APPLICATION OF DRESSING AND BANDAGE

INTRODUCTION

The terms ‘dressing’ and ‘bandage’ are often used synonymously. In fact, the term ‘dressing’ refers more correctly to the primary layer in contact with the wound. A bandage is a piece of material used either to covering wounds, to keep dressings in place, to applying pressure controlling bleeding, to support a medical device such as a splint, or on its own to provide support to the body. It can also be used to restrict a part of the body.

Dressing

Dressings are used to cover wounds, prevent contamination and control bleeding. In providing first aid we commonly used self-adhesive dressings or gauze dressings:

- **Adhesive dressings** are used mainly for small wounds. They come in many different sizes, including specific types for placement on fingertips.
- **Gauze dressings** are thick, cotton pads used to cover larger wounds. They are held in place with tape or by wrapping with a gauze strip (bandage).

Dressings must be sterile and absorbent to deter the growth of bacteria, and should be left in place until the wound heals, unless it needs to be regularly cleaned.

Figure 1. Adhesive and gauze dressing

Bandage

The three major types of bandages are: roller bandages, tubular bandages and triangular bandages. They are necessary for

- covering wounds,
- applying pressure controlling bleeding, or
- Supporting a strain or sprain.

There is a specific bandage made for each of these tasks.

Roller bandages are long strips of material. Basically there are two types of roller bandages :

- An **elastic roller bandage** is used to apply support to a strain or sprain and is wrapped around the joint or limb many times. It should be applied firmly, but not tightly enough to reduce circulation.
- **Cotton or linen roller bandages** are used to cover gauze dressings. They come in many different widths and are held in place with tape, clips or pins.

They can also be used for wound compression if necessary, as they are typically sterile.

Figure 2. Roller bandage

Tubular bandages are used on fingers and toes because those areas are difficult to bandage with gauze. They can also be used to keep dressings in place on parts of the body with lots of movement, such as the elbow or knee.

Figure 3. Tubular bandages

Triangular bandages are made of cotton or disposable paper. They have a variety of uses:

- When opened up, they make slings to support, elevate or immobilize upper limbs. This may be necessary with a broken bone or a strain, or to protect a limb after an operation.
- Folded narrowly, a triangular bandage becomes a cold compress that can help reduce swelling.

They are used also for applying pressure to a wound to control bleeding.

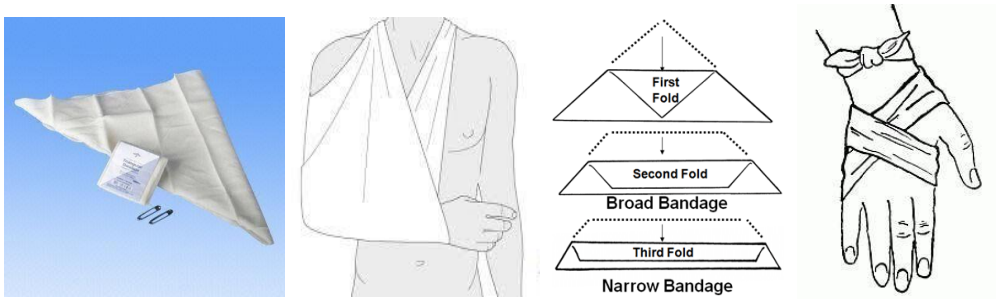


Figure 4. Triangular bandages

BASIC BANDAGING FORMS

Each bandaging technique consists of various basic forms of bandaging. The following five basic forms of bandaging can be used to apply most types of bandages:

1. circular bandaging
2. spiral bandaging
3. figure-of-eight bandaging
4. recurrent bandaging
5. reverse spiral bandage

Circular bandaging is used to hold dressings on body parts such as arms, legs, chest or abdomen or for starting others bandaging techiques.

For circular bandage we used strips of cloth or gauze roller bandage or triangular bandage folded down to form strip of bandage (cravat).

In the circular bandaging technique the layers of bandage are applied over the top of each other:

- With the roll on the inner aspect, unroll the bandage either toward you or laterally, holding the loose end until it is secured by the first circle of the bandage.
- Two or three turns may be needed to cover an area adequately. Hold the bandage in place with tape or a clip.

Almost all bandaging techniques start and end with a few circular bandaging turns.

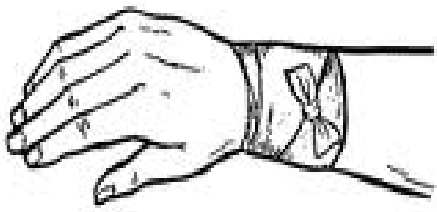


Figure 5. Circular bandage

Spiral bandaging

Spiral bandages are usually used for cylindrical parts of the body. An elasticated bandage can also be used to apply spiral bandaging to a tapered body part. Despite the increasing diameter of the body part, the elasticity will allow the bandage to fit closely to the skin.

With each spiral turn, part of the preceding turn is covered generally by 1/3 of the width of the bandage.

Figure 6. Spiral bandage

Figure-of-eight bandage involves two turns, with the strips of bandage crossing each other at the side where the joint flexes or extends. It is usually used to bind a flexing joint or body part below and above the joint.

The figure-of-eight bandage can be applied using a roller bandage in two ways:

- Following a circular turn around the middle of the joint, the bandage should fan out upwards and downwards. The turns should cross at the side where the limb flexes.
- The figure-of-eight turns can also be applied from a starting point located below or above the joint crease, working towards the joint itself. The cross-over points will be located at either the flexing or extending side of the joint; the side where the turns do not cross remains uncovered.

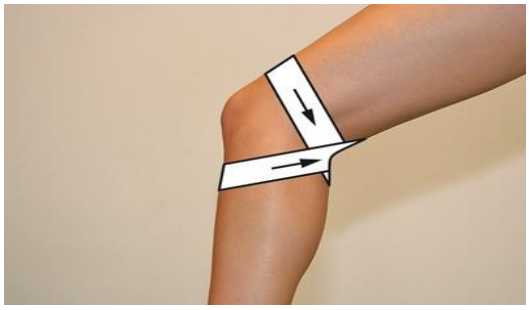


Figure 7. Figure-of-eight bandage

Recurrent bandaging is used for blunt body parts consists partly of recurrent turns.

The bandage is applied repeatedly from one side across the top to the other side of the blunt body part. To be able to fix the recurrent turns well, not only the wound, but the entire length of the blunt body part should be covered.

Depending on the width of the bandage and the body part, successive turns either cover the preceding turn fully or partially.

Recurrent bandages are fixed using circular or spiral turns.

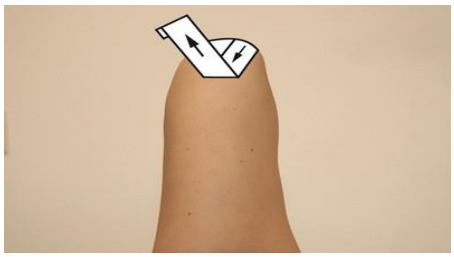


Figure 8. Recurrent bandage

Reverse spiral bandage is a spiral bandage where the bandage is folded back on itself by 180° after each turn.

This V-shaped fold allows the bandage to fit to the tapered shape of the body part all the way along.

This type of bandaging is required when using non-elasticated bandages. The development of elasticated fixing bandages, which are applied to tapered body parts using the spiral technique, means that the reverse spiral technique is far less commonly used nowadays.

Figure 9. Reverse spiral bandage

APPLICATION ROLLER BANDAGES

1. **Select the appropriate bandage material for the injury**.

   - Use gauze or a flex roller for bleeding injuries of the forearm, upper arm, thigh, and lower leg.
   - Use a flexible roller bandage for bleeding injuries of the hand, wrist, elbow,

shoulder, knee, ankle, and foot.

- Use an elastic roller bandage for amputations, arterial bleeding and sprains.
- It is best to use a bandage with some degree of stretch in the weave. This will make the bandage easy to use and more likely to stay in place for many hours.

However, the correct application technique is essential to provide comfort and adequate support for the affected part.

2. Select the appropriate width of bandage

The width of the bandage to use is determined by the size of the part to be covered. As a general guide, the following widths are recommended:

- **Hand and fingers** – 50 mm
- **Lower arm, elbow, hand and foot** – 75 mm.
- **Upper arm, knee and lower leg** – 100 mm.
- **Large leg or trunk** – 150 mm.

3. Prepare the patient for bandaging.

- Position the body part to be bandaged in a normal resting position (position of function).
- Ensure that the body part that is to be bandaged is clean and dry.

4. Apply the anchor wrap.

- Lay the bandage end at an angle across the area to be bandaged. (See Figure A.)
- Bring the bandage under the area, back to the starting point, and make a second turn.
  (See Figure B.)
- Fold the uncovered triangle of the bandage end back over the second turn. (See Figure C.)
- Cover the triangle with a third turn, completing the anchor. (See Figure D.)

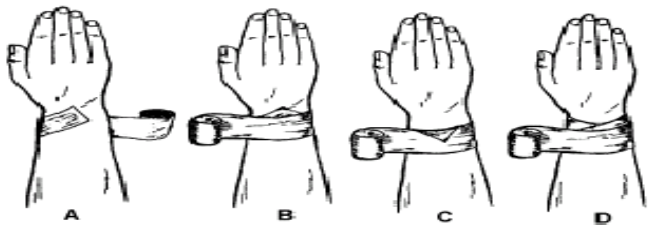


Figure 11. The anchor wrap

5. **Apply the bandage wrap to the injury** (Figure 12)

- Use a circular wrap to end other bandage patterns, such as a pressure bandage, or to cover small dressings (A).
- Use a spiral wrap for a large cylindrical area such as a forearm, upper arm, calf, or thigh. The spiral wrap is used to cover an area larger than a circular wrap can cover (B).
- Use a spiral reverse wrap to cover small to large conical areas, for example, from ankle to knee (C).
- Use a figure eight wrap to support or limit joint movement at the hand, elbow, knee, ankle, or foot (D).
- Use a spica wrap (same as the figure eight wrap) to cover a much larger area such as the hip or shoulder.
- Use a recurrent wrap for anchoring a dressing on fingers, the head, or on a stump (E).

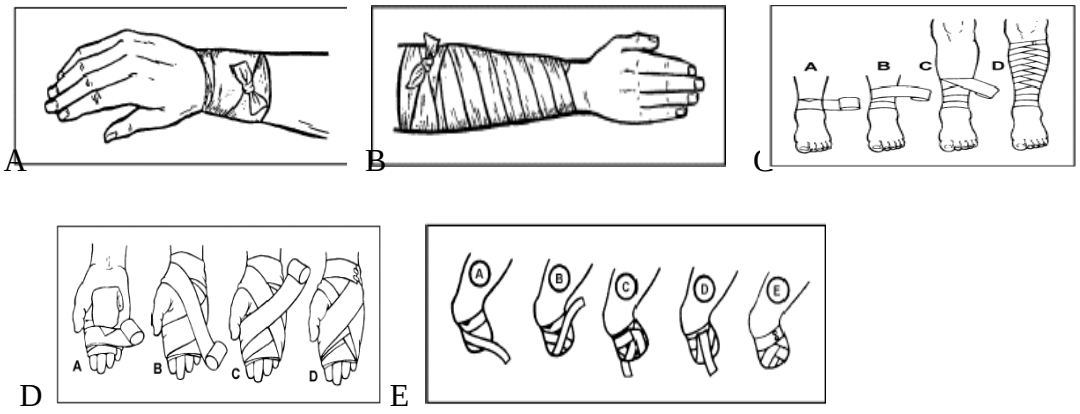


Figure 12.

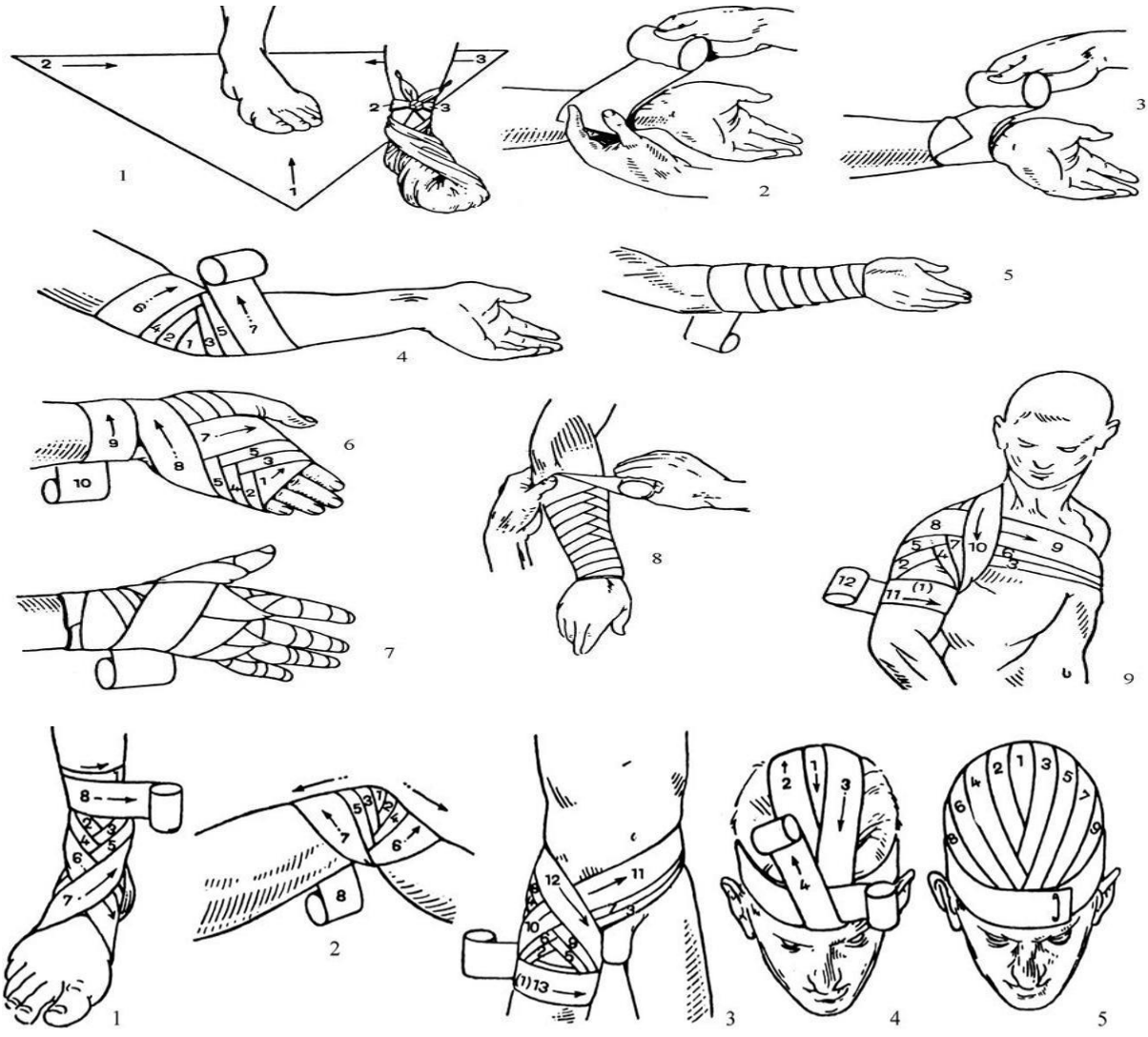
6. **Check the circulation after application of the bandage**.

   - Check the pulse distal to the injury.
   - Blanch the fingernail or toenail, if applicable.
   - Inspect the skin below the bandaging for discoloration.
   - Ask the patient if any numbness, coldness, or tingling sensations are felt in the bandaged part.
   - Remove and reapply the bandage, if necessary.

7. **Elevate the injured extremities**

   - to reduce swelling (edema) and
   - control bleeding, if appropriate.

HOW TO APPLY BANDAGES TO SPECIFIC PARTS OF THE BODY



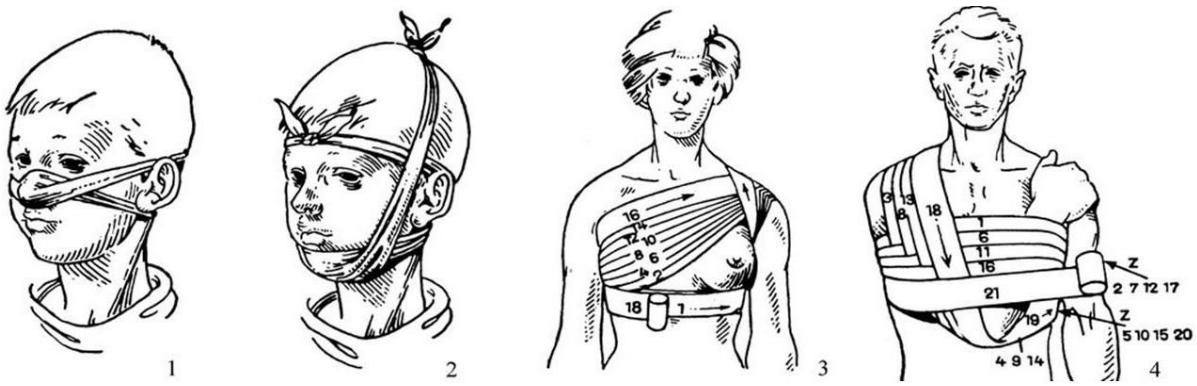


Figure 13. Examples of bandages

*** Donut Bandage**

The Donut Bandage is used to put pressure around an impaled object without putting pressure on the object itself.

Figure 14. Donut bandage

APPLICATION OF SLING

1. (Arm Sling Number One) to an Arm

This arm sling is used when the shoulder of the injured arm is not injured.

- Insert the triangular bandage between the injured arm and the casualty's chest so the arm is in the center, the apex of the sling is beyond the elbow, and the top corner of the material is over the shoulder of the injured side (see figure 5-8 B).

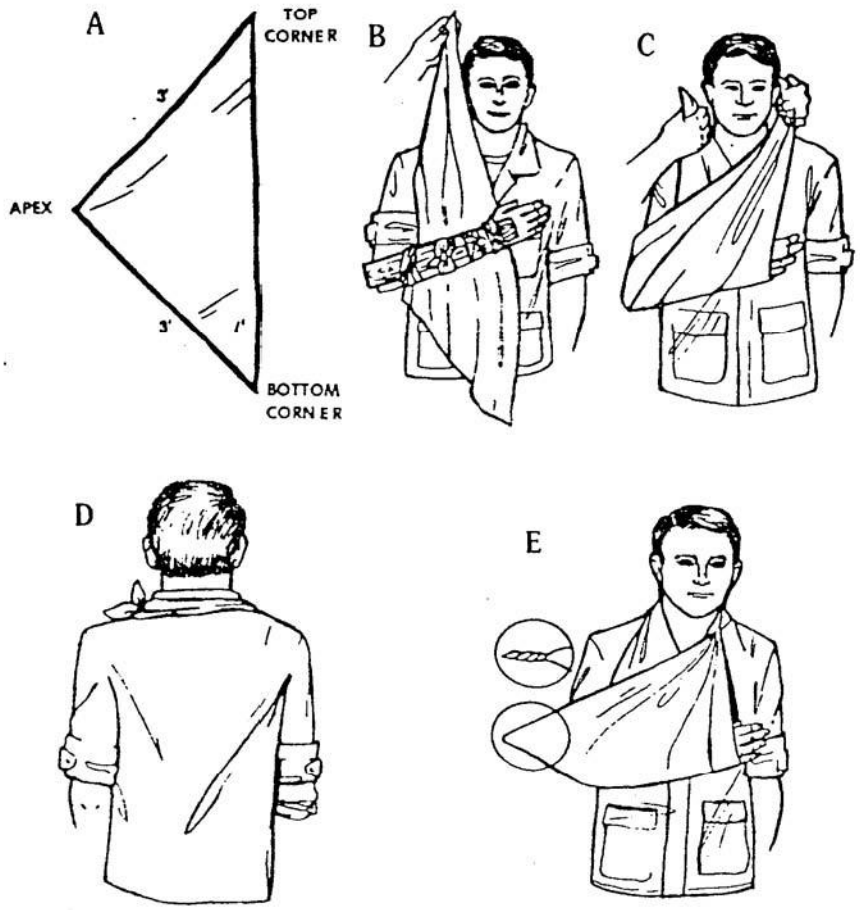


Figure **5-8. Applying a triangular bandage sling (arm sling number one).**

- Position the forearm so the hand is slightly higher than the elbow (about a 10 degree angle).
- Fold the material along the base (the long side opposite the apex) back to the casualty's fingers, forming a cuff.
- Bring the lower portion of the material over the injured arm so the bottom corner goes over the shoulder of the uninjured side (see figure 5-8 C). The elbow should be inside the sling.
- Bring the top corner behind the casualty's neck.
- Tie the two corners together in a non-slip knot at the "hollow" at the neck on the uninjured side (see figure 5-8 D). If the casualty's right arm is fractured, for example, tie the knot so it will rest in the hollow on the left side of his neck.
- Secure the apex of the sling to keep the elbow and forearm from slipping out of the sling
- Safety pin method. Fold the apex forward over the elbow and sling. Pin the apex to the sling.

2. (Arm Sling Number Two) to an Arm.

This arm sling is used when the shoulder of the injured arm is also injured (dislocated or fractured). Note that the sling goes under, not over, the injured shoulder.

- Insert the triangular bandage between the injured arm and the casualty's chest so the arm is in the center, the apex of the sling is beyond the elbow, and the top corner of the material is over the shoulder of the uninjured side (see figure 5-9 A).
- Position the forearm so the hand is slightly higher than the elbow (about a 10-degree angle).
- Fold the material along the base (the long side opposite the apex) back to the casualty's fingers, forming a cuff.
- Bring the lower portion of the material over the injured forearm and under the armpit of the injured arm (see figure 5-9 B). The elbow should be inside the sling.
- Bring the top corner behind the casualty's neck.
- Tie the two corners together in a non-slip knot on the casualty's back between his shoulder blades (see figure 5-9 C).

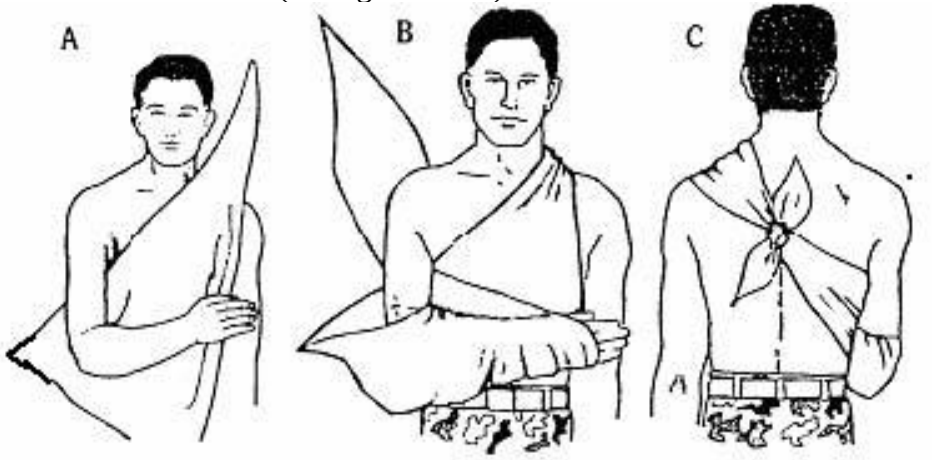


Figure 5-9. **Applying a triangular bandage sling (arm sling number two).**

- Twist the apex of the sling and tuck it in at the elbow. The corner can also be secured using a safety pin or similar device.

3. **Apply a Jacket Flap Sling to an Arm.** The flap of a BDU jacket (coat) or a field jacket (coat) can be used as a sling if the time or the materials to make a triangular bandage sling are not available (see figure 5-10).

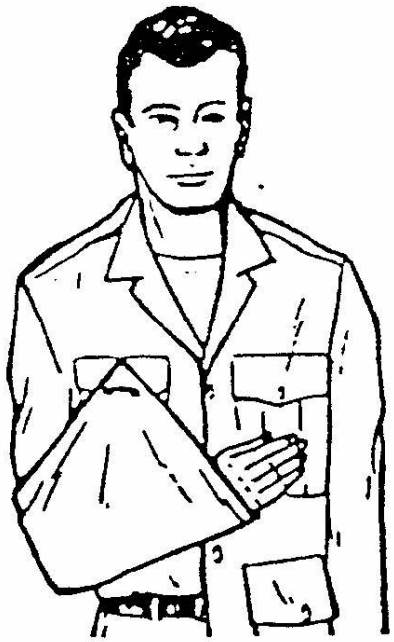


Figure 5-10. **Jacket flap sling.**

- Position the forearm on the casualty's chest with the hand positioned slightly higher than the elbow.
- Undo the jacket so the lower portion (flap) can be brought over the forearm to form a sling.
- Bring the flap up over the forearm to the pocket area. Position the elbow so that it is inside the sling and will not slip out of the sling.
- Push a stick or other rigid object through the flap and the upper portion of the jacket so the flap will not slip.

APPLICATION OF SPLINT

What is splint?

A splint is a supportive device used to keep in place any suspected fracture in one's arm or leg.

Splint is used to:

- Provide pain relief of the fractured limb.
- Support bone ends of the fracture site. Bones ends of the fracture site are very sharp. A splint helps prevent bone protruding through the skin, soft skin and tissue damage, as well as bleeding.
- Facilitate safe and seamless causality transport.

What is Splint?

In emergency cases, anything can be used for splinting, yet there are two types of splints:

1. Flexible
2. Rigid

Rigid Splint: Any rigid object, such as wood or plastic boards, broomstick, book or a rolled-out newspapers, which can be used to splint a fractured arm or leg.
Flexible Splint: Any flexible object, like a pillow or a bed sheet with several folds. This type is used for foot, ankle and joint fractures.

What are Medical Sling and Bandage?

A Medical Sling is a piece of cloth used to immobilize the fractured arm to the rigid splint, in 90° of elbow flexion. The sling usually takes the shape of a big triangle. It can be used along with or instead of a rigid splint. If used alone, the sling should be supported with an additional bandage which is actually a folded drape of 5-6 inches width.

General Principles of Splinting:

Several ways are adopted for splinting, which may seem highly complicated - at first sight - yet they are very simple. Here are some general principles to be applied when splinting as follows:

- Identify the fracture site.
- Stop the bleeding using bandages, but avoid pressing on the fractured painful and deformed site.
- In case of bone fractures where bone ends protrude through the skin, do not push these ends back in place as this will cause inflammation and acute bleeding.
- Keep the fractured bone (including the joints above and below the fracture site) motionless as indicated hereunder:
    - If the lower-arm is fractured, keep the wrist and elbow joints motionless.
    - If the upper-arm is fractured, keep the shoulder and elbow joints motionless.
    - If the lower-leg is fractured, keep the knee and ankle joints motionless.
    - If the upper-leg is fractured, keep the knee and femoral joints motionless.
- Splint should be tied firmly to immobilize the fractured limb, then check for blood circulation to ensure the splinting is not too tight. Correct splinting provides pain relief.

- If the fractured limb is bent with a sharp bone end protruding through the skin, keep it motionless. Splint a limb as you find it to make it as comfortable to the patient as you possible.
- If an ambulance is called and is on its way, do not splint the fractured limb and wait for the ambulance team to use their specialized medical splints.

Why keep upper and lower joints motionless?
Each bone end in limbs is connected to a joint. Moving that joint dislocates the fractured bone. So, joints should remain motionless to immobilize fractured bones.

What if the joint itself is broken?
This is the most difficult fracture to handle. Yet, follow the same instructions of applying a splint. Make sure to maintain joints, upper and lower bones as well as the fracture site motionless. For example, the elbow joint connects both upper- and lower-arms. If broken, the joint and bones should be immobilized. Hence, both shoulder and wrist joints should remain motionless.

In most cases, joint fractures are very painful. In this case, never try to relocate the joint least you should damage the nerves and blood vessels around the joint, let alone the acute pain resulting.
You should have an overactive imagination when dealing with such injury. You can splint the joint as you find it.

What Materials are Needed for Splinting?
You will need:

- A splint (rigid or flexible).
- A thick bandage to apply under the splint for maximum comfort. (Optional).
- Robe - or the like - to wrap the splint to the fractured limb.

What if these materials are not available?
No worries. You can use the patient’s body as a splint as follows:

- You can tie the fractured arm to the patient's body using a dressing.
- You can tie the fractured leg to the patient's other leg using a dressing.
- You can tie the fractured finger to the patient's other fingers using a dressing.

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