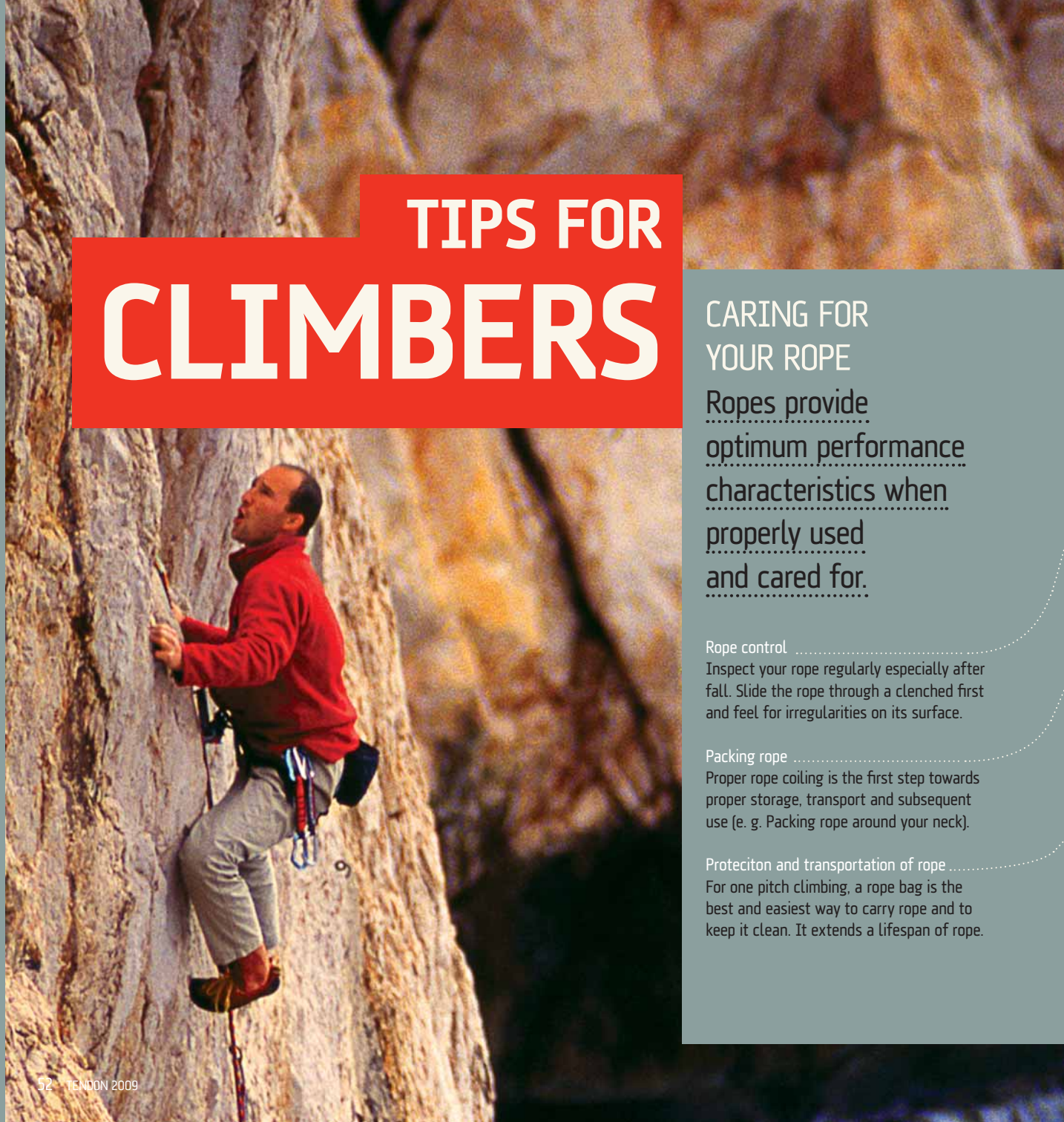


TIPS FOR CLIMBERS

CARING FOR YOUR ROPE

Ropes provide optimum performance characteristics when properly used and cared for.

Rope control
Inspect your rope regularly especially after fall. Slide the rope through a clenched first and feel for irregularities on its surface.

Packing rope
Proper rope coiling is the first step towards proper storage, transport and subsequent use (e. g. Packing rope around your neck).

Proteciton and transportation of rope
For one pitch climbing, a rope bag is the best and easiest way to carry rope and to keep it clean. It extends a lifespan of rope.

THE PRINCIPLES OF SAFE CLIMBING

Climbing is a sport with an inherently high level of risk. Without adequate knowledge of protection techniques, or if inappropriate equipment is used, there is a real risk of a serious fall that could result in bodily injury or even death.

1 / TRUST YOUR EQUIPMENT

Use only equipment that complies with the relevant EN standards and carefully read the instructions.

2 / WARM UP BEFORE CLIMBING

Stretching and warming up protects your joints, ligaments and muscles against injury. Only climb at full power when you are adequately warmed up.

3 / CHECK WITH YOUR PARTNER

Check the following with your fellow climber before each climb: the tie-in knot is tied properly; that the harness buckle is correctly fastened; that the rope is placed in the belay device correctly; that the carabiner connecting the belay device with the harness is screwed up; and finally, if the second is not tied onto the rope, secure the rope with a knot at its end.

4 / PAY ATTENTION WHEN BELAYING

You have your fellow climber's life in your hands. Therefore keep hold of the braking rope at all times, select the best place for belaying and make sure your partner does not stray off route.

5 / LET YOUR PARTNER KNOW WHAT IS GOING ON

Communication prevents misunderstanding. Always inform your belayer before resting on the rope or if you think you may fall. The belayer will similarly inform the climber of any complications arising during belaying.

6 / BE CAREFUL WHEN CLIPPING ROPES

You can only lower your partner from a belay anchor or a screw-gate carabiner. A single quickdraw is not sufficient. It is prohibited to place the rope in a carabiner or belay anchor already clipped with another rope. Friction between the ropes may cause damage or breakage. Top roping or lowering must never be done through an accessory cord or sling. Friction between the two materials may quickly cause overheating, resulting in potentially fatal consequences.

7 / PROTECT YOUR HEAD

A helmet protects against head injuries caused by an uncontrolled fall or by falling stones. A helmet in a backpack is totally useless! Keep a safe distance from climbers on adjacent routes.

8 / BEHAVE THOUGHTFULLY

Wait until your route is free. Respect other climbers, inform them of any dangers you find, and comply with any prohibitions and restrictions in climbing areas.

HOW TO REDUCE RISKS AT CLIMBING WALLS

Belay according to the "3-point support logic".

Systematic, visual, mutual observation between fellow climbers ("partner check").

Gradual training in belaying (= school with three grades).

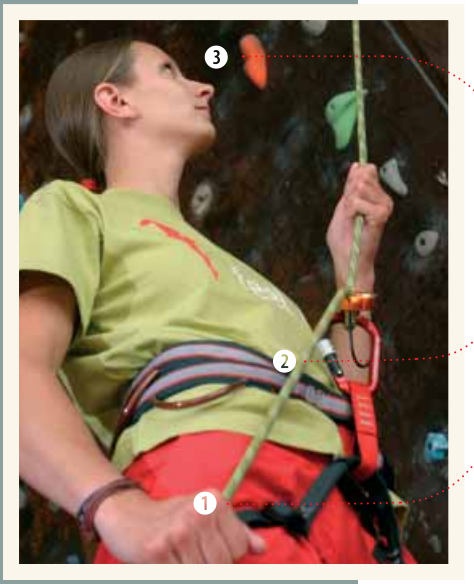
Where possible, clip quickdraws when you're level with them in order to keep the amount of slack you pull out to a minimum.

Dynamic belaying of the leader (best using the body-based belay method).

THREE-POINT SUPPORT LOGIC

Based on long-term monitoring and analyses of accidents, a safety concept called the "three-point support logic" has been established. The belay device and the belaying technique can be compared to a table with three legs. None of these legs must be taken out otherwise the table (or the climber) falls down. The belay device and its operation must meet the conditions of the three-point support logic:

- braking hand principle
- braking mechanics of the belay device
- human reflexes



1 / BRAKING HAND PRINCIPLE

To guarantee control throughout the route, the braking rope must be taut between the belaying device and the braking hand. Releasing the braking rope even for a split second may have fatal consequences. (Note: the braking rope is the one which comes freely from the belay device. The braking hand grasps this rope).

2 / BRAKING MECHANICS OF THE BELAY DEVICE

The safe operation of the belay device is influenced by the position of the braking hand against the belay device. Belay devices operate by running the rope over a small radius within the belay device, creating a "bend" that increases friction. The rope slows down or even locks when taut. In the event of a fall, the braking hand must still hold the rope so that the braking mechanism works properly.

3 / HUMAN REFLEXES

Of key significance is the grasping reflex. While there may be a danger of the rope breaking loose from a belayer's hands in the event of a climber's fall, the hands will instinctively grasp the rope and pull it against the body, no matter how surprised the belayer is. The belayer's fright will tend to increase efficiency of the grasping reflex. Holding tighter is a reflex reaction.

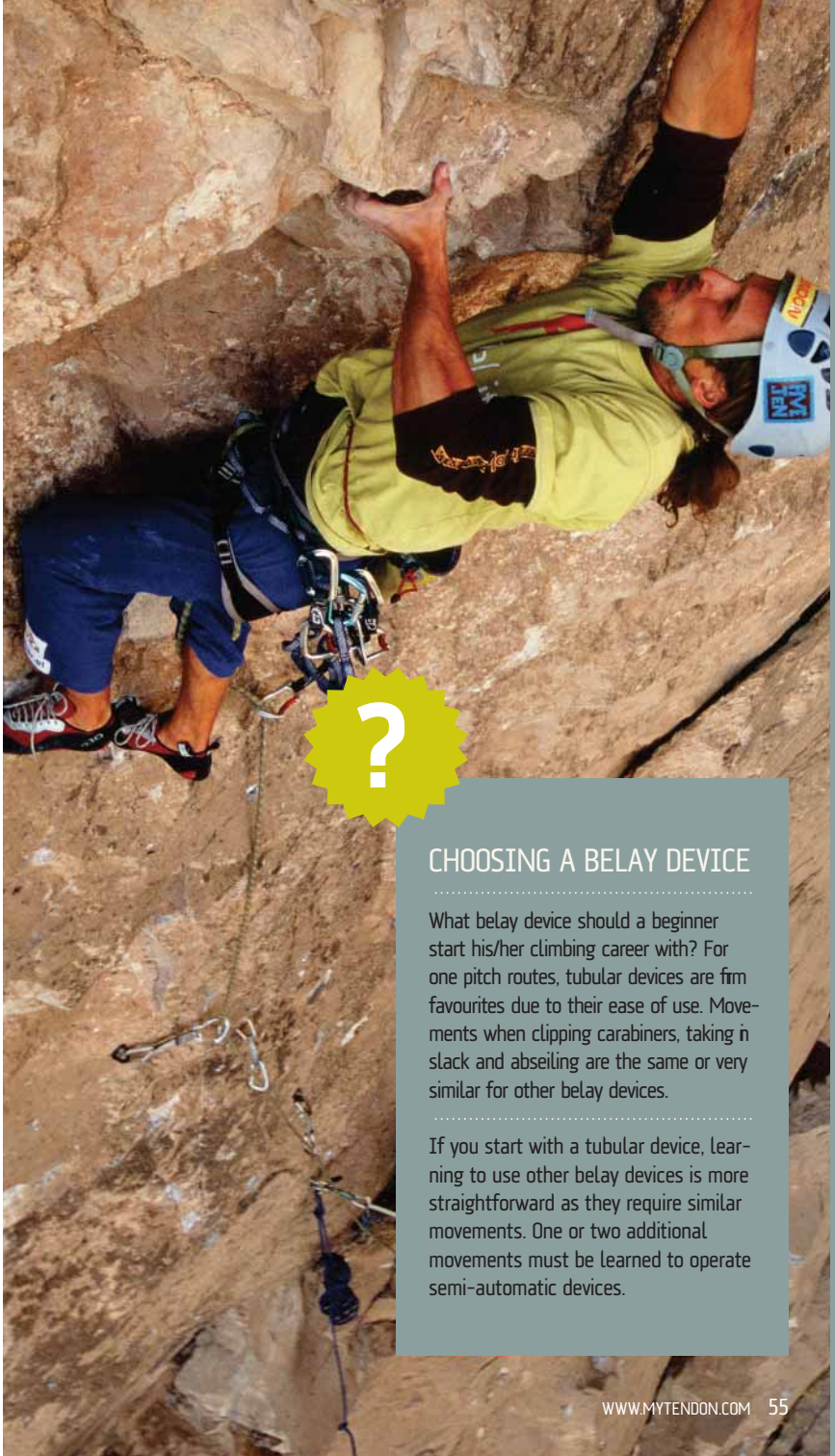
PRINCIPLES OF SAFE BELAYING

1 / Learn belaying according to the three-point support logic.

2 / The closer a climber is to the ground, the more important it is for the belayer to concentrate and have no slack running to the climber. At this stage, the belayer's eyes must be continuously on the climber. Where possible, quickdraws should be clipped when level with them in order to keep the amount of slack pulled out to a minimum.

3 / If the leading climber is higher (on artificial walls above the third or fourth quickdraw), the importance of dynamic belaying increases in order to avoid the falling person colliding heavily with the wall. Efficient slowdown of a fall reduces the fear of falling in lead climbers.

4 / When providing slack for a climber, it is best to take one or two steps towards the wall while releasing the rope in the belay device, and then to step back from the wall to take in any slack. This method is the most sophisticated form of belaying and keeps attention levels high as the belayer is always moving.



CHOOSING A BELAY DEVICE

What belay device should a beginner start his/her climbing career with? For one pitch routes, tubular devices are firm favourites due to their ease of use. Movements when clipping carabiners, taking in slack and abseiling are the same or very similar for other belay devices.

If you start with a tubular device, learning to use other belay devices is more straightforward as they require similar movements. One or two additional movements must be learned to operate semi-automatic devices.

BEFORE WE START CLIMBING

ROPE PREPARATION

The main goal of rope preparation is to ensure that there are no knots or kinks in the rope and therefore belaying is straightforward. The whole rope should be uncoilled so that it can run through a clenched fist. This way any tangles or knots are easily found and removed.

PUTTING THE HARNESS ON

Fasten the belt of the harness snugly and secure it by passing the webbing back through the buckle. Advice: the "danger" sign on the buckle must not be visible.

When putting on leg-loops, be careful not to get the left and right loops mixed up.

TYING-IN TO THE ROPE

We recommend tying-in directly with a figure-of-eight knot.

A well tied figure-of-eight knot is easy to check visually.

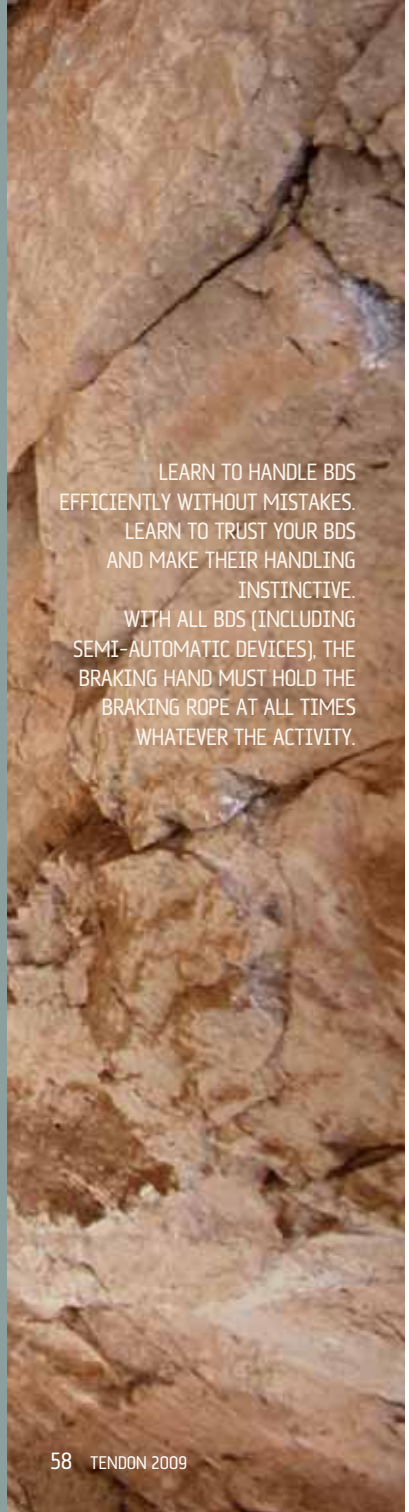
After tightening following a fall, a figure-of-eight can easily be untied.

If tying-in with a carabiner, use two opposed screw-gate carabiners.

Carabiners with other systems, e.g. “Twistlock”, are not appropriate due to the risk of accidental opening.

The rope tail coming from the tie-in knot must be at least 10 cm.

As a precaution, we reccomend a “stopper“ knot that sits snugly above the figure-of-eight knot.



LEARN TO HANDLE BDS EFFICIENTLY WITHOUT MISTAKES. LEARN TO TRUST YOUR BDS AND MAKE THEIR HANDLING INSTINCTIVE. WITH ALL BDS (INCLUDING SEMI-AUTOMATIC DEVICES), THE BRAKING HAND MUST HOLD THE BRAKING ROPE AT ALL TIMES WHATEVER THE ACTIVITY.

BELAY DEVICES

Belay devices (BDs) are used for protection. They are connected to a belayer (body-based belay method) or belay anchors. BDs are used also for abseiling and lowering.

1 TUBES

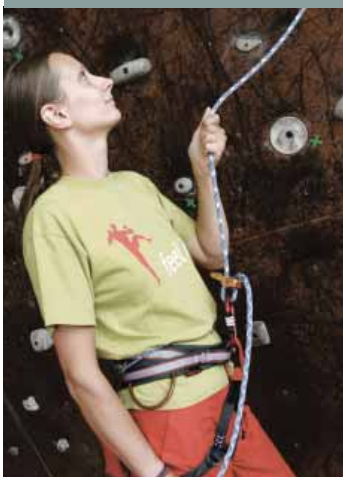
Currently the most convenient BD and suitable for beginners.

Also applicable for two ropes (for half and twin ropes).

The rope does not get twisted.

Excellent abseiling device.

The tube only slows down a fall if the belaying hand holds the rope under the BD.



2 SEMI-AUTOMATIC DEVICES

Self-blocking BD for single ropes only (type 1 ropes)

Used mainly for sport climbing.

Popular due to ease of operation.

Does not allow for dynamic protection.

Automatic rope locking in the event of a fall is not absolutely guaranteed (in particular with thin and smooth ropes)! The braking hand must therefore continuously hold the rope under the BD.

Prior to using a semi-automatic device we recommend instruction on the correct usage by a professional.

3 HMS CARABINER

Used for belaying using an Italian hitch.

HMS carabiner is a large pear-shaped screw-gate carabiner.

Wide range of applications in mountain climbing.

Used mainly for belaying (bringing up) the second on belay anchors.

High braking effect.

Braking rope must run through the side of the carabiner without the gate.

4 FIGURE 8

Very commonly used BD in some countries.

We recommend its substitution by a tubular device.

Suitable for dynamic protection in sport climbing.

Its disadvantage is that it tends to twist the rope.

Not suitable for half ropes and twins.

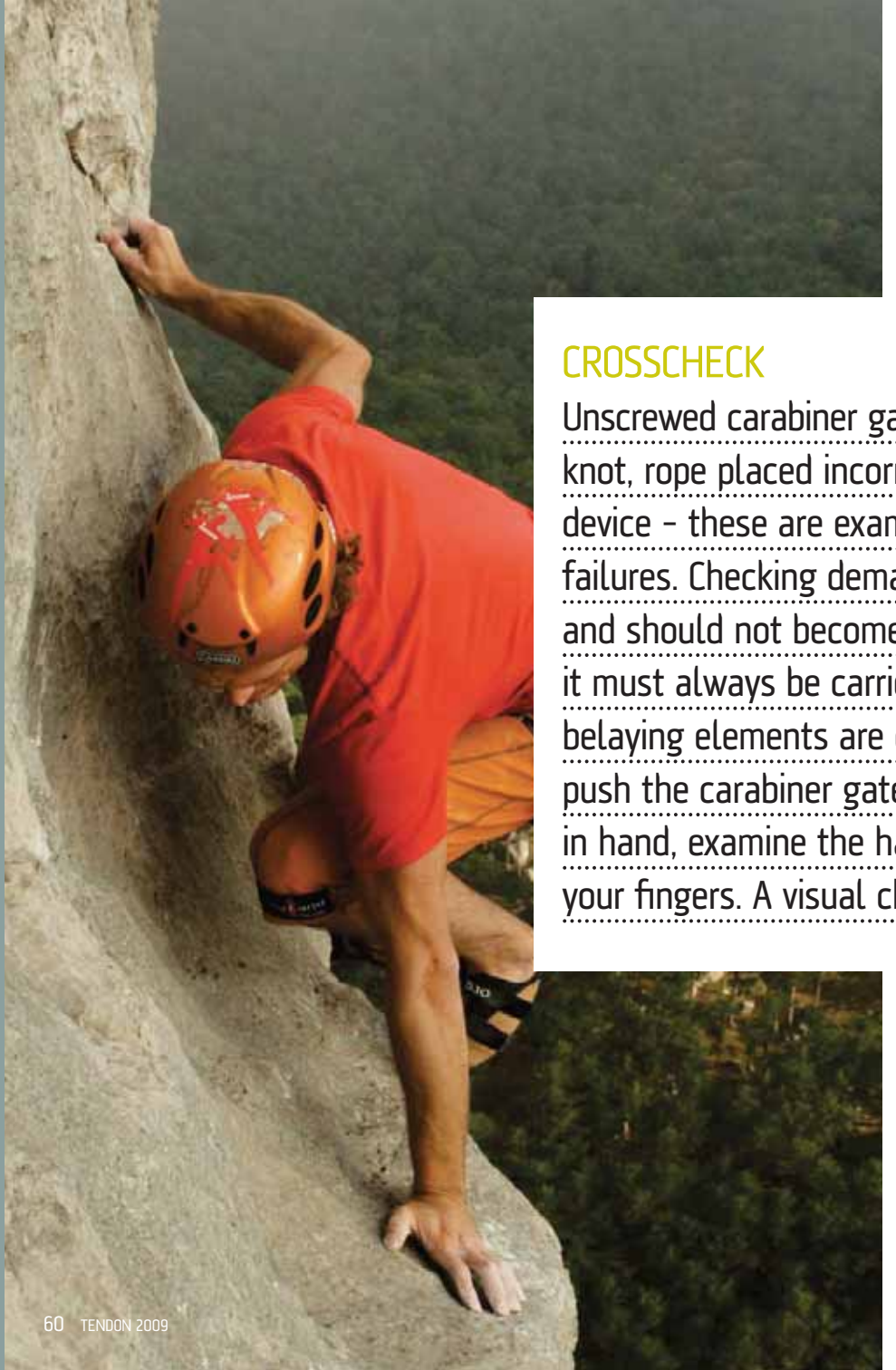
5 PLATE

BD applicable for seconds only.

Excellent for larger groups of climbers (three members).

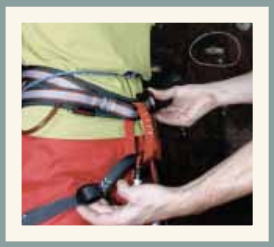
Applicable with two ropes and abseiling.

THE GOLDEN RULE FOR BELAYING YOUR FELLOW CLIMBER / AT LEAST ONE HAND MUST ALWAYS HAVE HOLD OF THE BRAKING ROPE.



CROSSCHECK

Unscrewed carabiner gate, incomplete tie-in knot, rope placed incorrectly in the belay device – these are examples of human failures. Checking demands careful attention and should not become routine. Therefore it must always be carried out so that the belaying elements are checked manually, i.e. push the carabiner gate, take the tie-in knot in hand, examine the harness buckle with your fingers. A visual check is not sufficient!



CROSSCHECK THE CHECK MUST BECOME A NATURAL PROCEDURE. CHECK THE FOLLOWING:

1 / Tie-in knot (pull the rope strongly)!

2 / Ensure the harness belt is doubled back through the buckle!

3 / Ensure the carabiner is screwed up (by pushing the gate)!

4 / Ensure the rope is fed through the belay device correctly (blocking function)!

5 / Ensure there is a knot at the end of the rope (approx 1m before the rope end)!

6 / Check this after each tie-in and before each climb!

BELAYING USING A TUBULAR DEVICE

The basic regulations for tube operation also apply to belaying with a figure-of-eight.

The thumb of the braking hand is always pointed to the tube.

When releasing the rope, keep the braking hand under the tube.

When taking up the rope, the braking hand moves up and forward, and then immediately moves back to its original position under the tube without releasing the rope.

When abseiling keep both hands on the braking rope.

1 / ROPE RELEASE
Braking hand and the braking rope always under the tube.

2 / TAKING UP THE ROPE
The braking hand moves up and forward, and then immediately moves back without releasing the rope to its original position under the tube.

3 / STOP
Braking hand on the rope and under the tube.

4 / ABSEILING
Both hands should be on the braking rope with the rope sliding slowly under control through your palms.

GRIGRI BELAYING

Most Grigri users belay their partners incorrectly, with a risk of not being able to hold a falling climber. Therefore the so-called “Gaswerk” method has been devised.

Here the braking hand serves two purposes: first, it prevents unintended locking of the Grigri using the thumb; secondly, the braking rope remains under close control. This also ensures the belayer maintains his grip on the rope during a fast release of the rope. With this basic method of holding it, a Grigri locks immediately in the event of any fall while the thumb remains on the release lever.

RELEASING THE ROPE ACCORDING TO THE “GASWERK” METHOD

The Grigri is lightly held between the thumb and forefinger preventing unintended locking. Four fingers on the braking hand constantly grip the braking rope.

TAKING UP THE ROPE

When taking up the rope, hands remain on both rope strands.

STOP

Hold the braking hand down. One hand remains on the braking rope.

LOWERING

The braking hand is on the braking rope, the other hand pulls the release lever slowly back towards the body.

GASWERK METHOD BENEFITS

Meets the criteria of the three-point support logic.

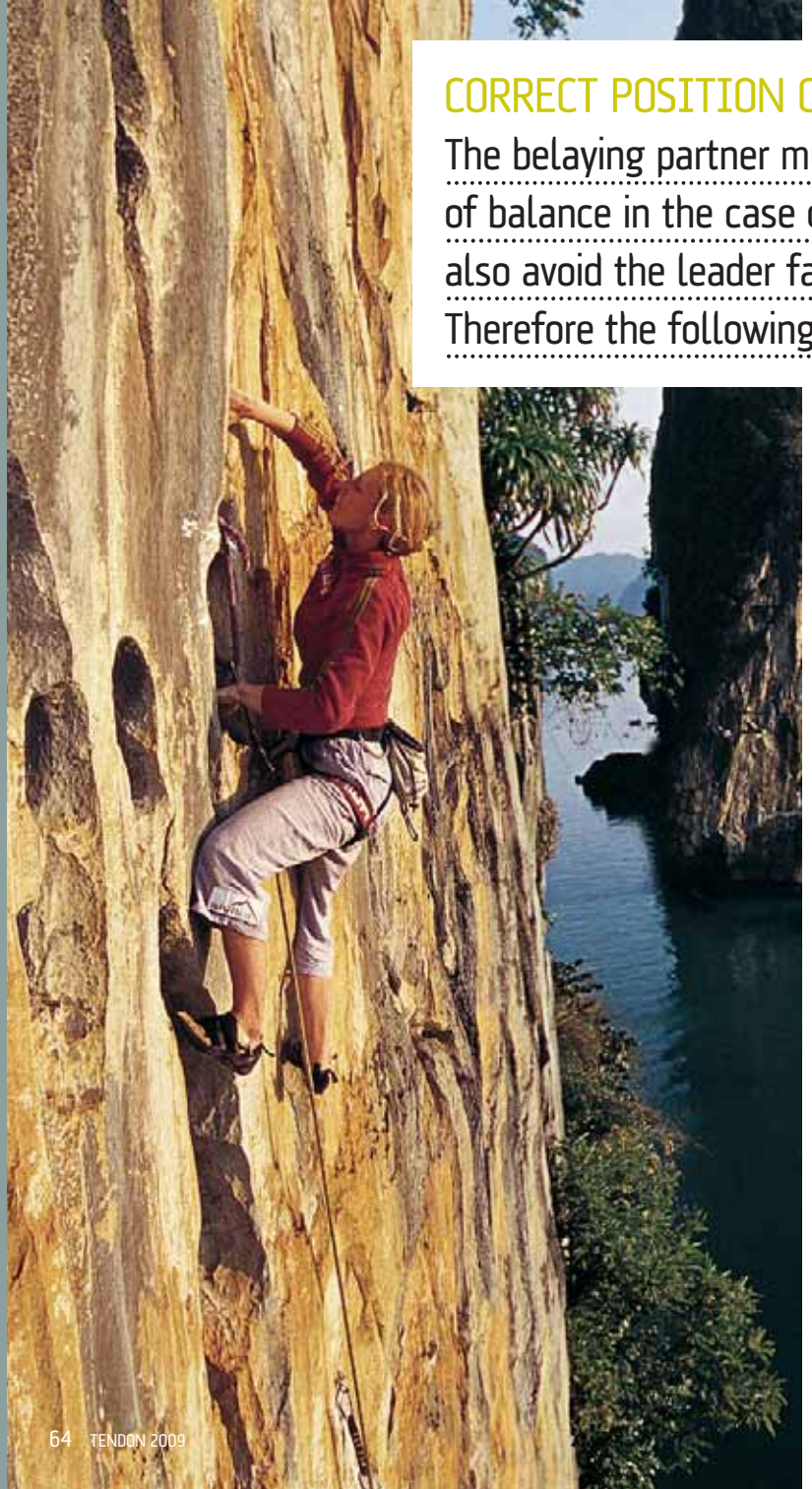
Enables easier feeding of ropes even with thicker ropes.

Incorrect rope placing is immediately detected.

The thumb of the braking hand may constantly push the release lever, since the tension, when the rope is held with the remaining four fingers, is sufficient to activate the automatic braking mechanism and thus stop the rope.

When using a GriGri, the braking hand must never let go of the braking rope.

Correct GriGri operation for lowering.



CORRECT POSITION OF THE BELAYER

The belaying partner must not only avoid a loss of balance in the case of a climber's fall, but must also avoid the leader falling on to the belayer. Therefore the following principles are observed:

1 / Stand close to the wall, to the side of the route being climbed.

2 / You must be able to see the belayed climber from your position.

3 / Do not stand in the anticipated path of a leader's fall.

4 / There should be no obstacles between your legs and the wall (stone, backpack, etc.).

5 / Stand facing the wall. In the event of an unexpected fall a belayer facing the wall may prevent the leader from having a heavy collision with the wall.

6 / After the first 3–4 quickdraws are clipped, step back a little from the wall to make space for dynamic body-based belaying in the event of a leader's fall.

7 / The belayer should be tied-in to an anchor on steep terrain where there is a risk of falling, and of course on multipitch routes.

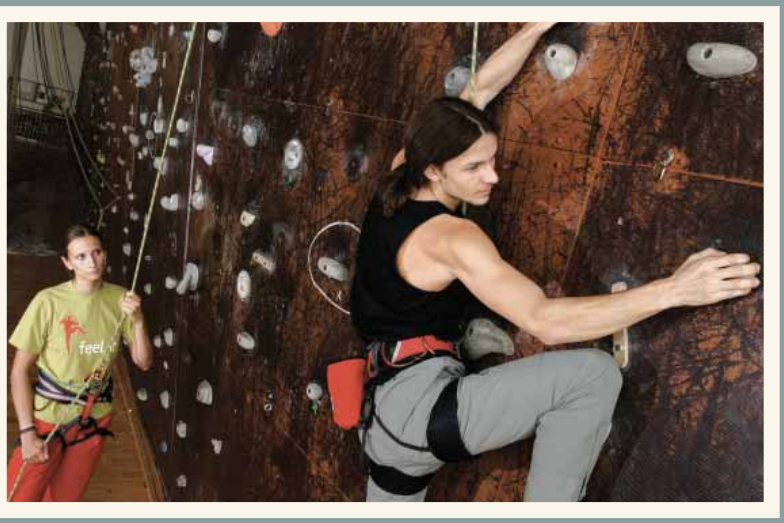
8 / The belayer should be tied-in to an anchor if the weight difference between the leader and the belayer is more then 20 %.

TOP ROPE CLIMBING

The rope is fed through an anchor at the top of the route and runs from the top down to the climber.

The belayer stands on the floor and belays (takes up) the climber who simply rests on the dynamic rope in the event of a fall. Unlike a leader's fall which might be quite severe as there may be several metres of rope run out, there is no risk of taking a whipper (long fall) when top rope climbing.

This is an ideal climbing method for beginners and is excellent for children. Top roping is also used by experienced climbers to push their limits. From a sports point of view, top roping can be seen as a less stimulating style of climbing because there is no fear of falling!



PRINCIPLES OF SAFE TOP ROPE CLIMBING

The anchor the rope runs through must be absolutely reliable. When top roping, the rope must never run through a sling.

The rope runs through a belay anchor or a screw-gate carabiner.

In an emergency, two opposed plain-gate carabiners can be used.

The rope must run down the fall line directly from the top. On routes with traverses or overhangs, top roping can only be used if the rope is guided with quickdraws which the climber unclips as he/she ascends.

Top rope climbing on routes not climbed to a belay point is very dangerous, though in practice it may be quite common. So, if the rope does not run to the end of a route (belay anchor, screw-gate carabiner), only climb to such a height so as to leave as least two quickdraws clipped above.

It's better not to get into this bad habit: occaisionally it happens that "in the heat of the moment" a climber does not pay attention and falls after unclipping the last quickdraw!

LOWERING

It is used almost always on the artificial climbing wall and very often during sport climbing on rocks.

SAFE LOWERING PRINCIPLES

1 / During lowering, we hold the braking rope strand always by both hands. We release the rope, and according to the friction ratio in the belay device we regulate the speed of lowering.

2 / We do not lower the climber too fast, we must concentrate mainly before his/her landing on the ground surface – we pay attention not to hurt climbers moving nearby the anticipated place of landing.

3 / Lowering is allowed, if the rope runs through a belay anchor at the end of the route.

4 / Never lower the rope, if it runs through a bolt or sling. At mutual friction of stressed textile fibres, fatal overburning of the loop will occur in just few seconds!!!

PROTECTION

The leader must be able to understand the principles of protection. When climbing at the wall or on sports routes, the correct clipping of quickdraws into bolts is sufficient. For alpine and trad climbing, it is also necessary to correctly place mobile protection points – friends, cams, slings, ice screw, etc.

If the rope is clipped in the quickdraw incorrectly it may spontaneously unclip itself in the event of a fall, or the improperly hung carabiner may break.

COMPLY WITH THE FOLLOWING RULES:

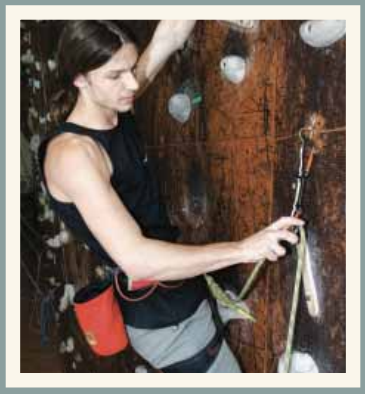
1 / Prepare quickdraws so that the gates of both carabiners are facing the same way.

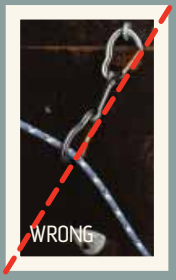
2 / Always place the quickdraw so that the gates of both carabiners do not touch the wall.

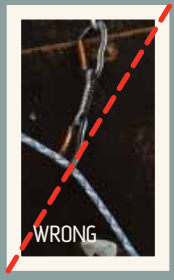
3 / Use quickdraws with an optimum length.

4 / Quickdraw carabiners must not be loaded along the short axis, or by bending over a rock edge.

5 / The rope should run along the wall and then through the carabiner with the gate facing away from the climber.







PLACING THE ROPE IN A QUICKDRAW

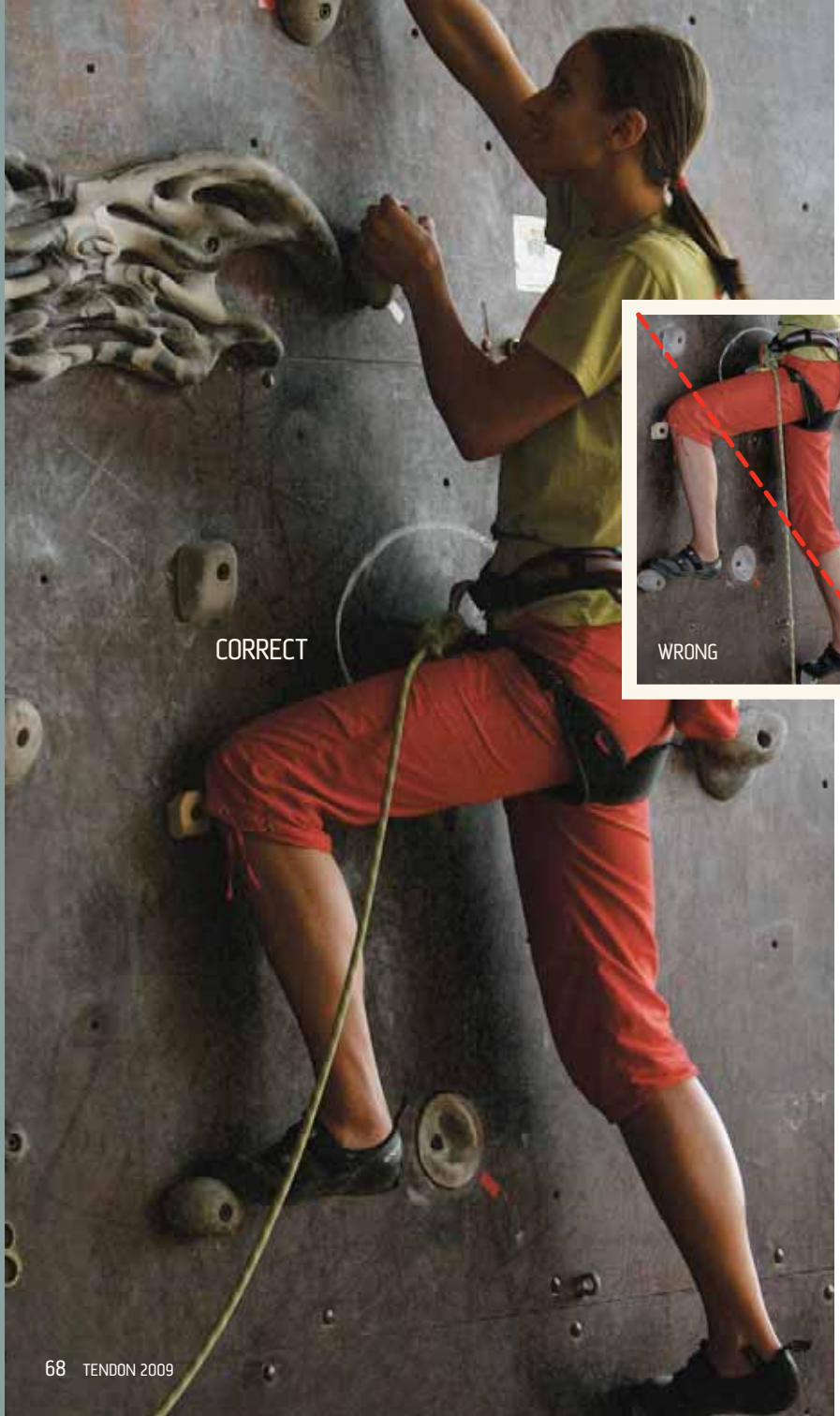
This is a demanding moment. Particularly at the beginning of a route, there is a risk of falling when the rope is taken up due to rope slack. Proceed as follows:

Clip the rope from a balanced position if possible.

If possible, place the rope in the quickdraw when level with it. Placing the rope at full stretch is more tiring and should the climber fall before the quickdraw is successfully clipped, the fall is significantly longer.

If you climb a route at the climbing wall with protection every metre, there is a risk of a fall if you fail to clip the first three quickdraws. If you are not sure that the clipping will be successful, do not hesitate and take hold of the quickdraw tape

LEAD CLIMBING

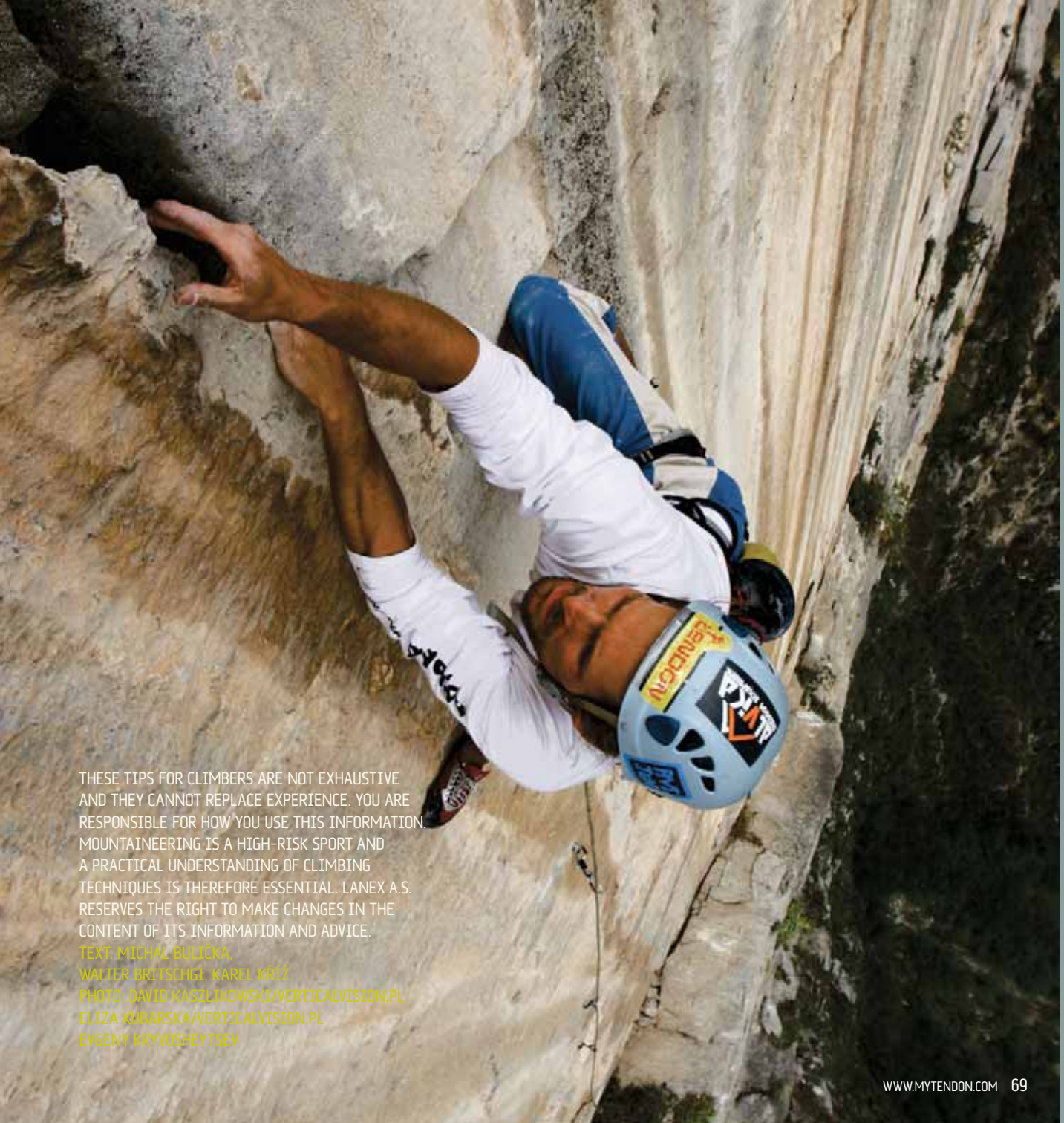


AVOID EXCESSIVE ROPE DRAG

The leader should climb so that his/her line is as straight as possible otherwise the friction due to the rope meandering through poorly placed quickdraws increases rope drag and makes the leader's climbing much more difficult. Rope drag can be reduced by using quickdraws of various lengths or by connecting two quickdraws.

WATCH THE ROPE'S POSITION BETWEEN YOUR LEGS

Correct positioning of the rope with respect to the body is very important for the leader. The climber's leg must never be between the rope and the rock. In other words, the rope must never run behind the leg – see photo. In the event of a fall with the rope running behind the legs, the climber risks being flipped upside down and the resulting somersault enormously increases the risk of serious head or spinal injuries.



THESE TIPS FOR CLIMBERS ARE NOT EXHAUSTIVE AND THEY CANNOT REPLACE EXPERIENCE. YOU ARE RESPONSIBLE FOR HOW YOU USE THIS INFORMATION. MOUNTAINEERING IS A HIGH-RISK SPORT AND A PRACTICAL UNDERSTANDING OF CLIMBING TECHNIQUES IS THEREFORE ESSENTIAL. LANEX A.S. RESERVES THE RIGHT TO MAKE CHANGES IN THE CONTENT OF ITS INFORMATION AND ADVICE.

TEXT: MICHAL BULIČKA, WALTER BRITSCHGI, KAREL KŘÍŽ
PHOTO: DAVID KASZLIKOWSKI/VERTICALVISION.PL, ELIZA KUBARSKA/VERTICALVISION.PL, EVGENY KRYVOSHEYTSEV