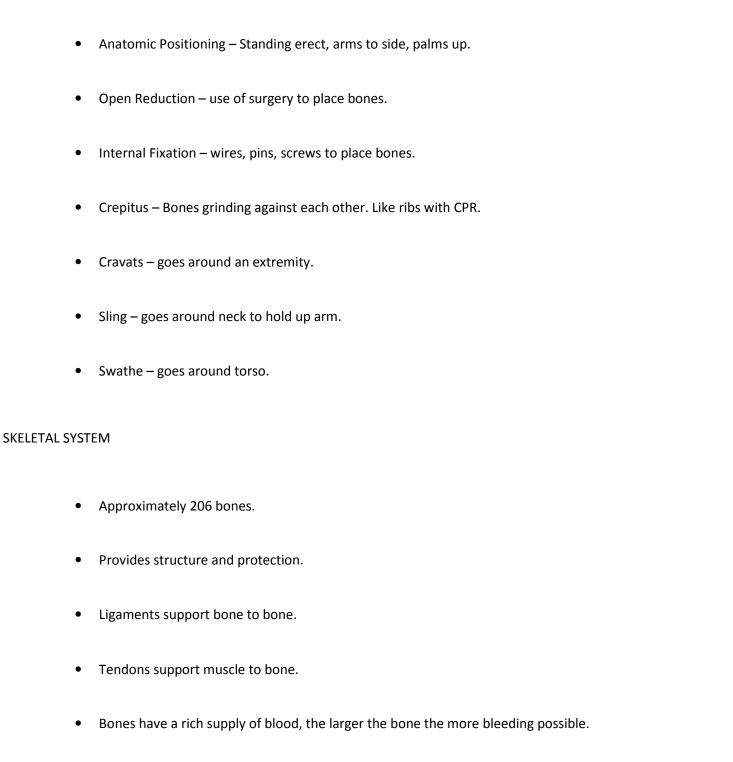
# **Emergency Medical Training Services**

Emergency Medical Technician – Basic Program Outlines Outline Topic: Musculoskeletal Trauma

#### **DEFINITIONS**



Revised: 11/2013

Young children are more flexible, injuries are more of a twisting motion.

The lining of the bone has the nerves (periosteum). This is why a fracture hurts.

#### **BONE CLASSIFICATION**

- Long bones humerus, femur
- Short bones fingers, toes, wrist
- Flat bones sternum, ribs, skull, scapula
- Irregular or odd shaped bones vertebrae

#### MUSCULAR SYSTEM

- Approximately 600 muscles
- Support movement of the skeletal system.
- Point of origin doesn't move during contraction.
- Point if insertion the bone that moves during contraction.

## **MUSCLES CELLS**

- Skeletal muscle (voluntary or striated) found in skeletal movement.
- Involuntary muscle (smooth) control body organs. Vessels, GI
- Cardiac muscle (heart) sensitive to O2 levels and has automaticity.

### **MECHANISM OF INJURY**

• Direct force – bat to body.

- Indirect force a fall and the wrist tries to catch the body.
- Twisting force football tackle that spins your body but the shoes are planted.

#### FRACTURE INJURIES

- Open (compound) fracture skin is open
- Closed (simple) fracture skin is closed
- Unstable bone moves freely
- Impacted jammed together
- Angulated major curves.
- Dislocation frozen joint or locked joint
- Greenstick children bones flex like a green stick.

#### **OPEN FRACTURES**

- Most common open fractures are tibia and fibula
- Complications include; internal hemorrhage, nerve damage, contamination.
- Do not put back in, unless it goes in on its own.
- Traction splint used only on mid-shaft femur fx.

## **CLOSED FRACTURES**

•	Hemorrhage into soft tissue.
•	Since skin is still closed Compartment Syndrome can take place.
DISLOCATION	
•	Possible nerve, vessel damage.
•	50% of dislocated knees and elbows have nerve damage. If knee or elbow try to splint as found.
•	Spontaneously reduce or relocated – popped back in
•	Subluxation is the pulling of the joint apart and goes back in.
STRAIN	
•	Tendon (muscle) pulled.
•	Days to weeks to heal.
•	Lifting something heavy.
SPRAIN	
•	Ligament damage.
•	Can take up to 8 months to heal.
•	Twisted an ankle on a sidewalk.
•	"I heard it pop."

## ASSESSMENT – what to look for

•	Unusual color – indicates contusion or hematoma. Purple, black, blue.
•	Unusual position – angulations, shorter than other side, false movement.
•	Feel – Bone ends grinding known as crepitus.
•	Loss of Nerve Supple – PMS problems.
•	Loss if Pulses – distal cold and discolored.
•	Capillary refill – may be delayed if blood supply is affected.
•	Pain – Hurts with motion

• Swelling - indicates inflammation for protection and/or hemorrhage.

## **RULES FOR BASIC SPLINTING**

- PMS checks before and after.
- Remove clothing from affected area.
- Open wounds dressed and bandaged before splinting

• Pain and swelling is considered broken until x-ray.

- Do not put bones back in that have come out unless they went in on their own.
- Pad the splints.
- No knots on the body to dig into tissue.

	•	Try to align the injured part into a more protective position if vulnerable. IF NO CREPITUS, MAJOR PAIN,
		OR FROZEN JOINT IS OBSERVED.
	•	Try to keep knees and elbows as found.
	•	Ice is fluff.
DCAP-BTLS		
	•	During physical exam look for;
	•	D-deformity
	•	C-contusion C-contusion
	•	A-abrasion
	•	P-punctures
	•	B-burns
	•	T-tender
	•	L-laceration
	•	S-swelling
HEMORRHA	GE	COMPLICATION
	•	After ABC – control major bleeding.

Follow four steps to control bleeding.

<ul> <li>If life threatening a fracture is not a priority. Place on long back board if that ba</li> </ul>
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## PMS COMPLICATION

• If no distal PMS the EMT has one chance to gently align the extremity with gentle traction and splint when pulse returns. If still no pulse splint as is and transport.

## **SPLINTS**

- Hard like a board. "Something you would not like across your face."
- Soft pillow. "Something you would like across your face."
- Air (pneumatic) splints like PASG but made for body parts.
- Traction used only on isolated mid shaft femur fractures with no other injury.