

Essential Skills: Building a belay by Ian Fenton

The new climbing season is nearly here and many a climber will be emerging from a winter's wall-bound hibernation. So now's a good time to mull over that most basic of skills - building a belay. This is one thing you really do need to get right, since failure could see both you and your partner being dragged off the crag!

One or many?

Sometimes it looks easy, and you'll find one perfect anchor, such as a huge boulder perfectly positioned at the top of your route. In these cases just apply the simple coffin test: "Boulder smaller than a coffin? You both may end up in one!" However, more often than not, you'll construct your belay by linking various anchors such as nuts, cams, and threads. When linking multiple anchors

together to form your belay you need to ensure that they are trustworthy, equalised and independent.

Is it trustworthy?

Always err on the side of caution. It's an art not a science, so build redundancy into your systems. There are five common types of hand placed protection: nuts, hexes, cams, threads and spikes. Nuts and hexes wedge into narrowing constrictions in the rock. You should try to maximise the amount of metal in contact with the rock, as this will make the placement more stable. Deeper placements can be more secure, as more rock is being used. Cams come in many different sizes for a multitude of crack widths - but when placed correctly the cam should be neither fully expanded nor fully closed, but with all four teeth open roughly equally. For all these types of protection you need to judge how strong the rock is - the best placed cam is no good if the surrounding rock is weak or rotten. Finally, think about the direction the gear will be pulled in. Again, you may place the perfect piece of kit in a solid piece of rock, but then load it in an unexpected direction and pull it straight out. Threads and spikes are usually great things to find at the top of a climb and can make your life



On top of the world. Well, Stanage at least. But do you know how to set up a top anchor? Photo: Alex Messenger.

Expert Q&A



This issue the climbing expert is AMI member Neil Johnston. Neil holds the MIC, is a senior Instructor at Plas y Brenin and a Trainee Guide. He was a member of the first all British ascent of Cerro Torre, and obviously a glutton for punishment is also a member of both the BMC Training & Youth and Technical Committees.

Q. What's the score with using buried stakes?

A. Firstly you should do everything possible to check the quality of the stake. Kick it, pull it and push it in every direction. Once satisfied, attach as low as you can, to create as little leverage as possible. A sling, clove hitched around the back of the stake is a good attachment point but the rope can be used just as easily. Again I'd recommend using a clove hitch.

Q. Can I use a single anchor like a tree or boulder?

A. To say no can be simplistic, but I'd always recommend two anchors. If you're going to use just one then it needs to be something that would hold a minibus. Using two anchors also gives you a stable V-shape, preventing lateral movement of the central point.

Q. I've heard that it's wrong to use trees - why?

A. It's not wrong to use trees as an anchor, you just need to treat them with respect, and at all costs avoid causing friction on the bark with your rope. This means no top-roping directly off trees, and no pulling the ropes

through after abseiling (add a sling to the system). The friction can cause bark damage, and over time kill the tree.

Q. What if my rope has to run over sharp edges like on slate?

A. Use a rope protector. You can either buy a specially made one or a piece of carpet is just as good. If you have neither, improvise. Rucsacs, clothing or anything that protects the rope from the sharp edge or rough rock will do. If in doubt pad it out.

Q. Is it safe to top rope off cams?

Belaying off a single anchor? This man must be very confident that it'll pass the coffin test! Photo: Alex Messenger.



very simply. But don't just blindly trust a thread or spike, take time to check them out. Why is there a thread - is the rock very soft? Is the spike solid, or detached from the rock? Is the thread a bona-fide thread or is dirt hiding something? Is the spike rounded so that the sling will ride off when loaded? These may be the simplest

pieces of protection to place, but they often require the most sophisticated judgements.

Why equalise?

Equalising means constructing the belay to spread the load equally between the various anchors. Incorrectly equalised anchors means an unbalanced load with potentially dangerous results. Remember that an anchor system may have to hold a substantial force, especially if a climber falls. For example, you and your partner could weigh 80kg each, with your rack and ropes adding another 10kg. This adds up to around 170kg in total hanging off your belay. This mass falling only a short distance would apply a large force to your belay.

Are they independent?

Anchors need to be independent of each other, so that if should one fail, none of the others are suddenly shock loaded. The rope or sling attaching you to each anchor must be tied off tight to each anchor point independently. Any slack in some parts of the system could compromise the integrity of the whole belay. When climbing on double ropes, attaching yourself independently to two anchors is very easy: one rope to each. If within reach, tie off with a clove hitch

at each anchor, and if out of reach, clip the anchors and tie two clove hitches to a krab at your harness. Very commonly three anchors are used. If two of them are close together, then a sling can be used to bring them to a central point, to which you could attach yourself with one rope. Your other rope could then be tied direct to the third anchor. When climbing on a single rope it's usually best to tie off to the anchor furthest from you first, and then work back towards yourself.

All this can be hard to remember when stood at the top of the crag on a windy, wet day and it can be tempting to cut corners. But don't - you only need to get it wrong once. Keep things as simple as possible, and if at any point you start to think "I don't know what links what!" then stop and start again. The pub can wait for an extra couple of minutes. Practice setting up tricky belays on the ground, and if you're really getting tied in knots then get a day's instruction - this is one skill you don't want to skimp on. ■

AMI member Ian Fenton is Chair of the BMC Training and Youth Committee. An MIC holder, Ian provides a wealth of mountaineering and first aid training both in the UK and abroad. Contact him at www.mountfenton.com.

Further information

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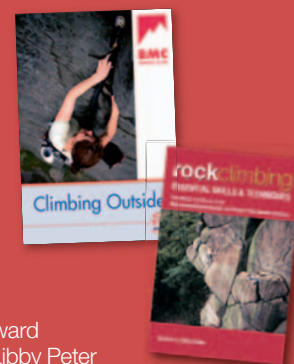
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A. They wouldn't be my first choice. Cams are like any piece of protection; if used correctly then they should be fine. However they do have a habit of walking in cracks, and in a top rope scenario you won't be able to keep an eye on them. If you're not 100% sure they're bombproof then back them up.

Q. What if I can't find any anchors at all?

A. If you can't find anything then I'm afraid you've just got to keep looking. If you're on a recognised route then it's unlikely there is nothing to belay off, you just need to be more inventive. Perhaps you need to belay a long way back, or right on the lip of the crag.

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