

11

PRE-HOSPITAL TREATMENT

Lecture: 01 Periods, Practical: 02 Periods Total: 03 Periods

LESSON OBJECTIVES

**Upon completing this lesson,
you will be able to:**

1. Identify the possible mechanisms of injury in a structural collapse.
2. List the potential injuries that could be expected in a structural collapse.
3. Describe the conditions in a patient that might indicate the presence of crush syndrome or compartment syndrome.
4. Demonstrate the pre-hospital treatment for trapped victims.

1

Mechanisms of Injury and Their Consequences

Notes

It is very important for the rescuers not to lose sight of the primary objective of a CSSR operation. Their first responsibility is to assess, stabilise and extricate victims with the least possible injury.

1.1 Crushing or compression

Potential injuries and consequences:

- Compartment _____

- Crush syndrome

- Wide variety of _____

- _____ and _____ haemorrhaging

Mechanisms of Injury and Their Consequences

1.2 Falls

Potential injuries and consequences:

- Fractures of the _____, _____ and spinal column
- Internal and _____ haemorrhaging

1.3 Low temperatures

Potential injuries and consequences:

- _____ and associated complications

1.4 Blunt Trauma

This can be caused by impact by furniture, loose objects or materials from the structure (at high velocity in explosions). Potential injuries and consequences include:

- _____ and _____ haemorrhaging
- _____
- _____
- Various injuries
- _____
- _____

Mechanisms of Injury and Their Consequences

(Cont.)

1.5 Contaminated air

It is common in collapsed structure situations to encounter large amounts of airborne dust, and in some situations hazardous and/or flammable vapours.

Potential injuries and consequences:

- Respiratory _____

- _____ arrest

- Respiratory arrest

- _____ problems

1.6 Lack of water and food

- _____

- Starvation

- _____

- Renal _____

1.7 Prolonged isolation and desperation

- Traumatic stress

Complications resulting from blood toxicity that arise after an extremity or muscle mass has been compressed and circulation compromised for an extended period of time.

Crush syndrome can result when an extremity is caught under pressure between two objects. It is common in trapped victims of collapsed structures. Swelling may be a major problem with resulting loss of blood supply distally. Patients may suffer (tourniquet shock) when the object is removed and toxins that have been built up behind the blockage are released and travel to the heart with often _____ results.

According to studies on patients with crush syndrome, if they receive proper treatment in a timely manner, there is a _____ percent chance of remaining alive. Crush syndrome does not necessarily occur in every incident where a victim is trapped. As a general rule, the syndrome may be considered present on the basis of three criteria:

- Involvement of a _____
- Prolonged _____
- Compromised _____

For instance, entrapment of a hand is unlikely to initiate the syndrome. Compression time may be as short as one hour but the average time is four to six hours or greater.

Notes

The major problem that faces the rescuer when dealing with suspected crush injury is dissuading helpful bystanders from attempting to remove the compressive force prior to treatment.

Signs and symptoms of crush syndrome

- Anxiety _____
- Difficulty breathing _____
- Decreasing blood pressure _____
- Changes in body temperature _____
- Rapid pulse _____
- Cardiac deficiency _____
- Loss of consciousness _____
- Absent pulse and capillary refill in the distal limb _____

- Shock _____

An increase in pressure in the closed space of the muscle caused by tissue swelling that causes destruction of muscle fibres and nerves.

Compartment syndrome usually develops over a period of several hours and may not be present initially. It may be the result of crush syndrome, closed or open fractures, sustained compression, or after blood flow has been returned. As the duration and magnitude of interstitial pressure increases, necrosis of soft tissue eventually develops. While compartment syndrome can occur in most areas of the body, the more common sites are the forearm, calf and thigh.

There are two prerequisites for compartment syndrome to occur:

- An envelope within the tissue that limits the available space
- A cause of increased pressure within the envelope

Signs and symptoms of compartment syndrome

- Swollen limb in an unconscious patient _____
- Severe pain, disproportionate to the injury _____
- Pain on passive stretching of the muscles in the compartment _____

3**Compartment
Syndrome**
(Cont.)

- Diminished pulse _____
- Poor capillary refill _____
- Decreased sensation in the affected extremity _____
- Shock _____
- Dehydration _____
- Loss of motor function in the affected limb _____

Notes**4****General
Treatment
for Trapped
Patients**

- 4.1 Do not remove the source of pressure until treatment has begun.

- 4.2 _____

- 4.3 Protect the patient from possible hazards resulting from the rescue attempt.

- 4.4 _____

- 4.5 Immobilise the neck and spine.

- 4.6 _____

General Treatment for Trapped Patients

(Cont.)

Notes

4.7 Protect the patient from the environment.

4.8 Monitor the patient's cardiac state.

4.9 Allow qualified medical personnel to provide the

4.10 Place the patient on the backboard or stretcher, immobilise him or her, and proceed with removal from the site, using correct procedure at every step.

4.11 Remember the protocols for contact with victims that were covered in Lesson 6.

The specific treatments for crush syndrome and compartment syndrome must be administered by qualified emergency medical personnel. Consult the reference material for this lesson.

Immobilising a Patient on a Backboard

Notes

5.1 Stabilising the patient's head.

5.2 Place the _____

5.3 Rotate the patient onto the backboard.

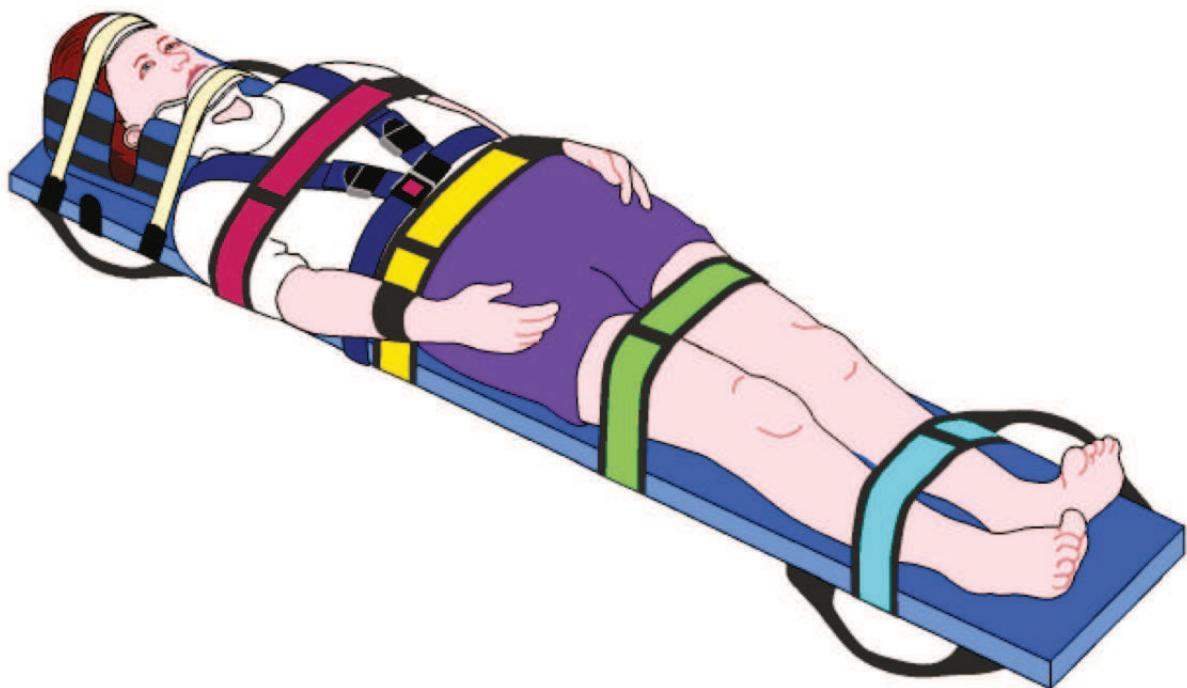
5.4 Inspect the _____

5.5 Centre the patient on the backboard.

5.6 Immobilise the patient onto the backboard.

5.7 Check pulse, motor function and sensation after immobilising the patient.

✓ CORRECT
IMMOBILISATION



✗ INCORRECT



PRACTICAL EVALUATION

Lesson 11 Pre-hospital Treatment

Group #:

Activity*		Complete	Incomplete
1	Ensure scene safety		
2	Use of proper PPE		
3	Proper access method to reach the victim		
4	Verbally state the initial management prior to removal of compressive force.		
5	Application of C-collar and victim immobilization		
6	Identify signs and symptoms of Crush and/or Compartment Syndrome		
7	State the other pre-hospital treatment required		
8	Victim transport.		

*Activities in bold type require satisfactory performance for a passing grade on this evaluation.

Notes:

Pass:		Instructor:
Fail:		Place: Date:
Instructor's Signature:		

— INSTRUCTOR'S COPY

POST-TEST | LESSON 11

Pre-Hospital Treatment

1. Complete the table below.

Mechanism of Injury	Expected Injuries
Lack of water and food	
	Traumatic stress
	Respiratory problems Possible cardiac or respiratory arrest
Crushing and/or compression	
Falls	
	Hypothermia
Blunt trauma caused by impact from furniture, objects and structural materials	

2. List the conditions present in a victim that might indicate the possibility of crush syndrome or compartment syndrome.

- _____
- _____
- _____
- _____
- _____

3. What immediate steps must you and your CSSR squad take upon find a victim with possible crush syndrome? Select all the correct answers by placing an "X" in the spaces provided.

- Remove the compressive force and initiate treatment
- Immobilise the victim neck and spine
- Administer oxygen
- Check ABC's (airway, breathing and circulation)
- Treat for shock
- Extricate the victim immediately and take him/her in for treatment by medical doctors at the nearest hospital

Collapsed Structure Search and Rescue (CSSR)

CSSR LESSON 11 EVALUATION

Course Location: _____ Dates: _____

Do not write your name on this form. Please complete a copy of this form at the end of every lesson. Your evaluations are very valuable towards improving the course. Please use the ratings below.

1 VERY POOR	2 POOR	3 AVERAGE	4 GOOD	5 EXCELLENT
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Please fill in the required information.	Lesson Number :	Lesson Name :
	Instructor's Name	
Use a scale from 1 to 5 as described above to rate the various lesson components.	Lesson Rating (rate 1 to 5)	
	Content	Instructor
Mark your selection with an "X"	Method	Interaction
	Instruction Level <input type="checkbox"/> Too basic <input type="checkbox"/> Appropriate <input type="checkbox"/> Too advanced	
	Duration <input type="checkbox"/> Too short <input type="checkbox"/> Appropriate <input type="checkbox"/> Too long	
	Usefulness Was this lesson useful to you? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Rate from 1 to 5	Overall Lesson Rating Taking all the above into consideration, I rate this lesson: _____	
If you need additional space, please use the back of the sheet.	Comments and Observations	

Thank you for your help. Your input is valuable.
Please turn in this completed form to the instructor.

Collapsed Structure Search and Rescue (CSSR)

EXERCISE EVALUATION LESSON 11

Course Location: _____ Dates: _____

Do not write your name on this form. Please complete a copy of this form at the end of every lesson. Your evaluations are very valuable towards improving the course. Please use the ratings below.

1 VERY POOR	2 POOR	3 AVERAGE	4 GOOD	5 EXCELLENT
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Lesson 11 Pre-hospital Treatment Use a scale from 1 to 5 as described above to rate the various lesson components. Mark your selection with an "X"	Station 1	Station Name: Victim Extrication and Pre-hospital Treatment		
	Instructor:			
	Station Rating (rate 1 to 5) Instructor _____ Materials _____ Method _____ Location _____			
	Instruction Level <input type="checkbox"/> Too basic <input type="checkbox"/> Appropriate <input type="checkbox"/> Too advanced Duration <input type="checkbox"/> Too short <input type="checkbox"/> Appropriate <input type="checkbox"/> Too long Comments and Observations 			
 Use a scale from 1 to 5 as described above to rate the various lesson components. Mark your selection with an "X"	Station 2	Station Name: Victim Extrication and Pre-hospital Treatment		
	Instructor:			
	Station Rating (rate 1 to 5) Instructor _____ Materials _____ Method _____ Location _____			
	Instruction Level <input type="checkbox"/> Too basic <input type="checkbox"/> Appropriate <input type="checkbox"/> Too advanced Duration <input type="checkbox"/> Too short <input type="checkbox"/> Appropriate <input type="checkbox"/> Too long Comments and Observations 			

Thank you for your help. Your input is valuable.
Please turn in this completed form to the instructor.

