

## Module 3 Bleeding and Shock

### Unit 1: The Circulatory System

Let's start off this module by briefly looking at how blood moves around our body through the circulatory system.

The heart is a muscular pump responsible for pushing blood around the body. Blood travels in arteries, veins, and capillaries. Its purpose is to transport Oxygen and nutrients around the body and to remove waste products such as Carbon Dioxide.

An average adult has around 5 liters of blood in their body.

#### The Different Types of Blood Vessels

The three types of blood vessel will cause different types of bleeding from a victim.

**Arteries:** Carry blood under high pressure away from the heart. Blood is likely to spurt out of a wound.

**Veins:** Carry blood under low pressure back to the heart. Blood will flow steadily from the wound

**Capillaries:** Carry blood to the individual cells and tissues, very small and very low pressures. Blood will ooze from the wound.



## Types of Wound

There are various types of wound that a victim may sustain.

**Laceration:** Tearing of the skin & tissue

**Contusion:** A bruise

**Abrasion:** Graze – loss of the superficial layer of skin

**Incision:** A straight clean wound

**Puncture:** Caused by a sharp object which may still be in the wound (foreign / embedded object)

## Unit 2: Dealing with Major Bleeding

Major bleeding is life-threatening and requires urgent first aid intervention to prevent further blood loss and the development of shock.

### First Aid Steps for Major Bleeding

1. Expose injury and **elevate** above level of the heart
2. If there are no foreign objects, apply firm direct pressure over the wound
3. If there is an object, apply **pressure** around the foreign object
4. Call for emergency medical help

A useful mnemonic to help you remember the first aid steps for major bleeding is '**PEEP**'.

**P:** Position – position the victim in a safe / comfortable position

**E:** Elevate limbs

**E:** Expose & examine the injury. Check for any embedded or foreign objects such as pieces of glass.

**P:** Pressure – apply direct pressure over the injury to control blood loss

Do not apply a tourniquet unless specifically trained to do so. Do not attempt to wash out a major wound – your aim is to control the bleeding as quickly as possible. Watch for signs and symptoms of shock (next unit)



## **Video: applying a bandage**

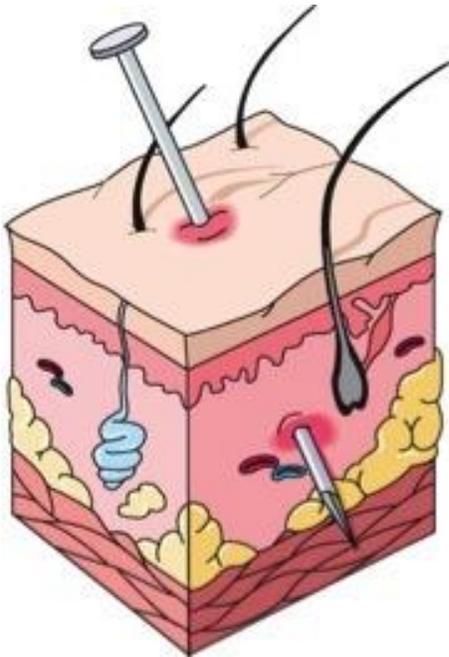
If you have access to first aid materials, you may be able to apply a sterile bandage to a wound. Applying a bandage provides direct pressure and reduces the risk of infection. The following video demonstrates how to apply a sterile bandage

[https://www.youtube.com/watch?v=Y1G8XQb0WBc&feature=emb\\_title](https://www.youtube.com/watch?v=Y1G8XQb0WBc&feature=emb_title)

### Unit 3: Puncture Wounds

A puncture wound occurs when an object pierces the skin and enters a tissue of the body. This creates an open wound which is painful and may be bleeding. Punctures may occur due to any sharp objects such as glass, scissors, knives, pins, nails, wood splinters and sharp stones.

The object may remain embedded in the wound or may have passed clean through the body part involved.



1. Do not remove the object unless it is very small (for example a small splinter)
2. Stop the bleeding by applying pressure around the wound – **take care** not to dislodge the object
3. If possible, elevate the limb to prevent further blood loss
4. Seek urgent medical attention

It is important to keep the object as still as possible to prevent further injury to the deeper structures below the skin. Whilst it is tempting sometimes to attempt to remove the object, this can worsen the situation by causing further bleeding and tissue damage. Removal of embedded objects should only be carried out by a medical professional.

## Unit 4: Shock

What is shock?

*A lack of oxygen and essential nutrients reaching the tissues*

Shock is a **medical emergency** which can be caused by severe blood loss. The casualty does not receive enough oxygen and other essential nutrients due to the loss of blood.

Remember that blood is the **major transport mechanism** in the body for oxygen and vital nutrients. If you have lost half your blood volume (on the floor in a puddle) then that blood is not available to transport oxygen and nutrients to your important organs.

### **Medical shock is not the same as emotional shock**

Many people are confused about what shock means. The mass media use the term 'shock' to refer to people who have been emotionally affected by a traumatic incident.

However – **this is not the same as medical shock.**

Medical shock is a life-threatening medical emergency. There are various causes of shock, major blood loss will cause **hypovolemic shock**.

Hypovolemic means low blood volume.

### **How to recognize shock**

Signs & symptoms of shock include:

- Pale, cold and clammy skin
- Confusion
- Drowsiness (reducing level of consciousness)
- Fast, weak pulse
- Fast, shallow breathing

If a casualty has lost a lot of blood, you should be actively looking for signs and symptoms of shock.

## **First aid treatment for shock**

If you suspect a casualty is suffering from shock, then you should:

1. Control any external blood loss (think PEEP from the last unit)
2. Lie the casualty down and raise their legs if possible
3. Cover the casualty with a coat or blanket to keep them warm
4. Call for emergency medical help

Do not give the casualty anything to eat or drink! Stay with them until medical help arrives. If the casualty becomes unconscious / unresponsive then you should place them into the recovery position. If they stop breathing normally then commence CPR.

The key skill for a first aider is being able to **recognize shock developing early** and call for prompt medical assistance.

Video: First aid for shock

This video goes into a bit more depth about the different types of shock.

[https://www.youtube.com/watch?v=BLfYFr7sWY&feature=emb\\_title](https://www.youtube.com/watch?v=BLfYFr7sWY&feature=emb_title)

## Unit 5: Minor Wounds

Nearly all of us will have suffered a minor wound at some point in our lives. There are some simple first aid steps you can take if someone has suffered a minor wound:

1. Wash your hands and wear gloves
2. Clean the wound thoroughly with antiseptic wipes or clean running water
3. Cover the wound using a clean dressing (plaster, non-adherent pad etc.).

**Caution:** Do not remove any embedded objects (e.g: glass) – seek medical advice if there are any objects in a wound.

Most minor wounds will heal with time and these simple first aid steps. However, sometimes they can become infected. You should watch out for signs and symptoms of an infected wound:

- Increasing pain
- Area around the wound become red, swollen, and warm to touch
- The wound starts producing discharge / pus
- The casualty develops a temperature / fever

Below is an example of an infected minor wound (click on the photo to enlarge). You can clearly see the area around the wound has become red and swollen. The wound is also producing a yellow discharge. If you suspect a minor wound has become infected, then you should seek urgent medical attention.



## End of Module 3 Quiz

Module 3 quiz

Question #1: How much blood does the average adult have?

- a) 10 pints
- b) 8 pints
- c) 12 pints
- d) 13 pints

Question #2: What is a contusion?

- a) A large wound
- b) A tearing of the skin
- c) A head injury
- d) A bruise

Question #3: Elevating a limb can slow down bleeding

- a) True
- b) False

Question #4: You should remove an object from a wound to help stop the bleeding

- a) True
- b) False

Question #5: Direct pressure is the best way to stop major external bleeding

- a) True
- b) False