

Grigri

Stuart Ingram and the BMC Technical Committee strip away the myths surrounding Grigris.

Unmasking the myths

Over recent years, there has been much development within the field of belay devices, possibly the most important of which has been the advent of the grigri. This device manufactured by Petzl functions by running the rope around a pivoting cam that operates smoothly during normal use, but locks completely in the event of a sudden pull on the live rope (i.e. a fall). This provides several advantages over traditional belay devices:

The grigri will lock of its own accord in a fall providing a failsafe anchor.

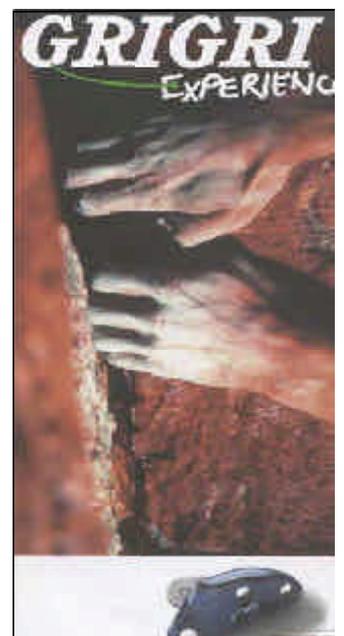
It is perhaps a useful tool for the novice climber, as in the event of a leader fall the (novice) belayer does not need to actually do anything – the grigri will lock by itself even if the belayer lets go.

STOP! REWIND <<

Failsafe? Hands free? How many times have you heard phrases like this used in connection with the grigri? Since its release the grigri has become massively popular with sport climbers and plastic pullers, as it is super convenient for redpointing and working routes. Once a fallen (or should that be resting!) leader is locked off, the belayer doesn't need to expend any energy at all keeping him or her stationary, as is the case with almost all other methods – in fact he doesn't even need to hold the rope. Add to this the ease with which slack can be rapidly paid out to a pumping climber for those crucial clips, and you have a sport climber's dream toy, right?

WRONG.

(TOP) Steve Powell high on the Gift, Red Rocks. (LEFT) Matt Goode, Cave Rock, Tahoe. Just minutes after this was taken, an inexperienced belayer dropped her partner from the top of this cliff. He plummeted down until smashing his leg caused the grigri to lock - a very near miss. (RIGHT) Matt Goode, Keep your powder dry, Red Rocks. (BELOW) Look out for this safety leaflet, Credit: Petzl.



Recently, at a climbing wall near you:

On nearing the top of a route around the limit of his ability, a climber throws a long dyno for the finishing jug. He gets agonisingly close to sticking it but he's tired (it's the end of his session), and slowly peels backwards expecting only a short fall as there's a bolt by his waist. After cratering onto the concrete floor 10m below, the climber and his belayer try to figure out what went wrong.

Rope: 10.5mm diameter, nearly new, good condition

Belayer: 10 years experience and uses a grigri regularly

Protection: bolt at the waist of the climber, almost no slack in the rope

Fall: very gradual and slow

The last two points are the important ones – there was no slack in the rope and the fall was very gradual, resulting in almost no shock loading to the system. Now, the grigri works by arresting a fall when its pivoting cam locks after a sudden load. If this sudden loading is absent, rope may run through the device without locking the cam to such an extent that an incident such as the above becomes possible – especially if the belayer is holding or pinching the device in any way. The fact that the rope in use was nearly new and probably quite “slick” may have also contributed.

Near-miss of the year:

You're at the last couple of moves before the chain, but those forearms are totally maxed, fingers opening, feet skating – this is a route for another day. Luckily, you just clipped a bolt and can sit on it and rest rather than take the fall. The next instant, you're decking out on rope stretch 15 metres down – what's up with that? Thankfully uninjured but very psyched out, you begin the analysis:

Belayer: had been climbing indoors for 6 months and had recently started using a grigri

Protection: again, a bolt by the waist

Fall: not even a fall really, just slowly and gradually sitting on the rope

Is there a pattern forming here?

In this incident, we have a very similar situation with the climber weighting the rope in such a way as to provide insufficient “shock” to allow the grigri to lock and arrest the fall. In this case

the grigri did eventually lock, most probably because the belayer suffered serious rope burns on her right hand, causing her to leave go of the dead rope and step backwards. Presumably, this changed the orientation of the device and allowed it to lock. These two (real) incidents present us with an uncomfortable fact:

Myth: The grigri will always lock of its own accord in the event of a fall, providing a failsafe anchor.

Reality check: If there is no initial shock loading or sudden pull on the rope, the device may not lock AT ALL!

Right now you're thinking “Wait a second, nobody told me about this when I bought the thing!” Read on...

Lowering off....

It's all over when you clip the chains, ain't it? Think again – several climbers have reported near-misses or ground falls whilst lowering off a route. These can be wholly put down to user error, since the grigri must already be operating correctly for a lower to commence unless the situation is similar to the above near miss, and the grigri doesn't lock in the first place. In theory, there are two ways to control a lower with a grigri – varying the position of the lowering handle and thus the cam trapping the rope (easier) or with the dead rope, holding the lowering handle open but not varying its position (safer, and the recommended method). In practice, the lower is controlled with a mixture of these two, and if the lower begins to get fast it's easy for an (inexperienced) user to confuse the two methods and adjust the wrong way, allowing free passage of the rope through the device – bad news.

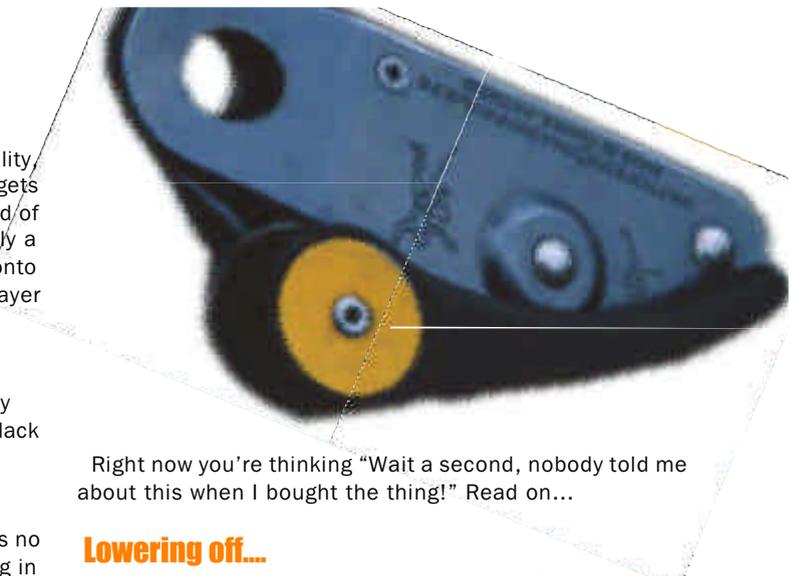
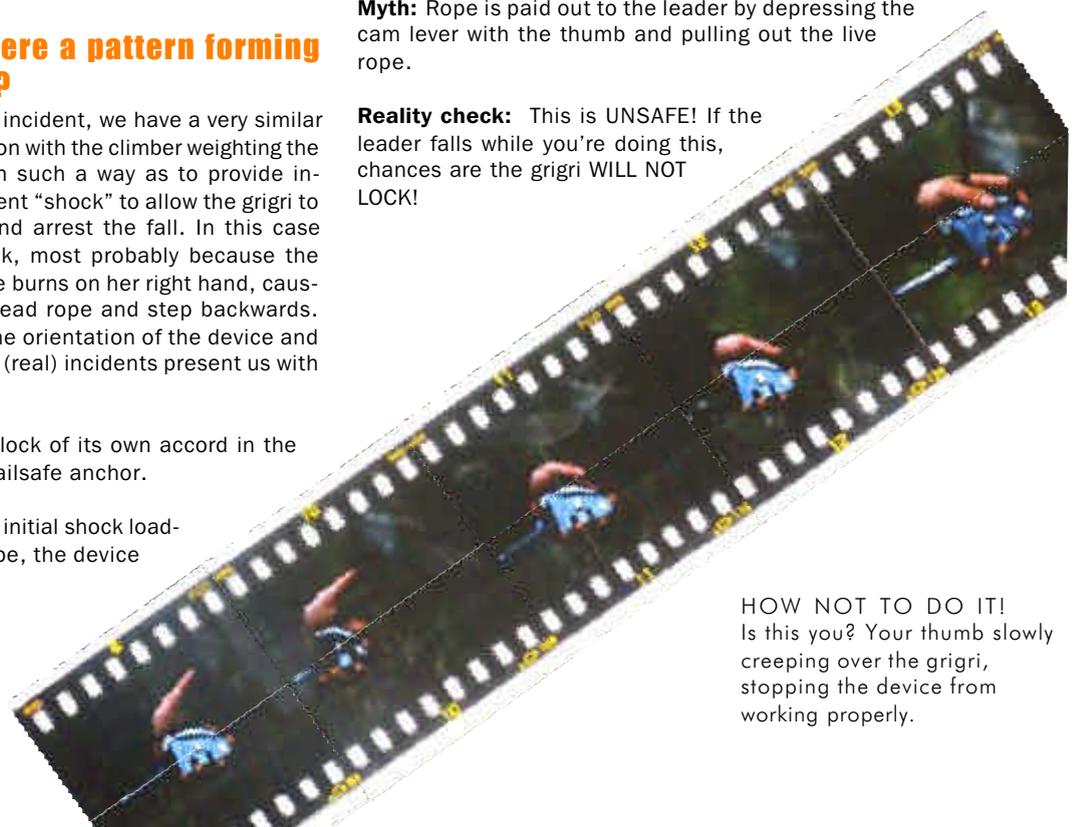
Beware “The Thumb”

Most grigri users will be aware of the trick of pushing on the barrel of the lowering handle with a thumb, thus depressing the cam and allowing slack to be yarded out very quickly to a quivering leader. Great – he makes the clip and avoids a fall. But think about what you just did. Whilst you were depressing the cam, you were deliberately preventing the device from locking (to pay out slack), so what if your leader fell whilst you were doing this and before he clipped? BANG – deck out; almost certainly the grigri would fail to lock.

Myth: Rope is paid out to the leader by depressing the cam lever with the thumb and pulling out the live rope.

Reality check: This is UNSAFE! If the leader falls while you're doing this, chances are the grigri WILL NOT LOCK!

HOW NOT TO DO IT!
Is this you? Your thumb slowly creeping over the grigri, stopping the device from working properly.





CORRECT - A hand is always kept on the live rope, just like a traditional belay device.

What now?

Before you drop your grigri in the trash and buy a Sticht plate, let's turn around and get some perspective here. There are only a very few incidents like these each year, and when you compare the huge number of user hours, it becomes obvious that the grigri is a very safe and effective device in the hands of an experienced user. It's very important to be clear about this next bit:

Petzl have never marketed the device as a "hands-free" or "failsafe" belay device, and have always recommended that it is for expert use only.

They even went to the extent of providing any interested parties (i.e. climbing walls, outdoor centres) with a free user advice poster and leaflet showing how to use one safely when these incidents began to come to light - respect due. The problem is the popular opinion that has evolved amongst climbers, that the grigri *cannot* fail in use ("It's an autolocking device, how can it fail?" says one climber to another...) – not true.

Testing the theory

Staff at the National Mountain Centre, Plas-y-Brenin conducted some experiments based on the circumstances of the above incidents, in conjunction with the BMC Technical Committee. Various hand/device configurations were tested with a climber slumping from an overhanging wall onto a high runner or falling from above the runner. Findings supported similar Lyon Equipment tests with normal use of the device: all types of fall were held. However, when paying out rope for the lead climber to clip a runner it was a different story. If the plastic lever part of the device was held down the device failed to grip and would only hold a fall if the belayer had the

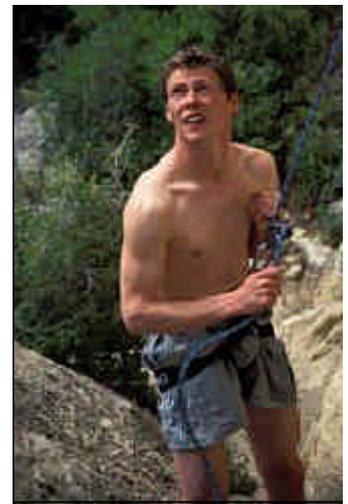
presence of mind to release the lever area or let go of the device altogether.

In other words, proof that use of "the thumb" is a dubious and dangerous game – as shown in the Petzl leaflet and poster.

Use it right

At first reading it might seem as if this article sets out to demonise the grigri as a dangerous, unpredictable device that will drop your leader if you so much as look at it wrongly. Absolutely the opposite – the aim here is to illustrate some of the popular misconceptions that have grown regarding its use, and to dispel the notion that it is a foolproof device. As with any other piece of climbing gear it most definitely isn't, and it takes proper instruction and experience to use correctly. In the right hands the grigri is a safe and incredibly convenient tool for belaying (amongst other uses) and offers significant advantages over some other methods when sport or indoor climbing.

But only if you switch on and use it properly!



CORRECT Keep that hand on whilst lowering

SAFETY SUMMARY

- Recommended for use after expert instruction only!
- Don't use "the thumb" – always pay out slack to the leader as if using a traditional belay plate. This may earn you curses for a failed redpoint, but praise in the end for not allowing your leader to deck.
- Leaders: if you're going to sit on the rope without falling, tell your belayer you are about to do it, so they can make sure the grigri locks.
- Monitor the flow of the rope through the device at all times. Forget we put the words "failsafe" and "hands-free" at the start of this piece, and use the grigri with as much care and attention as any other piece of gear.
- Take extra care with skinny ropes as they offer less friction, and thus more potential for non-locking situations than fat ones. In their catalogue, Petzl recommend between "10-11mm single ropes only (9.7mm accepted)" – obviously, the beefier your rope, the greater your margin of safety all round.
- Finally, if you happen to be using a grigri and it fails to lock in a fall situation, try to do something to give the rope/device the initial "jerk" it needs to lock up. Step back, yank hard on the rope (dead or live), or *in extremis* move the device itself to a different orientation – though you risk depressing the cam and preventing locking if you do this. However, prevention is always better than cure and by following the guidance above and keeping with the program when belaying, you should never experience a failure in use.

More information

More information on the grigri, its safe use and other applications can be found at www.petzl.com, or via Lyon Equipment (01539 625493 – www.lyon.co.uk). Thanks go to both these companies and Ben Lyon for their input into this article.