



Executing a Belay Escape

By Michael Strong

University of Oregon • PE & REC • Outdoor Pursuits Program

There you are, on belay at the first (ground) pitch of a climb. Your partner has just led up to the crux, near the end of the pitch, when you hear a yell from above. You're jerked forcefully upward, held securely in belay by the attachment to your ground anchor. Your partner has just taken a violent fall and broken an ankle. What do you do? He cannot continue climbing. You cannot lower him to the ground because you do not have enough rope. There are no other climbers in the area to lend a hand. Hopefully you know how (and are able) to rescue your partner by yourself, or at the very least, escape a belay and go for help. If you don't, the situation may become desperate.

There are many different ways to execute a belay escape. Review any climbing or rescue techniques book from the past 10 years and you are likely to find several ways to execute the escape sequence. If several sequences are conceptually sound, then one will not necessarily be better than another. Whatever escape sequence you adopt, it's essential that it:

- Be applicable to a direct or redirected rope configuration. In a direct configuration, the rope comes from the climber directly through the belay device. A redirected rope bends around an anchor carabiner before passing through the belay device.
- Be reversible. The end product should be able to be safely taken apart, and the climber lowered without having to cut any accessory cords that are under load.
- Include safety back-ups at critical points (e.g. when the system is exclusively supported by anything other than the climbing rope).
- Make sense to you. For this reason, you may prefer another way of escaping the belay than is described below. Pick a system that you are comfortable with.

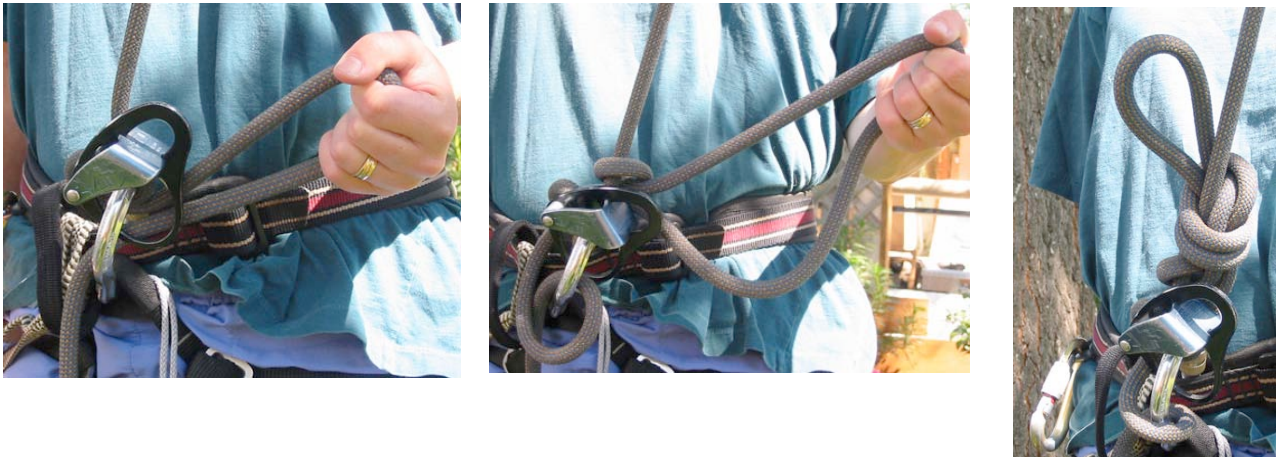
The belay escape sequence – belaying without an anchor redirect



Step one - Contain the fall: When belaying directly from the harness, it's imperative that you position yourself so that you are in a direct line with the direction of anticipated force, as shown in the illustration to the left. A leader fall can generate a significant amount of force, and if the components of the belay chain (rope from climber, belay device, attachment to anchor) do not line up with the force of a fall, you will be swung sharply into line, which may be very disruptive (perhaps even dangerous). Notice that the belayer has chosen to use a slot device and a secure, palm-down brake position.

Note: the slot device is the most common belay device on the market, and the one we recommend for belaying. There are numerous brands on the market. Choose one that has a secure means of attaching to the belay carabiner, has double slots for rappelling and is thick enough to absorb the heat of a long rappel. The one illustrated in this sequence is the 'Reverso' by Petzl. A figure-of-eight device is designed as a rappel device, and has serious limitations as a belay device. A gri-gri is a specialized belay device designed for experienced climbers and specialized situations.

Step 2 - Tie the loaded rope off at the belay device: While maintaining the brake position, feed a bight of rope through the locking carabiner that the belay device is attached to (below left). A pear-shaped carabiner makes this process easier. Next, tie the loaded strand of the bight securely against the belay device using a half hitch (below center). The knot is now “slippery”, meaning that the bight can easily be pulled out. For security, a slippery tie-off should always be backed up. Finish by tying an overhand knot (with the double strand) securely against the half hitch (below right).



Step 3 - Attach a cordelette to the climbing rope and tie it off to the anchor with a tension release mechanism:

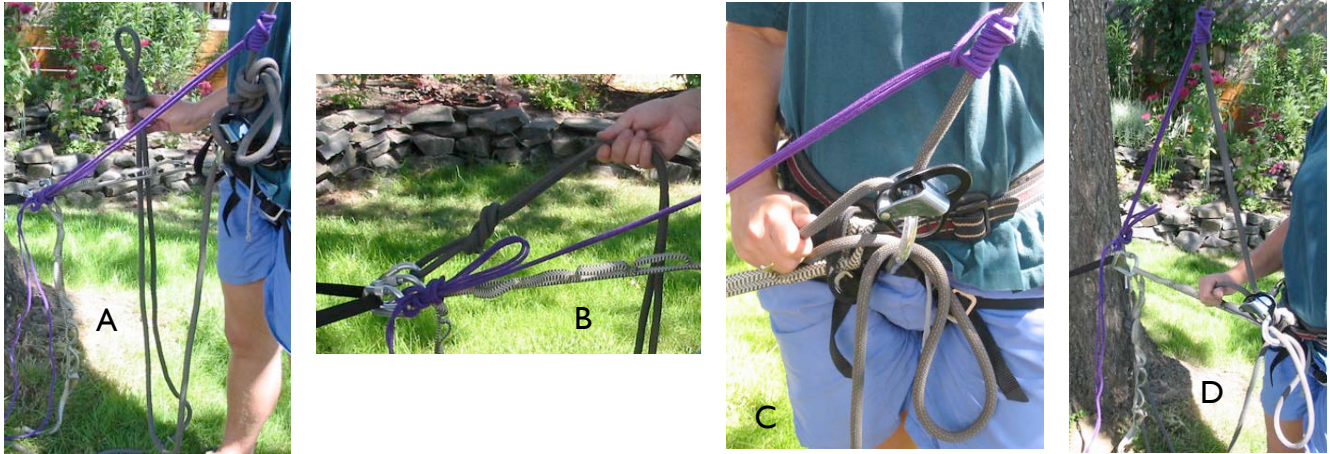


- A. Tie a Klemheist knot on the rope with your cordelette. To begin, wrap the bight of a double strand of cord 4 or 5 times around the rope, *towards* the load (climber).
- B. Pass both strands through the bight and tighten the knot by pulling the strands along the rope towards the belay device.
- C. Tie the cordelette to the anchor with a tension release knot. The one-handed Müenter hitch works well, because the cord can easily be tightened, and tension maintained while tying the knot. To tie this knot: grab the non-loaded strand and pass it behind the loaded strand. Pull the strand up into a bight. Do not twist or flip this strand.
- D. Clip the bight into the carabiner and lock the gate. Keep your brake hand on the rope.
- E & F. Tie the knot off the same way that you tied the rope off at the belay device.

Tension Release Knots - Essential Components of Rescue Systems

A tension release knot is any knot that can be untied and released in a controlled manner while under tension. The Müenter hitch is the best choice because it can be tied quickly, is easy to manage under load, and holds effectively, even when tied with a single strand of cord or webbing.

Step 4 - Transfer the load to the tension release mechanism (cordelette):



- A. Tie a back-up (figure-of-eight) loop in the rope about eight feet from the tie-off at the belay device.
- B. Clip the loop to the anchor.
- C. Undo the rope tie-off at the belay device. Keep your brake hand on the rope during this process.
- D. Slowly feed rope through the belay device until the load is held by the cordelette. The figure-of-eight loop serves as a backup to the cordelette, which is exclusively holding the load.

Step 5 - Tie the rope off to the anchor with a Müenter hitch and transfer the load to the rope:



- A. As quickly as possible, transfer the load from the cordelette back to the rope. Keep the rope fed through the belay device and pull enough slack into the rope to tie a one-handed Müenter hitch onto a locking carabiner at the anchor.
- B. Tie off the Müenter hitch on the rope at the anchor with a half hitch, followed by an overhand knot.
- C. Remove the rope from the belay device. Untie the safety loop tied with the rope in step 4A.
- D & E. Untie the back-up knot on the cordelette tie-off and slowly transfer the load to the climbing rope, employing the Müenter hitch as a belay mechanism. Re-tie the cordelette. Proceed with the rescue or go for help.

The belay escape sequence – belaying with an anchor redirect

The main advantage of belaying with an anchor redirect is that much less force is exerted on the belayer than when the rope feeds directly from the climber into the belay device. In fact, this yo-yo setup reduces the load exerted on the belayer by about 50% when the system is configured correctly (has maximum rope bend and employs no more than two anchor carabiners). It is also a comfortable, clean and effective setup for belaying a second up to the belay stance.

The following sequence is based on the previously described and illustrated belay escape sequence. Redundant steps are not explained.

Step 1 - Contain the fall.

Step 2 - Tie the rope off at the belay device.

Step 3 - Attach a cordelette to the climbing rope and tie it off to the anchor with a tension release mechanism. In this case, tie a Klemheist knot onto the loaded strand of the rope near the re-direct at the anchor, and then tie the cordelette to its own anchor carabiner. When tying the Klemheist knot, remember to start by wrapping the bight (of a double strand of cord) towards the load (climber).

Shown from right to left in the illustration (to the right) are the following:

- Belayer's primary (daisy chain) attachment to the anchor;
- Belayer's secondary (clove hitch with rope) attachment to the anchor;
- Rope from the climber redirected through a locking carabiner at the anchor (hard to see in this illustration).



Step 4 - Transfer the load to the tension release mechanism (cordelette).

Step 5 - Tie the rope off to the anchor with a Münter hitch and transfer the load from the cordelette to the rope. The finished product is shown to the right.

