CLS TCCC COMBAT LIFESAVER

DHA DEFENSE HEALTH AGENCY

TACTICAL COMBAT CASUALTY CARE COURSE

MODULE 06: MASSIVE HEMORRHAGE CONTROL

Committee on Tactical Combat Casualty Care (CoTCCC)

TCCC TIER 1
All Service Members

TCCC TIER 2
Combat Lifesaver

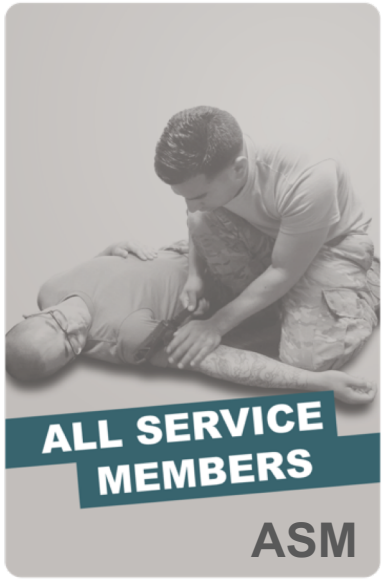
TCCC TIER 3
Combat Medic/Corpsman

TCCC TIER 4
Combat Paramedic/Provider

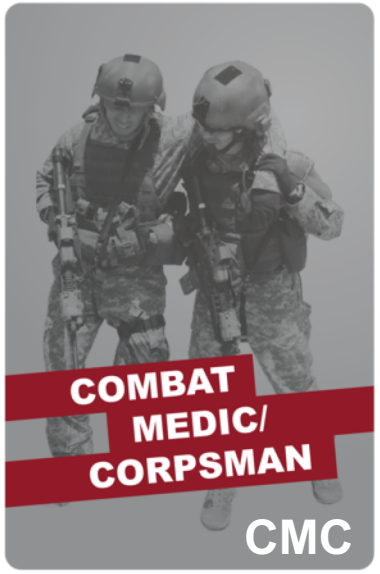
TACTICAL COMBAT CASUALTY CARE (TCCC)
ROLE-BASED TRAINING SPECTRUM

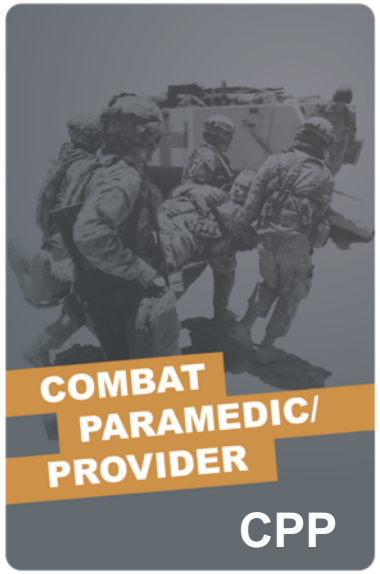
ROLE 1 CARE

NONMEDICAL PERSONNEL



MEDICAL PERSONNEL





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STANDARDIZED JOINT CURRICULUM

STUDENT LEARNING OBJECTIVES

TERMINAL LEARNING OBJECTIVE

07 **Given combat or noncombat scenario, perform massive hemorrhage control during Tactical Field Care in accordance with CoTCCC Guidelines**

- **37** Identify life-threatening hemorrhage (bleed)
- **38** Identify the importance of early application of limb tourniquets to control life-threatening bleed
- **39** Identify anatomical sites for applying direct and indirect pressure to control bleeding
- **40** Demonstrate the appropriate application of a CoTCCC-recommended limb tourniquet
- **41** Identify risks associated with applying an improvised limb tourniquet
- **42** Demonstrate the application of a CoTCCC-recommended hemostatic dressing
- **43** Demonstrate an evaluation of previously applied tourniquets for hemorrhage control effectiveness
- **44** Demonstrate improvised junctional hemorrhage control with hemostatic dressing and direct pressure

9 **ENABLING LEARNING OBJECTIVES** (ELOs)

= Cognitive ELOs = Performance ELOs

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Three PHASES of TCCC

1 CARE UNDER FIRE

RETURN FIRE AND TAKE COVER

Quick decision-making:

- Consider scene safety
- Identify and control life-threatening bleeding
- Move casualty to safety

2 TACTICAL FIELD CARE

COVER AND CONCEALMENT

Basic management plan:

- Maintain tactical situational awareness
- Triage casualties as required
- Conduct MARCH PAWS assessment

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3 TACTICAL EVACUATION CARE

More deliberate assessment and treatment of unrecognized life-threatening injuries

- Pre-evacuation procedures
- Continuation of documentation

NOTE: This is covered in more advanced TCCC training!

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TACTICAL FIELD CARE

MARCH PAWS

DHA DEFENSE HEALTH AGENCY

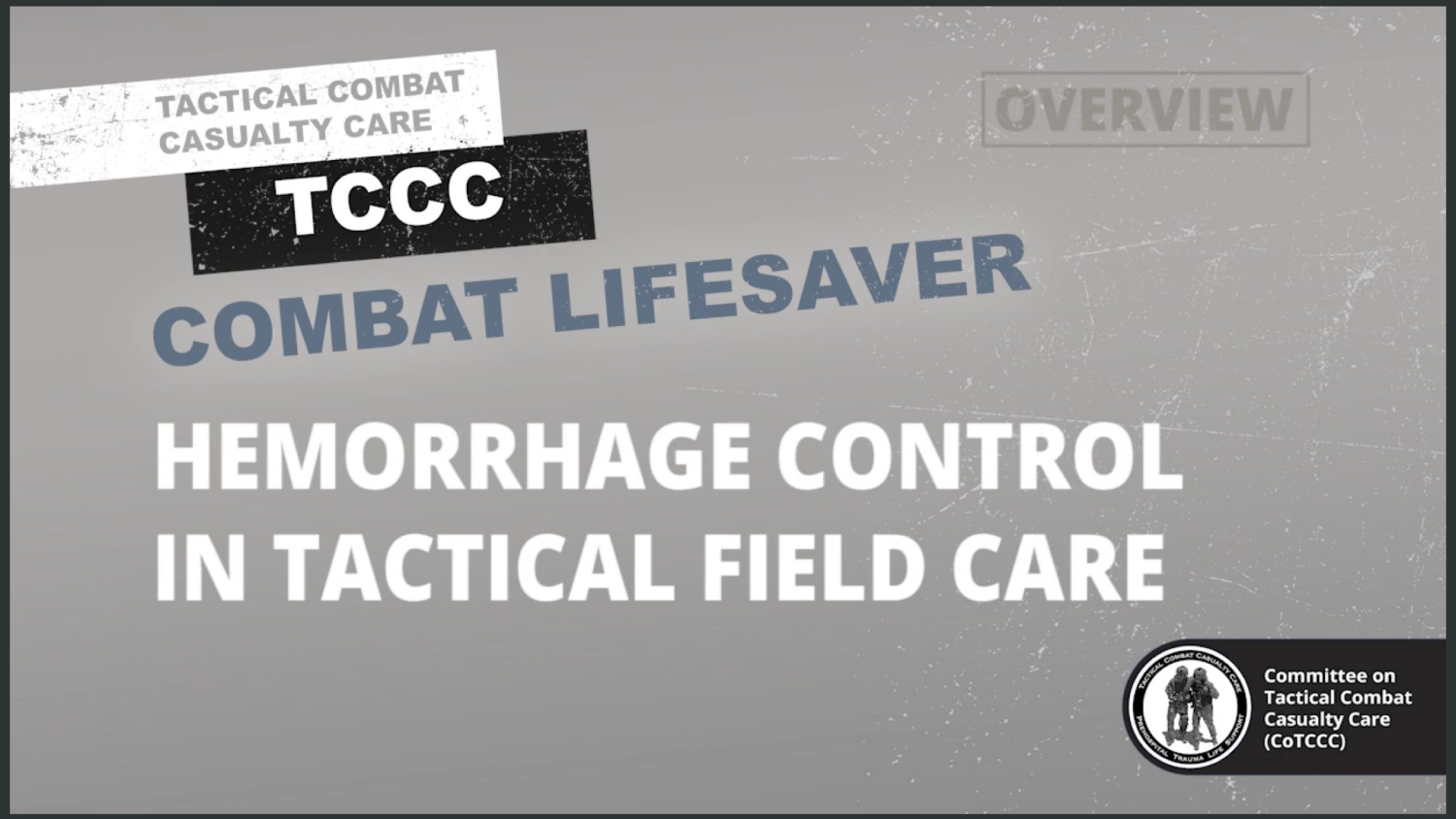
DURING LIFE-THREATENING

- **M** MASSIVE BLEEDING — #1 Priority
- **A** AIRWAY
- **R** RESPIRATION *(breathing)*
- **C** CIRCULATION
- **H** HYPOTHERMIA/ HEAD INJURIES

AFTER LIFE-THREATENING

- **P** PAIN
- **A** ANTIBIOTICS
- **W** WOUNDS
- **S** SPLINTING

HEMORRHAGE OVERVIEW IN TFC



Video can be found on DeployedMedicine.com

SECURITY AND SAFETY IN TACTICAL FIELD CARE

- **Establish** a security perimeter in accordance with unit tactical standard operating procedures (SOPs) and/or battle drills
- **Maintain** tactical situational awareness

CASUALTIES WITH ALTERED MENTAL STATUS SHOULD HAVE

- **Weapons** cleared and secured
- **Communications** secured
- **Sensitive items** redistributed
- **NOTE:** Weapons and radios **DO NOT** mix well with **shock** or **narcotics**

PRIORITIZING MULTIPLE CASUALTIES

Casualties with these injuries must be treated first:

#1 **Massive bleeding**

#2 **Penetrating** trauma into the box (torso)

#3 **Airway** compromise

#4 **Respiratory** distress

#5 **Altered** mental status

EARLY CONTROL OF SEVERE HEMORRHAGE IS CRITICAL

BRIGHT RED BLOOD is pooling on the ground

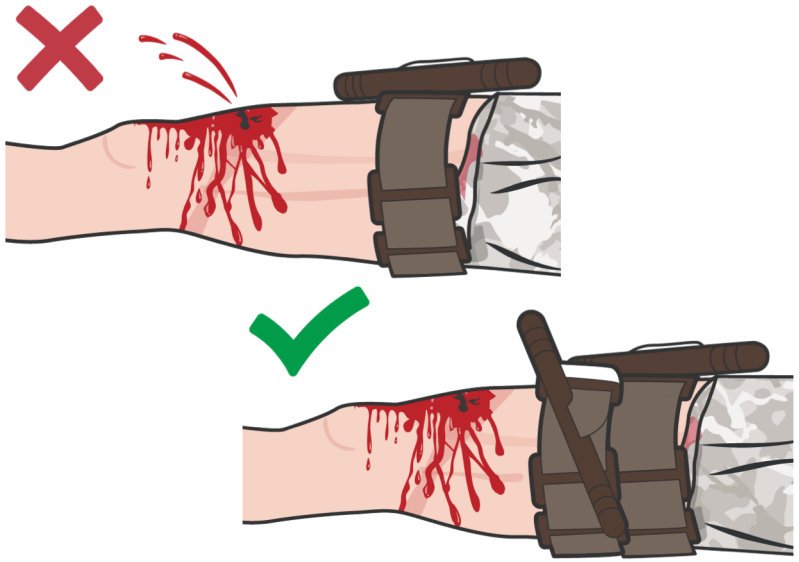
The **overlying clothes** are **SOAKED** with blood

There is **pulsatile** (pulsing) or **steady** bleeding from the wound

Bandages or makeshift bandages used to cover the wound are **INEFFECTIVE** and steadily becoming **soaked** with blood

There is a traumatic **amputation** of an arm or leg

MASSIVE HEMORRHAGE REASSESSMENT

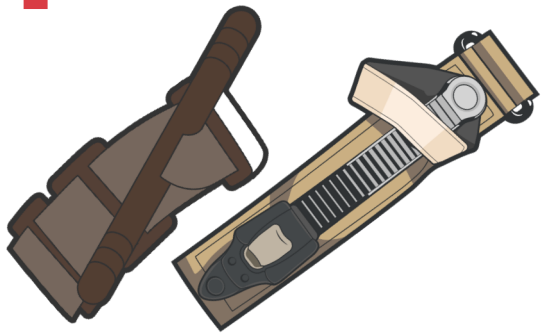


- **Reassess** any interventions performed in CUF
- If a tourniquet was previously applied, **assess** for effectiveness (bleeding has stopped and distal pulses are absent)
- If **ineffective**, apply a second tourniquet **side-by-side** with the first
- Perform a **blood sweep** and **expose** the casualty to look for other **life-threatening bleeding**, stopping to immediately treat anything identified, and look for non-life-threatening bleeding to address later

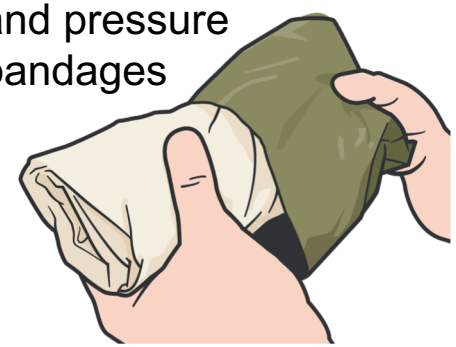
TOOLS FOR LIFE-THREATENING HEMORRHAGE CONTROL

- Direct pressure

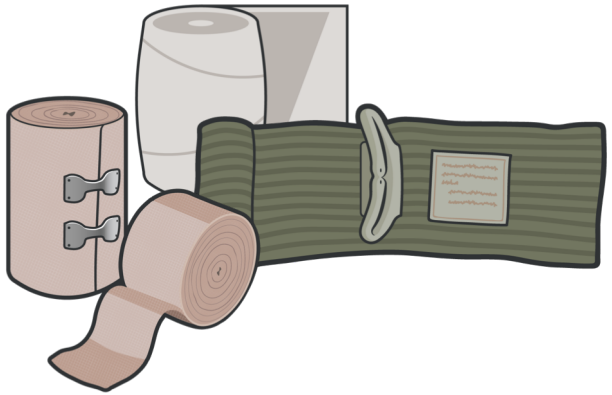
- CoTCCC-recommended tourniquet (TQ)



- hemostatic dressing and pressure bandages



- Gauze/other dressings and pressure bandages

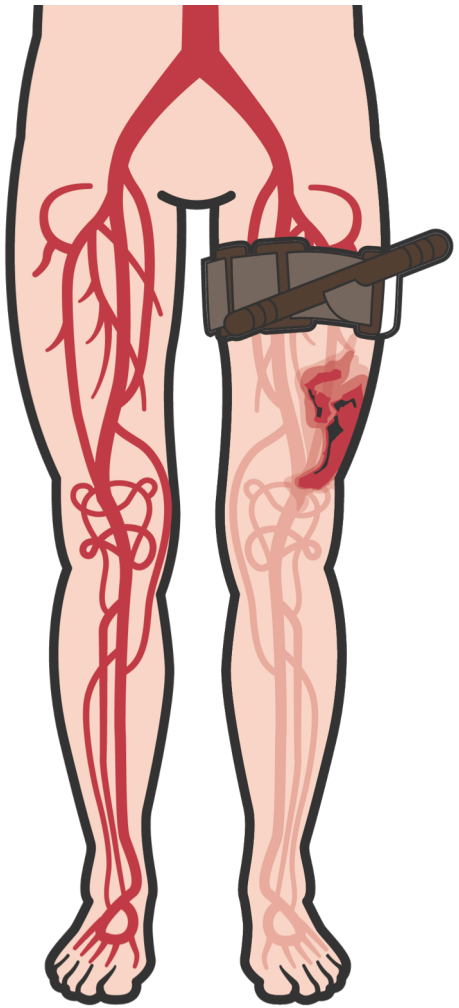


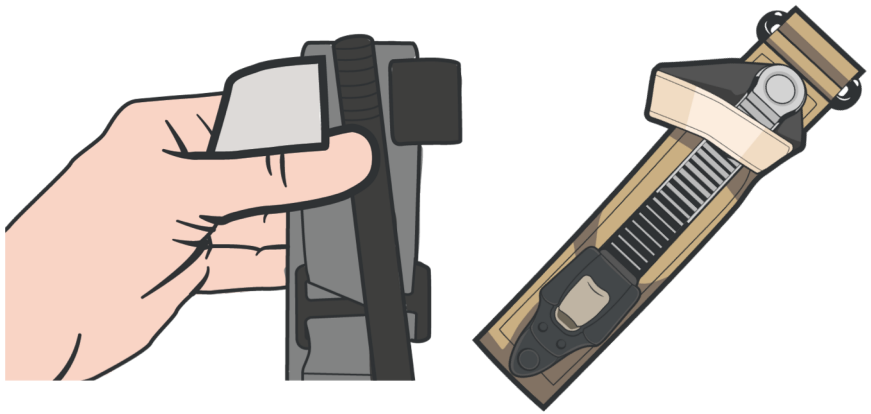
- Pressure Delivery Device (PDD)

INITIAL DIRECT PRESSURE BEFORE INTERVENTION

- **Direct pressure** can and **should be used** as a temporary measure **until** a **tourniquet or dressing is in place**
- It is difficult to use direct pressure alone to control significant bleeding or while moving the casualty
- Direct pressure can be **used** if a treatment no longer maintains control of the bleeding **while a new treatment is started**

TOURNIQUETS

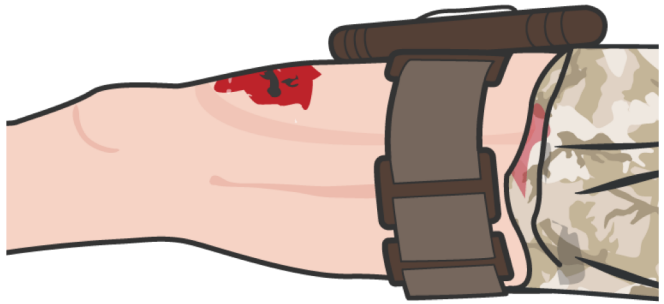




A device stopping the flow of blood to an **arm** or **leg** by applying circumferential (around) pressure to the limb

- The TQ that should be used as the **FIRST option** is the **CASUALTY'S TQ** from **THEIR own JFAK**
- If this is not possible, or more than one tourniquet is needed, then you may apply the TQ from your own JFAK or a TQ from unit mission equipment
- You should have a **new TQ** in your JFAK. It is designed as a **ONE-TIME USE DEVICE**

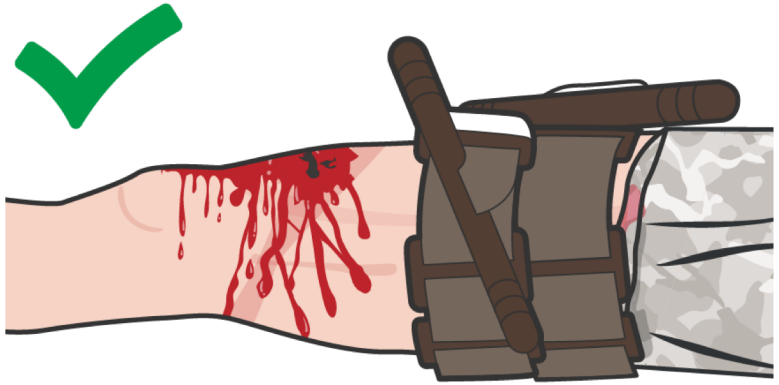
DELIBERATE TOURNIQUETS



A TQ applied in TFC will be a **deliberate** TQ, applied **2-3 inches above the wound**, directly on the skin (not over clothing)

In TFC the **source of bleeding** can be **identified** to ensure that TQs are properly placed

A TQ applied in **CUF** should be **reassessed**



TQs applied during **CUF** are **sometimes inadequate** due to the inability to properly expose and assess the wound, and application of an additional **side-by-side** TQ may be necessary

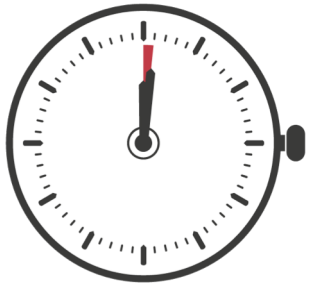
TOURNIQUETS IN TACTICAL FIELD CARE

Use a TQ to control life-threatening external hemorrhage that is anatomically amenable to TQ use or for **ANY traumatic amputation**

Apply directly to the skin 2-3 inches above the bleeding site

If bleeding is **NOT** controlled with the first TQ, apply a second TQ **side-by-side** with the first

1 MIN

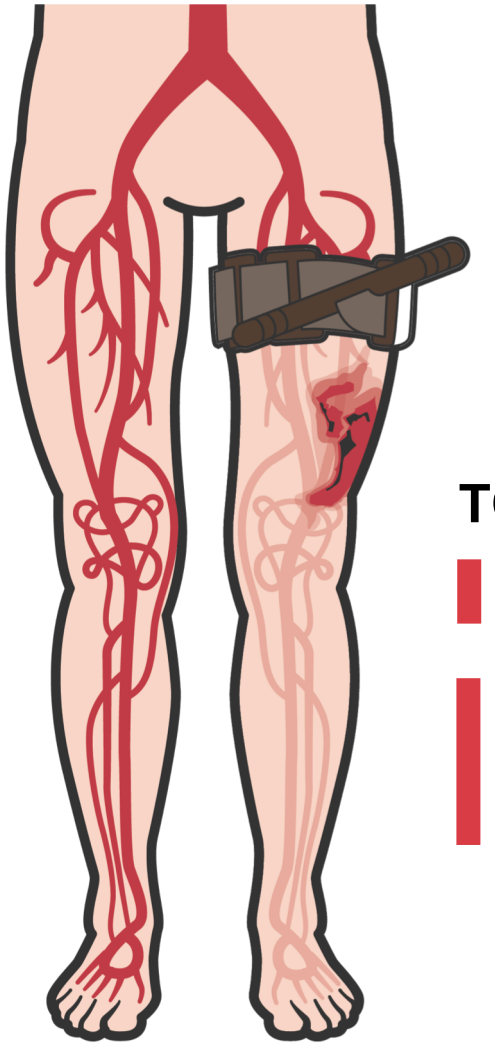


TQs need to be applied rapidly. The bleeding should be stopped **WITHIN ONE MINUTE** and the TQ fully secured within three minutes

TQ application time is **important** in helping medical personnel manage TQs

Time should be documented during the TFC phase, not the CUF phase

TOURNIQUET EFFECTIVENESS CHECKS



TQs can be assessed for effectiveness by:

- Ensuring that the **BLEEDING HAS STOPPED**
- Checking a pulse **distally** (further out) on the limb where the TQ is applied to ensure there is **NO PULSE**

TWO-HANDED RATCHET TFC

Video can be found on DeployedMedicine.com

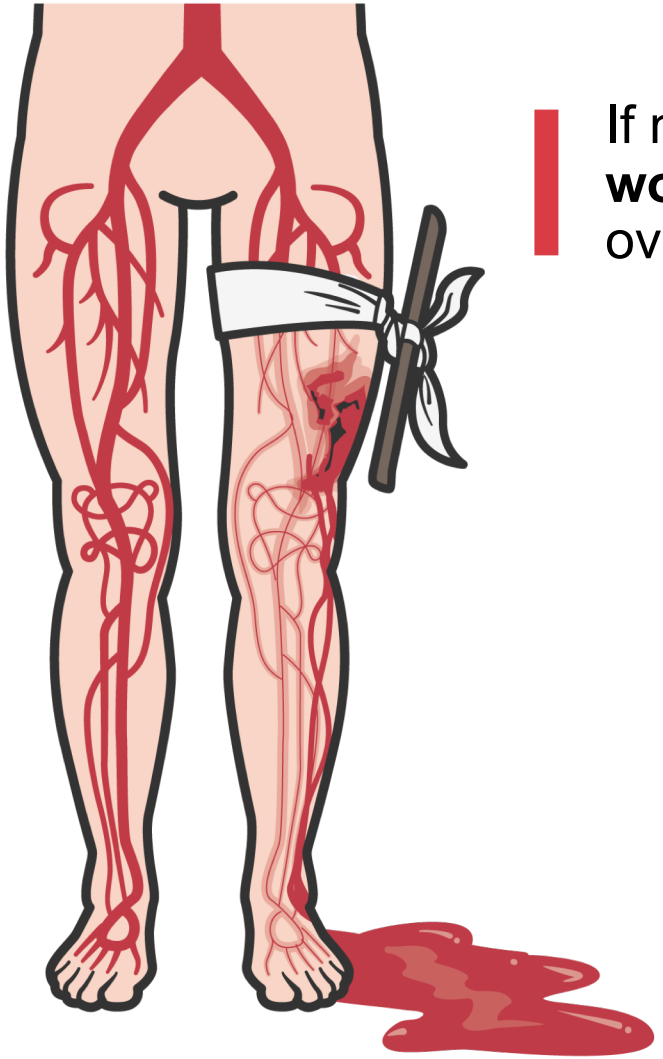
TWO-HANDED WINDLASS TFC

Video can be found on DeployedMedicine.com

TOURNIQUET PITFALLS/MISTAKES

- **NOT** using one when you should or waiting too long to put it on
- **NOT** pulling all the slack out before tightening
- **NOT** making it tight enough – the TQ should stop the bleeding **AND** eliminate the distal pulse
- **NOT** using a second TQ, if needed
- Using a TQ for minimal bleeding; however, **when in doubt**, apply a TQ
- Putting it on too proximally (too high) if the bleeding site is clearly visible
- Loosening TQs for a period to allow recirculation of a limb
- Taking it off (this should be performed **ONLY** by **medical personnel** at a **higher level of care**)
- **DON'T** put TQs over joints!

DON'T USE AN IMPROVISED TOURNIQUET!



If no TQ is available, **pack the wound** and hold **direct pressure** over the main source of bleeding

RISKS ASSOCIATED WITH IMPROVISED TOURNIQUETS:

- **DAMAGE** may occur to skin if the band is too narrow
- Bleeding may **WORSEN**
- Bleeding **MAY NOT BE COMPLETELY CONTROLLED**
- An improvised TQ may likely **LOOSEN** over time from not being properly secured

SKILL STATION

TFC Hemorrhage Control (Skills)

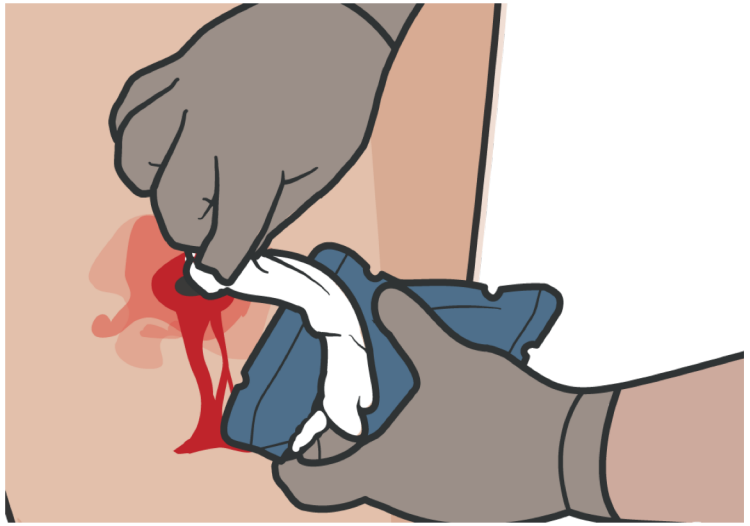
- **Two-Handed Ratchet Tourniquet Application in TFC**
- **Two-Handed Windlass Tourniquet Application in TFC**

Hemostatic Dressing

- CoTCCC-recommended hemostatic dressing is safe and contains active ingredients that assist with blood-clotting at the bleeding site
- hemostatic dressing can also be used for controlling bleeding in conjunction with tourniquets
- A JFAK contains one hemostatic dressing and one dry sterile gauze

Hemostatic Dressing

hemostatic dressing with or without a pressure bandage **CAN** be used to control compressible junctional hemorrhage



For compressible (external) hemorrhage not amenable to limb TQ (places where a tourniquet cannot be effectively applied) or for bleeding from wounds not requiring a TQ, use a CoTCCC-recommended hemostatic dressing

Remember:

- **DO NOT** pack hemostatic dressing into the abdomen or chest
- A JFAK contains one hemostatic dressing and one dry sterile gauze

WOUND PACKING

- Identify the **exact source** of bleeding and **APPLY** **direct pressure** as a **temporary** measure **UNTIL** gauze is placed
- Pack the wound, **maintaining CONSTANT** direct pressure at the source of bleeding within **90 SECONDS** for it to be effective

- **HOLD** direct pressure on the gauze over the wound for at least **3 MINUTES** (**this is necessary**, even with the active ingredient in hemostatic dressing)
- When packing a large wound, more than one hemostatic dressing and/or **additional** gauze may be **needed**
- Carefully **observe** to determine if bleeding has been **controlled**

- Once you are sure the bleeding has **stopped**, apply a pressure bandage

WOUND REPACKING FOR FAILED CONTROL

- If packed with hemostatic dressing, **remove** before packing material and **repack** with a new hemostatic dressing, as available
- It may be a **fresh** dressing of the **same** or **different type**

- Alternatively, additional **hemostatic** or **nonhemostatic dressing CAN** be applied on top of the first gauze

- If hemostatic dressing is **NOT** readily available, use dry sterile gauze or some other materials to pack the wound

PRESSURE BANDAGES

- **ALL** dressings for **significant** bleeding **should be secured** with pressure bandages
- Place the bandage pad **directly** on the dressing, **continuing to apply direct pressure**

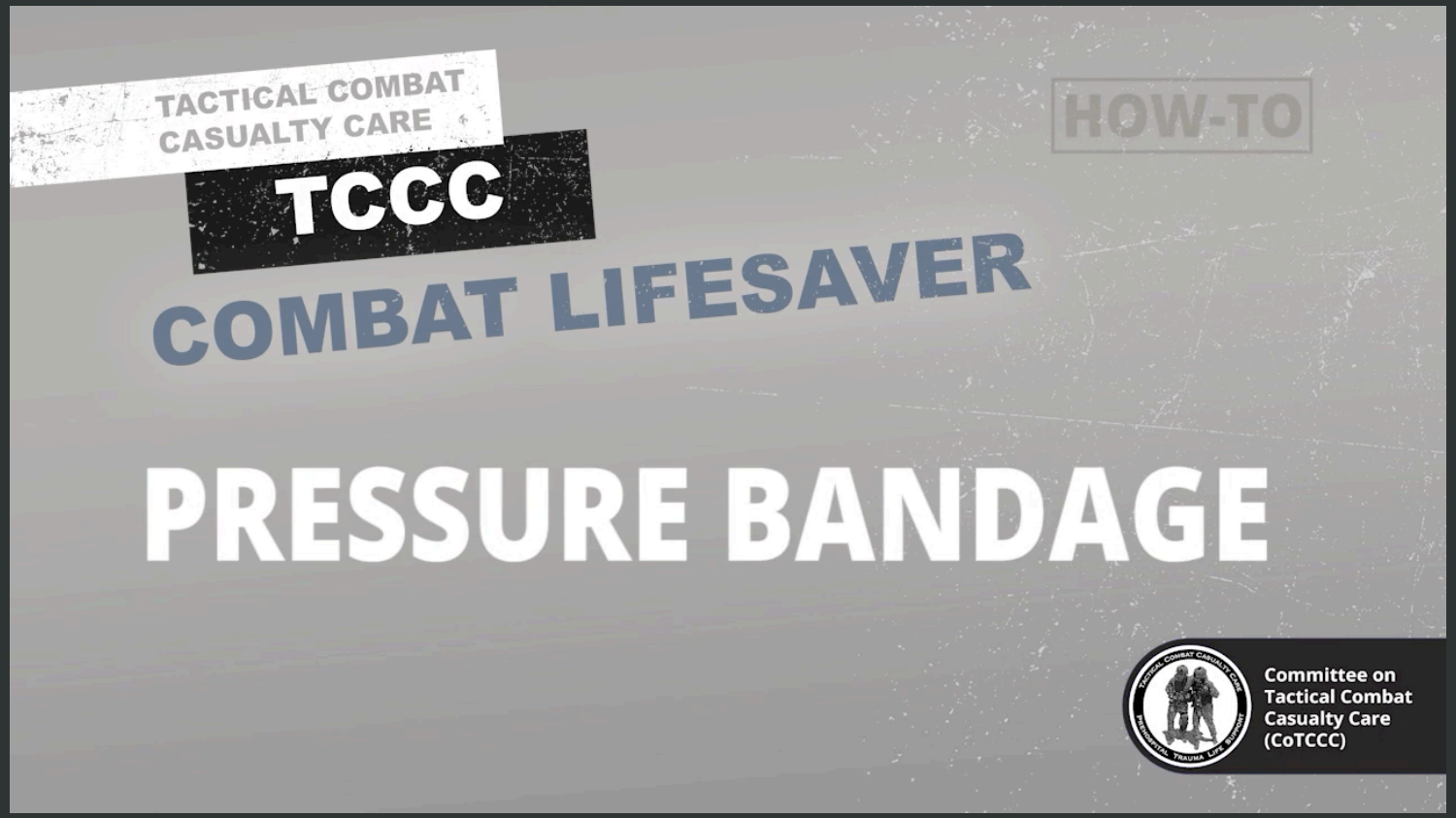
- Wrap the pressure/elastic bandage **tightly**, focusing pressure directly over the wound
- **SECURE** the hooking **ends** of the Velcro or closure bar onto the last wrap of the bandage

PRESSURE BANDAGE ASSESSMENT

Key Points:

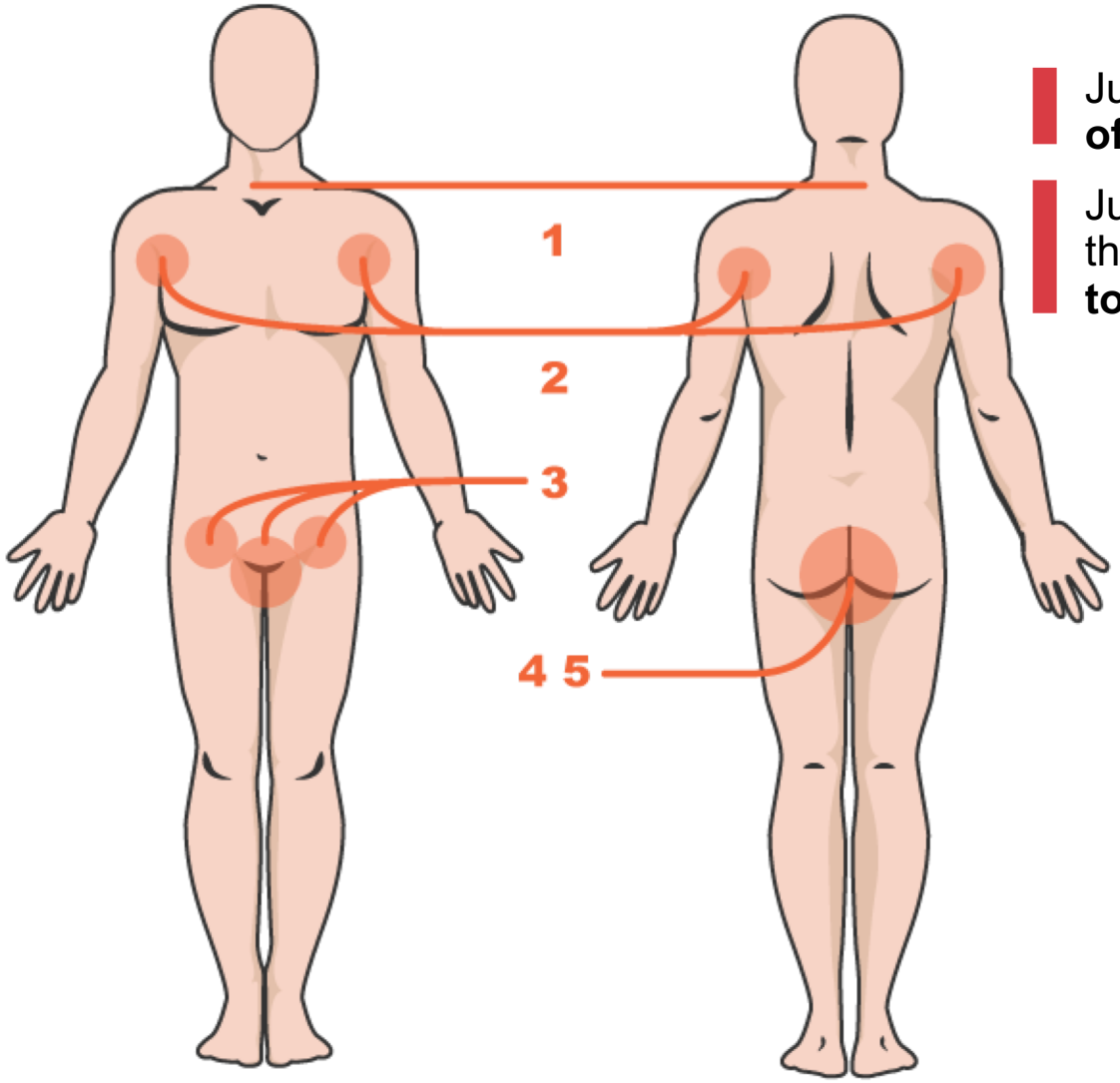
- Check for **circulation BELOW** the pressure bandage by **feeling for distal pulse** (a pulse below the bandage)
- If the **skin BELOW** the pressure bandage becomes **cool** to the touch, **bluish**, or **numb**, or if the **pulse** below the pressure dressing is **no longer present**, the pressure bandage may be **too tight**
- If circulation is **BLOCKED** or **STOPPED**, **loosen** and retie the bandage
- Dressings and bandages should be **reassessed** and checked routinely and **EVERY TIME a casualty is moved**

PRESSURE BANDAGES



Video can be found on DeployedMedicine.com

JUNCTIONAL ANATOMY



- Junctional areas are located at the **junction of the extremities** and **neck** with the torso
- Junctional hemorrhage can also occur on the extremities if the **injury** is **TOO CLOSE to the torso** for a tourniquet to be applied

- Blood vessels at **junctional areas are LARGER** than in the limbs but **can still be COMPRESSED** with direct pressure

NECK JUNCTIONAL HEMORRHAGE CONTROL

Pack the wound

Apply pressure for **3 MINUTES**

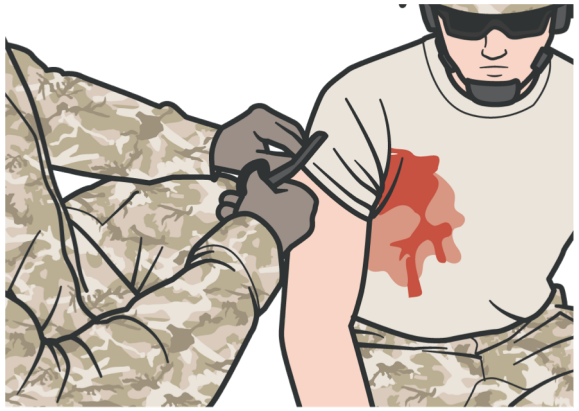
Secure with bandage

If the bandage has a pressure bar, **pull the bandage TIGHT**, and reverse it back over the top of the pressure bar, **forcing** it **down** onto the pad

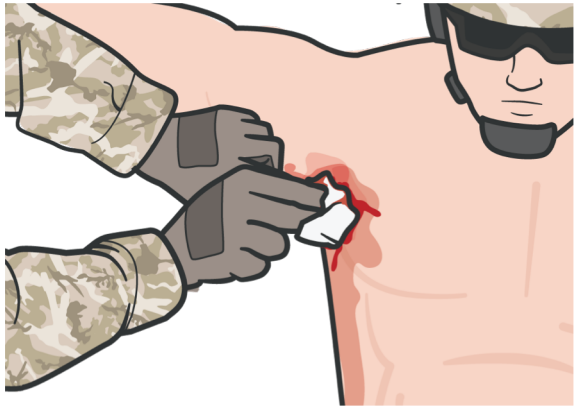
NECK JUNCTIONAL HEMORRHAGE CONTROL

Video can be found on DeployedMedicine.com

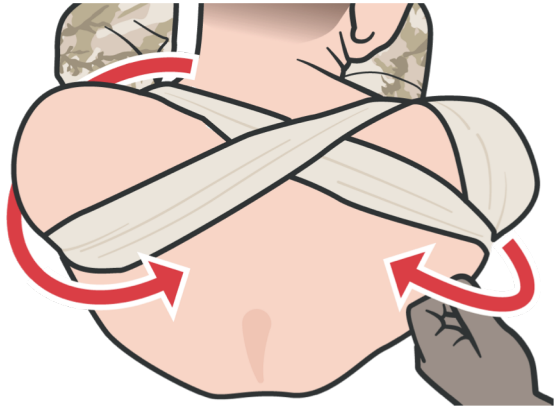
AXILLARY JUNCTIONAL HEMORRHAGE CONTROL



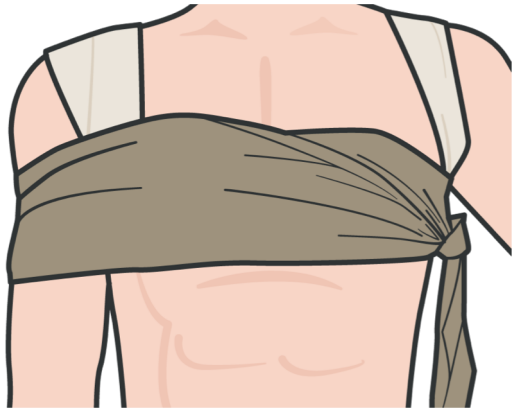
Expose the wound



Pack the wound



Secure the dressing in place



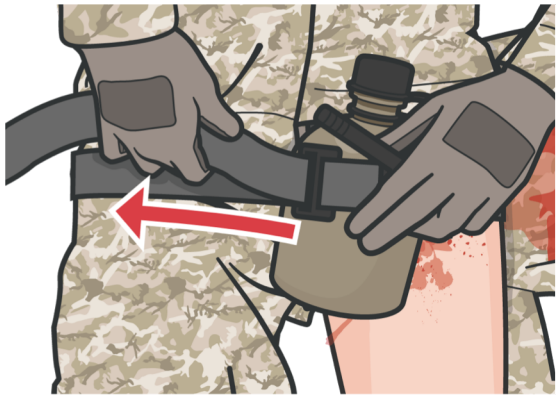
Swath the (injured side) upper arm to the side of the chest using a **cravat**

AXILLARY JUNCTIONAL HEMORRHAGE CONTROL

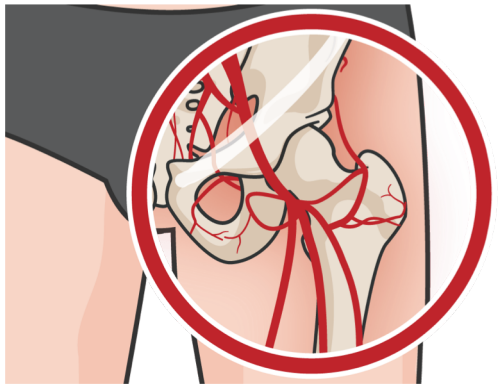
Video can be found on DeployedMedicine.com

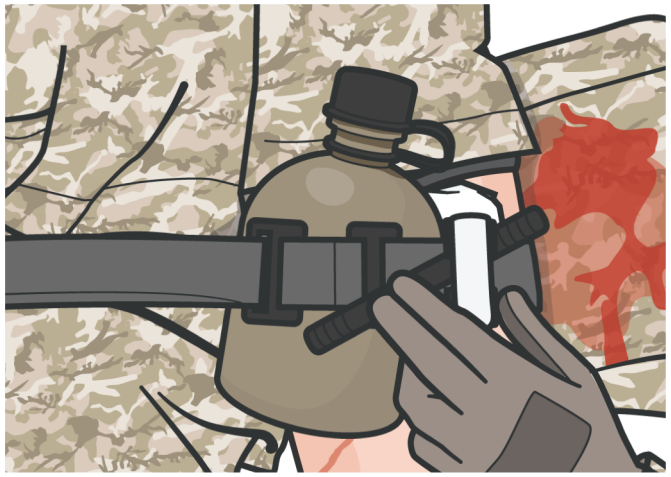
JUNCTIONAL HEMORRHAGE CONTROL WITH A PRESSURE DELIVERY DEVICE (PDD)

A PDD is made by using such materials as a **shoe/boot, full water bottle, or canteen**



For groin injuries packed with hemostatic dressing, use an improvised junctional PDD to **SECURE** the **gauze**



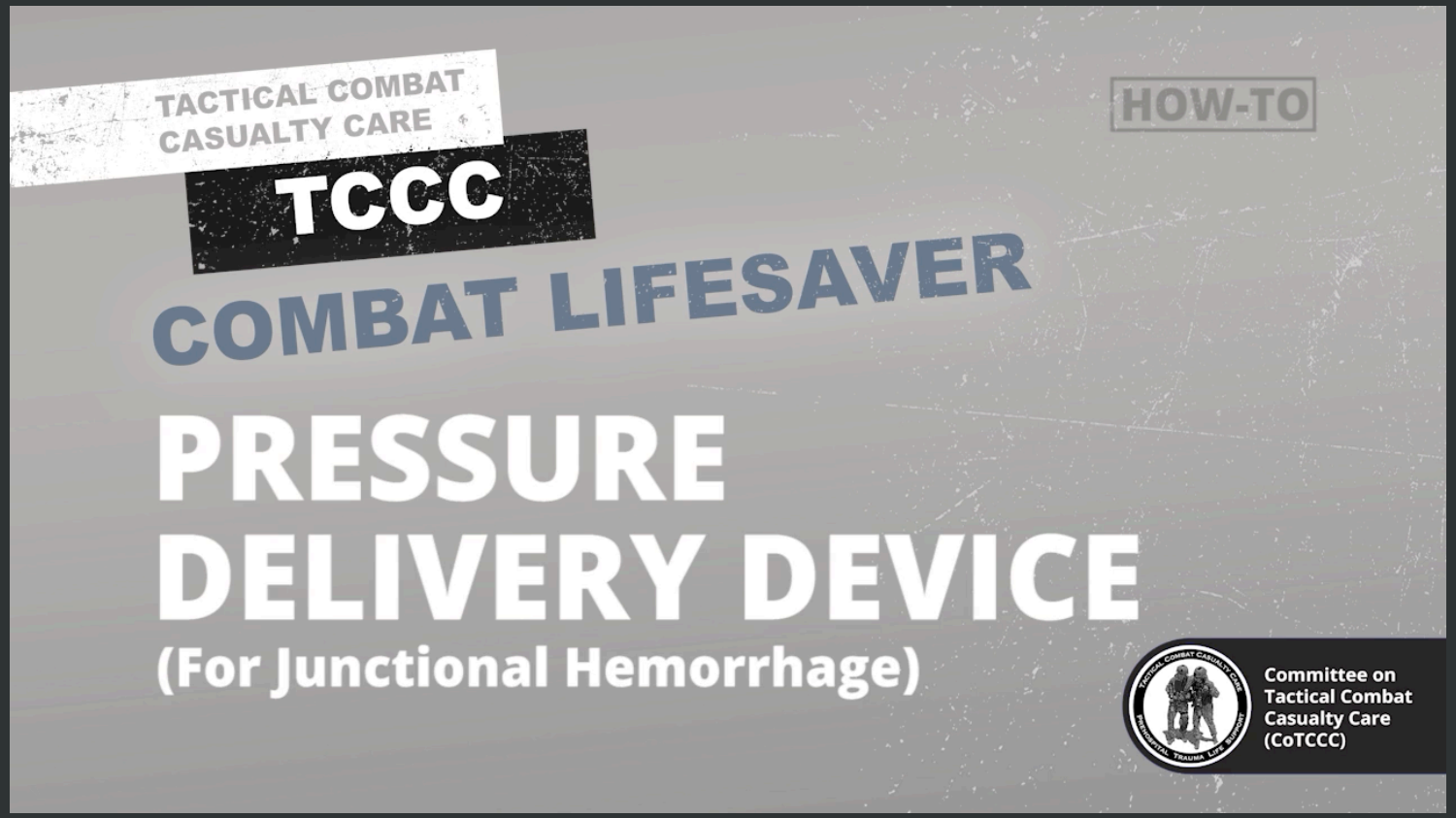


The PDD is placed in the inguinal gutter while **CONTINUOUSLY MAINTAINING pressure** to the gauze

The PDD is then **secured** with a tourniquet and **tightened** to add **ADDITIONAL** pressure

You may need to put **two TQs TOGETHER** when improvising a PDD

INGUINAL IMPROVISED JUNCTIONAL WITH PDD



Video can be found on DeployedMedicine.com

SKILL STATION

TFC Hemorrhage Control (Skills)

- **Wound Packing With hemostatic dressing and Pressure Bandage**
- **Neck Junctional Hemorrhage Control**
- **Axillary (Armpit) Junctional Hemorrhage Control**
- **Inguinal (Groin) Hemorrhage Control With Improvised Junctional Pressure Delivery Device (PDD)**

SUMMARY

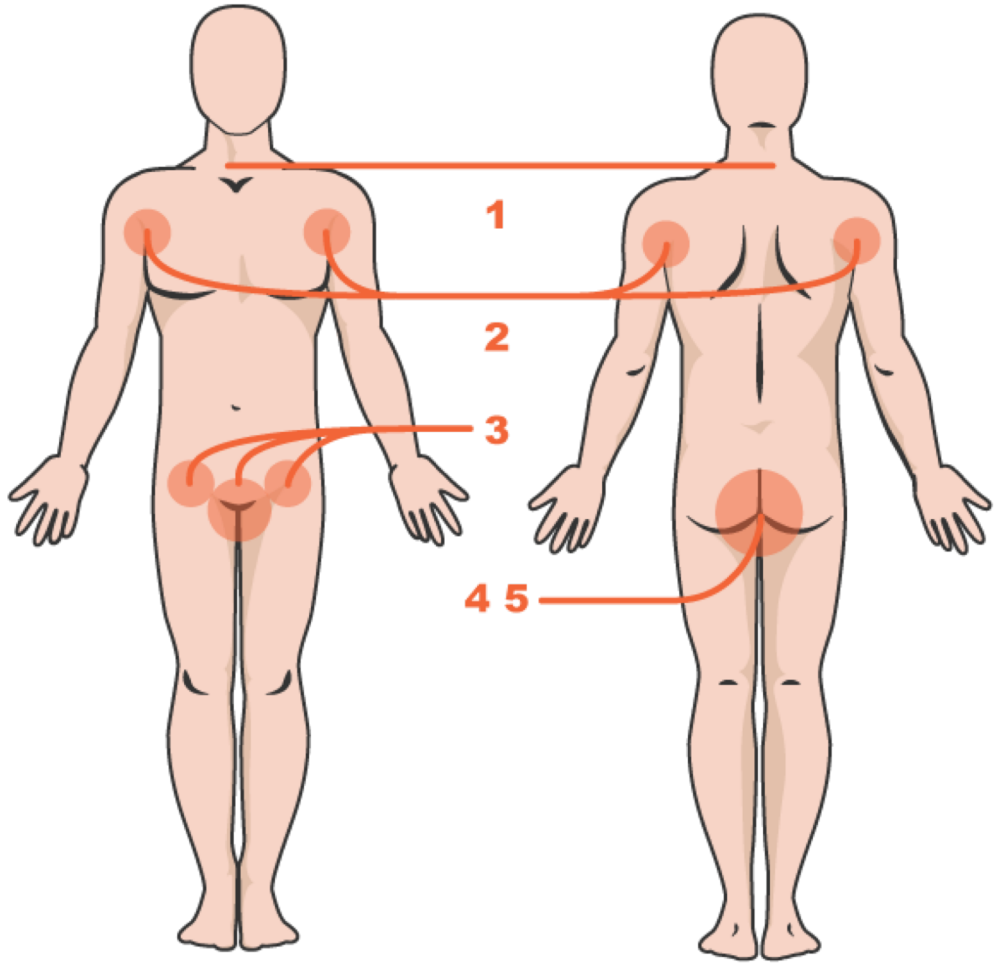
Pressure bandages over areas like the:

- Base of the neck
- Axilla
- Groin
- Buttocks
- Perineum

Junctional areas have **specific** application techniques that **MAXIMIZE** the amount of pressure they exert on the gauze

Recheck the dressing **FREQUENTLY**, especially while transporting the casualty to **next level of care**

WATCH FOR RE-BLEEDING



CHECK ON LEARNING

- What is the proper distance a deliberate tourniquet should be placed from the bleeding site in TFC?
- What is the difference between the need for high & tight/hasty tourniquets in CUF as opposed to deliberately placed tourniquets in TFC?
- How long should direct pressure be applied on packed hemostatic dressings?
- Why is it important to check the pulse after applying a pressure bandage?
- What additional intervention beyond packing with hemostatic dressing and wrapping with a pressure bandage is necessary to stop the bleeding from a groin wound?

ANY QUESTIONS?