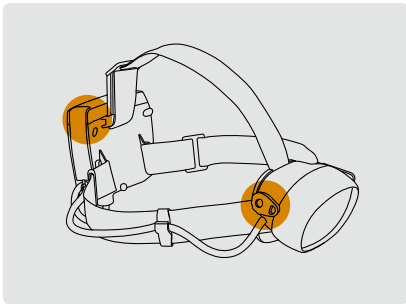


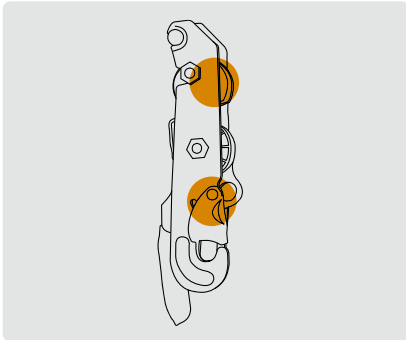
Technical information **Checking your equipment**



Headlamps

The headlamp is the key to progression in caving; without lighting, there is no movement...
Check:

- the functioning of your headlamps (primary and rescue) before and after each outing by turning them on and off several times in a row
- the condition of the contacts in the battery pack: clean, no corrosion
- that there are enough spare bulbs
- the condition of the electrical wire linking the battery pack with the lamp: no cuts or bad contacts
- that the lamp and the battery pack are secured to the helmet
- the condition and seating of the seals: test the watertightness of the lamp and battery pack by immersing them; clean and lubricate the seals and seating surfaces with silicone grease



Descender

In caving, the rubbing of wet, muddy ropes on the braking elements of a descender wears the cam, bobbin and side-plates. If the wear is extensive, it may reduce braking efficiency and/or damage the rope.

- Before each outing, check for:
- deformities, cracks, wear or signs of corrosion on the fixed and/or moving side plates
 - friction elements (cam grooves, bobbin);

replace sharp or perforated elements
- locking elements: the condition of the hinge, tightness of the nuts, functioning of the safety gate on the side-plate: the gate should return automatically, the cam and its spring should move freely without rubbing or friction.
Perform a test on the rope (with a back-up belay) to check the effectiveness of the STOP.

Retire your descender:

- if the results of your inspection are not satisfactory
- after a significant shock load or impact
- if you have any doubt about their reliability

After each outing, clean and dry all equipment carefully according to the instructions in the technical notices.

... www.petzl.com/ppe

Information is non-exhaustive; consult the details of the inspection procedure to be carried out for each item of PPE (Personal Protective Equipment) on its technical notice or at www.petzl.com/ppe

Technical information **Basics**

1 **Prepare carefully for your activity**

Consult the guidebooks and get information from other cavers. Check the weather forecast to evaluate the risks associated with flooding and to plan your itinerary (wet or dry cave system). Meticulously prepare the equipment required for the exploration, check the lengths of the ropes and bring a bolting kit (hammer, drill, bolts, hangers, wrench...). Advise others about where you are going and for how long.

2 **Have your own personal light sources, estimate the length of your outing**

Evaluate the energy you will need for lighting your entire trip (calculate a third of the energy for the approach, two thirds for the return, plus back-up lighting equivalent to another third), and don't forget to bring an emergency headlamp for each person. With the change to electric headlamps, lighting is cleaner and more practical, but you get neither the flame nor the heat emitted by an acetylene generator. Always remember to bring a survival covering or bag (one carried by each person, along with candles and a lighter).

3 **Manage your time**

Underground, time "flies" faster than on the surface. To be well aware of the time, use the hourly "beep" function on your watch (every hour, the watch sounds one or more "beeps").

4 **Manage your effort as a team**

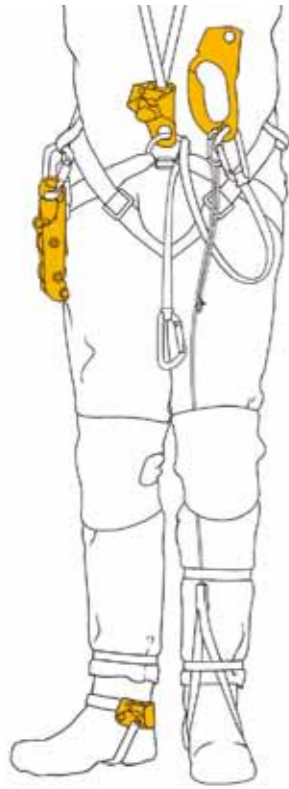
Caving consumes a lot of calories; it is important to eat regularly and bring extra nourishment in case the outing is prolonged. Drink regularly. During progression the body can get overheated and significantly dehydrated, then quickly cooled at rest. Take advantage of waiting time to eat and drink. Anticipate the delayed reaction of the purification tablets before drinking water taken directly from the cave.

5 **Be particularly careful at the end of the exploration**

Overprotection or rock-solid protection at pit exits is not a luxury when the team is in a state of advanced fatigue. Adjust your pace to that of the weakest member, and check on each other.

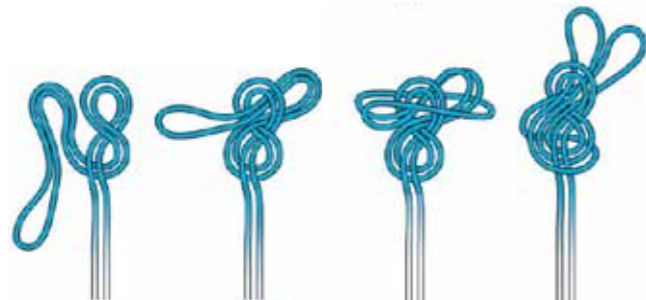
Technical information Tips

A. Gearing up

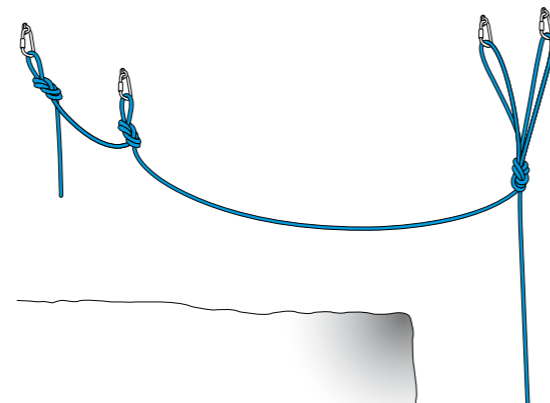


Place the lanyard on the left side of the CROLL, lock the connector. Use a foot-mounted ascender, attach the foot loop with the elastics, and don't forget the knee pads.

Load-distributing knot (rabbit knot)

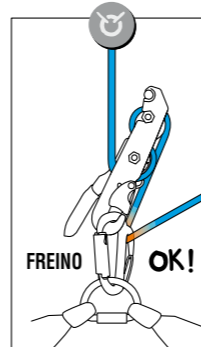
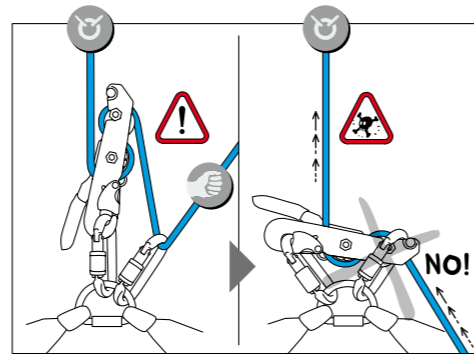
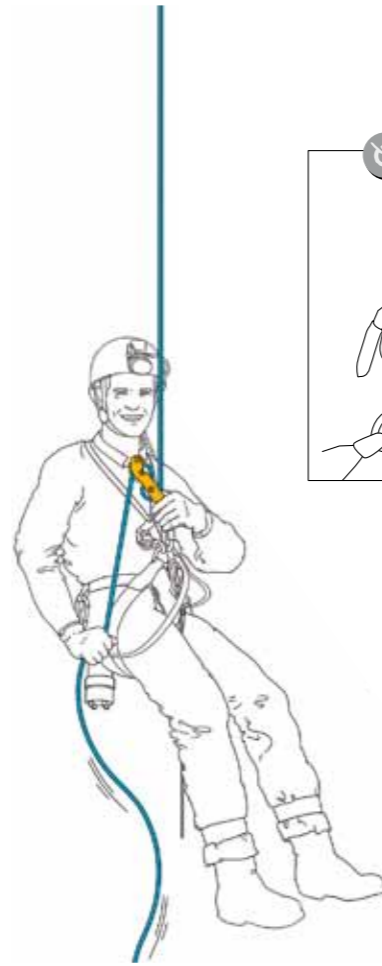


While setting up, think about abrasion and the possibility of the anchor breaking. Place two anchors at pitch heads and also at the end of a lifeline.



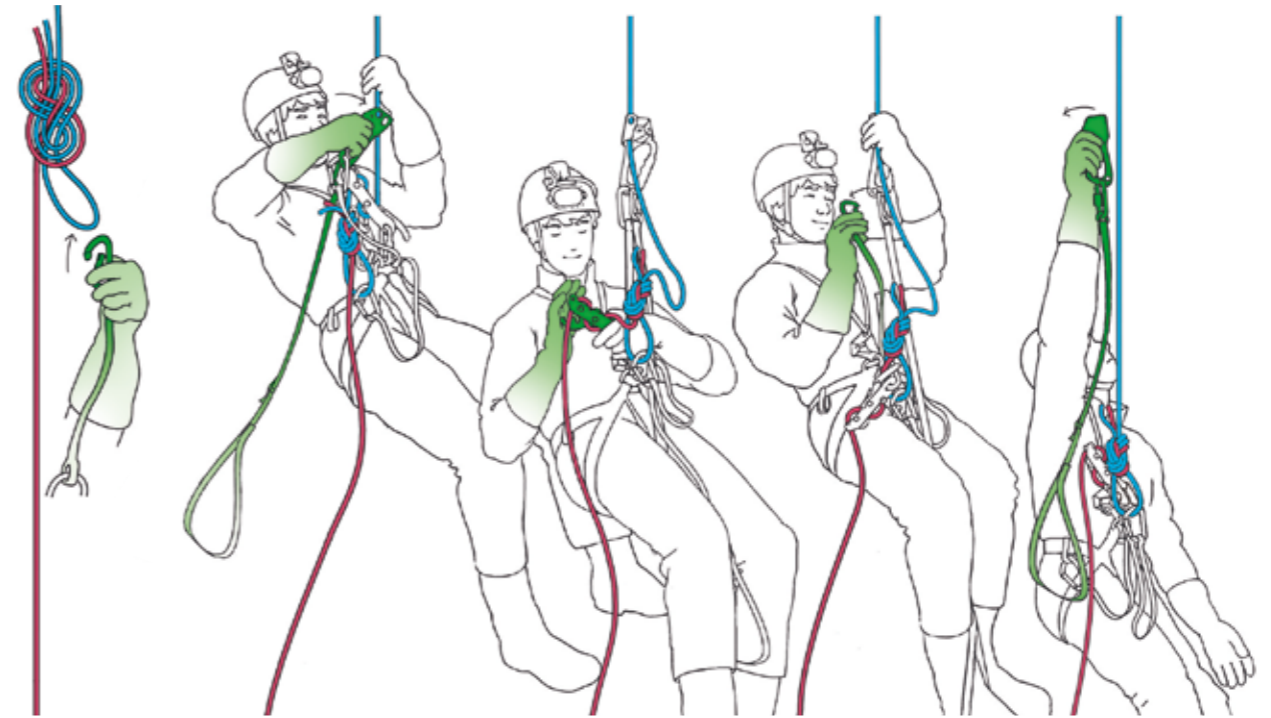
B. Descent

Add a braking carabiner if necessary.



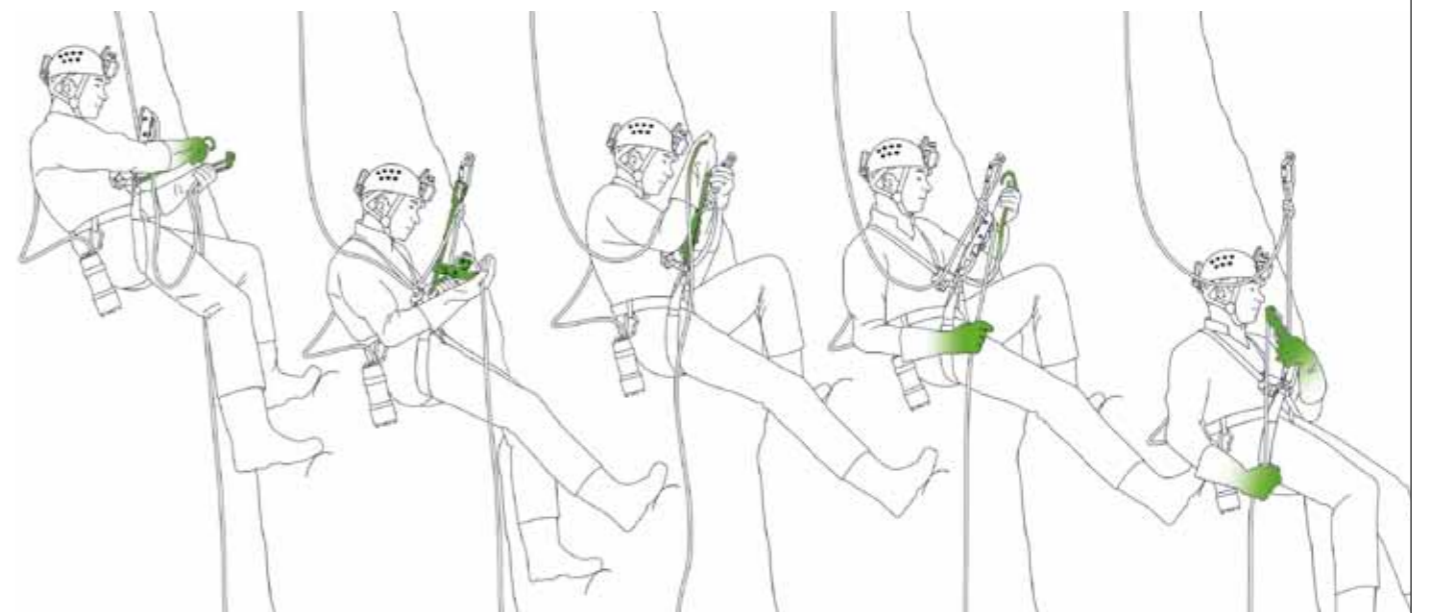
C. Passing a knot during descent

- 1- Clip your lanyard into the rope loop.
- 2- Install the ascender and put your weight on it.
- 3- Remove the STOP and reinstall it below the knot.
- 4- Weight the foot loop and unclip the lanyard from the ascender.
- 5- Transfer your weight onto the STOP and remove the ascender.



D. Passing a knot during descent

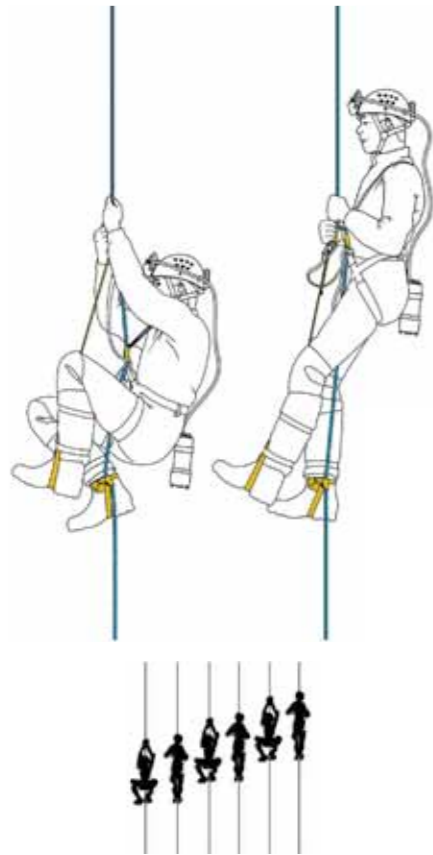
- 1- Clip your lanyard into the anchor.
- 2- Descend to transfer your weight onto the lanyard. Move the STOP to below the knot.
- 3- Take up the slack in the rope and put your weight onto the STOP.
- 4- Check the installation, disconnect the lanyard from the anchor.
- 5- The rope is free for the rest of the party to continue descending.



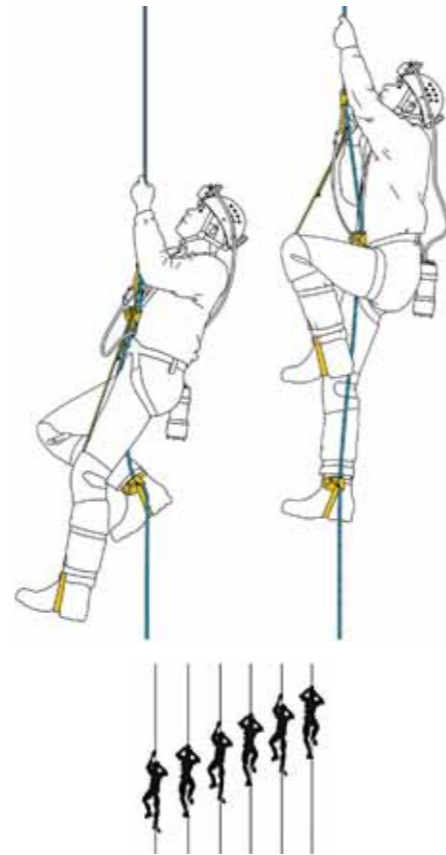
Information is non-exhaustive. Refer to the other pages as well as to the user instructions and technical manuals. Technical training is essential.

E. Ascent

Simultaneous progression technique: less tiring since both legs push at the same time.



Alternating progression technique: faster, but more tiring since one leg pushes at a time.



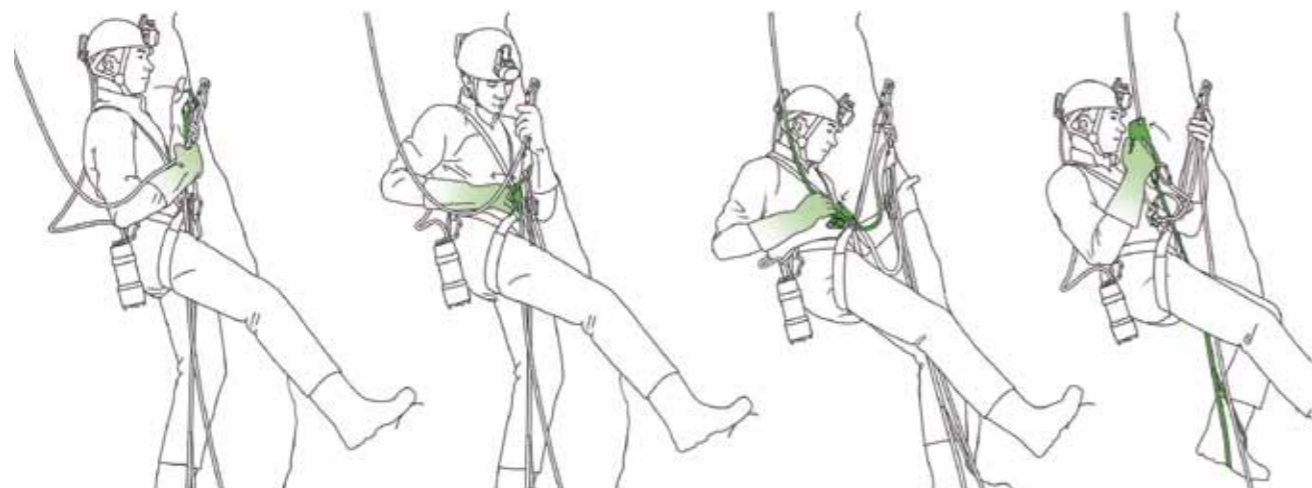
F. Passing a re-belay on ascent

1- Go up to the height of the knot without butting the ascender against it. Clip your lanyard into the anchor.

2- Weighting the foot loop, release the CROLL.

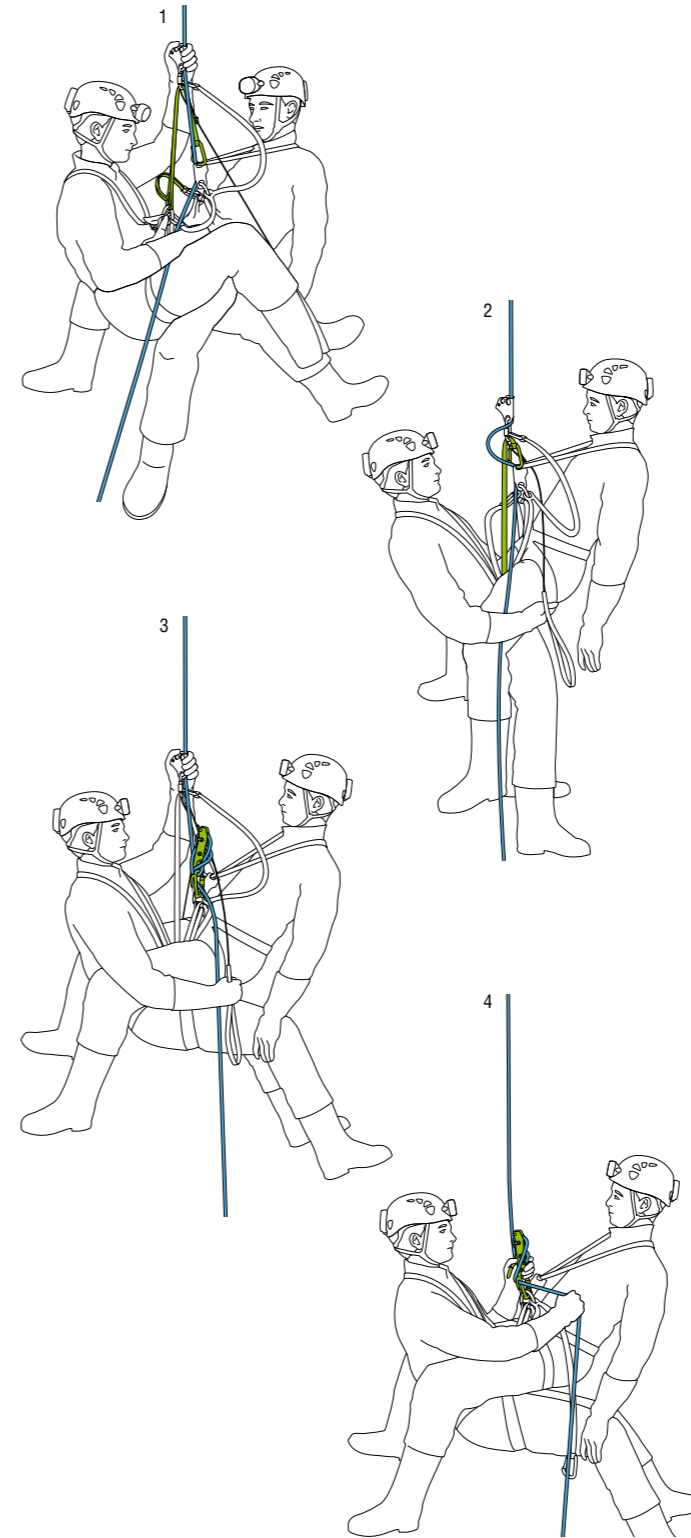
3- Put yourself under tension on the lanyard and reposition the CROLL.

4- Install the ascender above. Put your weight on the ascenders, check the installation and unclip your lanyard. The rope is free for the others.

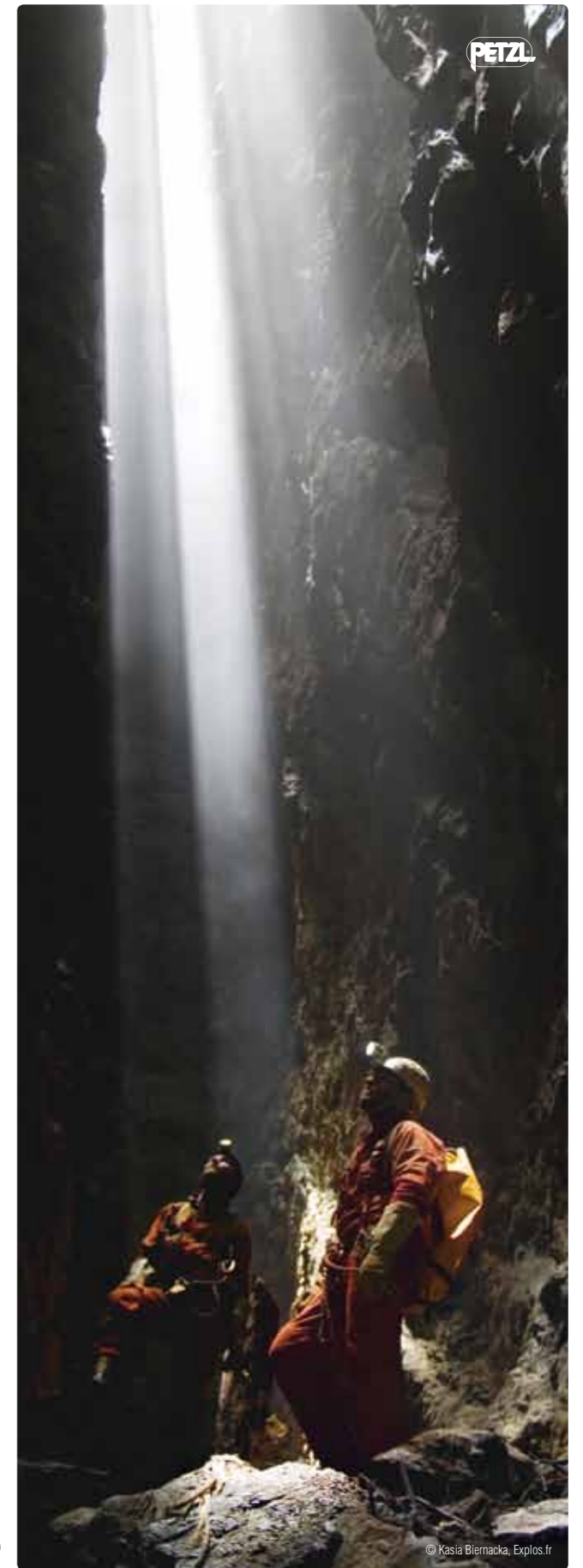


G. Emergency rescue of team member, downward evacuation from below

In case of an accident, every second counts; intervene rapidly with the appropriate technique. The following is an exceptionally quick and easy technique for releasing and lowering a victim in an emergency. Regular practice with your equipment is essential.



Al and Franco see the sun again.



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