

Armor Extrication
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This article was written to assist anyone who may be interested in getting someone out of armor. It is directed towards surgeon use, but it is useful to anyone who has friends who fight. The logic presented here can also be applied to complex garb.

Cutting to the chase:

Do not cut them out unless there is no other option. Fighters would rather die than have their armor damaged. This statement is not 100% true, but close enough to fact. Remember that armor can cost thousands of dollars and hundreds of hours of labor to make and adjust it “perfectly”. Should all non-destructive removal options fail or not be available, follow the procedures presented later in this document. I strongly advise that you read through the armor requirements of each martial activity in the SCA so you have a firmer understanding of the armor pieces and their function.

Advice:

Remember your patient side manner. Keep talking to them and verbally walk them through what you are doing. Even mention that you have been through an armor extraction class and that you can get them out without hurting their armor. This will greatly calm the individual that you are assisting.

Why do we remove armor?:

There are many reasons as to why we may need to remove armor. Heat issues are the number one reason. First things removed are usually the helm and gauntlets, but if the fighter is still conscious, ask them, “What do you need removed first to cool down the fastest?” The other reason we remove the armor is because we know how to do so without destroying it or causing costly damage. In the case of sudden emergencies we also know how to remove the armor via the most expeditious route. (i.e. a non-breathing possible cardiac emergency patient) The paramedics and ER usually do not have time or tools to remove things gently or quickly.

Friends are the best:

Due to the diversity of armor styles and structure in use, there is no way you can know them all. This is where your greatest allies come into play. Your first ally is the patient. They obviously know how they get into and out of their own armor. The next ally that you can recruit is one of their friends. When a fighter goes down due to injury, their friends are usually closest at hand. Follow their instructions as directed. In addition, assign one of the friends the responsibility of collecting the armor and making sure it stays with the fighter or gets back to their camp.

Cautions and Personal Safety:

Armor is designed to protect the wearer only. Armor can have many pinch points and sharp edges and corners, so watch you fingers. Wearing gloves is highly recommended as the individual's armor is coated with the minimum of this day's sweat and they may have not washed parts of their armor in years. Yes years. Additionally the individual may have abrasions and blood present or other bodily fluids.

Armor is heavy and has edges. Do not drop the armor. Do not let the armor fall off uncontrolled as the last fastening is undone. Dropped helms and armor pieces have caused injuries such as cuts and broken feet.

Jewelry:

When removing armor be cautious of jewelry such as chains and most importantly piercings. For neck jewelry such as squires and knights chains simply lift them off over the head and have the same person responsible for the armor take control of chains. Many individuals leave their piercings in when the fight. Try your best to not rip out earrings and nose rings when you remove helms and be careful of other body piercings that may get caught on the fighter's armor. Yes, if it can be pierced, someone in the SCA is probably fighting with a bar, ring, stud, or chain installed.

Fighter's Baseline Health:

SCA is designed so that nearly everyone that can make it to the list can fight. There are fighters on the field with pacemakers, insulin pumps, colostomy bags, indwelling catheters, and other medical devices. Be attentive to injuries near these sites and of potential damage to these items. Many fighters with chronic medical conditions wear MedAlert bracelets and/or necklaces which may not be visible until the appropriate armor is removed. Some fighters with medical issues fight with a clearly labeled pouch on their person. Other fighters attach critical medications to the back side of their shield. These critical medications tend to be emergency inhalers and EpiPens.

Do Not Exceed Your Knowledge:

Failure to know your skill limitations can aggravate injuries or potentially cause the fighter you are helping to inflict some injuries on you. I have made an effort to indicate basic skill uses and indicate what someone with advanced skills may do. (For example, boot removal when a foot or ankle injury is present.)

Common fastenings:

Duct tape – This is used as a universal patch when other items fail, break, or have not been attached to new/old armor.

Laces / ties – Everything from shoe strings, leather lace, to cording. This is tied and knotted.

Straps & Buckles – One piece has holes the other has the buckle like a normal mundane belt. Other forms use plastic or metal squeeze clips or twist lock buckles.

“Motor cycle helmet strap” – This is used on some helms it is typically a nylon strap fed through two rings in a manor that the tension and friction of the strap holds it secure.

Latches –

Pin Fittings / Spring Fit – Some armor is held in place because it flexes like a spring. This is commonly seen on bracers and gorgets.

Armor – Purpose, first aid use, and removal:

This section covers the common armor elements that are universal in function. This section is also ordered in the common sequence of removal.

Youth Fighter Armor:

The parents or responsible adult will know how to get the child in and out of their gear so consult with them. In the young age brackets the gear is essentially the same as youth hockey. In the ages increase there will be a transition from traditional sporting pads to armor.

Weapons: **Remember to disarm you patient before beginning any treatment**, as the patient swinging the weapon at you may be a reflex action to pain or regaining consciousness. Some weapons may be connected by a lanyard to the wrist. Use other armored fighters that are present to disarm the fighter.

Helm: This is a rigid skull protection. It has a chinstrap to keep it secure to the head. There is supposed to be enough clearance between the nose and the front of the helm so that they will not make contact when struck. Helms restrict vision and hearing to varying degrees. As a properly fit helm is securely fastened to the head it can and should be used to provide C-spine support if it is deemed necessary. You always need to loosen or move the chinstrap prior to removal. Make sure that the chinstrap does not catch on the nose when removing the helm. Some helms have removable face plates/grills that may permit access. Remember that helms are heavy and can be awkwardly weighted so grip them carefully and do not drop them onto the fighter's or your own feet..

Fencing mask / helm: The fencing / rapier mask or helm has a rigid mesh that prevents blades from contacting the face. They are secured to the head by a lanyard, Velcro strap, or chin strap in the case of helms. These masks and helms ARE NOT SUITABLE for C-spine support. These masks simply slip off of the head. Fencing helms are removed as per heavy helms. Do note that some of the new rapier helms assemble like a puzzle so look for a latch, buckle, strap, or pin fitting.

Equestrian helmets: Treat as Helm above.

Gorget: This is the rigid throat protection. It is looser fitting to permit movement and articulation. It **CAN NOT** be used as a C-collar. These either have straps and buckles, laces, or a spring fit on a pin. You only have to undo one side to release the majority of these.

Gloves / Gauntlets: These are for hand protection as per the combat type. Use caution in removing these if a hand injury is suspected. You can splint fingers together or wrap the hand in the glove if it is a crush injury or suspected break and you do not have the skill or training to safely remove the glove. Remember to check for distal circulation by having them wiggle the fingers a little if you do wrap in place.

Tabbard: This is usually a long rectangular piece of cloth with a neck hole held in place by a belt. The can be quite ornate. This is also known as wrapping paper. You do not know what armor the individual is wearing until it is removed. Simply undo the belt and flip over the head.

Torso Protection: There are numerous styles of armor that protect this area. These range from chainmail to a coat of plates or rigid plate. You can not perform CPR through a rigid piece of torso armor through the back piece will provide support. Torso armor can have any, all, or no fastenings. Some fastenings may even be ornamental. Some armor even slides on over the head. If a torso or rib injury is suspected attempt to determine if the armor is currently helping support the injury site. If so, leave it on.

Gambison: This is the clothing worn under the primary armor. Often this is a quilted jacket that behaves a lot like a blanket with regards to padding and retaining heat. In the SCA today, individuals are wearing everything from t-shirts and UnderArmor(tm) to reproductions of period gambisons. Some armor pieces may be attached via laces directly to the gambison.

Chainmail: Also known as the Chinese finger trap of armor. Gravity is your best friend here. If possible have the person stand or kneel and then bend over at the waist and shake. This will permit the mail to slide off. If you have a patient that can not assist you you will need several people to assist in its removal. Someone to lift up on the armor and someone to work the armor up. If you are lucky and the mail is large enough, you may be able to lift at the bottom edge and invert it like turning a shirt inside out.

Fencing Doublets and Jackets: These are multi-layered fabric or leather. They are fastened lengthwise with either Velcro or what I have dubbed "Buttons of Doom". Due to the armor requirements it takes upwards of 15 buttons to secure. (See Buttons below)

Joints (elbows and knees): These must be covered with rigid joint protection for heavy combatants. This protection can take the form of rigid sports pads to integrated articulation with the arm and leg armor. Single sports pads may be left in place when splinting. For articulated joint armor, refer to "Arms & Legs" below.

Belt / kidney belt: This armor serves two common purposes. The first being kidney protection. The second purpose, of course, is holding things up. Leg armor may be attached to this, so remove it after removing any leg armor. This is buckled, laced, velcroed, slipped on, etc.

Full Harness: This is similar to the belt as above but it may have straps going over the shoulders to assist in distributing the weight. In addition other pieces of armor may be attached to the harness such as the shoulder and arm armor and maybe even the breast and back plates. Approach its removal like you would a belt with attached legs.

Arms & Legs: Leg and arm armor is usually articulated at the joints. These are usually attached via an array of laces, straps, duct tape, etc. If the fit is sufficient and the armor is not deformed they can be used as wonderful splints with the creative use of cravats, or duct tape. As with any splint remember to check for distal circulation. For removal work from the end of the limb toward the body. This will prevent the armor from hanging awkwardly and digging into the fighter. Some individuals wear modern sports padding under their armor. Some individuals even fight with full leg braces, knee supports and the like. Simply treat these like any other piece of armor.

Boots & Footwear: Proper fitting footwear is very important. Injuries are most common in the toes and ankle. Depending on your training, it will dictate what you do regarding the usefulness of the footwear. Sometimes it is better to leave it on. Do not remove boots unless you know how to do so without aggravating the injury. Footwear, especially high leather boots, may get stuck if the injury site swells up. Should this occur, monitor distal circulation regularly. If need be, you may have to rip out the back seam stitching on the boot.

Rigid groin protection: The item is self explanatory in purpose. This only gets removed in extreme circumstances. Typically removed in cases where it has been broken / shattered.

Modern sports pads/protective gear: Most of the modern gear either slips on, Velcros, or laces into place.

The final cut:

Below is the order of what to cut, in order, should you sadly have to. Remember that there are relatively few circumstances where you will not be able to take your time.

For armor:
Duct tape
Laces / ties
Straps
Buckles
Chainmail

For leather goods and/or clothing:
Duct tape
Laces / ties
Straps
Stitching
Buttons

Duct Tape: This is cheap and easy to replace with little time or cost involved. Quite often it is used as fastening for armor pieces when suiting up and it must be cut to remove the piece.

Laces & Ties: These are leather, twine, thread, etc. They are easy to replace and they are not that expensive. Only cut these if you can not untie the laces. New laces may have to be sewn back into a garment. Hand woven lucet cord laces can be expensive and time consuming to make.

Straps: These are the parts that have eye holes and work with buckles and fasteners. These are easier to replace than buckles as it is relatively easy to place new eye holes into a leather strap at precise locations.

Buckles: You should rarely need to cut a buckle. Cut the strap instead if possible.

Buttons: If you do not have the time to unbutton the item (due to tight button holes), use a seam ripper or scissors to cut the thread attaching the buttons. Save the buttons.

Stitching: This is what you should cut if you wish to preserve irremovable leather boots, footwear, gloves, etc. The stitching can be re-sewn by a leather craftsman at a marginal cost as opposed to the cost of repairing cut leather. The other advantage to removing the stitching is that when it is re-sewn, there will be no difference in the appearance or fit of the item.

Chainmail: This will require 2 pairs of pliers for butted chain and cutters for riveted/welded. Open up a straight line of rings. Typically opening up the side in a line passing through the armpit will let you remove it the fastest. Trauma sheers can cut aluminum rings, but not steel rings.

How to learn more:

You can learn a lot about armor by simply walking up to any fighter and saying, "I am a surgeon and I am studying how to remove different armor types without damaging the armor or the fighter." They will be more than happy to show you.

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