functional mobility of the upper limb*.

The total is a numerical assessment of performance and an indicator of functionality.

Evaluation of change in functional mobility of the upper limb

Surname, first name:

Position		Score		Date	Date	Date	Date
A		3	Is able to perform				
		2	Is only able to place the hand under the buttock on the affected side				
		1	Is unable to perform without twisting or bending the knees				
B		3	Is able to perform				
		2	Is unable to place the hand on the cheek, but is able to touch it				
		1	Is unable to touch the cheek				
C		3	Is able to perform				
		2	The nose is closer to the wall than the toes				
		1	The elbows are less than 4 cm from the wall (the cylinder cannot slip between the elbow and the wall)				
D		3	Is able to perform				
		2	Is able to wrap all the fingers around a cylinder placed in the palm of the hand (the thumb does not hold the cylinder)				
		1	Is unable to wrap the fingers around a cylinder placed in the palm of the hand				
E		3	Is able to perform				
		2	The thumb is unable to touch the finger but the wrist is fully inserted into the first web (between thumb and forefinger)				
		1	The wrist is unable to be fully inserted into the first web (between thumb and forefinger)				
Total		15	Functional mobility				
		13 to 14	Mobility with slight impairment of function				
		9 to 12	Mobility with considerable impairment of function				
		5 to 8	Mobility with very severe impairment of function				

When should I refer?

I have to contact a POD specialist in the following cases

1. When the case is complex or unusual:

- Amputation, joint deformity or bone involvement;
- Location on difficult or unusual sites: face, armpits, neck, torso, fingers;
- Circular scars around a limb;
- Significant loss of mobility in several directions affecting the same joint;
- Visible complications to the wound or scar; particularly where cancer is suspected.

2. If there is no or insufficient improvement, i.e. if no improvement is apparent after three or four weeks.

3. When essential interventions cause pain.

4. When the sequelae (including disfigurement or psychological injury) hinder the person in their day-to-day activities or prevent them from satisfactorily taking part in community life.

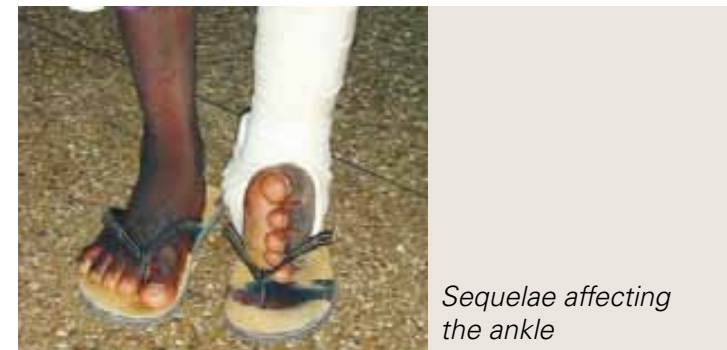
POD specialists are specially trained professionals, assigned either to a referral centre or to a national team, charged with providing support for the activities of the peripheral centres. In each region, the relationship between these specialists and the professional working in the field will be clearly defined during the training given in association with this guide.



Facial involvement



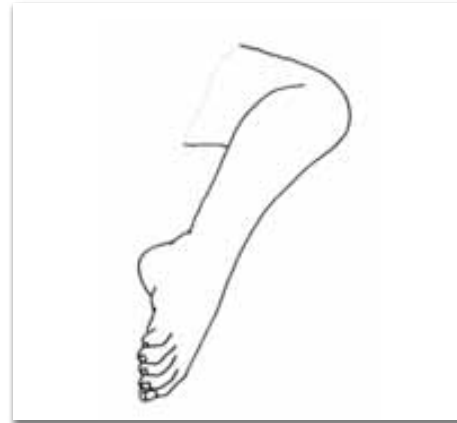
Amputation



Sequelae affecting the ankle

Knowledge of certain terms will help in describing various movements, positions and sites on the body

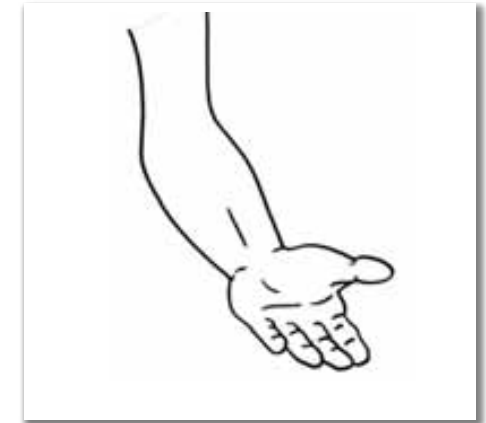
Plantar ankle flexion



Dorsal ankle flexion



Supination



Antideformity positions

When we no longer make certain movements, we lose the ability to make them because the skin, muscles and joint tissues become shorter; this is known as contracture. It then becomes necessary to stretch them again. The positions that counteract the shortening are known as "antideformity positions".

Extension of the wrist



Metacarpo-phalangeal joint (MP)

First web:
space between the thumb and the index finger

Opposition of the thumb:
the ability of the thumb to position itself opposite the other fingers (thus making it possible to grasp a nail).

