

Tourniquet use for active external bleeding



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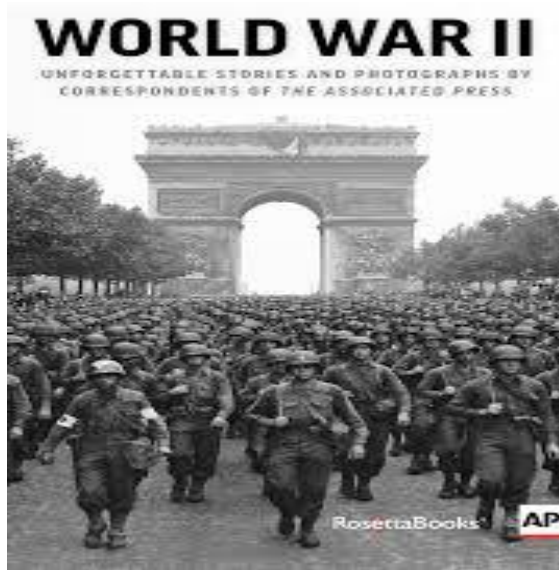
Trauma is a major cause of death



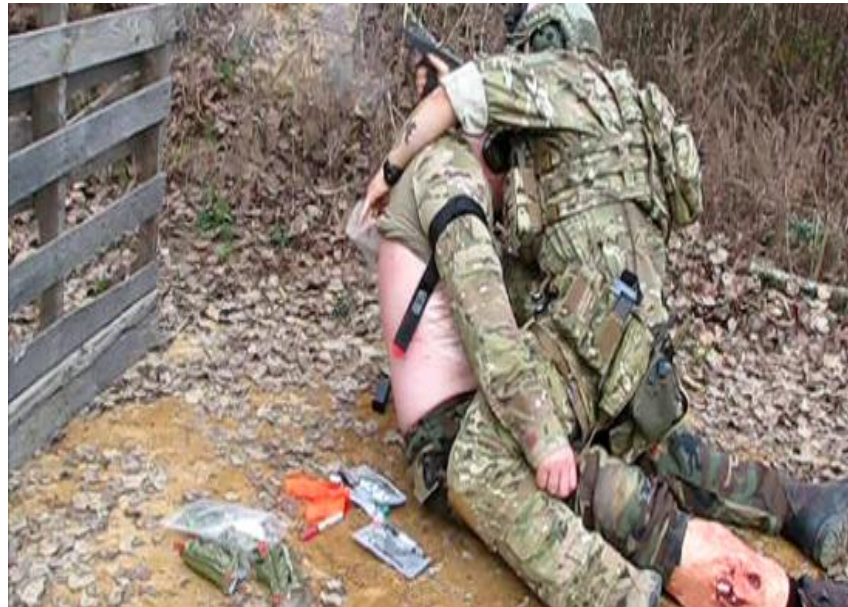
The body contains 5 or 6 liters of blood



These lessons learned have been
written in blood



Only life-threatening bleeding warrants intervention during care under fire



When is bleeding life-threatening?

- When there is pulsatile or steady bleeding from the wound
- Blood is pooling on the ground
- The overlying clothes are soaked with blood.
- Bandages used to cover the wound are ineffective and steadily becoming soaked with blood.
- There is traumatic amputation of the arm or leg.
- There was prior bleeding and the patient is now in shock



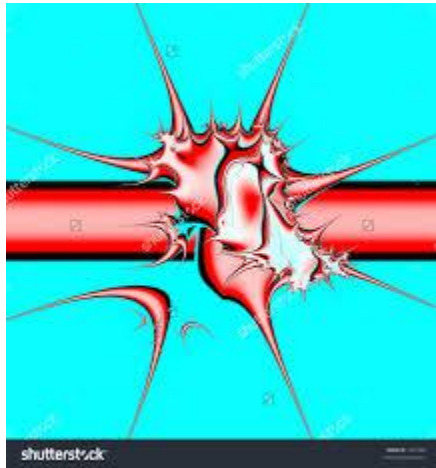
Question; How long does it take to bleed to death from a complete femoral artery and vein disruption?

Answer: Casualties with such an injury can bleed to death in as little as 3 minutes.



External hemorrhage

- Extremity hemorrhage
- Junctional hemorrhage

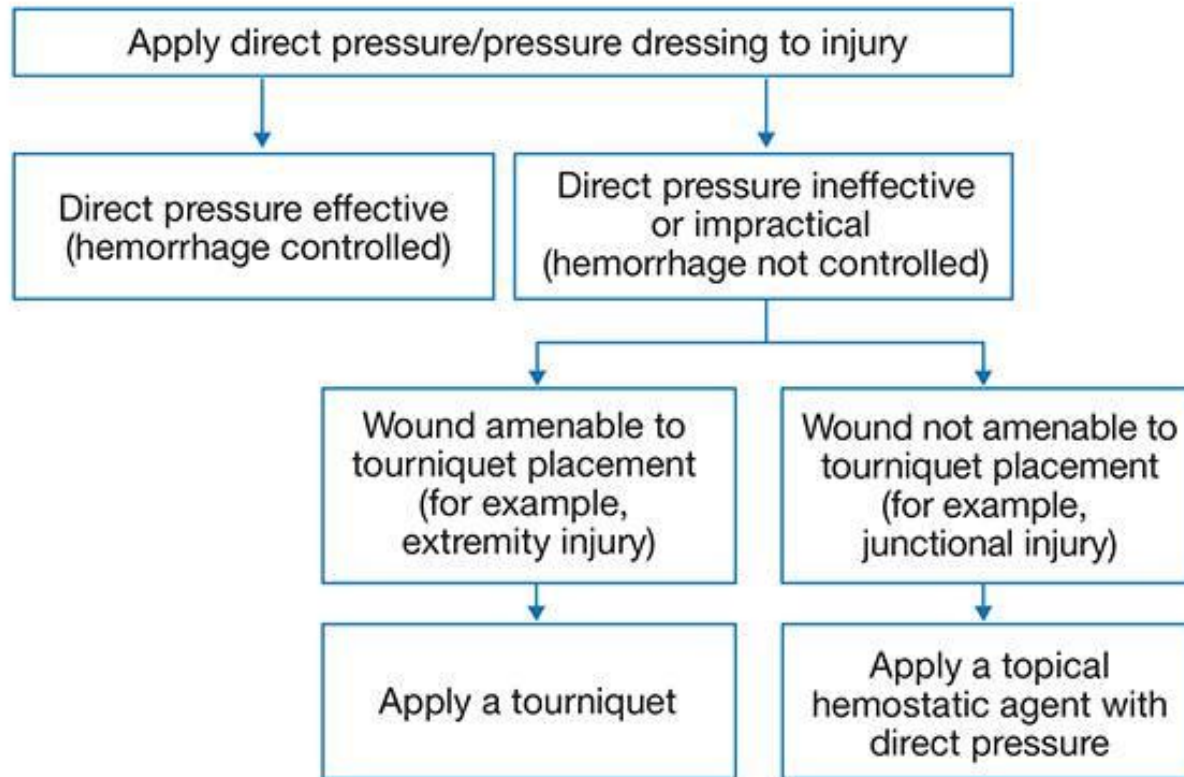




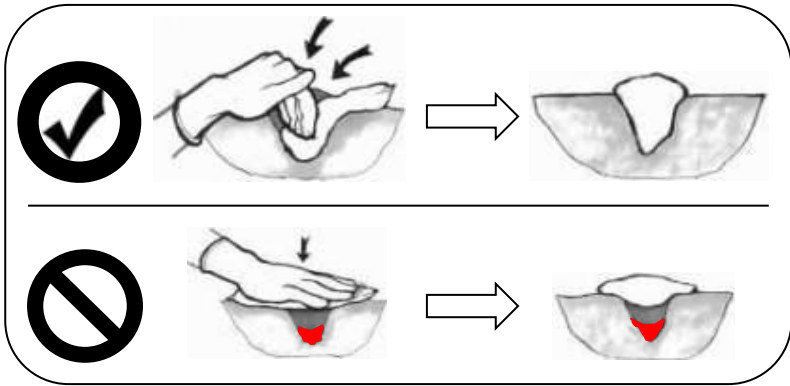
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Prehospital External Hemorrhage Control Protocol



- Always apply with 3 minutes of firm direct pressure



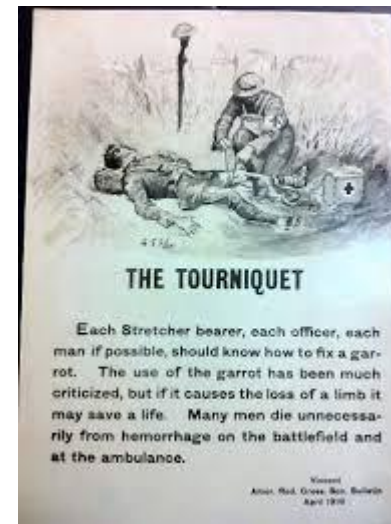
Junctional Hemorrhage Devices



There is no question but an **extremity amputation**



The word tourniquet originates from the French word '**tourner**' meaning to turn



'Tourniquets are an invention of **the Evil One'**



Dr. Lorenz Bohler

What are the problems?

1. The majority of external hemorrhages **can be controlled by direct pressure**.
2. Tourniquets have been used inappropriately when **not clinically indicated**.
3. **Ischemia**. Preventing arterial blood flow to a limb will result in ischemia.
4. An incorrectly applied tourniquet will actually cause **increased bleeding**.
5. Periodic loosening of a tourniquet resulted in incremental exsanguination and death.
6. A properly applied tourniquet is painful

10% of all battlefield deaths are caused by extremity hemorrhage
(60% of preventable deaths)

SOF Tactical Tourniquet

Combat Application Tourniquet CAT



Emergency and Military Tourniquet



1



2



3



4



5



- [Kragh JF Jr](#), [Walters TJ](#), [Baer DG](#), [Fox CJ](#), [Wade CE](#), [Salinas J](#), [Holcomb JB](#). **Survival with emergency tourniquet use to stop bleeding in major limb trauma.** [Ann Surg](#). 2009 Jan;249(1):1-7.
- [Kragh JF Jr](#), [Walters TJ](#), [Baer DG](#), [Fox CJ](#), [Wade CE](#), [Salinas J](#), [Holcomb JB](#). **Practical use of emergency tourniquets to stop bleeding in major limb trauma.** [J Trauma](#). 2008 Feb;64

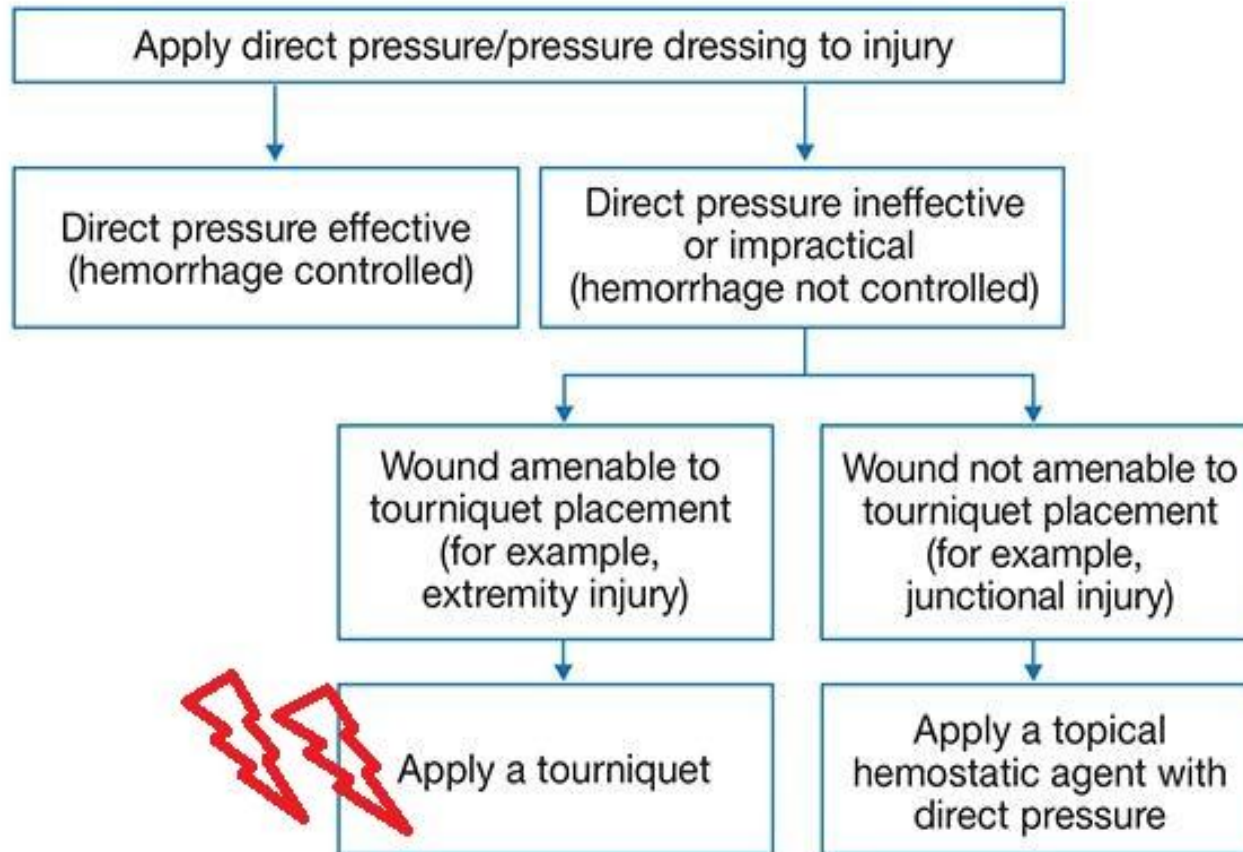
Tourniquet use may be applicable in **civilian practice**

- Penetrating trauma from firearms and stabbings
- Terrorist attacks involving penetrating and blast injury
- Rural incidents or wilderness medicine
- Industrial accidents



Boston bombing

Prehospital External Hemorrhage Control Protocol



- The authors used tourniquets in dialysis patients in the case of bleeding after fistula rupture, bleeding related to arteriovenous malformations and advanced malignancies.
- Commercial tourniquets were seen to be safe and effective, not only for traumatic injuries, but also for uncontrolled bleeding as a complication of dialysis

Wounds that do not need tourniquet

- Use a tourniquet only for severe bleeding



- Do not hesitate to put a tourniquet on a massively hemorrhaging wound.
- There is nothing to lose unless it is not tight enough

Thank You!

