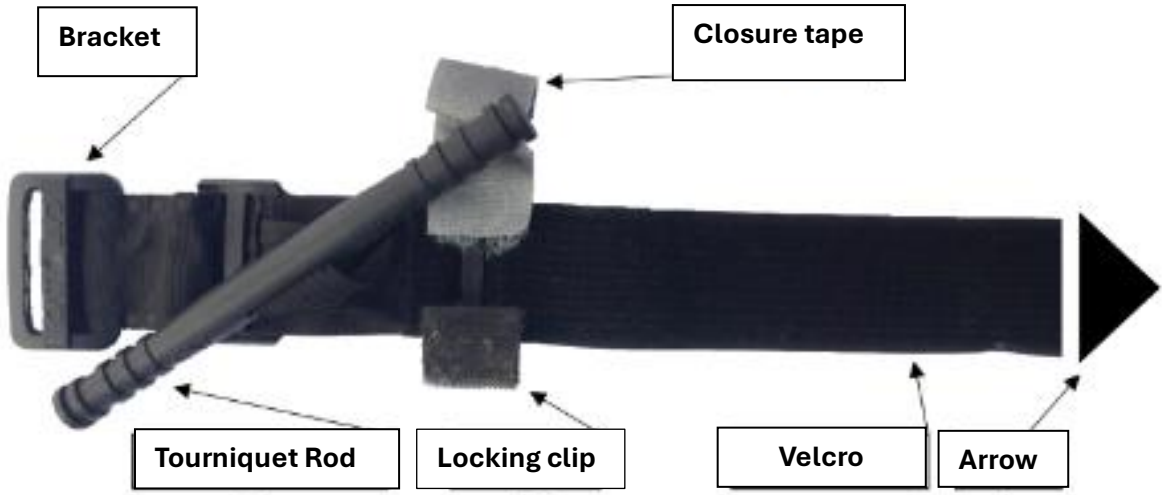
USE TOURNIQUET

What is a tourniquet?

A tourniquet is a medical device used to temporarily stop blood flow to a certain part of the body. This is done by securely fastening a band around a limb, blocking blood flow through the arteries.
A tourniquet thus closes off the major blood vessels in a limb by putting pressure around the entire limb. So it does not solve the initial injury, but it buys additional time in which the victim can be brought to a doctor to repair the broken blood vessels.
This can be critical in severe injuries where there is a risk of significant blood loss, such as traffic accidents. By applying a tourniquet, bleeding can be effectively controlled until medical help is available.

Components of a tourniquet:



FIRST WORK: FITTING (preparing) A TOURNIQUET

When delivered, a tourniquet is in the package along with an instruction manual. However, the way it comes pre-packaged is not operational. Therefore, each new tourniquet is prepared before it can be used operationally.

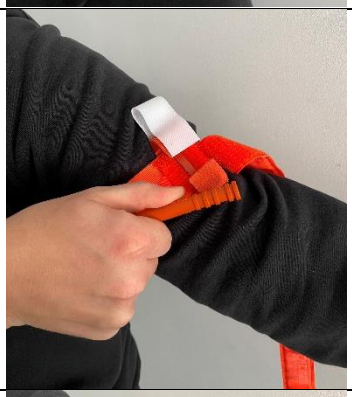
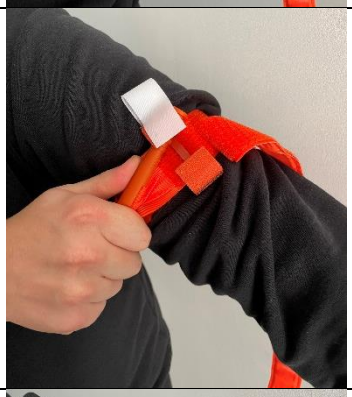
Open the packaging and remove the tourniquet. Completely loosen the Velcro strap and fully tension the tourniquet for a moment by pulling both ends apart.

1. Pass the velcro strap through the bracket and fold the tourniquet into three equal parts	
2. Press the end of the velcro so that both parts stick together	
3. Grasp the tourniquet at the locking clip as a square and fold it further so that there is no visible velcro on the front. This is where dust, sand and dirt would collect, preventing the velcro from sticking	
4. Fold both ends together so there is no visible velcro. Insert the tourniquet rod into the locking clip. If desired, the locking strap can still be glued at a slight angle to the securing clip to facilitate grasping with gross motor skills (stress conditions). Always put the tourniquet away with the securing clip facing up.	

SITUATION 1: Using the tourniquet WITH ONE HAND (e.g. on yourself around your arm)

In the event of an injury to your own arm, you can perfectly fit your own tourniquet in self-aid. We assume here that you are completely alone and that the tourniquet is fitted as described above.

1. Take the tourniquet in your hand with the locking clip facing up and snap it open so that the opening becomes large enough to pull it around the arm	
2. Lean forward to free the arm. Slide the tourniquet over the arm, with the locking clip pointing outward, and pull it over the arm as high as possible (high-and-tight). Block the tourniquet with your arm or head	
3. Your free hand now “walks” back over the velcro to the end and pulls it forcefully	
4. Grasp the velcro strap as close to the bracket as possible and pull maximum	

5. Keep tension on the velcro and stick it on through the underside of the arm to just in front of the locking clip, but not through it yet	
6. Observing the source of the massive hemorrhage, tighten the tourniquet rod and continue to rotate until the hemorrhage visibly stops. The direction of rotation is not important	
7. Complete your tour until you can insert the tourniquet rod into the locking clip. It is recommended that you then do one more tour, even if you feel you can't do it anymore. Not properly tied off = pushing blood instead of stopping it!	
8. Thread the rest of the velcro through the locking clip and over the tourniquet rod. This prevents the velcro from being pulled off inadvertently	
9. Tape the closure tape shut and remember the time of tourniquet placement. If you can write it down it is best to do so. There is a marker included in the kit. There is space provided on the tourniquet's closing strap, but somewhere on your arm, head,... is also fine. Important: make sure there are no objects under the tourniquet, this may prevent the blood supply from being completely cut off!	

SITUATION 2: Using the tourniquet WITH TWO HANDS (e.g. with someone else or your own leg)

1. Take the tourniquet and loosen it completely to its maximum length. Hold the tourniquet rod in the palm of your hand. Use the hand on the same side as the injury when applying e.g. your own leg.	
2. Slide your hand across the ground, under the injured leg. The second hand goes between the legs and takes over the tourniquet. Guide the velcro to avoid a twist	
3. Make a sawing motion to get the tourniquet high and tight, that is, as high as possible, and bring the velcro through the bracket. Pull forcefully on the end (do not pull at an angle, that way the velcro will tilt and fold in half). Keep maximum tension on the velcro and apply it through the bottom of the leg to just in front of the locking clip, but not through it yet.	
4. Release the tourniquet rod from the locking clip and begin to tighten it. The direction of rotation is not important. Observe the source of massive bleeding and keep turning until the bleeding visibly stops. It is recommended that you then turn one more turn, even if you feel it is no longer going. Not properly ligated = congestion of blood instead of stopping it!	
5. Now complete your rotation and secure the tourniquet rod in the locking clip. Stick the excess velcro (if any) through the clip and over the tourniquet rod before closing the locking strap. Write down the time. There is a marker included with the kit. There is space provided on the tourniquet closure strap, but somewhere on your arm, head, … is also good. Important: make sure there are no objects under the tourniquet, this will not allow the blood supply to be completely shut off!	

Important tips and facts:

If the victim is wearing their own tourniquet always use this and not your own! That way you will always be able to take care of yourself should the need arise.

Always apply the tourniquet through the underside of the limb and away from you, that way you can forcefully tighten it towards your own body afterwards. To forcefully tighten the velcro, it may sometimes be helpful to put your knee against the victim to provide counter pressure. Realize that applying a tourniquet hurts the victim on top of the injury(s) already present. Do not be thrown off guard by exclamations of pain or pleas from the victim to loosen the tourniquet.

NEVER remove the tourniquet yourself. This should only be done by emergency services. After stopping massive bleeding, be sure to call them immediately.
When the limb is occluded by the tourniquet, the waste products produced by the muscles, among others, can no longer be drained. When loosened by a tourniquet, they would enter the bloodstream in great concentration and could cause severe problems at the level of the kidneys and heart, among others. For this reason, a properly fitted tourniquet is never loosened without a physician's order.

A tourniquet should not be left in place for more than two hours. The prolonged use of a tourniquet can lead to serious tissue damage and complications. It is essential to get medical attention as soon as possible after a tourniquet is applied so that the cause of the bleeding can be definitively treated.

Protective motorcycle clothing can sometimes give a distorted view of the source of the bleeding. Cut or remove the clothing far enough open if possible to get a clear picture of the bleeding.

When using a tourniquet, you do not incur damage that could lead to amputation. The part of the limb below the tourniquet is indeed put without blood (and therefore without oxygen), but some tissues can withstand oxygen deprivation better than others. Tourniquets are applied to arms and legs, and these mainly contain muscles, tendons, nerves, bone and skin. All of these tissues can go relatively long without oxygen before damage occurs. Within two hours of application, there will be no permanent damage other than increasing pain. The pressure caused by a tourniquet will act on the nerves and muscles but will not permanently damage them.
Leaving the tourniquet on longer will cause temporary damage to the muscles and nerves, from which the body will recover normally. In very rare cases, this damage is permanent, leading to skin insensitivity or muscle damage. Although rare, this damage is still acceptable because the alternative (not using a tourniquet) would likely lead to massive blood loss, shock and ultimately death.

Once a tourniquet is on, it should not be released until a physician is nearby. It is a fable that it should be briefly released every few minutes. Enough scientific research has been conducted to confirm that this makes no sense at all: the tissue can go for long enough without blood, and regularly releasing the tourniquet again only causes blood loss. Again, the only correct course of action is to permanently apply a tourniquet and quickly organize medical help.

Tourniquets cannot be used anywhere on the arm or leg. This statement cannot be answered yes or no. It is technically possible to apply a tourniquet to a forearm or lower leg, but these are bony structures. Although a large blood vessel cannot “hide” between radius and ulna (forearm) or tibia and fibula (lower leg), it is still more difficult to obtain the same pressure. For this reason, it is best to apply it as high as possible (high and tight).

If you put on a tourniquet that wasn't actually needed, you're not specifically doing something wrong. It should be obvious that fitting a tourniquet is invasive. It is not something that should be done thoughtlessly. An operator can be expected to know what he is doing. However, when in doubt whether a hemorrhage is massive or not, it is not wrong to apply a tourniquet just to be sure. We cited earlier that little residual injury will occur, and failure to apply when in doubt could lead to massive blood loss, shock and death.

For these reasons, it is justifiable to apply a tourniquet in doubtful cases and not wait to see if the victim's condition worsens. It goes without saying that if the tourniquet is applied, it must be done correctly.