

# EMTB Soft Tissue Injuries Drill

## Instructor Guide

**Session Reference:** 1

**Topic:** Soft Tissue Injuries

**Level of Instruction:** 3

**Time Required:** 3 hours

**Materials:**

- Various size sterile dressings
- Various size bandage materials
- Multi-trauma pads
- Triangular bandages/cravats
- Occlusive dressings
- Blankets
- 3" tape
- Board splints

**References:**

- Emergency Care, 8<sup>th</sup> Edition, Brady

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**PREPARATION:**

**Motivation:**

Soft tissue injuries are among the most common injuries encountered in the field. An understanding of the underlying anatomy and physiology, quick recognition and rapid, efficient treatment are important to the successful recovery from these injuries.

**Objective (SPO):** 1-1

The student will be able to list, from memory and without assistance, the principles of wound management and demonstrate the appropriate treatment of soft tissue injuries and shock.

**Overview:**

Soft Tissue Injuries

- Principles of Bandages and Dressings
- Treatment of Shock
- External Bleeding Control
- Soft Tissue Injuries of the Head and Neck
- Penetrating Chest Wounds
- Treatment of Impaled Objects
- Treatment of Eviscerations
- Treatment of Amputations
- Treatment of Avulsions

## **Session 1**

## **Soft Tissue Injuries**

- SPO 1-1 The student will be able to list, from memory and without assistance, the principles of wound management and demonstrate the appropriate treatment of soft tissue injuries and shock.
- 1-1 Describe/demonstrate the principles of bandage and dressing use.
  - 1-2 Describe/demonstrate the treatment of shock (hypoperfusion).
  - 1-3 Describe/demonstrate the principles of external bleeding control.
  - 1-4 Describe/demonstrate the treatment of soft tissue injuries of the head and neck.
  - 1-5 Describe/demonstrate the treatment of penetrating chest wounds.
  - 1-6 Describe/demonstrate the treatment of impaled objects.
  - 1-7 Describe/demonstrate the treatment of eviscerations.
  - 1-8 Describe/demonstrate the treatment of amputations.
  - 1-9 Describe/demonstrate the treatment of avulsions.

## **I. Principles of Bandaging and Dressing (1-1)**

### **A. Dressing**

1. Preferably sterile
2. Used to cover wounds to
  - a. control bleeding
  - b. prevent additional contamination
3. Generally individually wrapped material of various sizes
  - a. 2" x 2", 4" x 4", 5" x 9"
4. Occlusive
  - a. used when an airtight seal is needed

### **B. Bandages**

1. Any material used to hold dressings in place
2. Need not be sterile
3. Variety of types
  - a. self-adherent, form fitting roller bandage
  - b. triangular
  - c. tape
  - d. any material that can be used to apply pressure to a wound

### **C. Dressing Open Wounds**

1. Take body substance isolation precautions
2. Expose the wound
3. Use sterile or very clean material
4. Cover the entire wound
5. Control bleeding
6. Do not remove dressings once applied.

### **D. Bandaging Open Wounds**

1. Do not bandage too tightly
2. Do not bandage too loosely
3. Do not leave loose ends
4. Do not cover the tips of fingers and toes
5. Cover all edges of the dressing
6. Special problems when bandaging extremities
  - a. pressure point if you bandage a small area
    - i. cover large area
    - ii. apply small to large (distal to proximal)
  - b. do not bend a joint after it is bandaged
    - i. may restrict circulation

## **II. Treatment of Shock (Hypoperfusion) (1-2)**

### **A. Types of Shock**

1. Hypovolemic
  - a. blood loss - hemorrhagic
  - b. plasma loss
2. Cardiogenic
  - a. inadequate pumping of blood by the heart

3. Neurogenic
  - a. uncontrolled dilation of blood vessels
- B. Signs and Symptoms
  1. Altered mental status
    - a. anxiety
    - b. restlessness
    - c. combativeness
  2. Pale, cool clammy skin
  3. Nausea and vomiting
  4. Pulse increases to compensate for blood loss
    - a. late sign
    - b. may become weak and thready
  5. Respirations increase to compensate
    - a. late sign
    - b. more rapid, labored, shallow or irregular
  6. Blood pressure drops
    - a. late sign
    - b. life threatening
  7. Thirst
  8. Dilated pupils
  9. Cyanosis at lips and nail beds
- C. Treatment
  1. Take body substance isolation precautions
  2. Maintain an open airway
    - a. high concentration oxygen
    - b. assist ventilations or administer CPR if indicated
  3. Control external bleeding
  4. Pneumatic anti-shock garments (PASG) as indicated
  5. Elevate legs 8" - 12" if no lower body or spinal injuries
    - a. contraindicated with PASG
  6. Splint fractures
  7. Prevent loss of body heat
  8. Transport immediately
  9. Speak calmly and reassure the patient

### **III. External Bleeding Control (1-3)**

- A. Direct Pressure
  1. Apply pressure to the wound
    - a. sterile dressing if light bleeding
    - b. gloved hand if profuse or spurting
  2. Apply pressure until bleeding stops
- B. Pressure Dressing
  1. Bandage dressing in place once bleeding is controlled
  2. Apply additional pressure dressings as needed
    - a. NEVER remove a dressing once it is in place

**C. Elevation**

1. Raise extremity above level of the heart
  - a. be aware of
    - i. musculoskeletal injuries
    - ii. spinal injuries
    - iii. impaled objects

**D. Pressure Point**

1. Located where a large artery lies close to the skin surface and directly over a bone
2. Brachial artery
  - a. control bleeding from upper extremities
  - b. located on the inner aspect of the upper arm midway between the armpit and elbow
  - c. apply pressure with fingertips
3. Femoral artery
  - a. control bleeding from the lower extremities
  - b. located on the medial side of the anterior thigh where it joins the trunk
  - c. apply pressure with the heel of your hand

**E. Tourniquet**

1. Last resort to control life threatening bleeding
2. Use may cause permanent damage to the extremity
3. Application
  - a. no further than 2" from the wound
  - b. apply above joint if wound is on joint
  - c. always apply between wound and heart
  - d. place pad over main artery
  - e. wrap cravat around extremity and tie knot over pad
  - f. place stick into knot and tighten to control bleeding
  - g. secure in place
  - h. DO NOT REMOVE
  - i. note time on patient that tourniquet was applied

**IV. Treatment of Soft tissue Injuries of the Head and Neck (1-4)****A. Scalp**

1. Very vascular so it bleeds freely
2. Control with direct pressure
3. Be aware of skull fractures
  - a. no pressure if injury shows bone fragments or depression
  - b. use loose sterile dressing

**B. Eye**

1. Impaled object or puncture wound
  - a. stabilize the object
    - i. 3" roller bandage
    - ii. folded 4" x 4"s
    - iii. place on both sides along vertical axis of the head
  - b. fit paper cup or cone over object
    - i. rest on the stabilizing rolls
    - ii. do not allow it to touch object
  - c. second rescuer stabilizes cup and dressing
    - i. secure with self adherent roller bandage
  - d. dress uninjured eye to reduce sympathetic eye movement
  - e. administer oxygen
  - f. care for shock
  - g. speak calmly and reassure the patient
2. Laceration/bleeding around eye
  - a. apply pressure dressing using same techniques as for impaled objects

**C. Neck**

1. Arteries and veins close to the surface
2. Low pressure in veins increases the possibility of an air embolus
3. Treatment strategy includes
  - a. stop bleeding
  - b. prevent an embolus from entering the system
4. Procedures
  - a. maintain an open airway
  - b. place gloved hand over wound
  - c. apply occlusive dressing
    - i. at least 2" past edges of wound
  - d. place a dressing over the occlusive dressing
  - e. apply pressure to control bleeding
    - i. do not compress both carotid arteries
  - f. bandage in place when bleeding stops
  - g. immobilize the spine per mechanism/protocol

**V. Treatment of Penetrating Chest Wounds (1-5)****A. Signs and symptoms**

1. Wound to the chest
2. May or may not have sucking sound
3. Patient may gasp for air
4. Consider all open chest wounds to be life threatening

**B. Treatment**

1. Maintain an open airway
  - a. provide Basic Life Support as needed
2. Seal the wound as quickly as possible
  - a. use a gloved hand if necessary
3. Apply an occlusive dressing
  - a. at least 2" past edges of wound
  - b. seal all four sides on exhalation OR
  - c. seal three sides to create a flutter valve
4. Administer high concentration oxygen
5. Care for shock
6. Transport immediately
  - a. transport on injured side if not contraindicated
  - b. consider Advanced Life Support

**C. Chest Injury Complications**

1. Pneumothorax and tension pneumothorax
  - a. lung collapses are a result of air in the chest cavity
2. Tension pneumothorax
  - a. air pressure increases
    - i. no place to escape
    - ii. puts pressure on heart, great vessels and unaffected lung
    - iii. reduces cardiac output/blood oxygenation
3. Signs of pneumothorax and tension pneumothorax
  - a. increasing respiratory difficulty
  - b. indications of developing shock
  - c. distended neck veins
  - d. tracheal deviation to uninjured side
  - e. uneven chest wall movement
  - f. reduction of breath sounds on affected side
4. Hemothorax and hemopneumothorax
  - a. chest cavity fills with blood
  - b. chest cavity fills with blood and air
5. Signs of hemothorax and hemopneumothorax
  - a. signs of pneumothorax
  - b. coughed up red frothy blood
6. Traumatic asphyxia
  - a. sudden compression of the chest
  - b. rapid build up of pressure within the chest
7. Signs of traumatic asphyxia
  - a. distended neck veins
  - b. head, neck and shoulders appear dark blue or purple
  - c. eyes may be bloodshot and bulging
  - d. tongue and lips may be swollen and blue
  - e. chest deformity may be present

8. Cardiac tamponade
  - a. heart injury
  - b. pericardial sac fills with blood
9. Signs of cardiac tamponade
  - a. distended neck veins
  - b. very weak pulse
  - c. low blood pressure
  - d. steadily decreasing pulse pressure
    - i. difference between systolic and diastolic pressure

## **VI. Treatment of Impaled Objects (1-6)**

### **A. General Principles**

1. Do not remove the impaled object
2. Expose the wound area
3. Use direct pressure to control profuse bleeding
4. Manually stabilize the impaled object
5. Stabilize the object with bulky dressings
6. Secure the dressing in place
7. Administer high concentration oxygen
8. Care for shock
9. Keep patient at rest
10. Provide emotional support
11. Carefully transport as soon as possible
  - a. if abdominal injury, leave legs in position found
12. Reassure the patient

### **B. Object in the Cheek**

1. Be aware of potential airway obstruction
  - a. the object
  - b. blood if the cheek is perforated
  - c. vomitus
2. Examine external cheek and inside the mouth
3. If cheek is perforated and you can see both ends of the object, remove it by pulling it out in the direction it entered
4. If cheek is perforated and the tip of the object is impaled deeper, stabilize in place
5. Position head to allow for drainage
6. Monitor airway; be prepared to suction
7. Dress the outside of the wound
8. Administer oxygen
9. Care for shock

## **VII. Treatment of Eviscerations (1-7)**

### **A. General Principles - Open and Closed Abdominal Injuries**

1. Maintain an open airway
2. Place patient on back, flex the legs at the knees
3. Administer high concentration oxygen



4. Care for shock
5. Give the patient nothing by mouth
6. Monitor vital signs
7. Transport as soon as possible

B. Open Abdominal Injuries

1. Control external bleeding
2. Dress all open wounds
3. Do not touch or try to replace any exposed organs
4. Cover viscera with heavy, sterile plastic
  - a. do not use aluminum foil
5. Tape all four sides of the occlusive dressing
6. Cover visceral and occlusive dressing with bulky dressings and loosely secure in place

**VIII. Treatment of Amputations (1-8)**

A. General Principles

1. Place a pressure dressing over the stump
2. Control bleeding
  - a. pressure point techniques
  - b. tourniquet as last resort only
3. Never complete a partial amputation
4. Wrap the amputated part in a dry sterile dressing
5. Seal the amputated part in a plastic bag and keep cool
  - a. **do not freeze**
6. Transport the amputated part with the patient

**IX. Treatment of Avulsions (1-9)**

A. Flap Torn Loose

1. Clean the wound surface
2. Fold tissue into normal position
3. Control bleeding
4. Dress the wound

B. Flap Torn Off

1. Control bleeding
2. Dress the wound
3. Wrap the avulsed part in a dry sterile dressing
4. Seal the avulsed part in a plastic bag and keep cool
  - a. **do not freeze**
5. Transport the avulsed part with the patient

## **SUMMARY:**

### **Review:**

#### Soft Tissue Injuries

- Principles of Bandages and Dressings
- Treatment of Shock
- External Bleeding Control
- Soft Tissue Injuries of the Head and Neck
- Penetrating Chest Wounds
- Treatment of Impaled Objects
- Treatment of Eviscerations
- Treatment of Amputations
- Treatment of Avulsions

### **Remotivation:**

### **Assignment:**

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## **EVALUATION:**