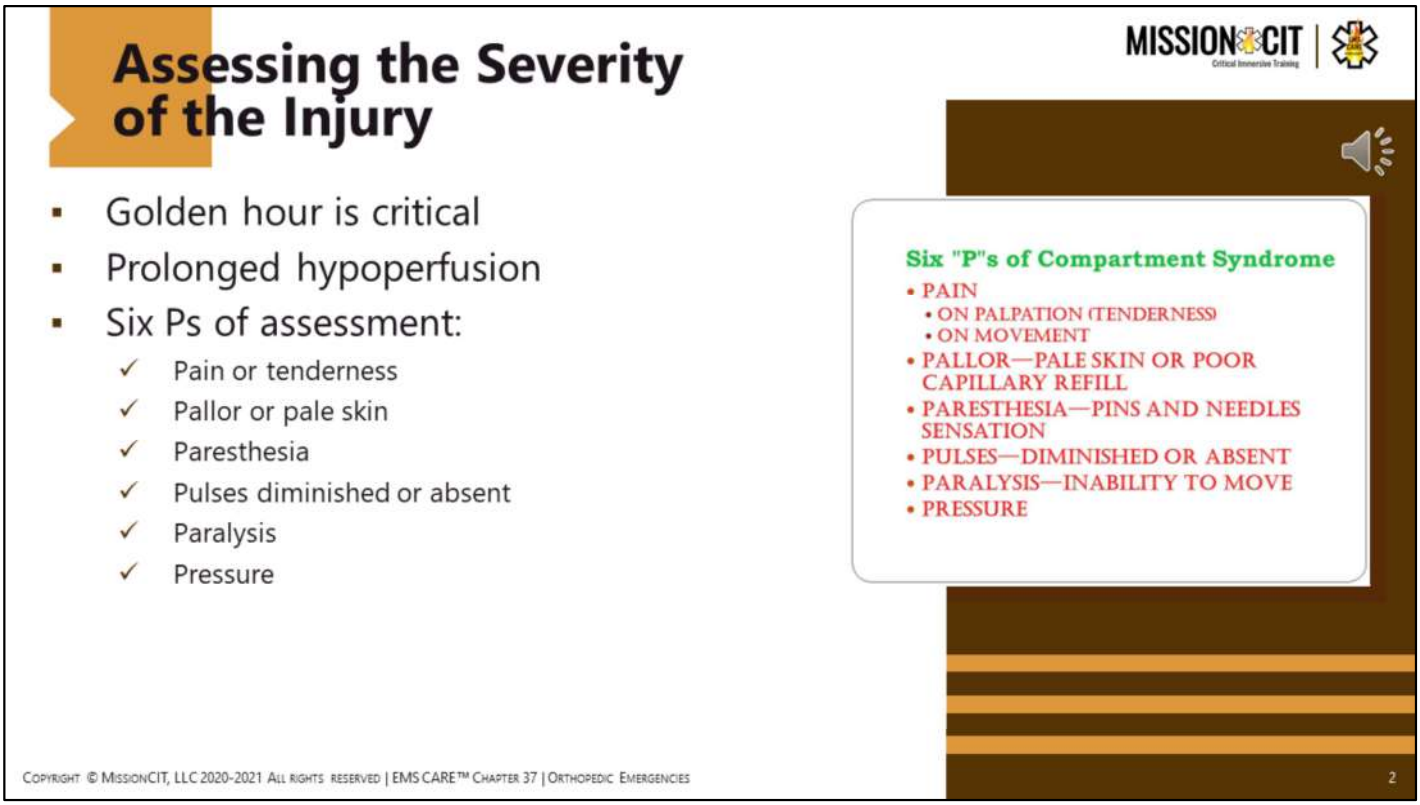


Thank you, Missah!

Welcome to this lesson where we talk in-depth about the care you can offer in a prehospital setting.

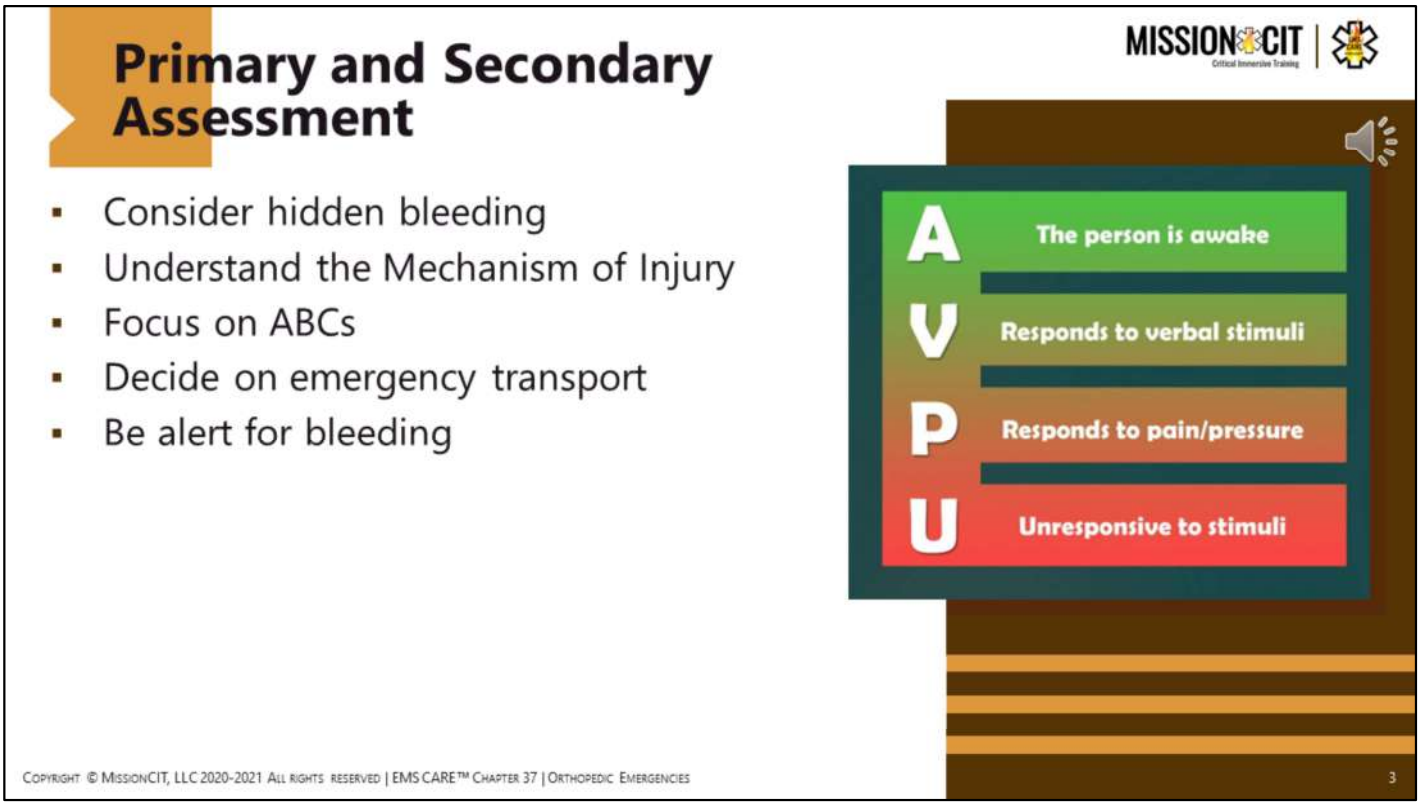


As an EMT, remember that the golden hour is critical for life and for preserving limb viability. Prolonged hypoperfusion during this period can cause significant damage to the patient, so you must transport immediately. Similarly, transport if there's an open or vascular injury.

Besides this situation, most orthopedic injuries are not life-threatening though they may require a visit to the hospital.

Also, keep in mind the six Ps of assessment.

- Pain or tenderness
- Pallor or pale skin
- Paresthesia
- Pulses diminished or absent
- Paralysis
- Pressure

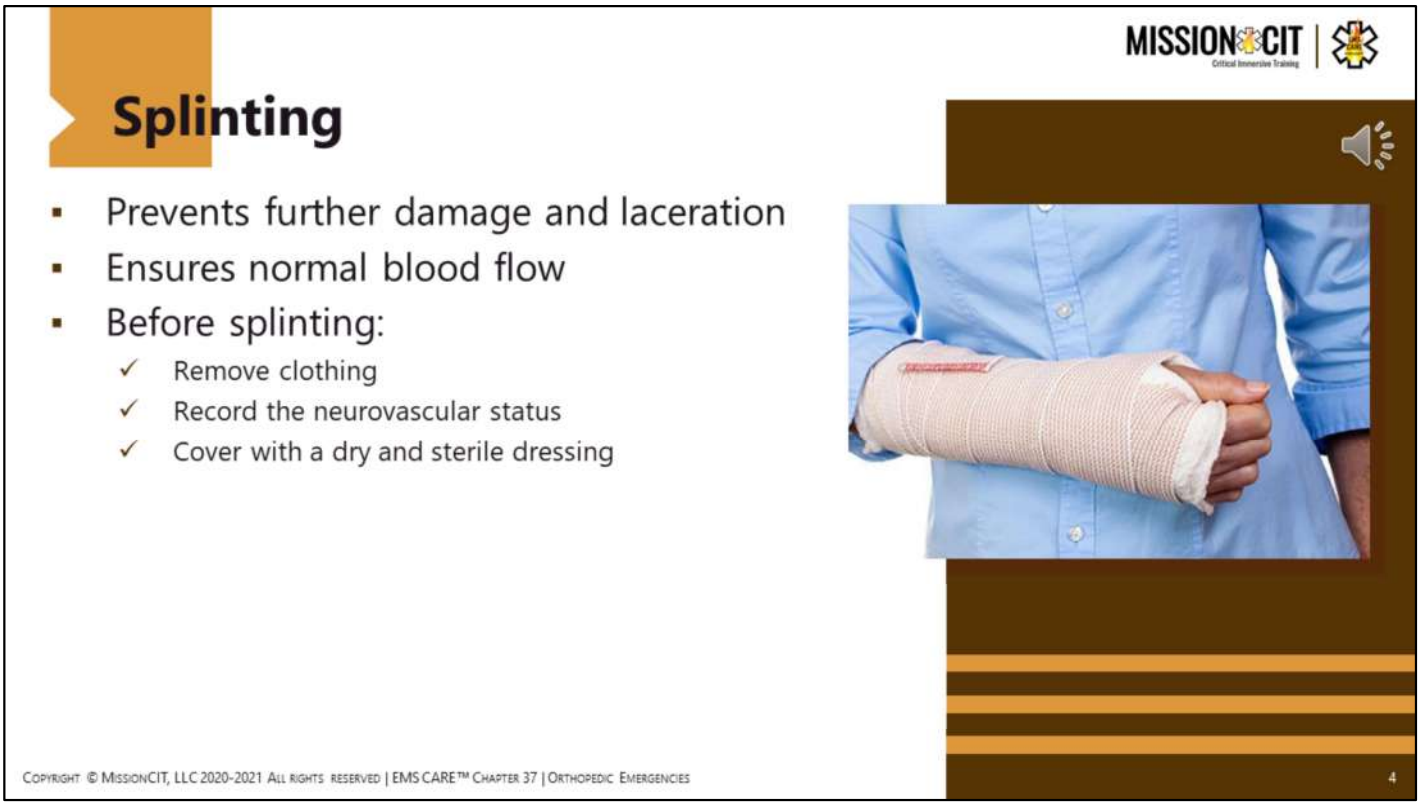


As a part of the scene size-up, consider the possibility of hidden bleeding and evaluate the need for additional support. Understand the mechanism of injury and the nature of illness and be alert for both primary and secondary injuries.

Focus on identifying and treating life-threatening injuries, if any. Start ABCs, where you check for responsiveness using the AVPU scale, administer oxygen and check for breathing and circulation.

Accordingly, decide on emergency transportation and reassess the patient en route. If emergency transport is not required, start a detailed secondary assessment where you examine the entire body to understand the mechanism of injury. Take the patient's history and document everything.

All through your examination, be alert for excessive bleeding.



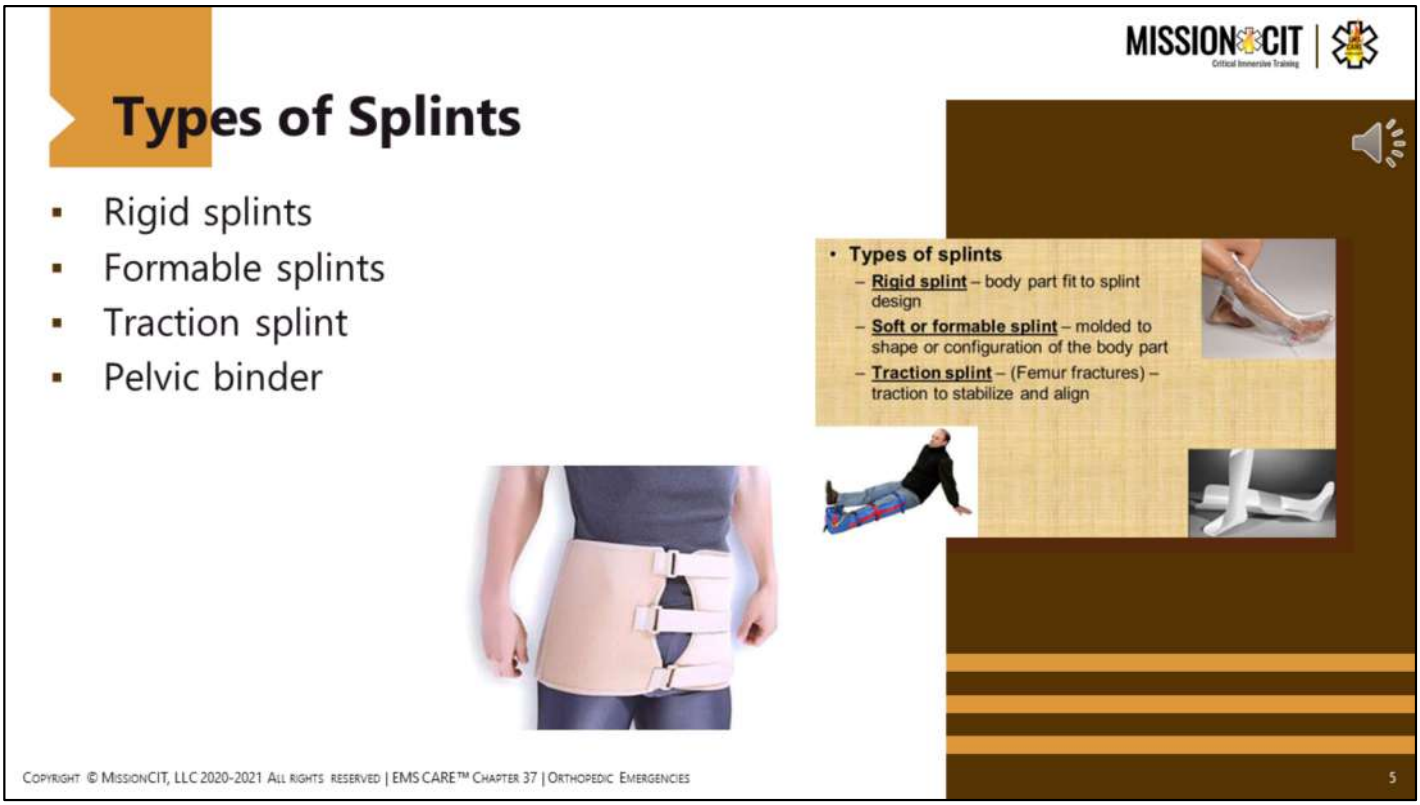
A splint is a flexible or rigid device used to protect and maintain the position of an injured extremity. It works well on sprains, fractures, and dislocations, as it reduces the pain and makes it easier to transport the patient.

Splint a patient suffering from fractures, dislocations, and sprains, as it can prevent further damage to the muscles, spinal cord, peripheral nerves, and blood vessels. It also prevents laceration of the skin, ensures normal distal blood flow, avoids excess bleeding of the tissues, decreases pain, and reduces the chances for paralysis of extremities.

Before splinting,

- Remove clothing from the area
- Note and record the patient's neurovascular status
- Cover any open wounds with a dry and sterile dressing

Also, avoid moving a patient without a splint, unless the patient is in immediate danger and can't wait for splints.



Splints come in many types. Rigid splints are made from firm material and are applied to the sides, front, and also on the backside of an injured extremity. This splint prevents any motion on the injury site but may require padding.

Use this splint when the deformity is severe and when you encounter resistance or extreme pain reaction while applying traction to the shaft of a long bone.

Formable splints are pre-contoured, inflatable, and clear plastic splints that provide comfort to the patient and have uniform contact throughout the injured area. It applies firm pressure to a bleeding wound and is often used to stabilize injuries below the elbow or knee.

While using these splints, keep in mind that the zipper can clog with dirt, freeze, or can stick. Also, significant changes in the weather or altitude can affect the air pressure in the splint.

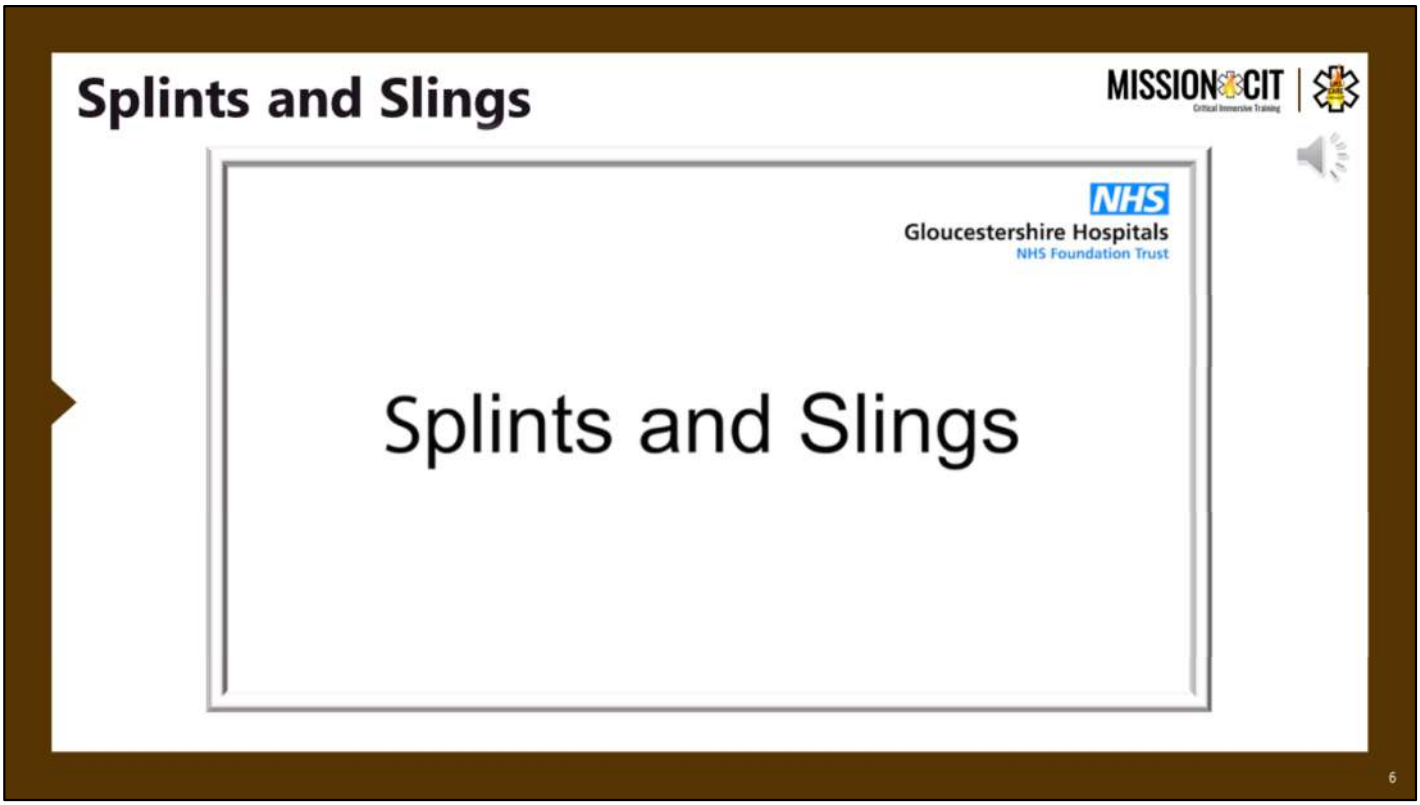
The third type of splint is the traction splint that's used primarily to secure femur fractures. The idea of this splint is to pull a body structure towards its normal alignment, and this is why it's best used to stabilize fracture fragments, align the limb sufficiently, and avoid potential neurovascular compromise.

The amount of traction applied should be roughly about 10 percent of the patient's body weight, not exceeding 15 pounds.

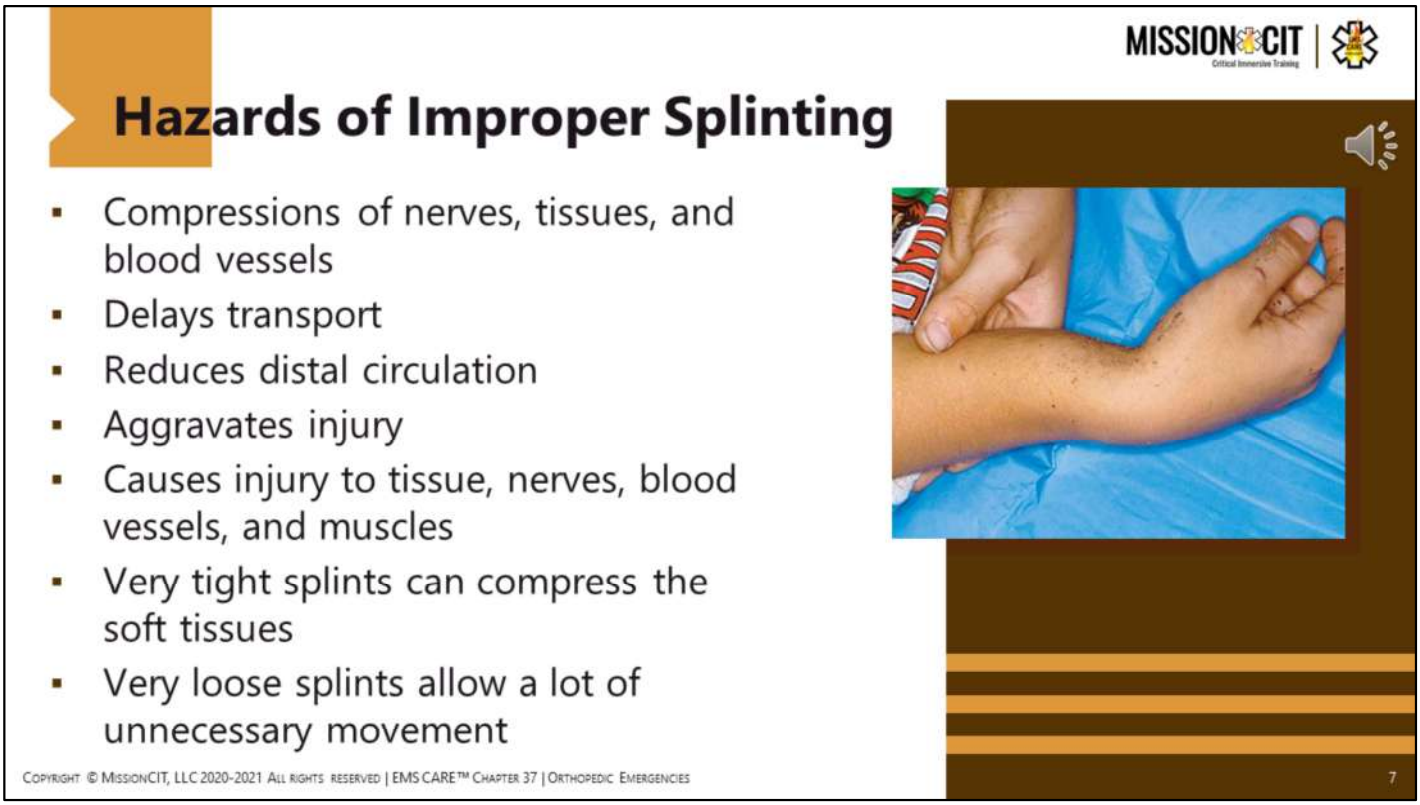
Never use this splint for injuries of the upper extremity or those close to a moving knee. It's also not a good choice for pelvic fractures, partial amputations, and injuries in the lower leg,

foot, or ankle.

Finally, a pelvic binder is used to splint the pelvis and to reduce hemorrhage from bone ends, venous disruptions, and pain. It provides temporary stabilization.



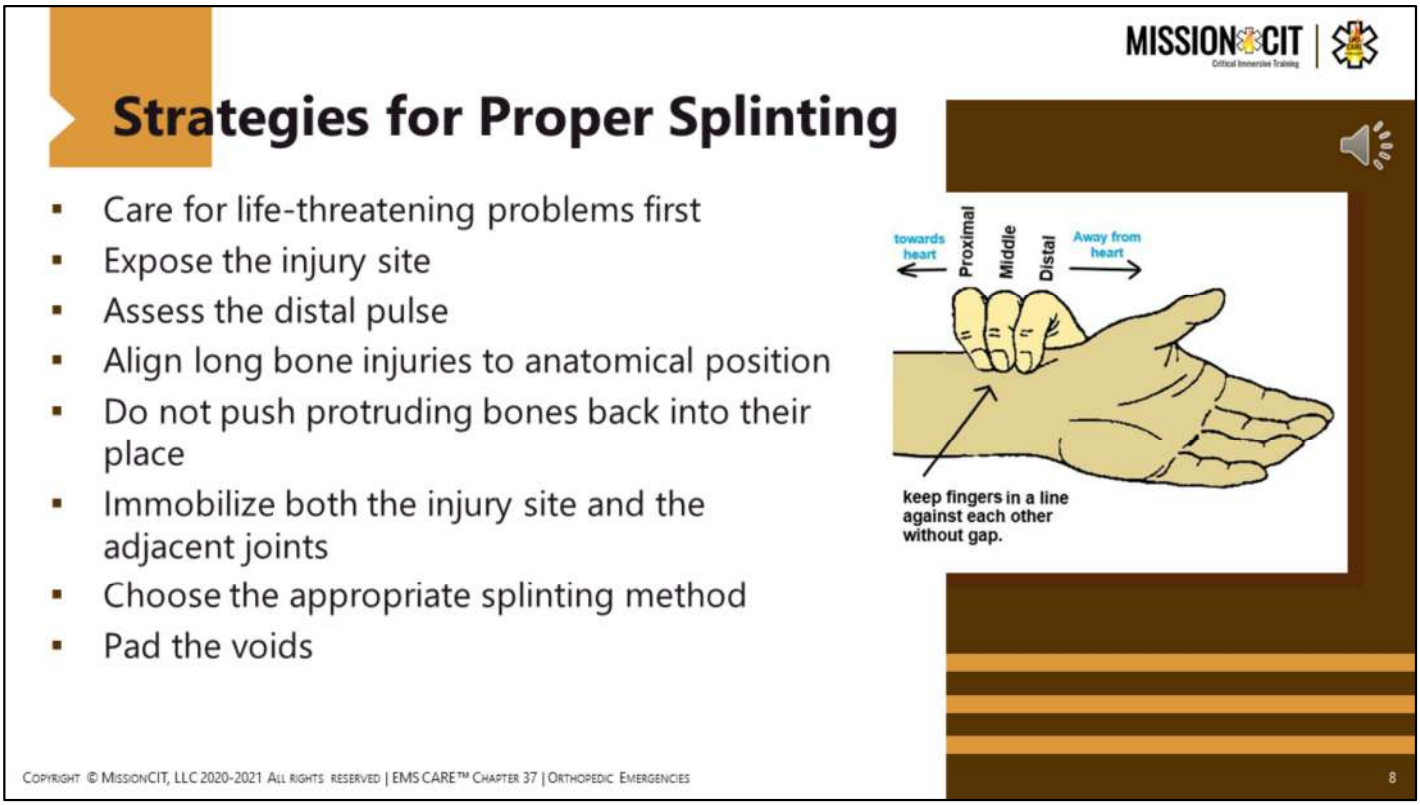
Here is a short video with information on how to apply various splints and slings.



Learning to splint the right way is critical as many hazards come with improper splinting.

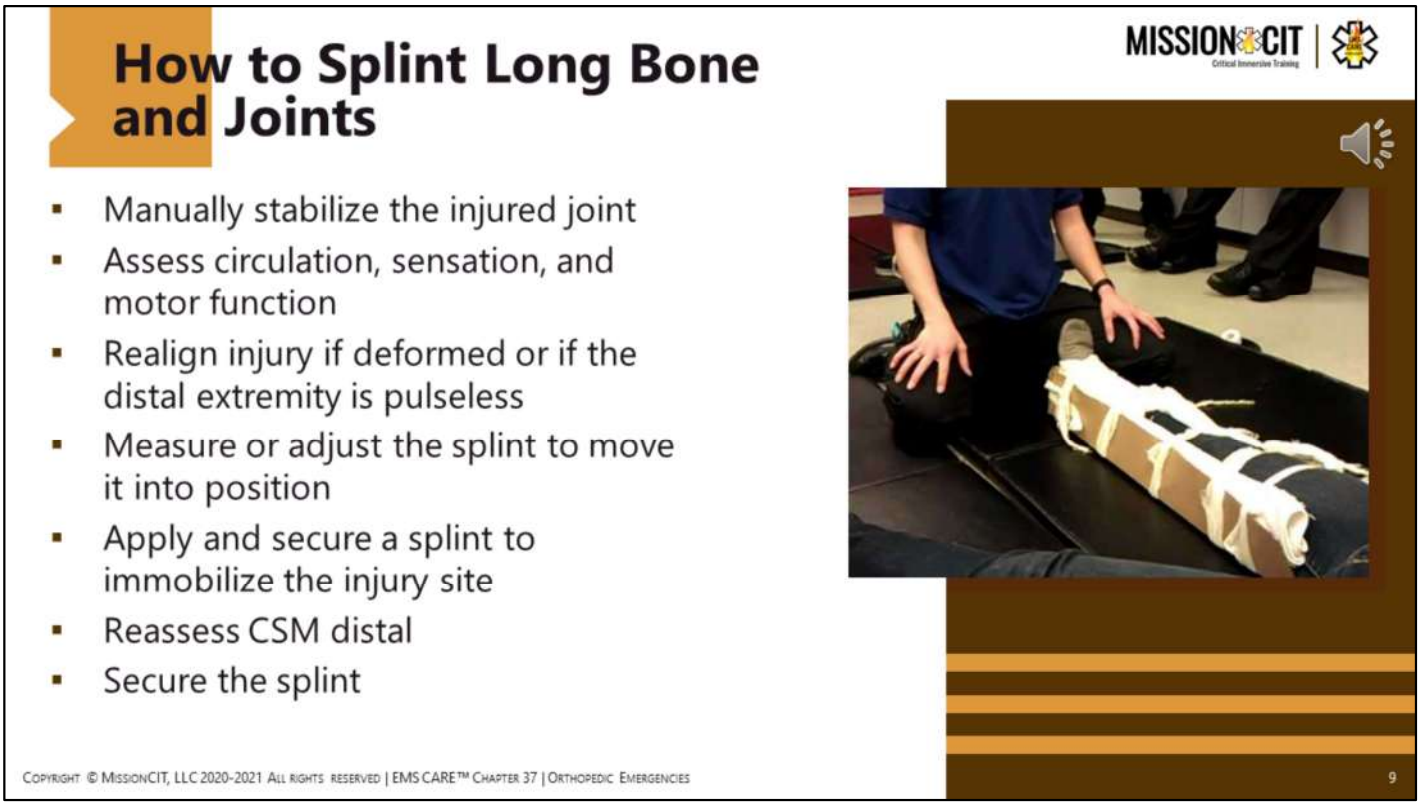
When splints are not done correctly, it leads to:

- Compressions of nerves, tissues, and blood vessels
- Delays the transport of a patient with life-threatening injuries
- Reduces distal circulation
- Aggravates injury
- Causes injury to tissue, nerves, blood vessels, and muscles
- Very tight splints can compress the soft tissues while very loose ones allow a lot of unnecessary movement



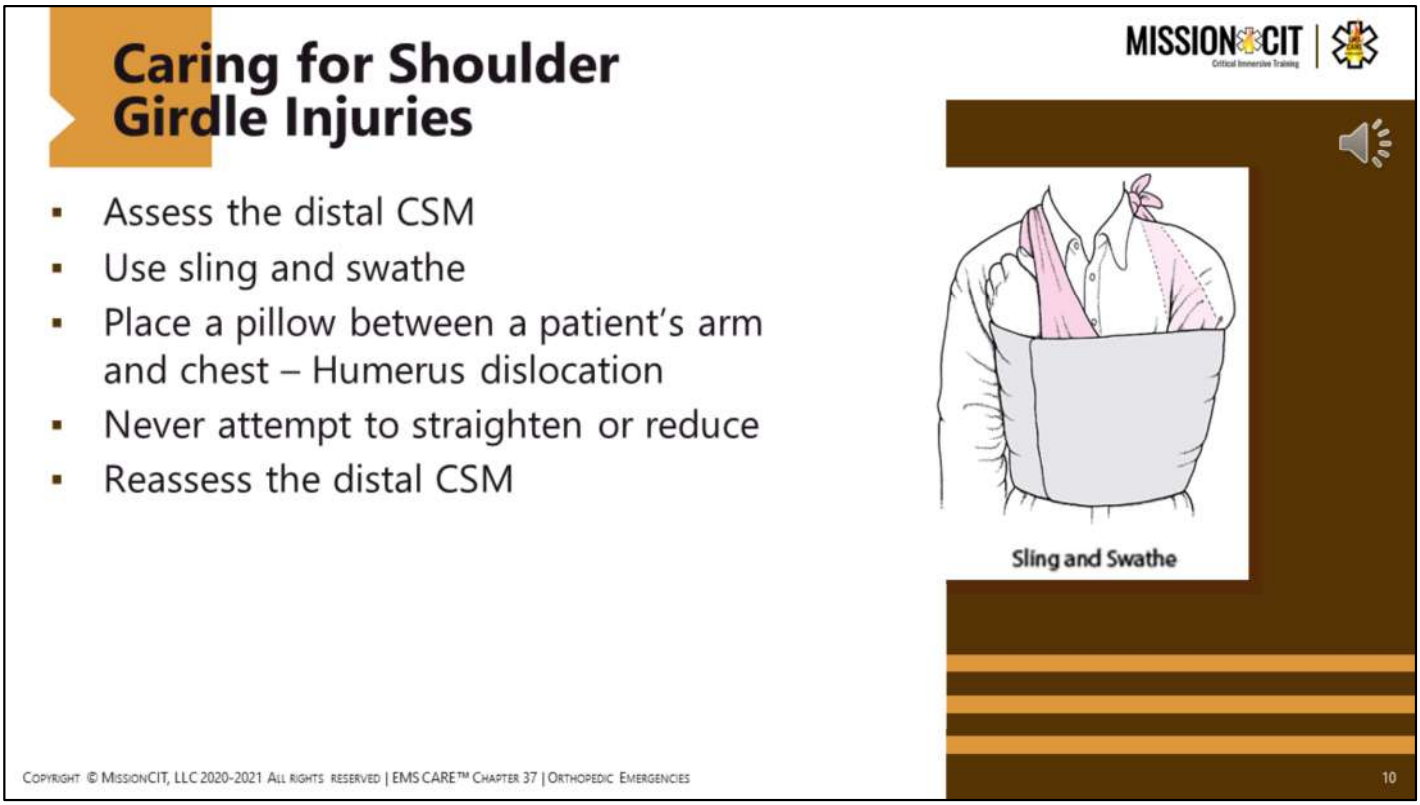
Some of the strategies to keep in mind for proper splinting are:

- Care for life-threatening problems first
- Expose the injury site
- Assess the distal pulse
- Align long bone injuries to anatomical position
- Do not push protruding bones back into their place
- Immobilize both the injury site and the adjacent joints
- Choose the appropriate splinting method
- Pad the voids



Here's how you can splint long bones and joints.

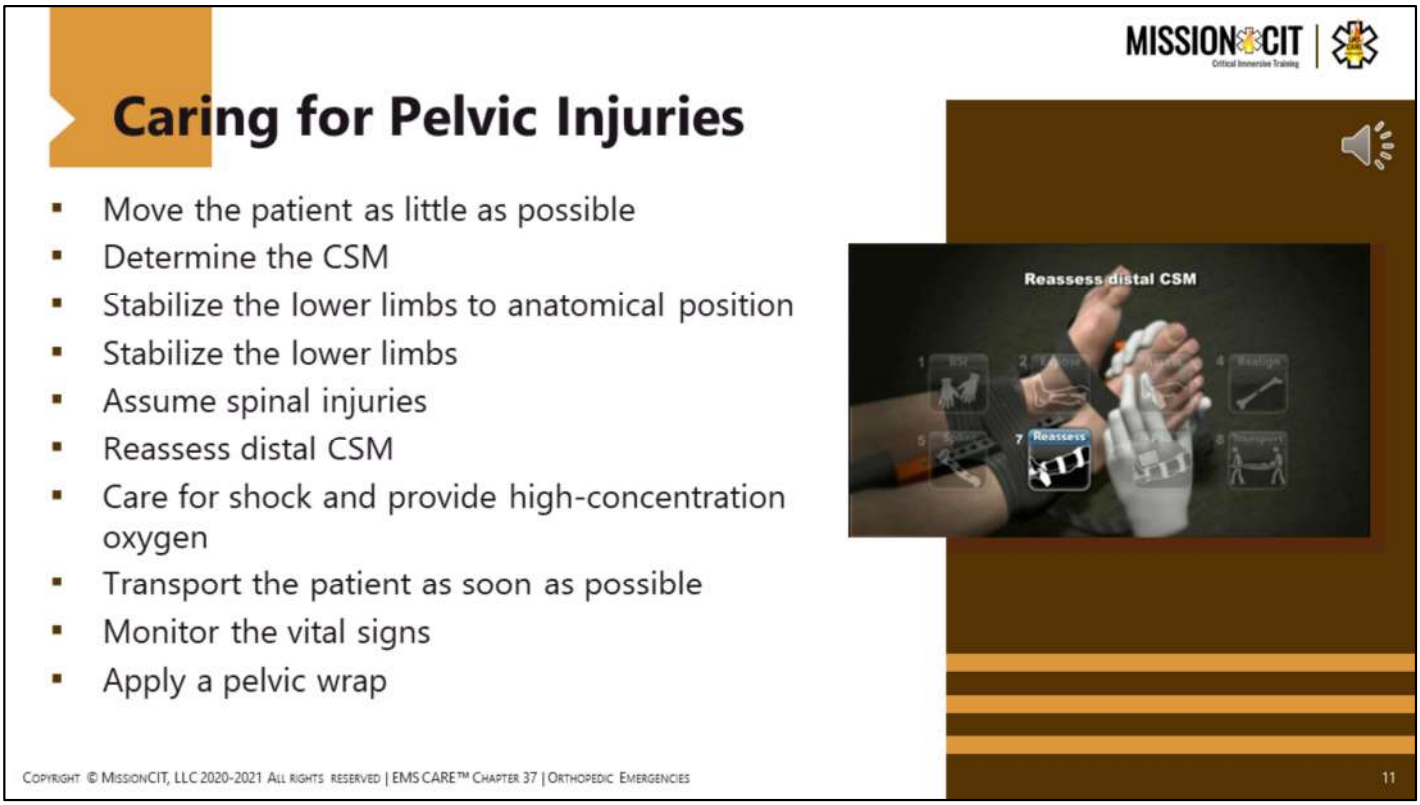
- Manually stabilize the injured joint
- Assess circulation, sensation, and motor function
- Realign injury if deformed or if the distal extremity is pulseless
- Measure or adjust the splint to move it into position
- Apply and secure a splint to immobilize the injury site
- Reassess CSM distal
- Secure the splint



For shoulder girdle injuries, assess pain in the shoulder. Check if the shoulder is dropping or if there's a severe blow to the back over the scapula.

Before starting patient care,

- Assess the distal CSM
- Use sling and swathe
- If you suspect anterior dislocation of the head of the humerus, place a pillow between a patient's arm and chest
- Never attempt to straighten or reduce
- Reassess the distal CSM

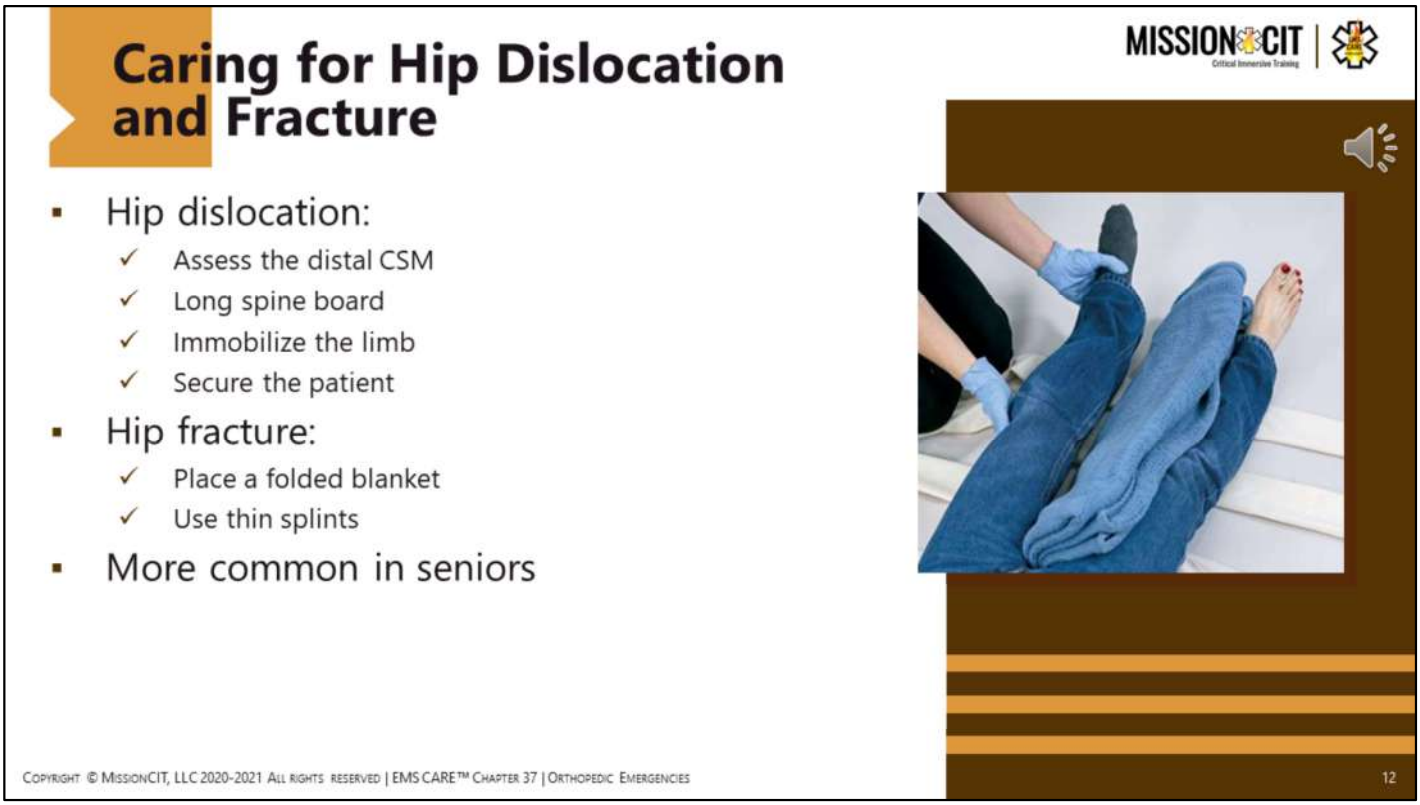


Check if there's a pain in the pelvis, hips, groin, or back. Apply pressure to the iliac crests and see if this makes the patient uncomfortable. In the case of pelvic injuries, the patient will be unable to lift legs while lying supine and can't do a lateral rotation of the foot. There will be a sense of unexplained pressure in the bleeder and sometimes, there can be bleeding from the urethra, rectum, or vaginal opening.

The patient care for these injuries is as follows.

- Move the patient as little as possible
- Determine the CSM
- Stabilize the lower limbs to anatomical position
- Stabilize the lower limbs
- Assume spinal injuries
- Reassess distal CSM
- Care for shock and provide high-concentration oxygen
- Transport the patient as soon as possible
- Monitor the vital signs

- Apply a pelvic wrap to patients who are unstable or have pelvic deformity, provided there are no signs of shock



Hip dislocations can be anterior or posterior. In both cases, the patient can't rotate the legs inward and the knee will always be bent. Further, the foot may hang loose and the patient may find it difficult to flex the foot or lift the toes. There will be no sensation in the hip.

If you suspect hip dislocation,

- Assess the distal CSM
- Move the patient onto a long spine board
- Immobilize the limb with pillows and blankets
- Secure the patient onto the spine board
- Reassess for CSM
- Care for shock
- Check for nerve and circulation impairment, and transport accordingly

In the case of a fracture,

- The pain will be localized
- The patient will be sensitive to exerted pressure

- Surrounding tissues will be discolored
- Swelling may be evident
- The patient will not be able to move the limb or stand
- The foot on the injured side would turn outward
- The injured limb will appear shorter

For such patients, place a folded blanket between the patient's legs, and bind the legs together with wide straps, or wide cravats. Use thin splints to push cravats or straps under the patient at natural voids and readjust so they will pass across the chest, the abdomen just below the belt, below the crotch, above and below the knee, and at the ankle.

Note that older adults are more likely to suffer from hip dislocation or fracture because they have brittle bones or weakness from various diseases.

This brings us to the end of this lesson, and in the next one, Missah will take you through chapter review.