



Rope evacuations:

looking for appropriate practice  
on 'traditional' ropes courses



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ERCA Conference, Hennef, 2013

# Background & Triggers

- ✘ ERCA Recommendations on Rescue 2010:  
overview of considerations, careful in conclusions
- ✘ ERCA Generic Rescuer Training 2011:  
practice adopted from adventure park,  
standards in line with work safety
- ✘ SpAiS mail conversation re motion against any  
obligation to use double rope for rescue 2012:  
principled statements without discussion on rationale



Questions to be explored & addressed



# Proposal

‘withstanding the test of an accident’

- ✘ Sharing our / Exponent’s homework on **developing practice with a valid rationale**
- ✘ Work in progress


let’s look at the issues at stake,  
let’s exchange experiences,  
let’s create options...

- ✘ It is *not* about single *or* double rope
- ✘ ‘Begrunding’ takes a risk assessment, corresponding prevention measures and reference to accepted practice

# Agenda: 'sharing our homework'

- ✘ Context: so-called 'traditional' ropes courses
- ✘ 'References': considerations from
  - ✘ ERCA Generic Rescuer Training 2012
  - ✘ ERCA Recommendations on Rescue 2010
  - ✘ Exponent experience with ropes (course) rescue
  - ✘ Legislation, norms, standards...
- ✘ Conclusions for practice?
  - ✘ Rescues
  - ✘ Rescue training
  - ✘ Guidelines and procedures...





# Rope evacuations on educational ropes courses

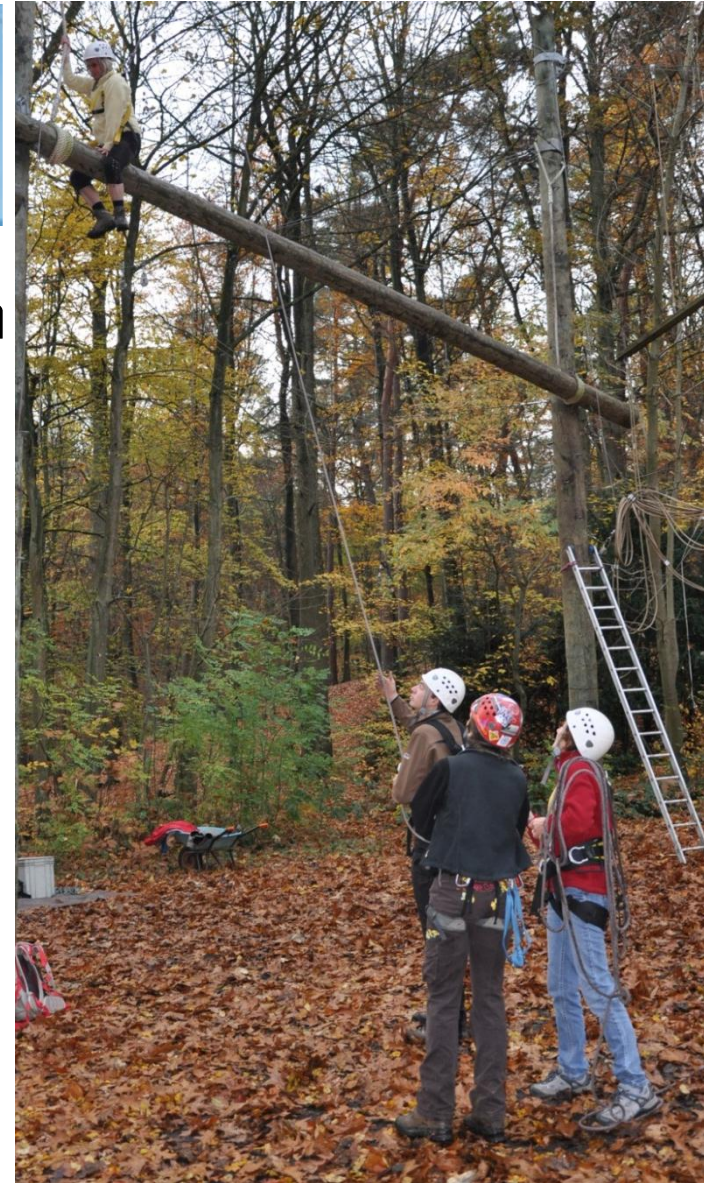


## What are we talking about? Context



## Context: 'traditional' ropes courses

- ❑ Instructor / rescuer working with small group
- ❑ Assisted belay common:
  - ❑ Current use of Figure-8 or tubular belay device
  - ❑ Lowering participants regular part of program
- ❑ Self-belay rare for participants yet standard for staff



# Context: 'traditional' ropes courses




- ✘ Generally limited height: victim at 6 to 8m
- ✘ Mostly constructions that are 'dynamic'
- ✘ Space under the element usually free, sometimes another element
- ✘ Underground even and mostly mulched
- ✘ ...



A word of caution on context:  
what means  
“traditional”?







# Rope evacuations: sources to learn from



## key points and intermediate conclusions



## References: ERCA Recommendations for rescue

The workgroup recommends a.o. the following:

- ✘ “A rescue system should be composed of **components that are used day-to-day**, (...) familiar in use”
- ✘ “Technique should enable a rescue within a few minutes (yet) **avoid stress and hectic action**”: time-saving is related to position, ease of access, type of self-belay ...
- ✘ “**Classic abseil devices are not suitable** for a rescue system that conforms to the directive as they are neither self-blocking and panic-safe, nor are they produced according to EN 341 / EN 12841:2006 and CE-certified”

# References: ERCA Recommendations for rescue

The workgroup recommends a.o. the following:

- ✗ “A rescue system should be composed of **components that are used day-to-day**, (...) familiar in use”
- ✗ “Technique should enable a rescue within a few minutes (yet) **avoid stress and hectic** and related to position, ease of access  
**A critical piece in this is the braking device**
- ✗ **Difference between courses with top-rope and self-belay**  
**able for a rescue system they are neither self-produced according to EN 341 / EN 12841:2006 and CE-certified”**



# References: ERCA Recommendations for rescue

The workgroup recommends a.o. the following:

☒ **Pre-loading** the lowering system

**& soft load transfer:**

- ☒ shock load not acceptable for injured person;
- ☒ temporary redundancy;
- ☒ automatic functionality test of lowering system.



Scenario with use of industrial lever hoist

# References: ERCA Recommendations for rescue

## ✘ **Pre-loading the lowering system & soft load transfer:**

Scenario with use of counterweight

- ✘ Pictures indicate tendency towards industrial standards;
- ✘ Note: method in the picture basically a top-rope belay...



## Exponent's intermediate conclusions for practice:

- ✘ Rescue **equipment familiar through daily use**, i.e. not conform EN 341 / EN 12841 but EN 15151 (2012); adjust daily-use equipment if need be
- ✘ **Focus on accuracy, not on time** – also in training & testing
- ✘ **Soft load transfer**: minimize shock
- ✘ Functionality test: **check when under tension**
- ✘ **Avoid cutting**: no fault tolerance, irreversible
- ✘ When cutting, **avoid knives** and their potential for collateral damage...

Many thanks to Gerhard Bucher, Peter Oster, Markus Stender & Peter Biegel for their work!



## References: ERCA 'generic rescuer' training

Methods in line with labor safety regulations re 'temporary work at a height' (ED 2001/45/EC):

- ✗ Separate **work / positioning and safety rope**;
- ✗ Evacuation with Petzl I'D as **self-locking descender** on the work line;
- ✗ Self-belay (rescuer and victim) with Petzl ASAP as **self-locking belay device**;
- ✗ Load transfer with industrial lever hoist: **no cutting!**



## References:

### ERCA 'generic rescuer' training

Equipment in line with labor safety regulations re **PPE for Fall Arrest:**

- ☒ Rope compliant with EN 1891 (low stretch);
- ☒ Harness compliant with EN 361 (full body);
- ☒ Descender compliant with EN 341;
- ☒ Self-belay device compliant with EN 353-2;
- ☒ Karabiners all 'safe-locks', steel for anchors and connection to harness
- ☒ Helmets compliant with EN 397.



References:

ERCA 'generic rescuer' training

**Exponent's intermediate conclusions for practice:**  
**the industrial standard for rescue is not in line:**

- ✗... with sports standards in program practice:  
harnesses, belay devices, single rope, dynamic rope...
- ✗... with ERCA Recommendation on Rescuing that  
“a rescue system should be composed of components  
that are used day-to-day”
- ✗... with sports standard in EN 15567-1, 4.4:  
“For operational use sport climbing equipment can be used”
- ✗... with the exception for sports equipment in PPE regulation  
in ED 89/656/EC, Art. 1, 2, e.



## References:

### ERCA 'generic rescuer' training

#### Exponent's intermediate conclusions for practice:

- ✘ Importance of EN compliance of equipment, however **EN re mountaineering equipment** suffices for operational use, i.e.:
  - ✘ EN 12277 for harnesses;
  - ✘ EN 12275 for karabiners;
  - ✘ EN 15151 for braking devices;
  - ✘ EN 12492 for helmets...
- ✘ Importance of “**Kontrollstop**”: stop & check, visual and/or hands-on before load transfer

Thanks to Pit Bangerter & Valentin Kern  
for the training!

# References: Experience with rescue & training





# References: Experience with rescue & training



- ❌ “Haast je langzaam”:  
focus on accuracy, not on deadline
- ❌ “Who comes too close to the problem risks becoming part of it”  
most incidents happen during ‘active rescues’
- ❌ “Do more with less”  
variations on methods and equipment increase mistakes
- ❌ “Stop / check” before load-transfer  
check with system under traction

# References: Experience with rescue & training

## Positie van de redder



Ga zo dicht  
als nodig,  
blijf zo ver  
als mogelijk:  
wordt geen  
deel van het  
probleem!





## References: Experience with rescue & training

### Exponent's intermediate conclusions for practice:

- ✘ Rescue time is first tackled through **course design**:  
speak with course constructors
- ✘ Use **familiar equipment**: minimize rescue-specific devices
- ✘ Avoid high-risk solutions to low-risk problems:  
**don't train and test worst-case scenarios only**
  - ✘ passive rescues >> active rescues
  - ✘ soft load transfer > cutting – weigh risks and benefits!
  - ✘ scissors >>> knives – connected to rescuer!
- ✘ Slower is faster: **focus on accuracy, not on deadlines**

# References: Experience with rescue & training

## Exponent's intermediate conclusions for practice:

- ❑ Functionality test:  
in transparent rope systems, **checking under tension** does not require full pre-loading
- ❑ Soft load transfer: if the system is under sufficient tension, **cutting can be a no-shock load transfer**



## Exponent's intermediate conclusions for practice:

- ✘ Technically, a **passive rescue is a standard climbing belay** hence to comply with top-rope standards:  
i.e. the use of manual or semi-automatic devices by qualified staff without additional back-ups is accepted and adequate practice...
- ✘ **Active rescues are more of an issue:**
  - ✘ Convert to a passive rescue when possible
  - ✘ Use 'auto-moulinette' for active rescue?  
Standard climbing belay...



## References: Legislation, norms, standards

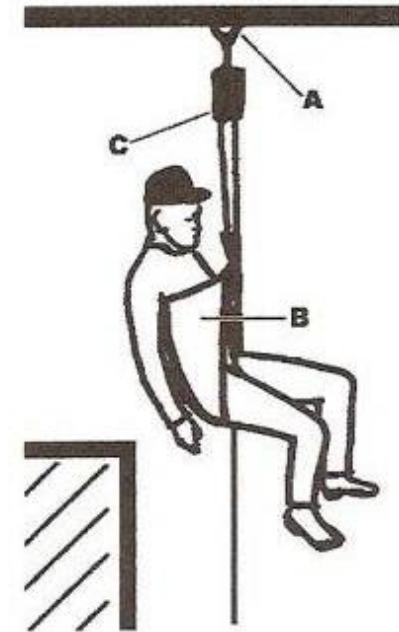
- ✘ The transposition of EC directives into national law leads to **variations between EU membership states**: specific practices have been explained as a policy in **ERCA to comply with the most stringent version...?**
- ✘ In 2012, the **new EN 15151 re braking devices for 'mountaineering'** was approved ⇒ there are now CE-certified devices available other than industrial...
- ✘ Consider EN 363, 4.2.5. re fall arrest systems: **even in a 'work' context single rope rescue systems** are not necessarily excluded...



# References: Legislation, norms, standards

## EN 363, 4.2.5, fall arrest systems

- ✗ The system prevents free fall
- ✗ It allows lowering the rescuee
- ✗ The 2-person load does not exceed the WLL
- ✗ One rope suffices
- ✗ Separate belay for training
- ✗ It is “appropriate” to not cut



### Légende

- A Point d'ancrage
- B Dispositif de maintien du corps (sangle de sauvetage)
- C Descenseur

Figure 10 — Exemple de système de sauvetage comportant un descenseur



## References: ERCA 'generic rescuer' training

### Exponent's intermediate conclusions for practice:

- ✘ **Sports standards** apply to ropes course programs: EN 15567 re “sports and recreational facilities”
  - ✘ ‘Mountaineering’ norms for equipment: EN 15151
  - ✘ Administrative relieve from PPE legislation: ED 89/656/EC
  - ✘ ...

Safe operations remain essential, yet the **regulatory frame is broader than legislation for work** and work at height

- ✘ Keep an eye on **consumer safety legislation!**



# References

on ropes rescue training



lessons learned and  
conclusions in practice

## References:

# ERCA Recommendations for Rescue


- ❌ Rescue training must have **special status** in the course;
- ❌ **Minimum 2 days:** time must allow every trainee to repeatedly perform rescues in various positions;
- ❌ **Realistic scenarios;** the rescuee must not assist;
- ❌ Every rescuer should attend a **refresher course** at least once a year: compare 89/391/EEC; this training should not be combined with training new rescuers;
- ❌ The training course must be **documented**.



# References: Experience with rescue & training



- ✘ Structure & clear authorization  
rescue practice allowed only after demonstration of composing skills
- ✘ Belay the 'victim'  
rescuer only demo'ed efficacy for personal rope technique so far
- ✘ The rescuee acts as 'buddy'  
in addition to close supervision
- ✘ Trainer go-ahead for load transfer  
cutting only after approval of place and direction under traction



# Rope evacuations: regulatory background



a few proposals  
for ERCA practice

# Proposal for ERCA & procedural stuff

- ✘ At the *European Ropes Course Association*, national legislation should be the members' rather than the association's concern
- ✘ Workshops and papers should *at least* include, if not **prioritize European regulatory framework**
- ✘ ERCA practices should **look for possibility**, rather than adjust to most *restrictive* legislation
- ✘ ...



# Proposal for ERCA & procedural stuff

- ✘ **Keep ropes course services in the sports context**
  - ✘ More sensible 'Antrag' than single-double rope?
  - ✘ Given the upcoming revision of EN15567-2: verify that the sports context clarified by EN 15567-1, 4.4 ("For operational use sport climbing equipment can be used") is maintained!
  - ✘ ...





# Proposal for ERCA & procedural stuff

- ✗ **Reduce bureaucracy** wherever possible!
- ✗ Given the upcoming revision of EN15567-2: verify that the climbing gear used at ropes courses remains free of administrative obligations such as the yearly inspection by an external body.

✗ ...

## Documentatie: EN 15567-2(2008) 4.2

- ✗ Parcourshandboek ↔ bouwdatum
- ✗ Indienstnameverslag ↔ bouwdatum
- ✗ Verslag periodieke inspectie
- ✗ Inspectieverslagen parcours en materiaal
- ✗ Risicoanalyse en preventieplan → preventieprocedures
- ✗ Documentatie opleiding begeleiding
- ✗ Activiteitenlog (minimum 3 jaar)
- ✗ Incidentenrapportering
- ✗ Ongevallenprocedure





Happy rescues ;-)

Johan & Geert

