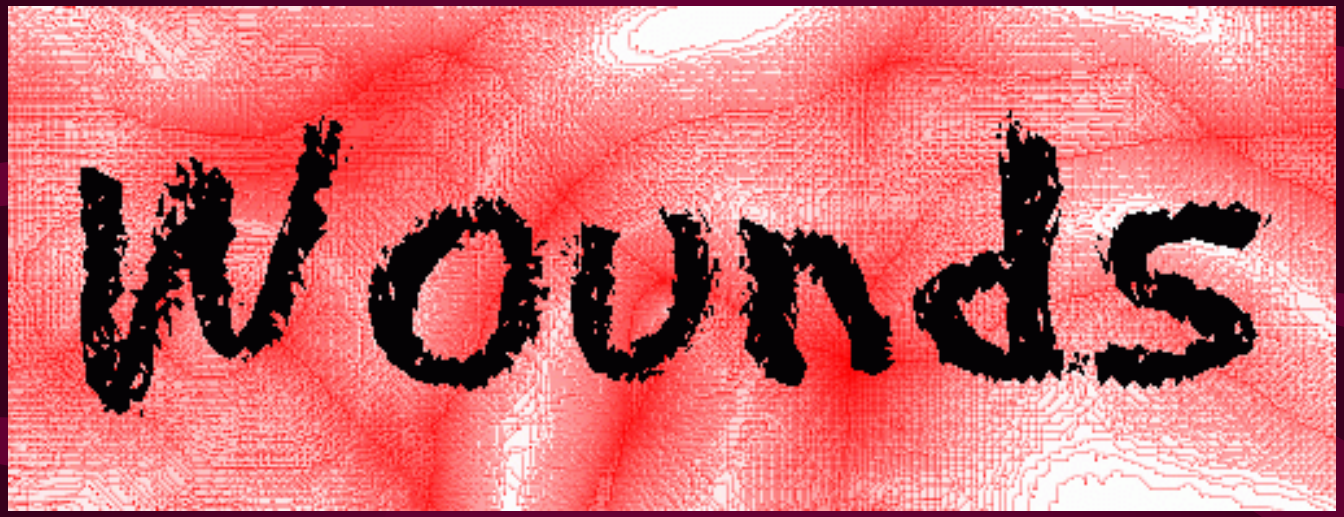


FN Brno October 2010

Summary

- Types of wounds
- Healing of wounds
- Special types of wounds
- Types of bandage
- Burns

Wounds - types

Laceration - vulnus /contuso/ lacerum

Puncture - vulnus punctum

Gunshot wound - vulnus sclopetarium

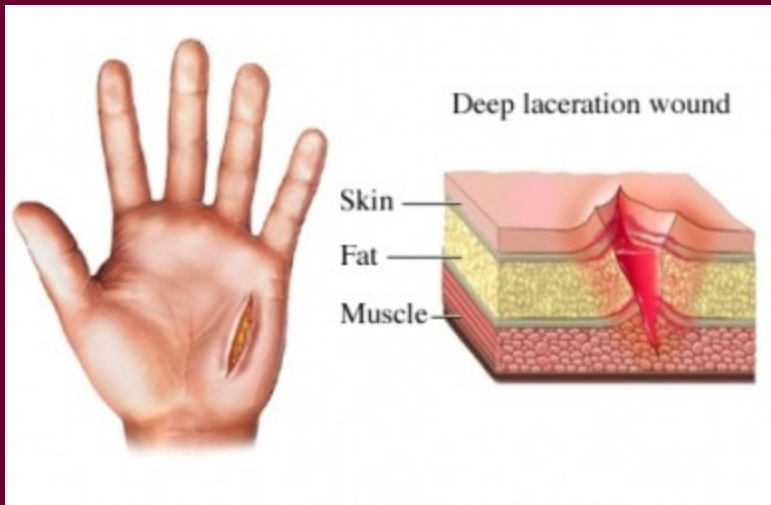
Incision (cut) -vulnus scissum

Contusion - vulnus contusum

Bite - vulnus morsum

Laceration - vulnus /contusio/ lacerum

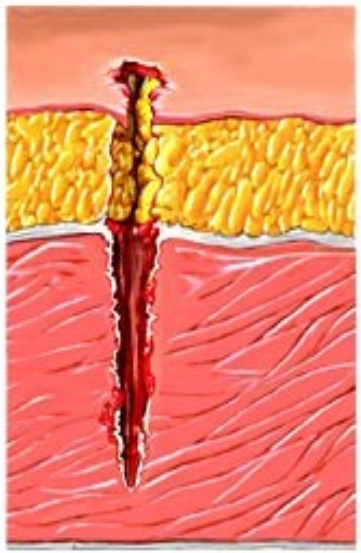
- A wound that is produced by the tearing of soft body tissue
- Often irregular and jagged
- Often contaminated with bacteria and debris from whatever object caused the cut

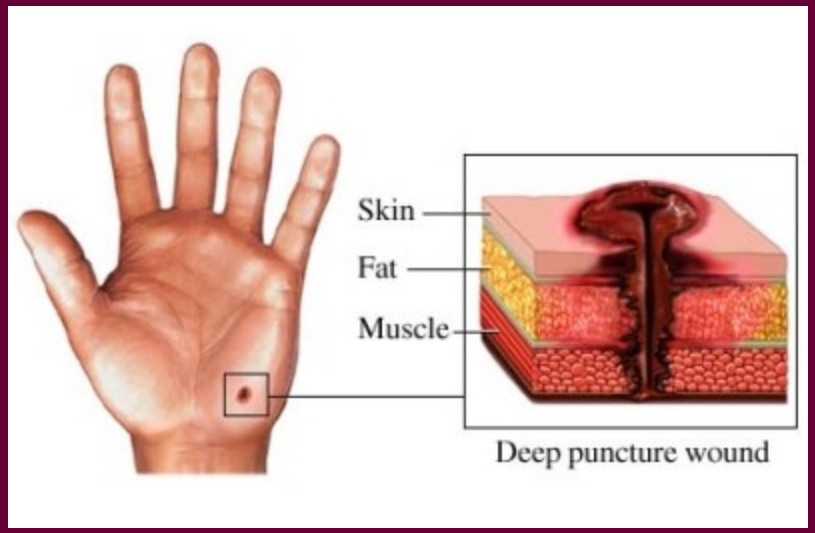


Puncture - vulnus punctum

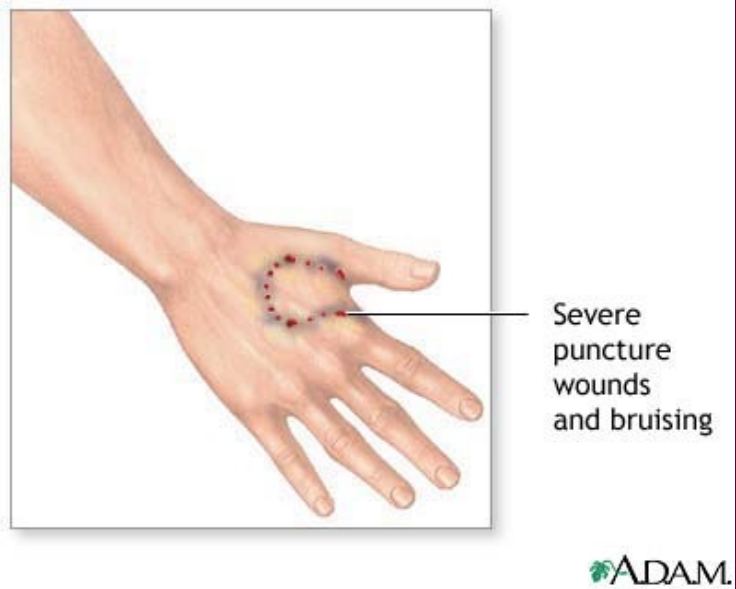
- Caused when the skin is pierced by a sharp object
- Included in this category:gunshot wounds, impaled objects, and an object that passes totally through a part of the body
- Usually caused by a sharp pointy object such as a nail, animal teeth, or a tack
- This type of wound usually does not bleed excessively and can appear to close up
- Puncture wounds are also prone to infection and should be treated appropriately


Laceration


Puncture wound


Skin
Fat
Muscle
Deep puncture wound

Bite - vulnus morsum



- **Bite** – animal, human
- Often combination of laceration, contution and a puncture wound

Incision (cut) - vulnus scissum

- **Cut** - a split in the skin caused by a sharp object, such as a knife – stab wound, or even a dull object
- A cut can have either a jagged or smooth edge
- Results in a break or opening in the skin

Contution - vulnus contusum

- A blunt blow or punch can rupture capillaries beneath the skin, causing blood to leak into the tissues → bruise
- **Bruise** - Bleeding that occurs under the skin causes discoloration, swelling. The area begins as red but may turn into a "black and blue mark."

Abration

- **Scrape** (graze)- very common
- Occurs when skin is rubbed or scraped away
- Caused by sliding fall or friction burn

Avulsion

- Portion of skin is torn
- Ca be partial, with a portion of skin remaining as a "flap." In a total avulsion, a body part is completely torn off.

Amputation

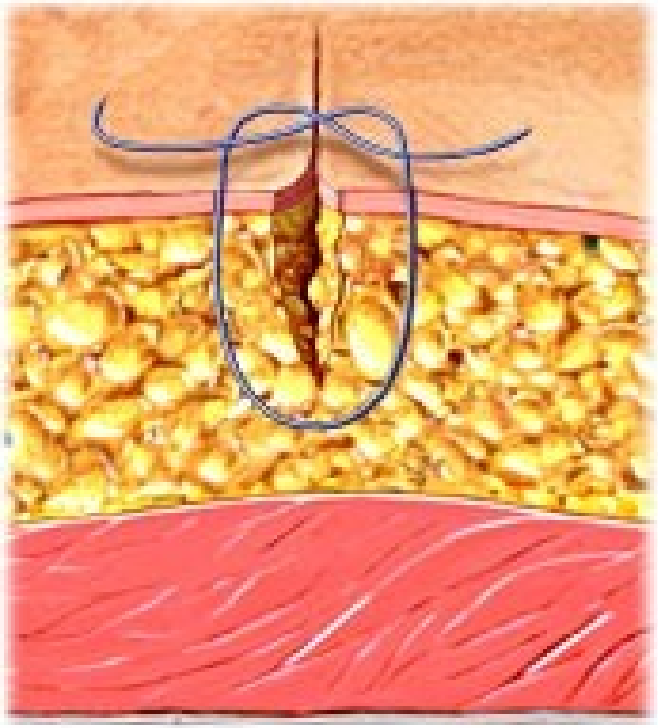
WOUNDS

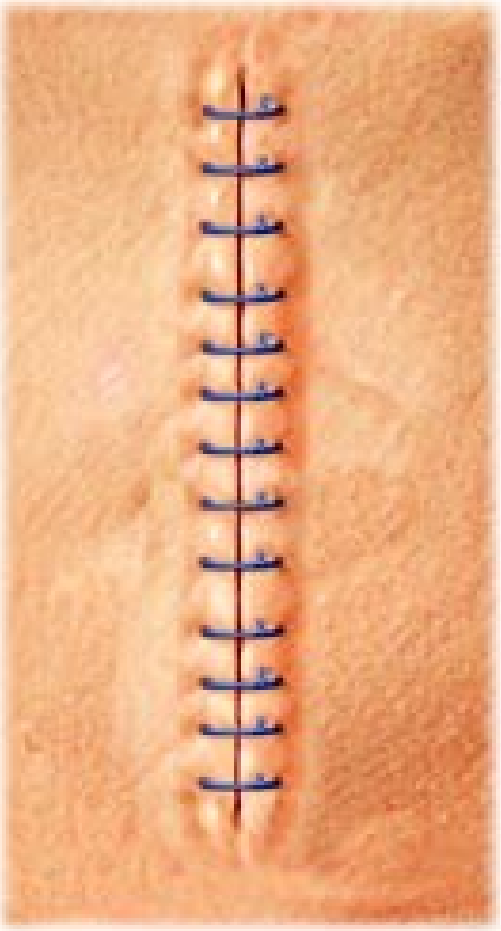
- SUPERFICIAL x PROFOUND
- CRIMINAL x NON CRIMINAL
- TRAUMA x OPERATION

Wounds - stitches

- Primarily used if the cut is more that a quarter inch deep, is on the face, or reaches bone.
- Stitches help hold the wound together so it can heal properly.
- Stitches are removed between 3 to 14 days after they are put depending upon which area of the body was injured.
- On the face removed within 3 to 5 days, on areas of high stress (hands, elbows, knees) 10 to 14 days.

Sutures aid healing by holding a wound together until the healing process is established





Wounds – first aid

- If the wound is bleeding severely, call 112.
- Minor cuts and puncture wounds can be treated at home. Take following steps.

Wounds – first aid – cuts and abrations

- Wash your hands with soap to avoid infection.
- Clean the wound under running water and surrounding area with mild soap and water
- Use direct pressure to stop the bleeding.
- Elevate injured part
- If the cut is likely to get dirty or be re-opened by friction, cover it (once the bleeding has stopped) with a bandage that will not stick to the injury

Wounds – first aid - punctures

- Wash your hands apply gloves
- Use a stream of water for at least five minutes to rinse the puncture wound. Wash with soap.
- Look (but DO NOT probe) for objects inside the wound. If found, DO NOT remove -- go to the emergency room. If you cannot see anything inside the wound, but a piece of the object that caused the injury is missing, also seek medical attention.
- Apply clean bandage.

Wounds – first aid – DO NOT

- DO NOT assume that a minor wound is clean because you can't see dirt or debris inside. Wash it.
- DO NOT breathe on an open wound.
- DO NOT try to clean a major wound, especially after the bleeding is under control.
- DO NOT remove a long or deeply embedded object. Seek medical attention.
- DO NOT probe or pick debris from a wound. Seek medical attention.
- DO NOT push exposed body parts back in. Cover them with clean material until medical help arrives.

Wounds – emergency call

- The bleeding is severe, spurting, or cannot be stopped (for example, after 15 minutes of pressure).
- The person is seriously injured.
- The wound is large or deep, even if the bleeding is not severe.
- You think the wound might benefit from stitches (the cut is more than a quarter inch deep, on the face, or reaches bone).
- Animal or human bites

Wounds – emergency call

- A cut or puncture is caused by a fishhook or rusty object.
- You step on a nail or other similar object
- An object or debris is embedded -- DO NOT remove yourself.
- The wound shows signs of infection (warmth and redness in the area, a painful or throbbing sensation, fever, swelling, or pus-like drainage).
- You have not had a tetanus shot within the last 10 years.

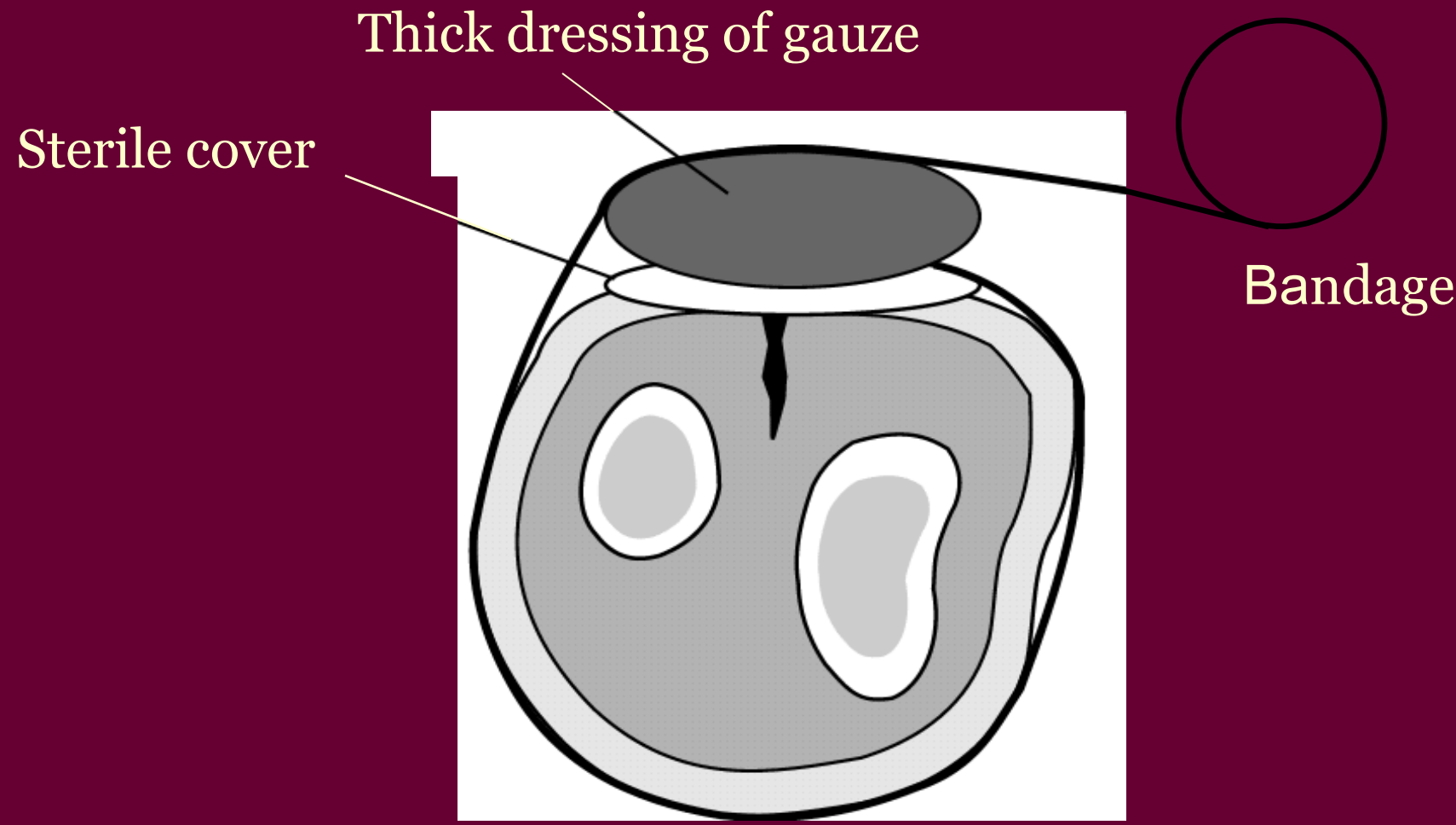
Wounds - prevention

- Keep knives, scissors, firearms, and breakables out of the reach of children. When children are old enough, teach them to how to use knives and scissors safely.
- Keep up-to-date on vaccinations. A tetanus vaccine is generally recommended every 10 years.

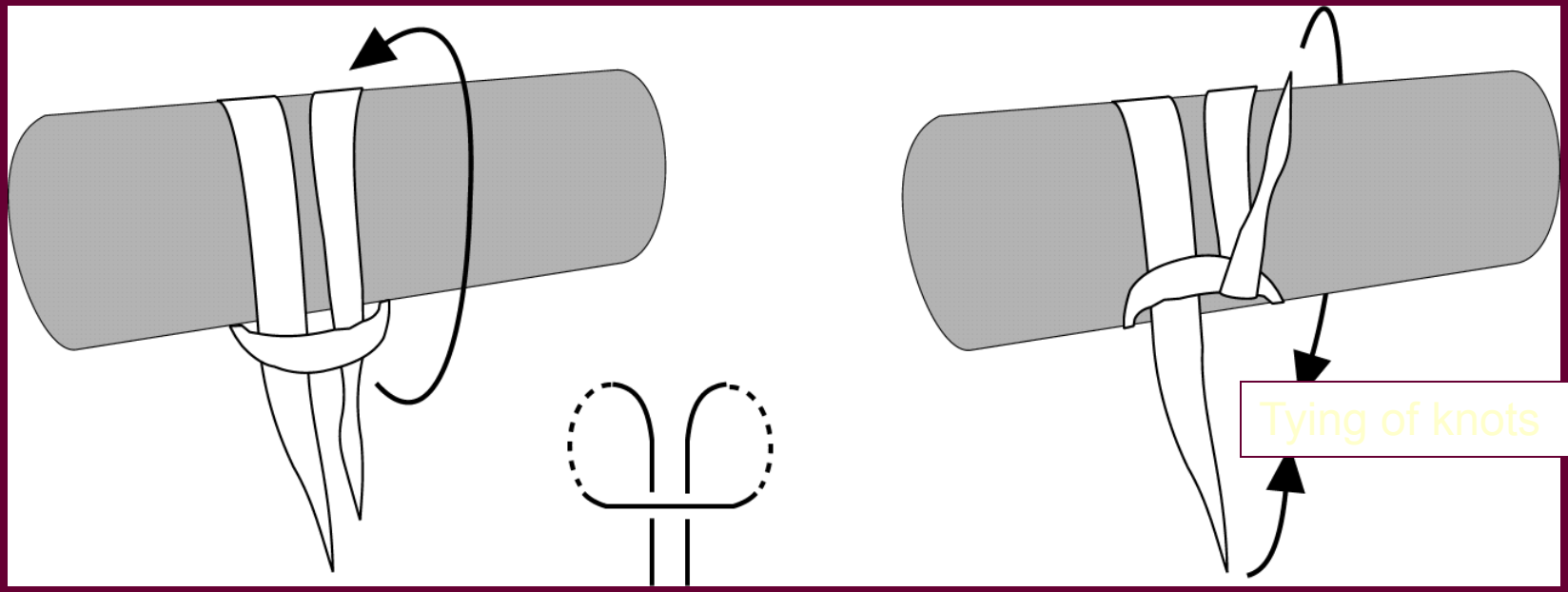
Bandages

- **Open weave** – used to hold dressing in place, good ventilation
- **Elastisezed** – ACE bandage – mold to the body shape, exet direct pressure
- **Tensor bandages** – firm support to injured joints

Arterial bleed – pressure dressing

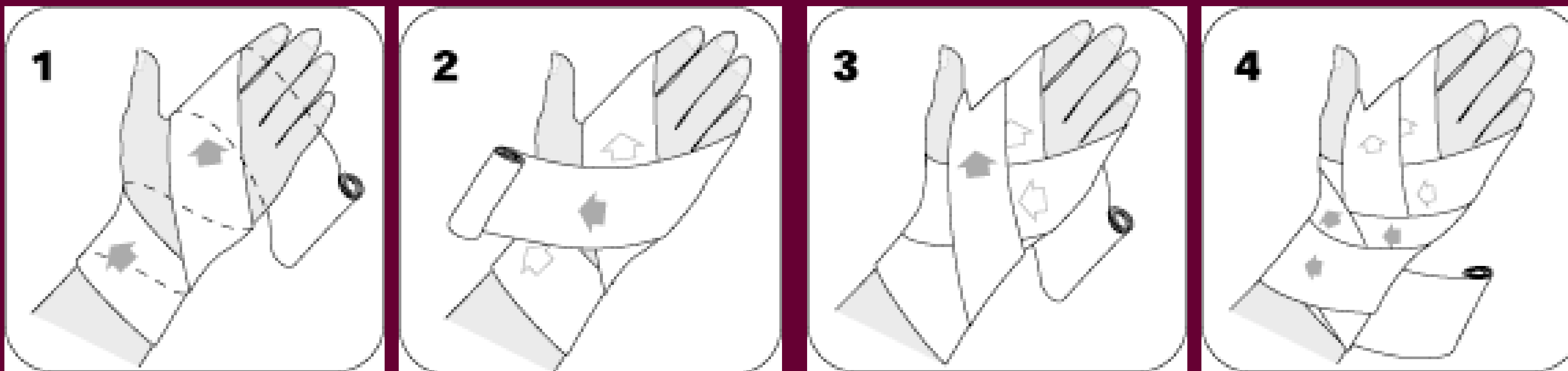


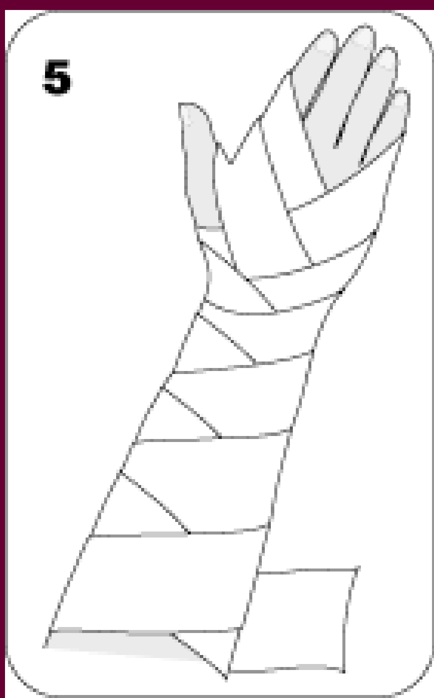
Severe bleeding - amputation



Application of tourniquet

Bandage - arm





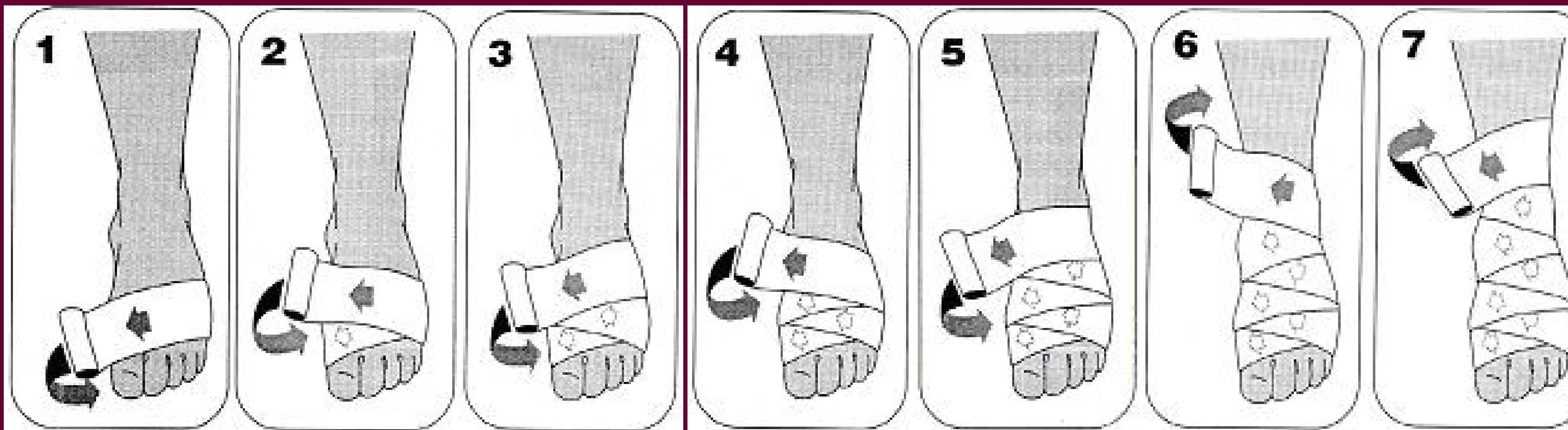
1. Start the ace bandage at the wrist

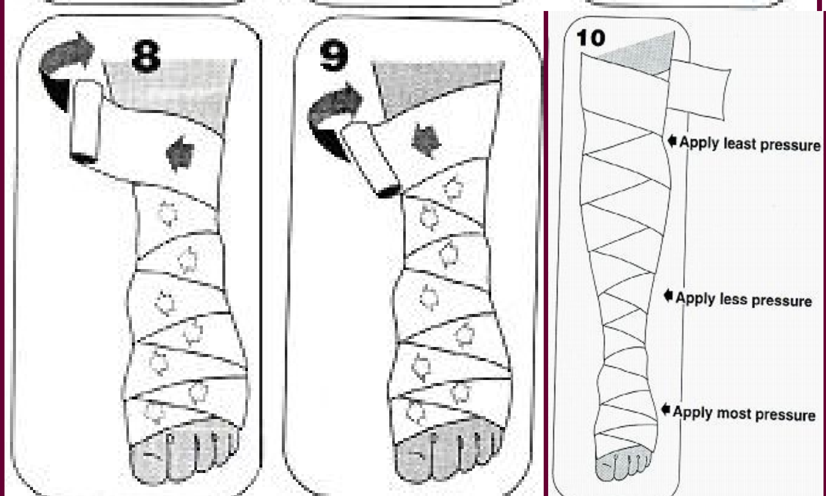
2. Continue to wrap the ace bandage across the palm, wrap around the back of the hand across wrist, and up over the back of the hand and then between the thumb and index finger.

3. Wrap the ace bandage around the wrist once and go over the back of the hand and cross the palm. Pull the bandage diagonally as you cross the hand. Pull through between the thumb and index finger.

4. Continue criss-crossing the ace bandage diagonally up the lower arm overlapping, reversing pattern, wrap in a criss-cross pattern. Remove and rewrap to apply the correct pressure without hurting circulation.

Bandage - Leg





1. Use a 4-inch ace bandage for the foot and lower leg. A 6-inch ace bandage might be best for adult thighs. (In children and smaller adults the width of the ace bandage will be chosen based on the size of the child). Start the ace wrap at the top of the foot, just below the toes. Wrap over the top of the foot and around the back of the foot. This will secure the ace bandage and prevent the ace bandage from riding up the leg.

2. Pull the ace wrap diagonally, not at a right angle to the leg.

3. Wrap up the foot diagonally, reversing the direction with each turn.

4,5. Keep wrapping in a criss-cross pattern, adding the most pressure as you wrap up the foot, toward the ankle.

6,7,8. As you apply the ace wrap around the ankle, begin to move up the leg using the same technique. Apply less and less pressure as you move up toward the body.

9,10. Stop wrapping at the thigh and secure the end of the ace wrap with metal clips or tape. Check the toes to see if they are pink and warm. There should not be any numbness or tingling. If you find that toes are pale, cool, numb, or tingly, the ace bandage is too tight. Remove and re-wrap the ace bandage to apply correct pressure without cutting off the circulation.

Recurrent fold bandage

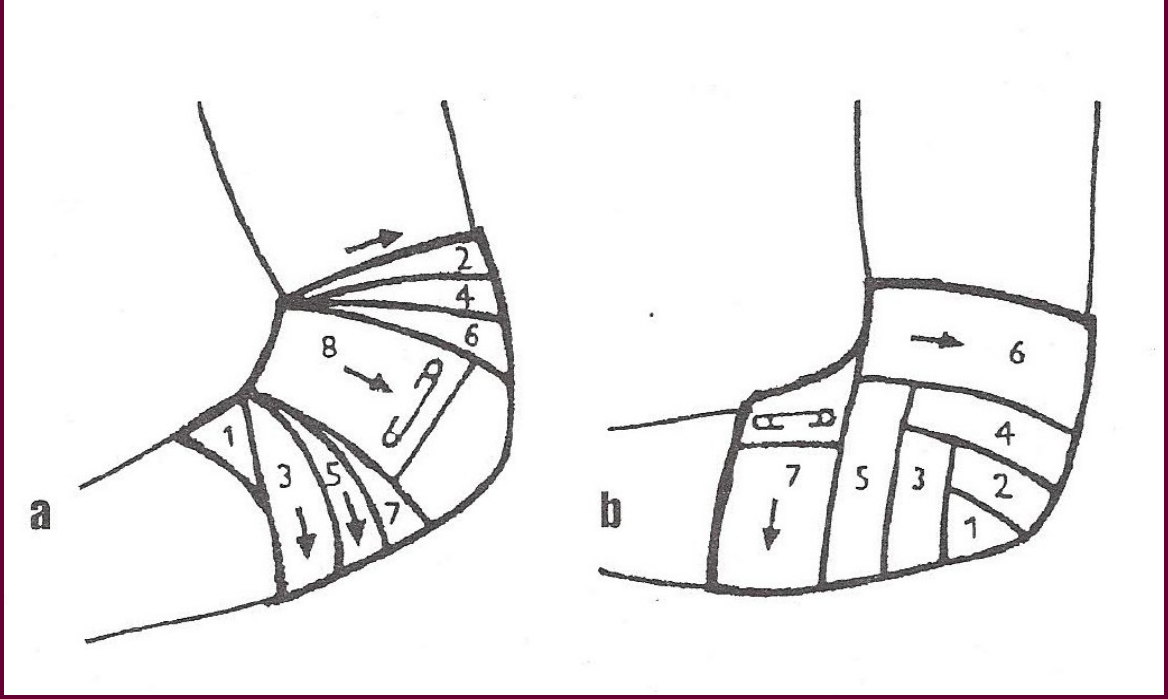
Spiral bandage

Reverse spiral bandage

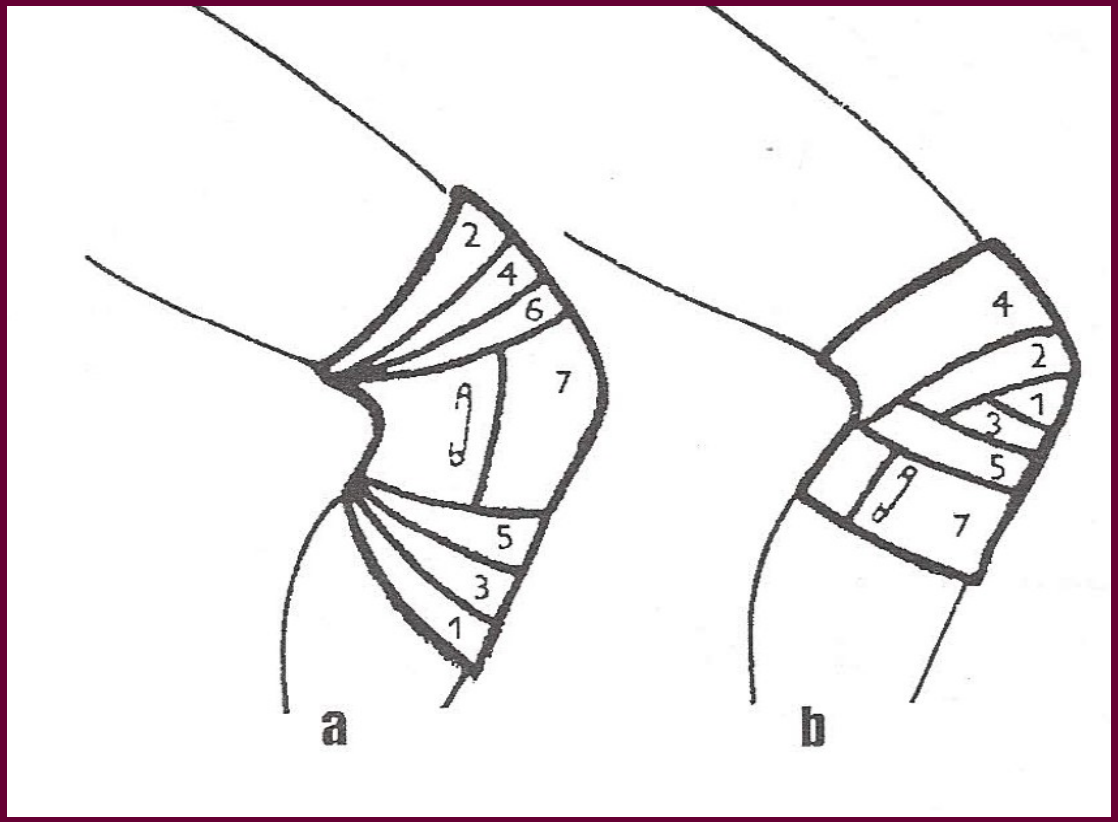
Circular bandage

Ankle bandage

Elbow bandage



Knee bandage



Elbow bandage – using triangular bandage

- *a*. Bend the arm at the elbow and place the middle of the cravat at the point of the elbow bringing the ends upward
- *b*. Bring the ends across, extending both downward
- *c*. Take both ends around the arm and tie them with a nonslip knot at the front of the elbow

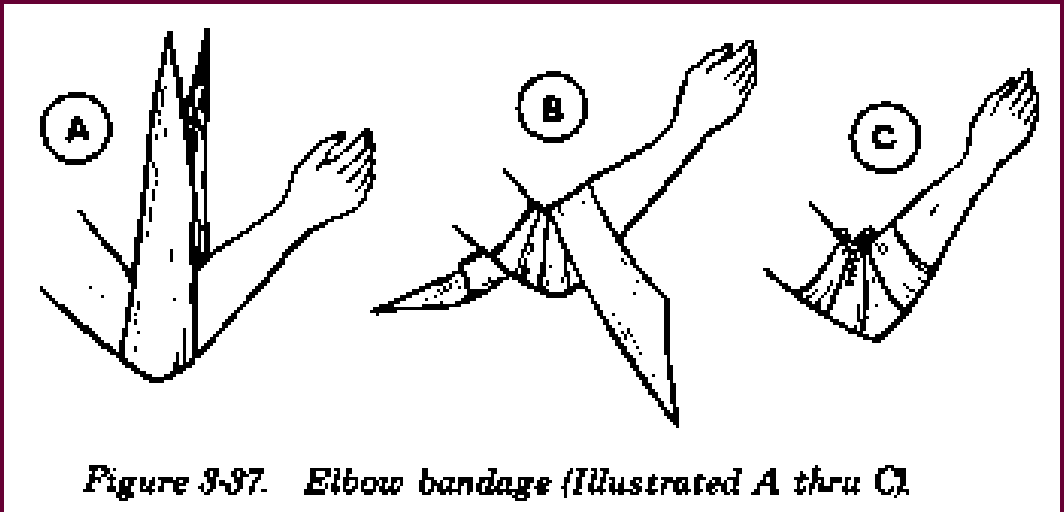
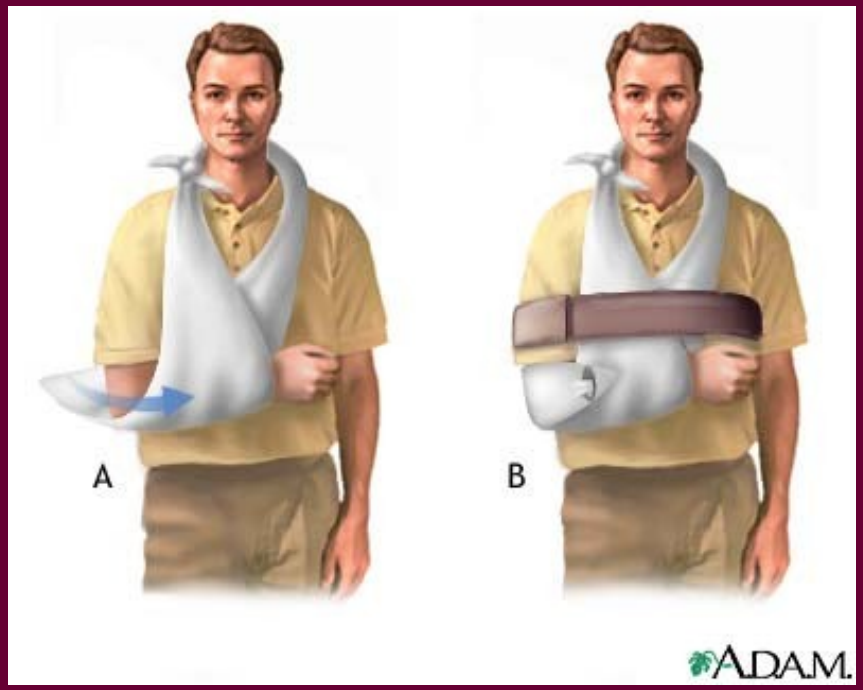


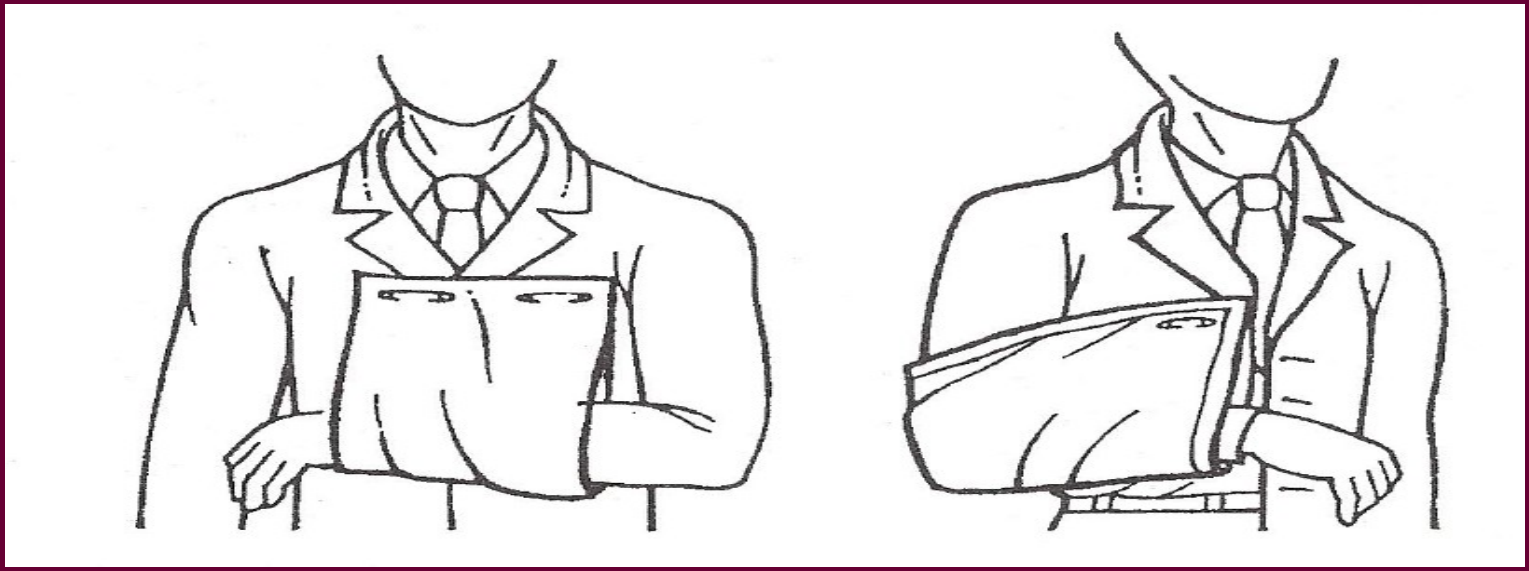
Figure 3-37. Elbow bandage (Illustrated A thru C).

Arm sling

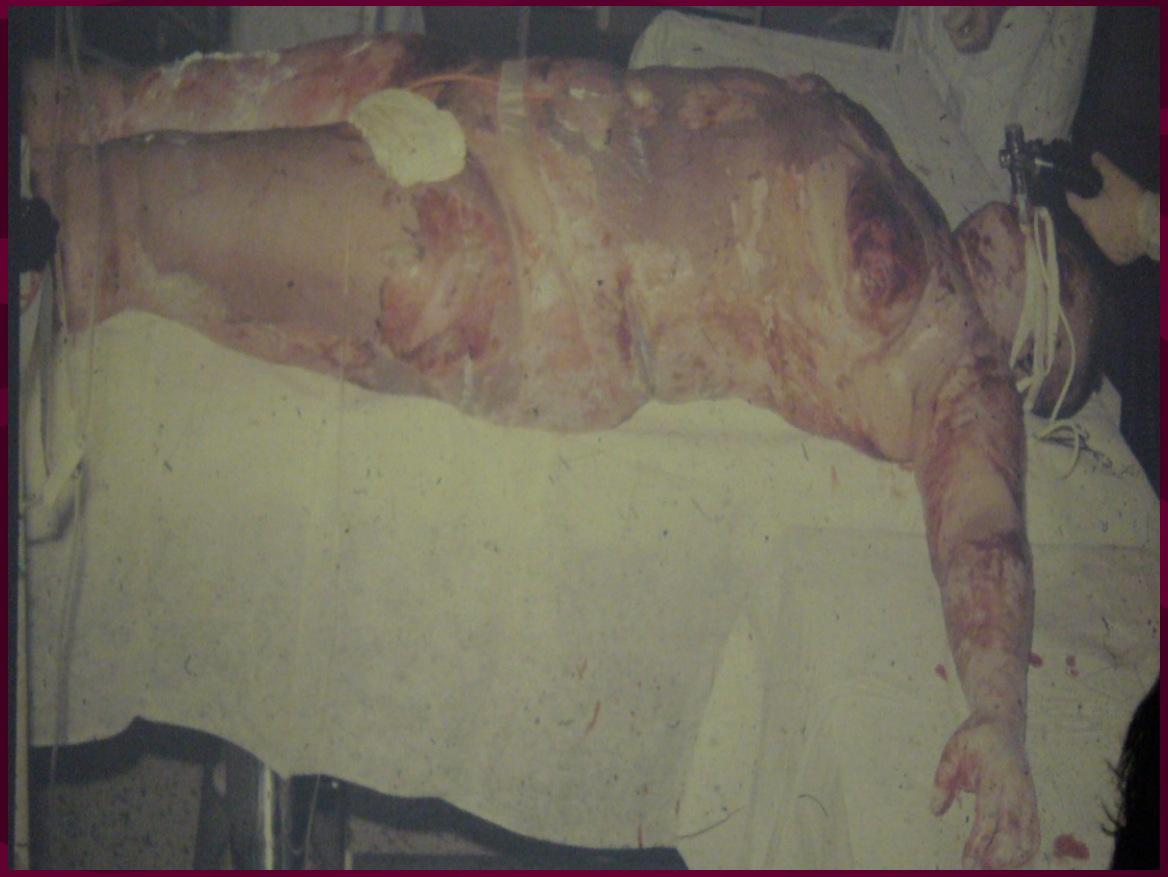
- Holds the forarm in a horisontal or slightly raised position
- Support for an injured upper arm, wrist, forarm or a simple rib fracture



Improvised arm sling



Burns



Burns

- A burn can be caused by **heat** (flames, hot grease, or boiling water), the **sun** (solar radiation), **chemicals** or **electricity**.
- Infection and loss of fluid can occur
- Burns can also result in difficulty breathing. If a burn victim has trouble breathing, has burns on more than one part of the body, or was burned by chemicals , an explosion, or electricity, call 112 immediately.
- Burns caused by flames or hot grease usually require medical attention as well, especially if the victim is a child or an elderly person.

Superficial Burn (First Degree)

- A first degree burn involves only the top layer of skin. The skin is red and dry and usually painful. The burned area may also swell. Most sunburns are superficial burns. This type of burn usually heals in 5-6 days without any permanent scarring.

Popálenina I.stupně (po stranách krku) II.a stupně (uprostřed)

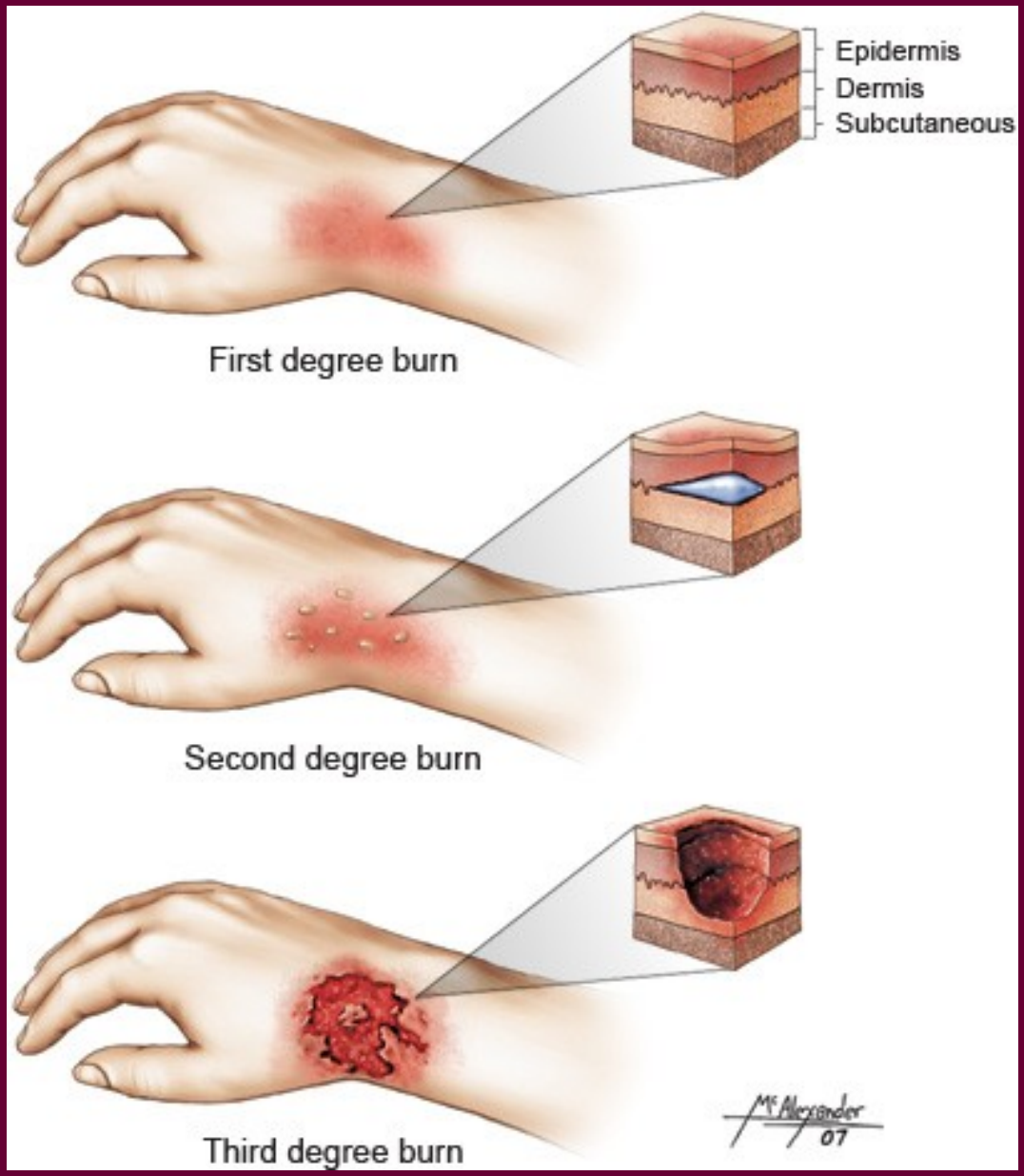
Partial-Thickness Burn (Second Degree)

- Involves the top layers of skin.
- The skin is red with blisters that may open and weep clear fluid, giving the skin a wet appearance. The area may also appear mottled.
- The burn is usually painful and often swells.
- This type of burn usually heals in 3-4 weeks, and scarring may occur.

Full-Thickness Burn (Third Degree)

- Destroys all layers of skin and any or all of the underlying structures(fat, muscles, bones and nerves).
- The burn appears brown or black(charred) with the tissues underneath sometimes appearing white.
- This type of burn can be relatively painless if the burn destroys the nerve endings.
- Requires immediate medical attention.

Popálenina III. stupně


Epidermis
Dermis
Subcutaneous
First degree burn
Second degree burn
Third degree burn
McAlexander
07

Burns – General Care

- Stop the burning. Put out flames or remove the victim from the source of the burn.
- Cool the burn. Use large amounts of cool water to cool the burn. Never use ice except on small superficial burns, because it causes body heat loss. If the area cannot be immersed, like the face, you can soak a clean cloth and apply it to the burn, being sure to continue adding water to keep the cloth cool.

Burns - General Care

- Cover the burn.
- Use dry, sterile dressings or a clean cloth to help prevent infection and reduce pain. Bandage loosely.
- Do not put any ointment on a burn unless very minor.
- Do not break any blisters.
- Severe burns - lay victim down unless is having trouble breathing. Try to raise the burned areas above the level of the victim's heart.

Burns – Chemical Burn

- Call EMS in any case of a chemical burn. Remove the chemical from the skin or eyes immediately by flushing the area with large amounts of cool running water until EMS arrives
- Remove any clothes with chemicals on them, and be careful not to spread the chemical to other body parts or to yourself
- Chemical burns can be caused by chemicals used in manufacturing or in a lab, or by household items such as bleach,

  garden sprays or paint removers

Burns – Electrical Burns

- Call EMS in any case of an electrical burn
- Electrical burns can be caused by power lines, lightening, defective electrical equipment,and unprotected electrical outlets.
- Do not go near the victim unless you are sure the power source has been turned off. The burn itself will not be the major problem.
- If the victim is unconscious, check breathing and pulse. Check for other injuries, and do not move the victim because he or she may have spinal injuries. Cover an electrical burn with a dry, sterile dressing.
- Do not cool the burn. Prevent the victim from getting chilled. Possibly two wounds, enter and exit wound, ussually 3 rd drgree

Burns – Solar Radiation Burn

- Burns caused by solar radiation may be painful and may also blister.
- Cool the burn. You may want to put a product designed specifically for sunburn on the area; these products usually contain aloe vera and help cool the area and reduce the pain.
- Stay out of the sun. If you must go in the sun, wear a sunscreen with an SPF of at least 15 and reapply it frequently. Be sure to cover up any existing sunburn if you are going to be outside again.

What to do? When part of the body has been torn off...

- Try to find the part
- Wrap it in a clean dressing and place in a plasctic bag.
- Put the bag on ice, but don't freeze.
- Take the part to the hospital.

What to do? When an object is impaled in a wound...

- Do not remove it. You could reveal an open artery which would then be awfully hard to deal with, a.k.a. nearly impossible.
- Bandage many dressings around the object to immobilize it and support it in its position in the wound.

What to do? Splinters...

- A small splinter in the skin should be removed with tweezers.
- For a splinter in the eye, seek emergency help immediately, do not touch it.

What to do? Injury to the mouth…

- If the injury does not involve the head, neck, or spine, have the victim sit with the head slightly tilted foward. If the victim is unable to reach this position, place the victim on his or her side. This ensures that blood drains from the mouth.
- If the injury has broken the lip, place a clean rolled dressing between the lip and gum. Applying cold can also help.

What to do? If a tooth is knocked out…

- Place a small roll of sterile gauze in the gap left by the tooth that was knocked out.
- Pick up the tooth *not* by the root, but by the crown, the part you see when you smile in the mirror. If you can, place the tooth back how it belongs in the socket.
- If you can't put the tooth back in, put the tooth in a container with cool, fresh milk. If this cannot be done, use water.

REMEMBER – Signs of Major Damage

- If the bleeding is bright red, or spurts from the wound, CALL EMS.
- If the wound is very deep or large, CALL EMS.
- If the victim is in severe pain or you suspect serious damage, CALL EMS.
- If you can't wash all the debris out of the wound, call your doctor immediately.

REMEMBER – Signs of Major Damage

- If you think you may need stitches (if the wound is in a place where you would want to minimize scarring) call your doctor immediately.
- If you see any of the signs of a serious infection - redness, soreness, swelling, red streaks, weeping of pus, or redness that extends more than a finger width beyond a cut - call your doctor immediately.

Thanks for your attention