

Climbing for everybody



Co-funded by the  
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METHODICS AND TRAINING  
RECOMMENDATIONS  
**SPORT CLIMBING**

“Climbing for all” is an Erasmus + co-financed project implemented by the mountaineering associations of the Czech Republic, Slovakia, Italy, Hungary, Slovenia and Croatia, from 2016 to 2018.

Within the framework of the Project, the six partner countries engaged in experience and knowledge sharing on topics of mutual interest including the development of analysis and recommended methodologies in mountain training for the sports and activities of the associations’ concern.

This brochure is the product of expert analysis of current training methodologies implemented for sport climbing in partner countries and aims to provide joint advice and recommendations to sport climbing trainers and instructors engaged in knowledge and skill transfer activities. The basis of the programmes were written by HPS sport climbing instructor, Alan Križanić.

The following recommendations are also endorsed by the International Climbing and Mountaineering Federation (UIAA) Training Panel and aligned with the Mountain Training Label.



## Sport climbing framework

A sport climb is defined by UIAA as being fully equipped with bolts for protection and belay anchors. In practice, sport climbing activities are executed indoor (gym) and outdoor (single pitch and multi-pitch). Sport climbing activities may be of competitive nature (competition framework is regulated by the International Federation of Sport Climbing (IFSC) but also a non-competitive mountain activity).

Knowledge and Skill transfer processes in sport climbing are internationally regulated by UIAA (Mountain Training Label) and for the most part, implemented by country climbing and mountaineering federations. Members of country federations (clubs) are mostly responsible for the organizational aspects of sport climbing training aligned with curricula defined by the federation. Clubs might be of competitive affiliation, recreational, and a combination of both.

It is in the interest of all project partner federations to best align basic training methodologies with UIAA Mountain Training Label, ensure transfer of key mountain values to climbers within the training framework, and further promote the sport climbing as an activity for children and youth, persons with special needs and as an activity closely linked to personal wellbeing and respect for the environment.



## Instructors/Trainers

Persons tasked with the delivery of skills and knowledge in sport climbing should themselves be of sufficient capacity to be able to demonstrate effective personal techniques and abilities to efficiently lead on-sight, possess climbing movement skills, engage in bouldering activities, and be fully confident in operating ropes, knots, quick draws as well as belay and abseil.

They have to be skilled in emergency procedures and First Aid delivery, experienced in avoiding and solving common problems and confident in the usage of climbing calls. They also need to demonstrate knowledge in managing and leading groups as well as coaching and teaching.

Their knowledge and skill set should include: session planning and preparation, verbal and non-verbal communication, management and/or delivery of demonstrations, supervising safe activity practice, use of visual aids and other teaching media, supervising session debrief, delivering feedback to individuals and groups, mentoring and negotiating action plans.



## Safety

The ultimate goal of organized and methodological sport climbing training is to “produce” a climber competent in all safety aspects of sport-climbing. During all phases of sport climbing training, safety is a priority for all participants. It is the sole responsibility of the sport climbing instructor to ensure elements of safety are in place:

- Before the practical work (indoor or outdoor)
- During switch-over of training polygons and unless an obvious risk for the participant
- Do not risk own safety i.e. do not intervene in the climbing space of the trainee during climbing

### Instructor Safety check-list:

- Is all equipment that is going to be used during training in proper working condition?

- Are climbing routes adequate for the level of training envisaged?

If new routes (indoor) are being mounted for the group, are all the holds in order?

- Is the clothing and equipment of trainees and instructor properly mounted?

- Do we have enough helpers in the polygon overseeing climbing trainees (the third person behind the rope)?

- Is all the equipment on the climbing route in working order?

- I have changed the polygon during training session. Are all participants aware of any introduced change and are they obeying safety standards (re-checking)?

- Have I repeated safety basics including usage of rappelling devices, communication, knots, five safety points, etc. at the beginning of the training session?

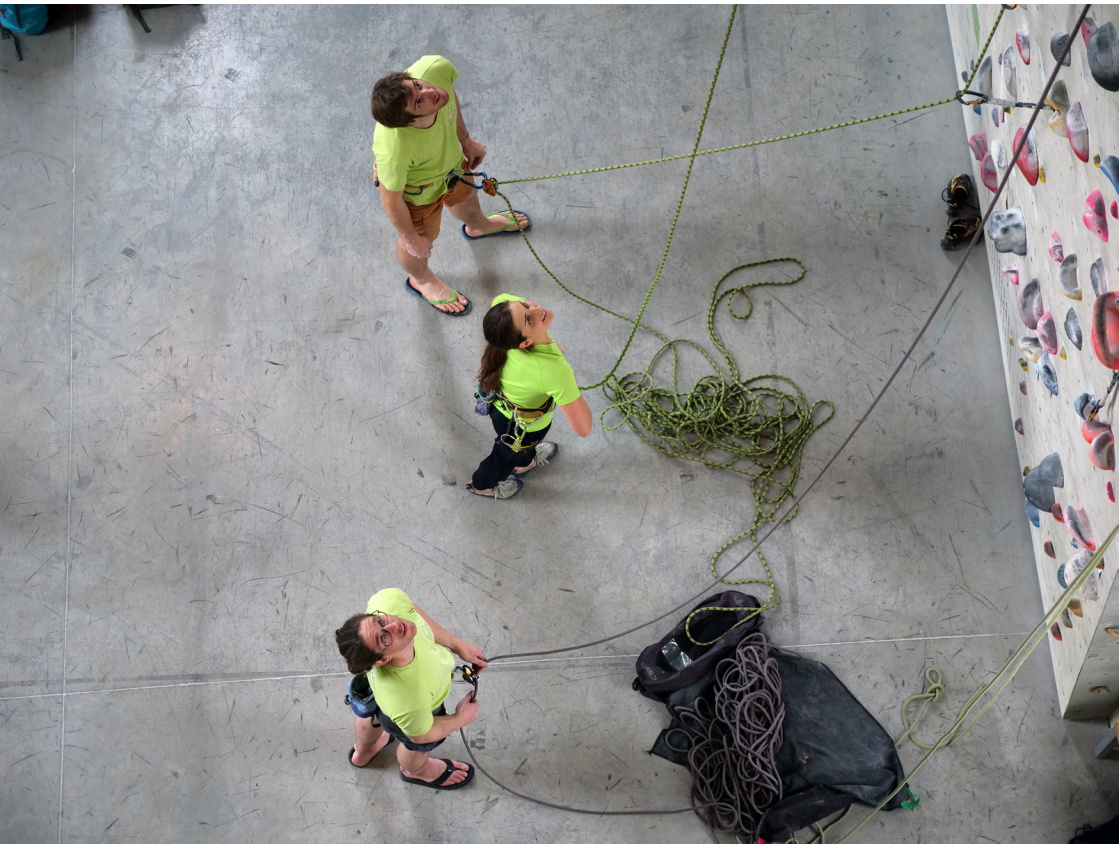
Have I ensured that all students understand the importance and mandatory implementation of the “partner check” before the climb?

**The Working Group recommendation** is to embed the continuous emphasis on the responsibilities of instructors for safety in the training process, but also to ensure the understanding of the attendee’s own responsibilities for safety. Information on the overall risks of sport climbing should also be emphasised more within the overall process.

## Methodology

Implementing several types of methodologies in sport-climbing training leads to:

- Improved adoption of knowledge and skills (the methodology of trial-and-error in a controlled environment leads to self-learning and consolidation of adopted knowledge and skill)
- Increased dynamics of training leads to improved interest (focus) of participants including an improved level of feedback.
- Change in practices of ex-cathedra practices of styles and methods being implemented with same dynamics during lectures and during practice
- Engagement of sport-climbing club membership during the training process but of adamant importance, in providing support to new climbers in building their climbing curricula (advantage of club vs. “just” gym).



## **Indoor sport climbing training methods**

In practice, knowledge transfer and learning are achieved through a combination of the following methods:

### **Interactive Lectures**

Where applicable, the methodology envisages the engagement of participants to pre-research topics, prepare drafts and have instructors check the draft materials before the session. The methodology envisages participants co-presenting presentations with instructors to the audience thus achieving maximum engagement of the trainees in a particular topic. Subjects of very particular expert nature such as first aid must revert to more “classical” approaches but have in mind the maximum engagement of participants in the more practical aspects of the knowledge involved.

**The Working Group recommendation** is to use the Interactive Lecture methodology sparingly and carefully while maintaining control over research and sources of information to avoid the potential for communication and information noise, especially taking into consideration the availability of unsanctioned and questionable information in the WWW space.

## Skills training

The methodology concerning the learning of basic skills necessary for safe climbing (knots, equipment, rappelling, switch-over at anchor, abseil, etc.) requires a three-step approach with several combinations of respective training.

The three-step approach the instructor requires to frontally demonstrate the techniques to trainees, to lead a trainee into repeating the activity and to supervise the trainee in soloing the activity by explaining to the remaining of the group.

Further to that, according to judgment, instructors may repeat the process, individualize the training and repetition and/or team-up trainees. At the end of each session, a joint evaluation has to be done. Experience shows evaluation with interaction to be one of the most important and ultimately durable parts of the skill training session.



**The Working Group recommendation** is to use methods that are based on trial and error only in teaching skills that are in no way connected to personal or group safety and exclusively in safe environments (on the ground). Methods that are not based on the three-step approach might have value and impact on the developing of knowledge and skills including those that are connected to safety, but the Working Group does not recommend usage at the level of basic (initial) training.



## Climbing techniques

Frontal climbing – Before the training session, participants receive short video clips demonstrating frontal climbing techniques. At the beginning of training, each is assigned a climbing route and climbs them (in front of the group). After all participants have demonstrated their assumptions, the instructor climbs all routes and delivers both practical and theoretical aspects of the front climbing technique. The same approach is to be used for side, flagging and drop-knee techniques.

Within the context of the climbing techniques learning process, the **recommendation of the Working Group** is that climbing training and learning of basic moves and techniques should be emphasised to learners also as a safety measure.



## Belaying techniques

Polygon setup of 3m anchor and crash-pads. Instructors use belaying devices and act as climbers. Trainees provide inputs to instructors who then experiment according to trainee inputs. After the end of the trainee input session and the instructor over-exaggerating issues and challenges, the instructors demonstrate the correct methods of belaying and usage of devices. Following that, instructors engage with individual level training for climbing pairs. The same polygon approach can be used for teaching lead climbing, falling, and positioning techniques before actual route climbing.



## Analysis

At the end of the training, instructors shall provide individual assessments for each trainee providing inputs for them to implement in their future training and climbing (strengths and weaknesses).

**The Working Group recommendation** is that Partner check should uncover mistakes before climbing. The instructor or trainer has to ensure Partner check is understood as basic principles of safety i.e. first habit for safety climbing.

## Single-pitch sport specific climbing training methods

Building on the knowledge and skills acquired in the Indoor sport climbing module, or as an addition to those types of curricula that combine indoor and outdoor single pitch sport climbing, knowledge transfer and learning is achieved by implementing following methods:

### Switch-over at anchor

The methodology envisages the usage of the three-step approach whereby the instructor demonstrates switch-over. All trainee work is to be done on the ground in complete safety until instructors are fully satisfied.



## Single-pitch sport specific climbing training methods

### Lead climbing and belaying

Two-member teams climb routes that are of middle-difficulty for their capacities. Those need to offer possibilities for falls and sit-in-harness. The instructor has the role of the third-man and ensures safety. The instructor ensures key message of the exercise does not miss the important aspects of communication.



## Single-pitch sport specific climbing training methods

### Falling

Particular attention needs to be given to practicing falling. The three-step methodology is to be applied in a realistic environment with particular attention to safety. The key message of the exercise needs to be placed on the avoidance of panic, breathing exercises, and minimizing discomfort. The exercise analysis needs to be individualized in order to accomplish each trainee's own approaches when dealing with fear.



## Multi-pitch sport specific climbing training methods

### Surprise methods

The main emphasis of multi-pitch training is on continuous repetition of knot building skills. During the course of training, instructors carry bags with several prepared knots for a surprise check-up. Climbers are requested to take a surprise knot from the bag and re-do it. This way constant pressure is applied and knot-skills are not only emphasized as important but the exercise is also to be considered as a fun game and opportunity for interaction with instructors during other, more stressful moments. Surprise demonstrations by instructors (in safe environments only) with built-in mistakes for trainees to find are also a good way to break the monotony and duress of long training in the outdoors and repeat the more subtle points of techniques.



**The Working Group recommendation** is that methods that are not based on the three-step approach might have value and impact on the development of knowledge and skills including those that are connected to safety, but the Working Group does not recommend usage at the level of basic (initial) training.

## **Sport climbing curricula and modular educational practices**

Comparing practices in six partner countries, the Working Group has established that, in principle, the key curricular elements for learning how to sport climb safely are aligned. The Working group has also established that, some curricula might be in need of improvement to meet best practices established by the UIAA Mountain Training Label but also supplemented by training (mostly lectures) designed to promote a club-based (teamwork, organised framework, availability of mentors) approach to further informal training and the building of one's own climbing capacities and skills.

Furthermore, the Working Group strongly recommends more emphasis be placed on the non-competitive nature of sport climbing, especially within the framework of mountaineering as an outdoor, nature friendly, healthy and enjoyable activity open to many different age, social and other groups with a well-established set of values. This kind of information should be available at all entry points to sport climbing, especially in indoor gyms.

To this avail, and from the perspective of risk reduction, good learning process and organizational aspects of conducting methodological education, the Working Group strongly recommends the practice of modular educational practices in sport climbing intertwined with elements of general mountaineering values, skills and knowledge.

# Recommended educational schemes and modules

Indoor Sport Climbing - entry level





W	LECTURE	PRACTICAL EXERCISE
I.	<ul style="list-style-type: none"> <li>• Definition of terminology and content of sport climbing</li> <li>• History of climbing</li> <li>• Competitions</li> <li>• Climbing (On-sight, Flash, Red point, Top-rope, Pink point, Bouldering)</li> <li>• Belaying</li> </ul>	<ul style="list-style-type: none"> <li>• Usage and maintenance of climbing equipment</li> <li>• Quick draws, Clipping, Harness, Climbing shoes, Climbing ropes, Climbing knots</li> <li>• Figure-eight and Clove Hitch</li> <li>• Sport climbing training</li> </ul>
	<ul style="list-style-type: none"> <li>• Climbing terminology</li> <li>• Grades</li> <li>• Climbing route descriptions</li> <li>• Symbols</li> <li>• Topo (Climbing areas and route sketches)</li> <li>• Climbing guides (publications)</li> </ul>	<ul style="list-style-type: none"> <li>• Top-rope climbing</li> <li>• Belaying with min. 3 types of devices</li> <li>• Top-rope descending</li> <li>• Light falling in "comfort zone"</li> <li>• On-the-ground knots practice</li> <li>• On-the-ground clipping practice</li> <li>• Partner check</li> </ul>
	<ul style="list-style-type: none"> <li>• Video presentation</li> </ul>	n/a
	<ul style="list-style-type: none"> <li>• Climbing equipment</li> </ul>	n/a
II.	n/a	<ul style="list-style-type: none"> <li>• Climbing techniques (Frontal climbing)</li> <li>• Sport climbing training</li> <li>• Top-rope climbing</li> <li>• Lead climbing with clipping</li> <li>• Belaying with min. 3 types of devices</li> </ul>
		<ul style="list-style-type: none"> <li>• Climbing techniques (Frontal climbing)</li> <li>• Sport climbing training</li> <li>• Lead climbing with clipping</li> <li>• Lead falling</li> <li>• Belaying with min. 3 types of devices</li> </ul>
		<ul style="list-style-type: none"> <li>• Climbing techniques (Side climbing)</li> <li>• Sport climbing training</li> <li>• Lead climbing with clipping</li> <li>• Lead falling</li> <li>• Belaying with min. 3 types of devices</li> </ul>
III.	n/a	<ul style="list-style-type: none"> <li>• Climbing techniques (Side climbing)</li> <li>• Sport climbing training</li> <li>• Top-rope climbing</li> <li>• Lead climbing with clipping</li> <li>• Belaying with min. 3 types of devices</li> </ul>
		<ul style="list-style-type: none"> <li>• Introduction to advanced climbing techniques (Drop-knee, Heel, Compression, Flagging)</li> <li>• Sport climbing training</li> <li>• Top-rope climbing</li> <li>• Lead climbing with clipping</li> <li>• Belaying with min. 3 types of devices</li> </ul>
IV.	<ul style="list-style-type: none"> <li>• Next steps in sport climbing</li> </ul> <p><i>Clear statement that the Indoor Sport Climber is NOT qualified for outdoor climbing</i></p>	<ul style="list-style-type: none"> <li>• Practical exam for title: Indoor Sport Climber</li> </ul>

## Recommended educational schemes and modules

Single pitch sport climbing – entry level



W	LECTURE	PRACTICAL EXERCISE
I.	<ul style="list-style-type: none"> <li>• Definition of terminology and content of sport climbing</li> <li>• History of climbing</li> </ul>	<ul style="list-style-type: none"> <li>• Usage and maintenance of climbing equipment</li> <li>• Quick draws, Clipping, Harness, Climbing shoes, Climbing ropes, Climbing knots</li> <li>• Figure-eight and Clove Hitch</li> <li>• Sport climbing training</li> </ul>
	<ul style="list-style-type: none"> <li>• Video presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Usage and maintenance of climbing equipment</li> <li>• Quick draws, Clipping, Harness, Climbing shoes, Climbing ropes, Climbing knots</li> <li>• Belaying with min. 3 types of devices</li> <li>• Connecting the rope to the harness</li> </ul>
	<ul style="list-style-type: none"> <li>• Climbing equipment</li> </ul>	
II.	<ul style="list-style-type: none"> <li>• Development of sport climbing from alpinism</li> <li>• First competitions</li> <li>• Sport climbing in COUNTRY</li> <li>• Organization of sport</li> </ul>	<ul style="list-style-type: none"> <li>• Climbing techniques including on plate, crack, overhang, sealing with traction and on push</li> <li>• Sport climbing training</li> <li>• Munter Hitch and Reef Knot</li> <li>• Partner check</li> </ul>
	<ul style="list-style-type: none"> <li>• Climbing (On-sight, Flash, Red point, Top-rope, Pink point, Bouldering)</li> <li>• Belaying</li> </ul>	<ul style="list-style-type: none"> <li>• Top rope climbing</li> <li>• Lead climbing</li> <li>• Belaying</li> <li>• Top rope fall</li> </ul>
	<ul style="list-style-type: none"> <li>• Climbing terminology</li> <li>• Grades</li> <li>• Climbing route descriptions</li> <li>• Symbols</li> <li>• Topo (Climbing areas and route sketches)</li> <li>• Climbing guides (publications)</li> </ul>	n/a
III.	<ul style="list-style-type: none"> <li>• Competitions</li> <li>• Bowline, Slipped sheet bend, Prussic, Double Fisherman's knot</li> </ul>	<ul style="list-style-type: none"> <li>• Training methods</li> <li>• Stretching and Warm-up</li> <li>• Mental preparedness</li> <li>• Nutrition</li> <li>• Switch-over at anchor (3 ways)</li> <li>• Sport climbing training</li> </ul>
		<ul style="list-style-type: none"> <li>• Lead climbing</li> <li>• Belaying</li> <li>• Falls</li> </ul>
IV.	<ul style="list-style-type: none"> <li>• Connections with alpine climbing</li> <li>• Multi-pitch sport climbing</li> <li>• Communication</li> </ul>	<ul style="list-style-type: none"> <li>• Switch-over at anchor (3 ways)</li> <li>• Overhand bend knot</li> <li>• Sport climbing training</li> </ul>
	<ul style="list-style-type: none"> <li>• Creating a climbing route (spits, material choice, anchors, rock quality and wear)</li> <li>• Climbing injuries</li> <li>• Rescue</li> </ul>	<ul style="list-style-type: none"> <li>• Lead climbing</li> <li>• Belaying</li> <li>• Falls</li> <li>• Switch-over at anchor (3 ways)</li> <li>• Abseil</li> </ul>
V.	<ul style="list-style-type: none"> <li>• Repetition</li> </ul>	<ul style="list-style-type: none"> <li>• Sport climbing training</li> <li>• Lead climbing</li> <li>• Belaying</li> <li>• Falls</li> <li>• Switch-over at anchor (3 ways)</li> <li>• Abseil</li> </ul>

## Recommended educational schemes and modules

Multi-pitch sport climbing – precondition Single pitch + 30 red point climbs



W	LECTURE	PRACTICAL EXERCISE
I.	<ul style="list-style-type: none"> <li>• UIAA definition of Multi-pitch sport climbing</li> <li>• Multi-pitch sport climbing equipment</li> <li>• How to organize a field trip</li> <li>• Storage and maintenance of equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Repetition of skills from single-pitch</li> <li>• Knots</li> <li>• Rope management</li> <li>• Belaying</li> <li>• Top-rope climbing</li> <li>• Lead climbing</li> <li>• Abseil</li> <li>• Switch-over at anchor (3 ways)</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Multi pitch sport climbing with instructor in lead</li> <li>• Knots</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Prussic self-ascent</li> <li>• Carabiner brake</li> <li>• 3:1 Rope Rescue System</li> <li>• Multi pitch sport climbing with instructor in lead</li> <li>• Partner check</li> </ul>
II.	<ul style="list-style-type: none"> <li>• Climbing terminology</li> <li>• Grades</li> <li>• Climbing route descriptions</li> <li>• Symbols</li> <li>• Topo (Climbing areas and route sketches)</li> <li>• Climbing guides (publications)</li> </ul>	<ul style="list-style-type: none"> <li>• Knots</li> <li>• Prussic self-ascent</li> <li>• Carabiner brake</li> <li>• 3:1 Rope Rescue System</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Multi-pitch abseil</li> <li>• Creating anchors in a multi-pitch sport climbing route</li> <li>• Multi pitch sport climbing with instructor in lead</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Multi-pitch sport climbing 5 step protocol (5 step check, communication, stand approach, anchors, belay and auto-block device)</li> <li>• Multi pitch sport climbing with instructor in lead</li> <li>• Multi-pitch abseil</li> </ul>
III.	<ul style="list-style-type: none"> <li>• Mountain dangers and risks</li> <li>• Orientation and navigation</li> <li>• Meteorology</li> <li>• Search and Rescue</li> <li>• First Aid</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-pitch sport climbing 5 step protocol (5 step check, communication, stand approach, anchors, belay and auto-block device)</li> <li>• Multi-pitch abseil</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Auto-block device release</li> <li>• Multi pitch sport climbing with exchange in leadership with instructor</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Multi pitch sport climbing with exchange in leadership with instructor</li> <li>• Multi-pitch abseil with carabiner brake</li> <li>• Anchors</li> </ul>
IV.	<ul style="list-style-type: none"> <li>• Multi-pitch route fall factors</li> <li>• Multi-pitch sport climbing challenges and solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Auto-block device release</li> <li>• Multi-pitch abseil with carabiner brake</li> <li>• Demonstration of multi-pitch sport climbing with 3 climbers</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Multi pitch sport climbing with exchange in leadership with instructor</li> <li>• Repetition</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Multi pitch sport climbing of 3 climbers with instructor in lead</li> </ul>



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