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## Abseiling

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## Increasing Abseil Friction

Whether you're abseiling down a skinny rope at the sport crag, or retreating from a multi-pitch with rain-slicked ropes and a heavy pack, the

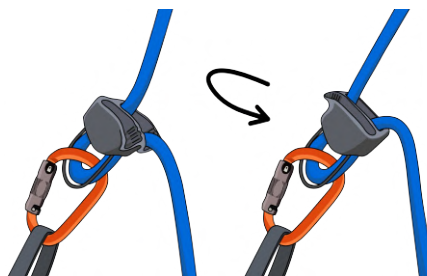
following techniques will help you increase friction when abseiling, and get down safely without rope-burnt palms.

### Increasing Friction – Simple Methods

#### Method 1 — Reverse

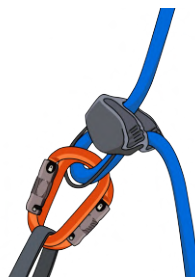
Many belay devices are asymmetrical, offering more friction if reversed.

Try it out both ways to see which provides the most friction for your device.



#### Method 2 — Double Up

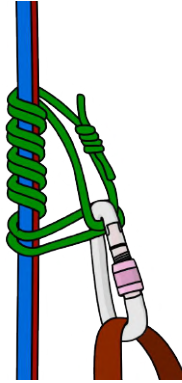
Attach your belay device to your belay loop with two screwgate carabiners. This causes the rope to rub against a greater surface area, which creates more friction. Large carabiners work best.



### Method 3 — Add a Prusik

We recommend always using a prusik (friction hitch) when abseiling. A prusik won't provide *consistent* extra friction during the abseil, but it will auto-lock if set up correctly. This means you can 'rest' mid-abseil, providing added security on tricky descents.

You can use a prusik in conjunction with any of the other methods described in this section to further increase friction when abseiling.

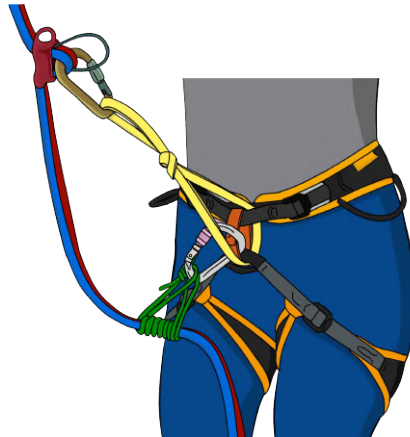


### Method 4 — Extend

Feed a 120cm sling through the hard points of your harness, tie an overhand knot in it and then clip both ends of the sling to your belay device.

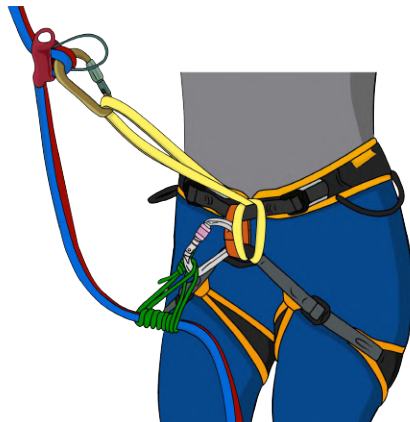
This puts your belay device further away from your body, making it a little easier to control.

This also enables you to attach your prusik to your belay loop, which is safer than attaching it to a leg loop.



Alternatively, you can girth hitch a 60cm sling through the hard points of your harness (or belay loop).

It's better to use thicker (and more durable) nylon slings than thin Spectra/Dyneema for extending your belay device.



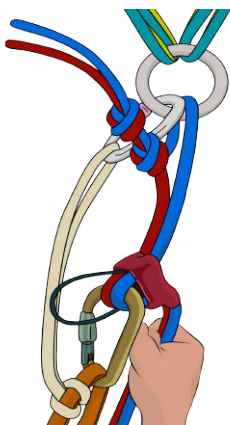
## Increasing Friction – The Z-Abseil

The Z-abseil is quick to set up and provides much more friction than the previous methods, meaning that you

can abseil rain-soaked skinny ropes confidently.

### Step 1

Set up your belay device for abseiling as normal, staying attached to the anchor with a back-up sling.



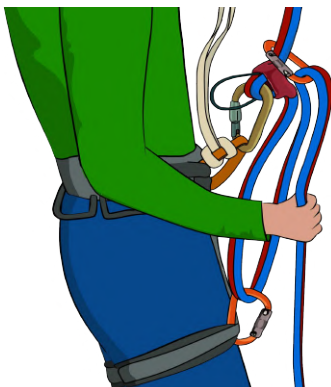
### Step 2

Clip a screwgate to one of your leg loops and clip another screwgate around the ropes above your belay device.



### Step 3

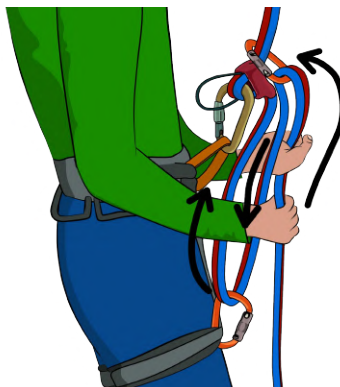
Run the ropes down from your belay device through the leg-loop screwgate, up through the upper screwgate and back down to your brake hand. Make sure the ropes are running neatly next to each other.



### Step 4

Fasten up the screwgates and make a final check of the system.

Then detach your back-up sling from the anchor and enjoy a maximum friction descent.



### The Z-Abseil — Top Tips

\* Make sure your screwgates are fastened tight. Vibrations in the rope can cause some types of screwgate to unfasten. Check them during your descent.

\* If you don't have enough screwgates, you can use two opposite and opposed snapgates instead.

\* You can use the same method for single rope abseils. Simply set up the system in the same way.

\* Don't use this method when abseiling with a GriGri. The top carabiner will hold the handle down and prevent it from locking.

\* It's possible to set this system up mid-abseil — useful on the last half of a long abseil when the weight of the rope below you has decreased. This will be easier if you pre-attach the two screwgates before you leave the anchor; one on your leg loop and one sliding down the ropes above you.

## Abseiling Without a Belay Device

Dropping your belay device at the top of a ten-pitch abseil descent isn't recommended. But if you do, knowing how to use the 'carabiner brake' will change your descent from epic to easy.

The munter hitch (see page 137) can be used as an alternative, but it tends to kink the rope and causes abrasion to the sheath.

### You Will Need:

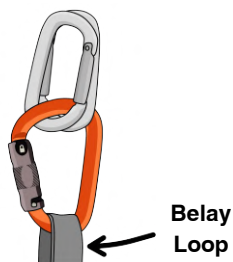
- \* One screwgate
- \* Four snapgates

Full size oval or D-shaped carabiners provide the smoothest descent, but almost any carabiner can be used. Really small or sharp-spined carabiners should only be used as a last resort.

### Step 1

Clip a screwgate to your belay loop and fasten it.

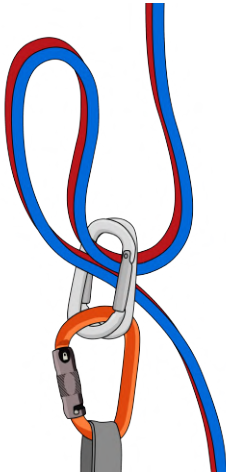
Then clip two snapgates to the screwgate, making sure the gates are facing opposite directions and they are opposed.





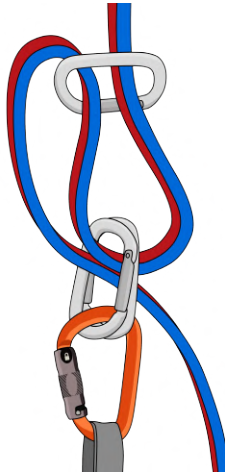
### Step 2

Push a bight of both ropes through the snapgate carabiners.



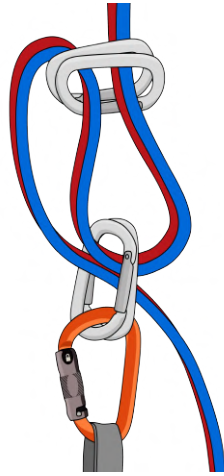
### Step 3

Clip another snapgate around the ropes and also through the loop as shown.



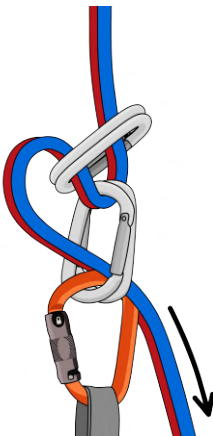
### Step 4

Clip a second snapgate next to this, with the gates on the same side, but facing opposite ways.



### Step 5

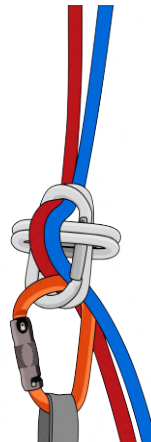
Pull down on the rope until the carabiners align over each other. Make sure the rope runs over the spines (not the gates) of the outer carabiners. The carabiner brake is now complete.



### Step 6

Add a prusik and abseil as you would with an ATC.

Remember that the carabiner brake may provide a different level of friction than your belay device.



## Abseiling with a Damaged Rope

If you climb long enough, you will inevitably end up having to abseil with a damaged rope at some point.

Unfortunately, getting a core-shot (when the white core is visible) seems to be more common on long multi-pitch climbs where the terrain is blocky and the abseil descent is complicated. How you solve this problem depends on the severity of the rope damage and where you are when it happens.

If it is more practical to continue up than descend (e.g; If you are ten pitches up a steep face, but only one pitch away from an easy walk-off descent), you may choose to continue climbing on the longest section of undamaged rope. You'll have to do shorter pitches, but this may be the best option.

If a small amount of core is showing through the sheath, and the core is in perfect condition, you can wrap a piece of finger-tape tightly around this abraded section. This helps to hold the sheath together and prevent the core from being further exposed. Use just a small amount of tape so that your abseil device still feeds through easily.

It is not safe to lead on a damaged rope like this, whether taped or not — This technique is only suitable for abseiling. It enables you to get down safely, but is not a permanent solution. The rope should be retired afterwards.

The following method explains how to abseil if the rope's core is damaged. You can abseil on a single 'good' strand of rope, and treat the damaged part as the pull-down cord. You don't need to cut your rope.

---

### Step 1

Attach the rope through the anchor as shown. A figure-8 is shown here, but you could also use other knots (such as the overhand, figure-9, clovehitch or alpine butterfly). The point is to have a knot which physically cannot pull through or get stuck in the main anchor point.

The important part of this setup is to clip the rope back to itself with a screwgate carabiner to make a

closed loop around the main anchor point. This way, the system wouldn't fail completely if the knot slipped through. You would, however, have to prusik back up (see page 116) to solve the problem.

The same setup applies if you are abseiling on two ropes. Tie them together and use the damaged rope as the pull-down cord.



### Step 2

Attach your abseil device to the good strand of rope.

Follow the same safety precautions as you would when abseiling at any other time: tie a knot in the bottom end of the rope, use a prusik and weight the rope to check the system before you commit to it.

### Step 3

Abseil down the good strand while keeping hold of the pull-down cord. It's a good idea to keep the end of the pull-down cord clipped to you.

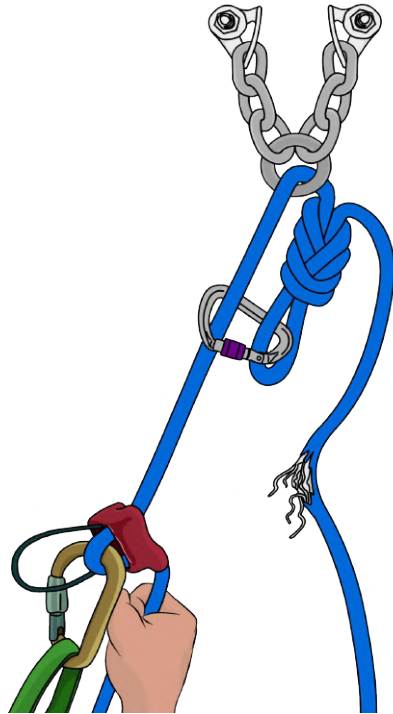
Watch the setup as the first climber descends. If the knot gets jammed or slips through, you'll need to tie a bigger knot or change the main anchor point to something smaller (small maillons/ quick-links are good for this).

### Step 4

Pull your ropes down.

It's possible that the knot and carabiner could get stuck. As when abseiling in a normal situation, keep an eye out for cracks and features where this could happen before you pull your ropes.

On a multi-pitch descent, remember that you will have to thread the same rope through each anchor.



### Top Tips

- \* Add slings and cordelettes to the end of the pull-down cord if you need a little extra distance on your abseils.

- \* If both of your ropes are damaged, the best option may be to salvage the longest section of undamaged rope as the 'good' rope and join the rest together as the pull-down cord. You won't be able to abseil as far, but it is better than not being able to abseil at all.

- \* Another option is to fix one end of the rope to the anchor and abseil on a single strand, passing knots (see next page) on the way. You will not be able to retrieve your ropes, so this only works if your ropes reach to the ground.

## Abseiling Past a Knot

Times when you might need to abseil past a knot:

- When descending a single strand 'fixed' rope, where a knot has been tied to isolate a damaged section
- Passing a knot joining two ropes during an emergency retreat

As always, first try to utilize the terrain

to make passing the knot easier. For example, if you have a ledge to stand on, you can bypass the knot without needing prusiks.

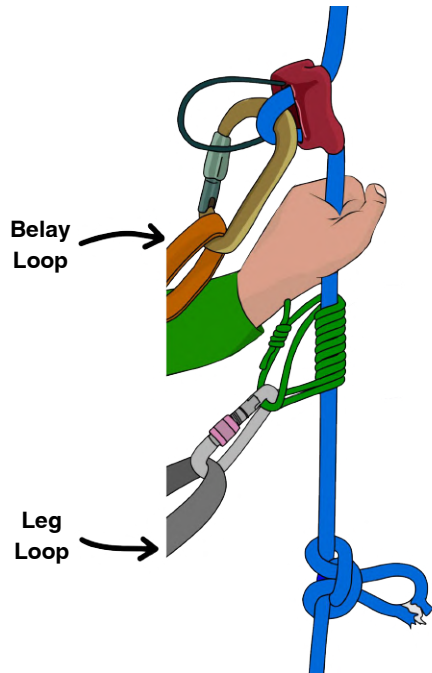
However, if you are dangling in space with a heavy pack pulling you backwards, you'll need to follow all the steps described.

### Step 1 — Stop

Stop abseiling when your prusik is about 30-40cm before the knot. Allow the prusik to take your weight.

If you are abseiling without a prusik (not recommended), you can wrap the rope around your leg a few times. This adds friction but does not lock your belay device, so make sure to keep hold of the rope for the next couple of steps. And use a prusik next time.

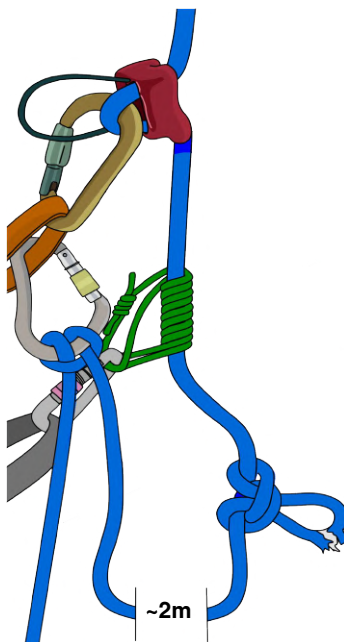
If your belay device jams into the knot, you'll need to ascend (see page 116) a short amount.



### Step 2 — Back Up

Pull up about two meters of rope and fasten a back up knot (clovehitch or figure-8 work well).

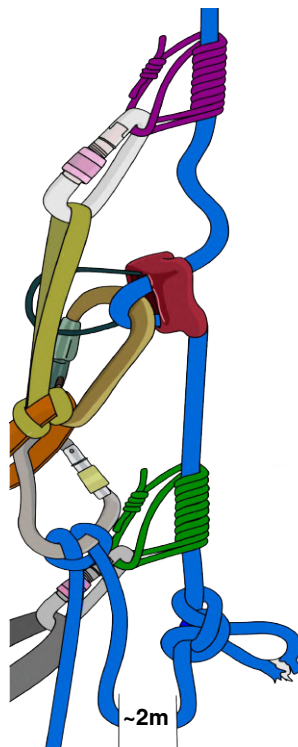
Attach this to your belay loop with a screwgate carabiner.



### Step 3 — Add Prusik

Fasten a prusik above your belay device (classic or autoblock types work well) and attach it to your belay loop with a short sling.

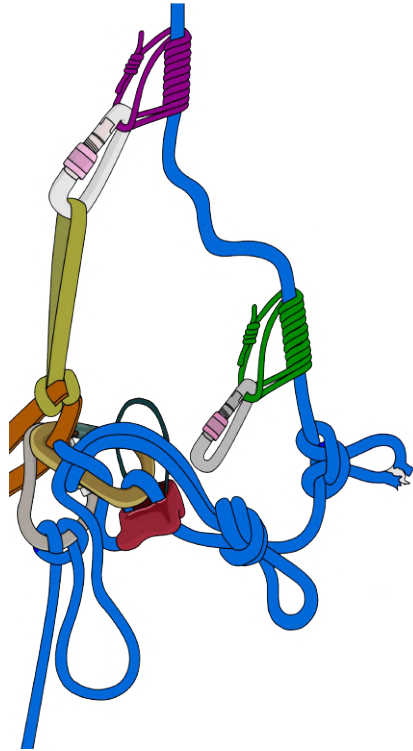
Abseil down a short amount to allow your weight to be taken by this prusik.



#### Step 4 — Pass the Knot

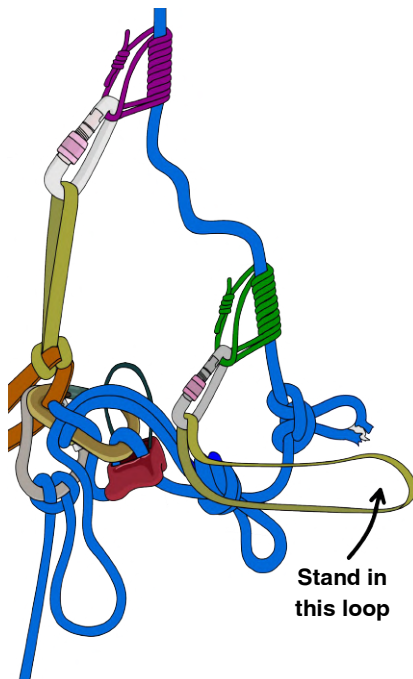
Detach the un-weighted lower prusik from your leg loop but keep it in position on the rope.

Remove your belay device and reattach it to the rope immediately beneath the knot. Lock your belay device by tying it off with a mule-overhand (see page 142).



#### Step 5 — Add Foot Loop

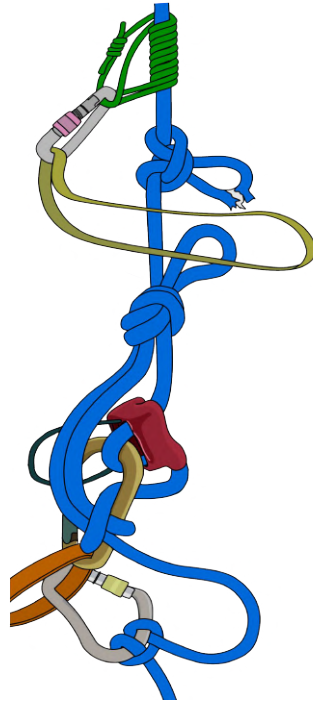
Clip a short sling to the lower prusik. Stand in this sling to un-weight the upper prusik.



### Step 6 — Remove Prusiks

Remove the upper prusik and sit back to weight your tied-off belay device.

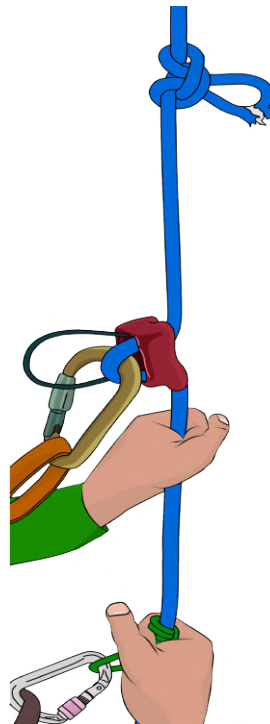
If you can't weight your belay device from this position, you may have to down-prusik a couple of times until you can weight it. Alternate between weighting the upper prusik and standing in the lower foot loop. Adding an extra sling to the lower foot loop makes this easier.



### Step 7 — Descend

Reposition the remaining prusik back to your leg loop (without the foot loop sling), unfasten your back up knot and then release your tied-off belay device.

You can now continue your descent.



### Top Tips

\* Before you pass the knot, assess if it would be better to:

- Unfasten it
- Re-tie a better knot (alpine butterfly is recommended)
- Ascend back to the anchor and find a different way down

\* It's highly recommended to practise this technique before you actually need to use it. Dangling in space with your belay device jammed into the knot and a prusik out of reach above is a common error for first-timers. Try it out on different angles of rock, with your prusiks at different heights and attached to different lengths of sling.

\* If you know there are knots in the rope before you descend, you can speed things up by abseiling with a pre-attached prusik above your belay device.

\* The same technique can be used when abseiling with an extended belay device. During step 6, you will need to down-prusik a few moves to ease your weight onto your tied-off belay device.

\* There are many variations of this same technique. The most important thing to remember is to fasten a back-up knot before you detach your belay device.

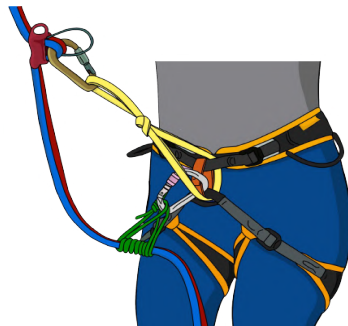
## Pendulum Abseils

Multi-pitch descents are not always straightforward. The next abseil station may be far to the side of the previous one (they often are when descending loose ground). Or maybe you need to bail down an overhanging wall.

Being able to swing or tension across to reach the next abseil station is key in these situations.

You can pendulum when leading too (see page 61).

It is recommended to abseil with an extended belay device and a prusik (see page 35) for tricky abseils like these. Being able to go hands-free is crucial.

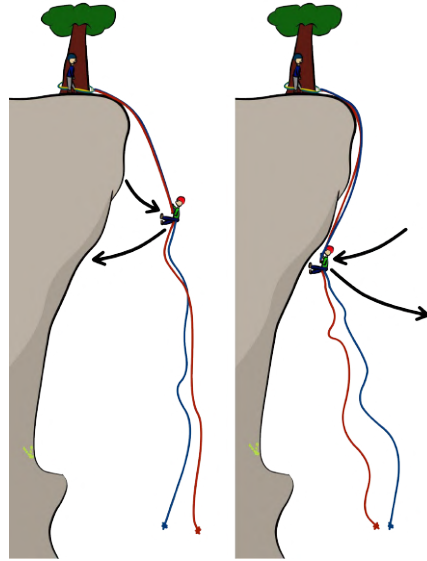




### Step 1

To swing to an abseil station on overhanging ground, you'll need to start the pendulum early. Push out from the rock with your legs as you descend. Keep your momentum and be ready to clip or grab the next anchor. If you end up stranded in space, you'll need to prusik (see page 116) back up and try again.

On traversing ground, it's often better to tension across (semi-climb while weighting the rope), so your rope isn't rubbing over possible sharp edges of rock. If this is too difficult, a pendulum will get you further across, but be very careful of loose rock and sharp edges when doing this.

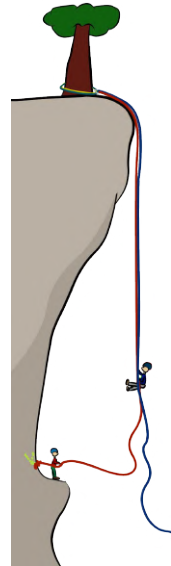


### Step 2

Once you have made it to the next station, tie the end of the 'pulling' rope (the one you will pull to retrieve your ropes) to the anchor. This gives your partner something to grab so they can get to the anchor without having to pendulum there. It also ensures that you cannot drop your ropes. On long traverses, you can help your partner by belaying them in too.

### Step 3

Once all climbers are at the lower station, pull your ropes and repeat.



### Top Tips

\* It's better for the first climber to descend with the minimum gear needed. The other climber(s) should take the heavier loads since it is much easier to follow than 'lead' a descent like this.

\* To avoid getting your ropes stuck when traversing, consider abseiling with them in coils clipped to your harness. Release them one at a time as you descend.

## Stuck Abseil Ropes – Prevention

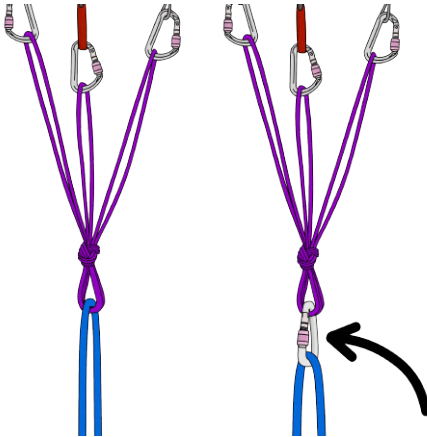
The techniques described in this section are simple guidelines for preventing your ropes from getting stuck in standard situations.

If you are about to abseil down complex terrain, consider these prevention strategies before you throw your ropes.

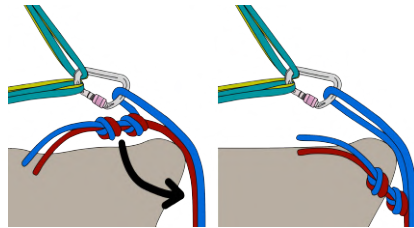
### Reduce Anchor Friction

If there is a lot of friction at the abseil point, the following three methods can help to reduce it.

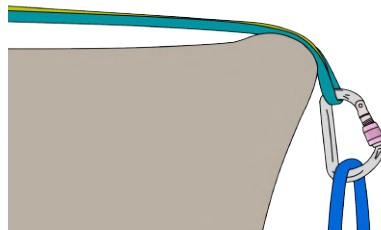
- 1) Add a carabiner if the rope was previously threaded through cord



- 2) Move the knot so it is over the lip of a ledge



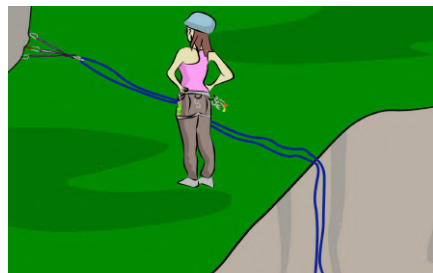
- 3) Extend the main abseil point over the lip of a ledge



### Rope Angle

Avoid abseiling from anchors that are low down and far away from an edge, forming a right-angle in the rope. The added friction from the rope running around the edge will make it more difficult to retrieve the rope. Also, if there is mud or snow on the edge, the rope will cut into it, causing the knot to get stuck. If you must use an anchor like this, you could extend it with cord so that the main point hangs over the edge. If this is not possible, it may be

wise to make a short abseil over the edge and then set up a second anchor on the face.



### Shorter Abseils

When abseiling down terrain where ropes are likely to get stuck, it is much better to do shorter abseils. This will allow you to have more control over where the ropes run, and will also mean that you won't have to climb back up as far to retrieve stuck ropes.

### Windy Abseils

When throwing your ropes down in high winds, they are unlikely to drop where you want them. To combat this, clip the rope to yourself in short loops. Release the loops one at a time as you descend.

### When Pulling Ropes

By standing further out from the wall when pulling ropes, the knot is pulled through the air instead of against the rock, meaning that it is less likely to get caught. It also helps to flick the rope to guide the knot around obstacles.

### Test Pull

If there is a lot of friction between the ropes and the rock or anchor, it is worth doing a test pull. Once the first climber is down, they pull on the retrieving rope. If the ropes don't move, the second climber can reduce friction at the anchor (see previous pages). Then do another quick test pull to see if that solved the problem.

If the ropes still won't pull, the second climber could abseil part way down the face and make an intermediate anchor to abseil from, before joining the first climber at the lower anchor. This, however, may cause more problems if the ropes get stuck during retrieval, since it is much harder to retrieve ropes alone.

### Check While Abseiling

As you abseil down, look for places where the knots could get caught. Flakes, cracks, spikes, trees or constrictions between boulders are classic places for ropes to get stuck. Flick your ropes so they don't run over these features.

## Stuck Abseil Ropes – Solutions

Prevention is better than cure. But sometimes, no matter what you do to prevent it, your ropes will get stuck anyway. How you retrieve them depends on:

- If you have both strands within reach
- How much rope you have pulled through
- How easy it is to climb up
- What the rope is stuck on

### First Considerations

Be aware that when a stuck rope comes free, it could dislodge loose rock. Try to get yourself into a position

where you can move out of the line of rockfall and not shock-load the belay which you are hanging from.



If you have just started pulling the ropes, first make sure you are pulling the correct one, and are not pulling the knot up into the anchor.

If you are at a single pitch crag, consider if it would be easier to walk to the top to retrieve the ropes.

Resist the temptation to immediately pull hard on a stuck rope, as this may jam it further. Instead, flick the ropes

to see if you can dislodge them from wherever they're stuck. You can also pull on the other end to see if reversing the ropes unsticks them.

If this doesn't work, you might as well pull on it as hard as you can. To make this easier, wrap a prusik cord around the rope and lean back with it clipped to your belay loop, or get more weight on the rope by having your partner pull too.

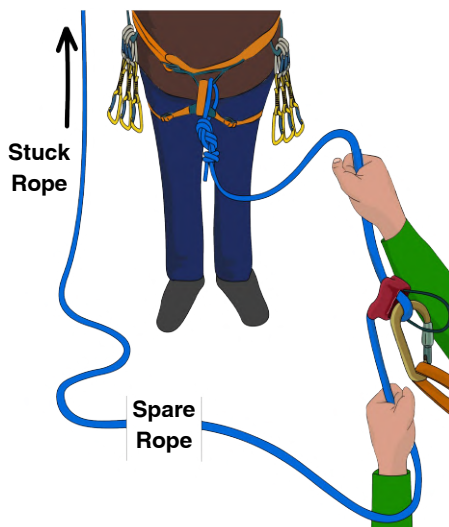
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## Climbing Up To Reach a Stuck Rope

If a stuck rope cannot be freed from below, you must climb back up to deal with whatever is holding it in place. There are two main ways to do this; leading and prusiking.

Leading is the preferred method since it avoids the danger of releasing loose rock if the rope suddenly comes free.

Tie into the end of the rope that you have managed to pull down, then get belayed on this end as you lead back up to the problem. The obvious limitation is that you can only climb back up as far as you have rope available.



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## Prusiking Up To Reach a Stuck Rope

If the rock you abseiled down is unclimbable, you will have to climb the rope itself using prusiks (The technique of prusiking is detailed on page 116). Just because you and your partner have been pulling on the rope doesn't mean that it won't suddenly come free while you are prusiking up.

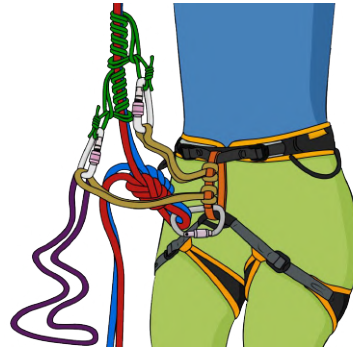
This is especially true when you get higher up and change the direction of pull in the ropes. Therefore, it is essential that you keep yourself safe while you ascend. The method you use to do this depends on if you have one or both ends of the ropes.

## Prusiking Stuck Ropes - If You Have Both Ends of the Ropes

Having both ends of the ropes within reach is much better than just having one. You can either wrap your prusiks around both ropes (as shown on the right), or just the 'pulling' rope (described below).

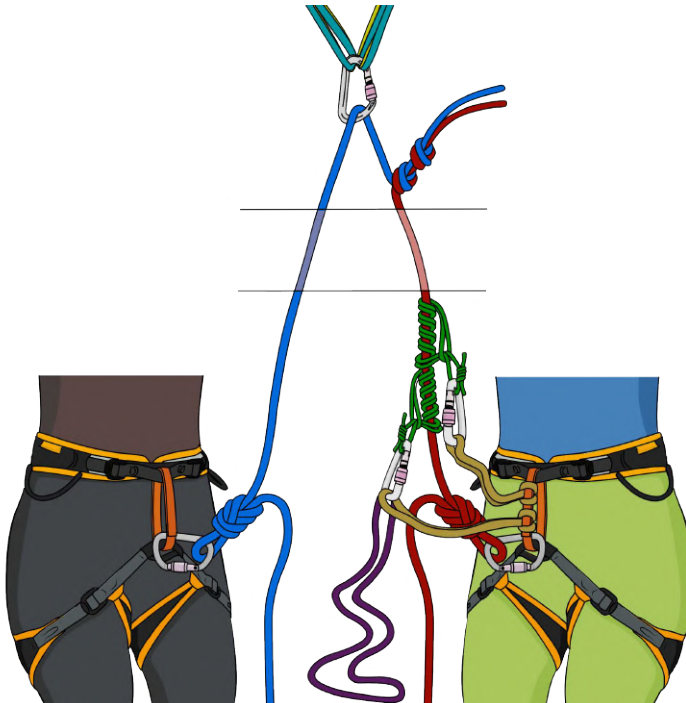
Whichever method you choose, make sure to keep re-tying back-up knots (figure-8 on a bight or clovehitch work well) in the ropes as you ascend.

If you prusik up just the pulling rope, you'll need to counterbalance it with your partner's weight in order to be safe. Do this by getting them to attach to the other rope. This closes the system so that you won't fall if the ropes suddenly come free. The advantage of this method is that your partner will be able to feel your weight pulling on their harness at the point



when the ropes can move freely. This gives you a better idea where the ropes are stuck.

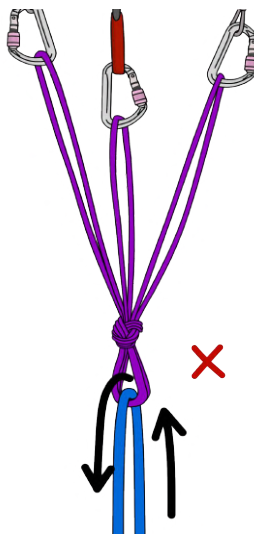
Once you reach the anchor, or a point where the ropes move freely, you can avoid getting them stuck again by re-routing the ropes, building an intermediate anchor or extending the original anchors over an edge.



## Warnings

1) If the ropes are running through cord at the abseil station (instead of a carabiner or maillon), make sure to prusik on both ropes. The sawing action of you prusiking on one rope could melt the cord and cause it to fail.

2) Bouncing up and down on the ropes while prusiking generates more force on the anchor than the force you applied when abseiling from it. If you are uncertain about the quality of your anchor, you can place gear on the rope which you are ascending, while being belayed (described on the following pages).



## Prusiking Stuck Ropes - If You Only Have One End of the Ropes

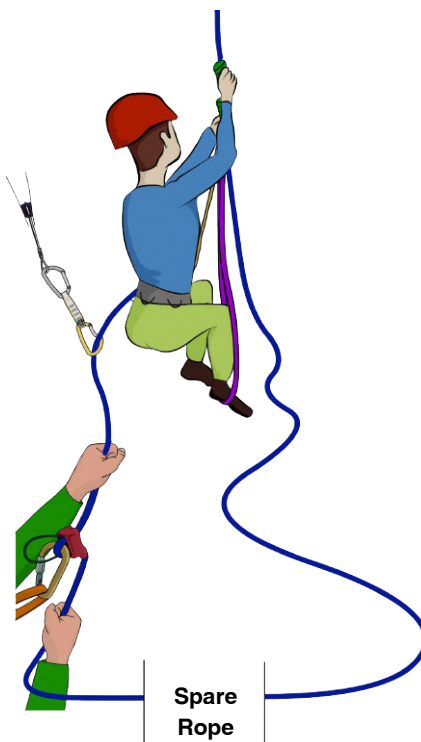
### If you have a lot of rope available

If you were able to pull quite a lot of rope through, you can tie into the end of the rope and get belayed up on this. Place gear and clip it to the 'lead' section of rope as you prusik up the stuck section.

Once you have reached the end of the other rope, it will be safer to switch your prusiks to be around both ropes. Make sure to back up your prusiks with a knot on *both* ropes if you do this.

Before committing to prusiking up a single rope, assess how many gear placements there are above and how much rope you have available to lead up.

An alternative is to cut the rope and abandon the section which is stuck above you. You will then be able to use this to protect sections of downclimbing and to make short abseils.





### If you don't have much rope available

This is a poor situation to be in. However, it may still be possible to retrieve your ropes. This technique involves prusiking up the stuck rope

and placing gear on it as you go. Your partner belays you on this rope. Here's how:

#### Step 1

Tie a clovehitch (figure-8 on a bight is fine too) on a screwgate and attach it to your belay loop. This is your tie-in point.

#### Step 2

Your partner ties into the end of the stuck rope (to close the system) and then puts you on belay.

#### Step 3

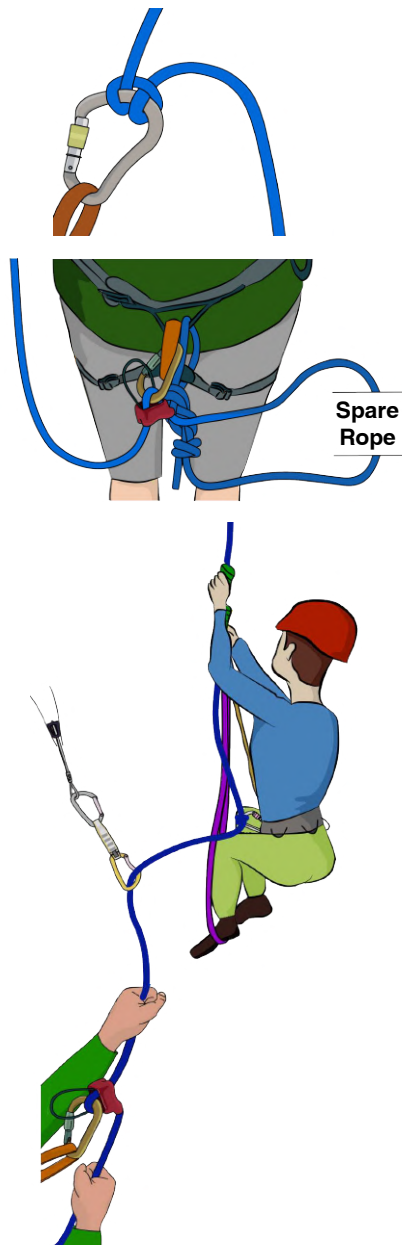
Prusik up the rope. You will need to re-tie the clovehitch as you ascend. Tie a new one before untying the old one.

You could also shuffle rope through the clovehitch to adjust it, but be aware that if the stuck rope pulls free while you are mid-shuffle, the knot may not lock properly and there is a real danger of severing your finger in the suddenly tightened knot.

#### Step 4

Place gear as you ascend and clip this into the rope between you and your partner. If the stuck rope suddenly pulls free, you will fall and be protected by the gear you placed.

Your belayer will need to give slack as you ascend and take in slack when you adjust your clovehitch.



## Descending from Bad Anchors

Poor abseil anchors are often found on seldom travelled multi-pitch descents or alpine ridge traverses.

Sometimes there is no anchor where you need one, or the existing anchor is untrustworthy. It is your responsibility to fully inspect every anchor before you use it.

Never trust an anchor if you have any doubts about its reliability. Other options include:

- Belayed downclimbing
- Beefing up the anchor
- Backing up the anchor

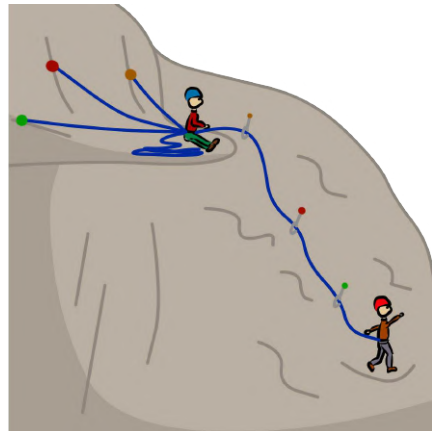
### Belayed Downclimbing

If the terrain is easy enough, it may be possible to downclimb. This means you don't need to leave any of your own gear behind.

The leader climbs down first, placing gear as they descend. Once they reach an anchor (or the ground), they can belay the follower, who removes the gear on their way down.

The last climber must be careful as they will downclimb above gear which they didn't place.

You will need some sort of anchor at the top to begin the descent. This anchor needs to be solid but can be



fairly unsuitable for abseiling, such as a few cams which are widely spaced apart.

### Beefing Up the Anchor

If you embark on a route which has a complicated descent, it is worth bringing 'leaver' slings, nuts and carabiners for beefing up anchors.

Poor anchors do not necessarily need replacing entirely. Often one extra piece equalized to the anchor will make it good enough.

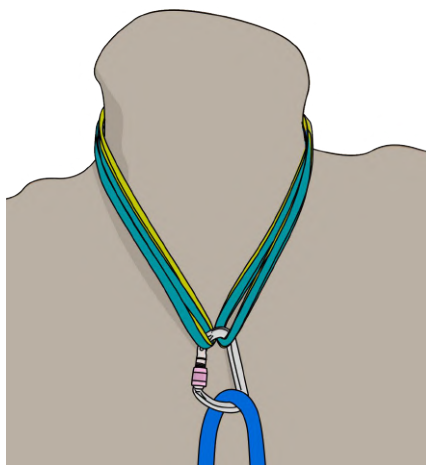
If you make a new anchor, be sure to remove any ancient gear that you replace so no-one uses it in the future.

Sometimes the anchor pieces are good, but the carabiner or mailon (quick link) at the main point is worn. This is a critical part, since it is the

only thing connecting the rope to the anchor. Add another if you are unsure.

If you leave a snapgate carabiner, make sure to tape the gate closed so it can't unclip during your descent.

Sacrificing your expensive climbing gear to beef up an anchor is painful. But it's not as painful as falling down a mountain after the anchor fails. Make sure it is bomber.



## Backing Up the Anchor

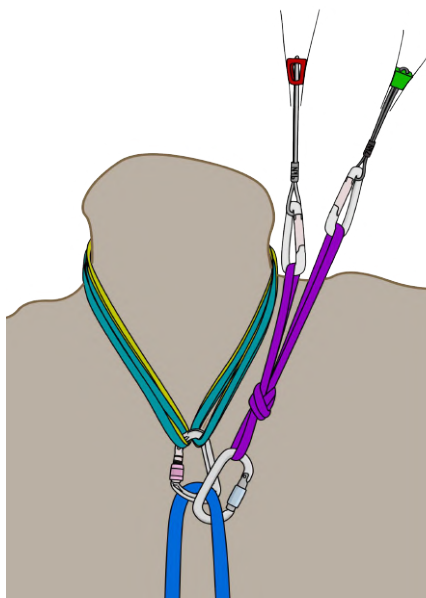
If an anchor is okay but not completely bomber, you can add a separate backup to test its strength without fully committing to it.

Your backup must be:

- 1) Connected in such a way which means it doesn't hold any of the weight
- 2) Positioned appropriately for any potential direction of pull
- 3) Capable of holding the load should the initial anchor fail

The heaviest climber descends first with most of the gear or the heaviest bag. The second climber carefully watches the anchor for any signs of failure and then decides whether to leave the backup in place or to remove it and trust the original anchor alone.

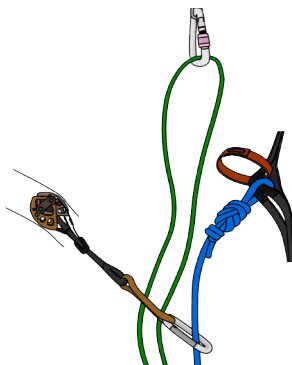
The original anchor has not passed the test if the backup holds any of the



weight. In this case, the backup should be left in place when the last climber descends. If you're not sure, just leave the backup there and enjoy a stress-free and safe descent.

## Reaching a Poor Anchor when Leading

If it is not possible to make a safe anchor after leading a pitch, you can use the techniques described on pages 108-110 to get down safely.



## Descending Loose Rock

Abseiling down loose rock is a climber's nightmare. Seek out other options (such as downclimbing or abseiling a different way) before committing to the descent.

However, if you encounter a choss-pile in the middle of a multi-pitch descent, you can 'zigzag abseil' to reduce the chances of being hit by rocks when you pull your ropes.

Move sideways as you descend (pendulum or tension traverse) and make the next abseil anchor as far to one side as you can.

This might mean leaving gear behind, but it puts you out of the line of rockfall when you pull your ropes.

