



CONNECTION OF THE FERRATA SET TO THE HARNESS

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WE DON'T NEED TO **TIE**, BUT RATHER TO **CONNECT** IT !

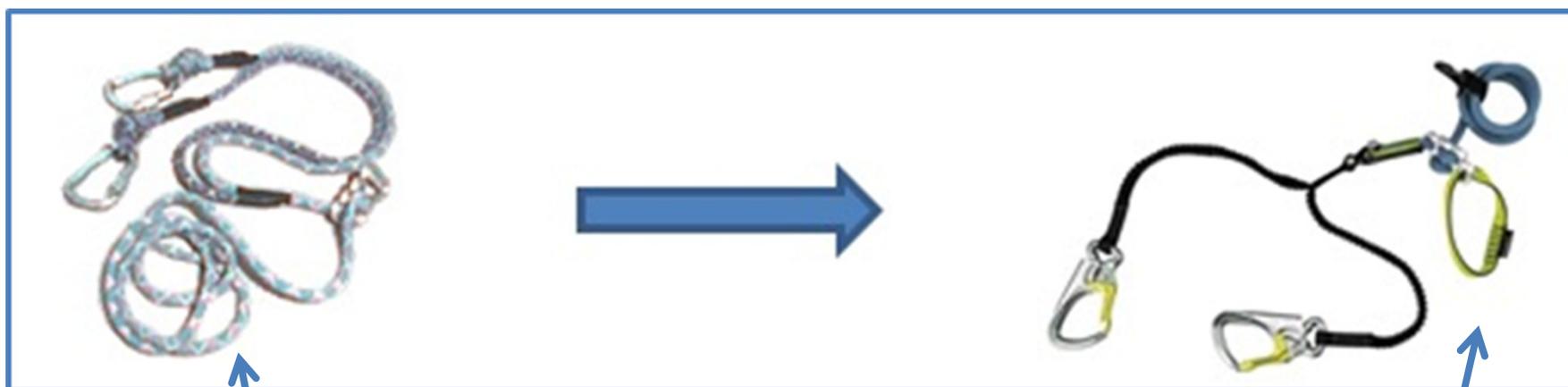
Preface: After the introduction of the European Norm EN 958, the “Via ferrata sets” have been substantially improved and the way they are constructed has significantly changed. Knots have been substituted by sewing, ropes have been replaced by slings, metallic energy absorbers have been substituted by sewn tapes.

In this process, the rope branch by means of which it was possible to tie the set to the harness has been replaced by a (short) tape sling

Because of this, nowadays the climber must know NOT how to TIE the ferrata set, BUT RATHER how to PROPERLY CONNECT it to the harness!



WE DON'T NEED TO **TIE**, BUT RATHER TO **CONNECT** IT !



Branch of rope to tie the set to the harness (*Figure of Eight* knot)

Short tape sling to connect the set to the harness



WE CONSIDER THREE POSSIBLE CASES:

CASE 1

**Full body
harness**

CASE 2

**Low
harness**

CASE 3

**Combined
(chest+low)
harness**



CASE 1: Full body harness



- From the “connection” point of view: *the most simple case*
- It is sufficient to pass the sling in the connection points of the harness, and create a “lark’s head” knot
- Even with very short slings, since there are usually only two “connection points” in the harness, usually this connection system can be easily adopted



It is in any case recommended to close the harness with an additional cordellette, so that a safe anchor point is prepared for possible rescue or other manoeuvres



CASE 1: Full body harness



- The connection of the set to the harness (any type) through a karabiner, even if with a locking system, **MUST BE AVOIDED**



THE CARABINER COULD ACCIDENTALLY ROTATE, AND THEREFORE BE SOLICITED ALONG ITS MINOR AXIS (IN ITS WEAKEST CONFIGURATION) DURING THE FALL.



CASE 2: Low Harness

PROBLEM !!!

IT HAPPENS MORE AND MORE FREQUENTLY THAT **THE SLING** OF THE FERRATA SET **IS TOO SHORT** TO BE CONNECTED TO BOTH THE POINTS OF THE HARNESS

4 possible solutions



CONNECTION WITH AN AUXILIARY CORDELETTE

CONNECTION WITH AN "AUXILIARY TAPE"

CONNECTION WITH AN "AUXILIARY TAPE LOOP"

CONNECTION WITH A "MAILLON RAPIDE"

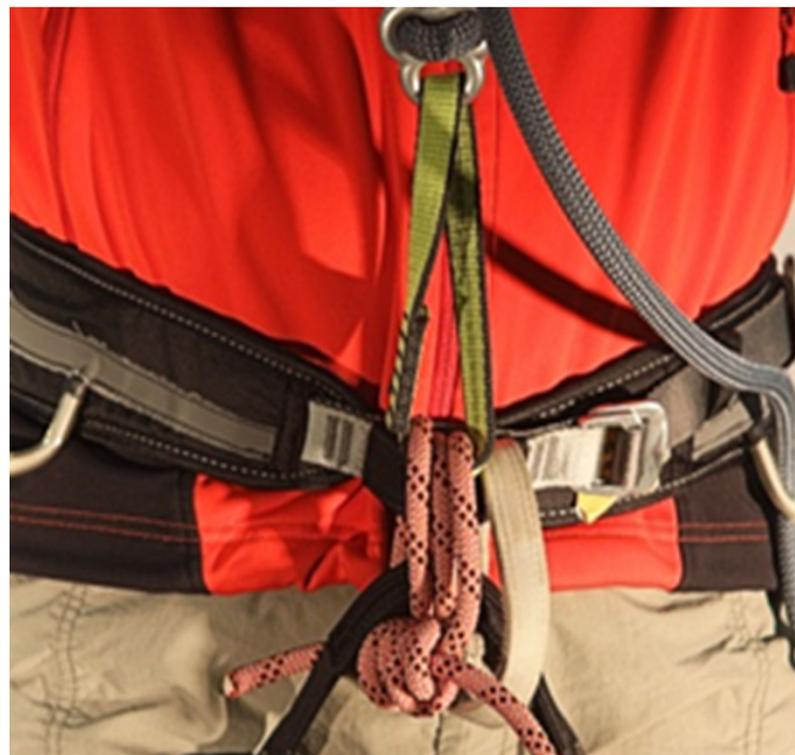


CASE 2: Low Harness

Solution 1: Connection with "Auxiliary Cordellette"



- A piece of rope (Kevlar, or Nylon with a diameter at least of 7-8 mm) is used to join the harness connection points, including the sling tape of the harness. The rope loop* is closed by a double/triple fisherman knot.
- If possible, the loops can be passed directly into the energy absorber device, using the same point in which the sling is positioned. Obviously, in this case the sling is not used.



** It is better to have at least three loops, not for resistance but rather to distribute in a better way the fall force on the harness.*



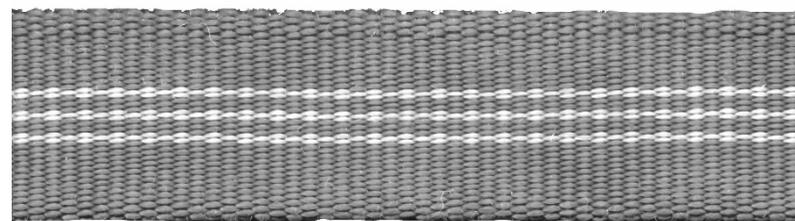
CASE 2: Low Harness

Solution 2: Connection with an "Auxiliary Tape"



This solution is very similar to the previous one.
In this case, we recommend to use:

- a Nylon tape;
- at least of 15 mm;
- with at least three coloured stripes.



In buying the tape, we must check the it is compliant with the norm EN 565, defining the robustness properties.

Also in this case, two or three loops are recommended in connecting the ferrata set to the harness; the tape must be closed with a proper water knot





CASE 2: Low Harness

Solution 3: Connection with "Auxiliary Tape Loop"



The tape loop is passed through the harness connection points, and the tape sling of the ferrata set is connected to it with a lark's head knot.



Concerning the choice of the tape loop, it is advisable to use a Nylon tape with a proper dimension, e.g. with a section of 15 mm.



CASE 2: Low Harness

Solution 4: Connection with a Maillon Rapide



In this, case, we must use a certified “Type Q” maillon. The norm defining the correct devices for this use is the EN 12275.



This solution is **not recommended**, since the metallic device may hurt our body, with unexpected – and unpleasant – consequences.



CASE 3: COMBINED HARNESS



- This is the most problematic case. The ferrata set must be connected both to the lower and upper part.
- The chest harness must be closed with a loop, and the connection point of the two branches of the set must be above this point, otherwise problems may arise in case of a fall.



BUT...

Problems may occur, in particular in case of tall persons





CASE 3: COMBINED HARNESS



PROBLEM:

Once the set has been connectect to the lower part of the harness, the energy absorber device is “below” the loop of the chest harness, and it is difficult to use the set with its two branches passing through the loop

!!



How to connct the Ferrata Set to the harness

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CASE 3: COMBINED HARNESS



IT IS WRONG:

To connect the set to the connection points of the lower part and then run the rope of the dissipation branch into the energy absorber device to extend the length of the set.



This operation is clearly wrong: the length of the rope devoted to stop the fall (sliding into the energy absorber device) is decreased, and may result insufficient to decrease the fall force.

In any case, this operation is impossible with sewed sets!



CASE 3: COMBINED HARNESS



2 possible solutions to the problem



**CONNECTION WITH
"AUXILIARY CORDELLETTE"
"AUXILIARY TAPE"
"AUXILIARY SLING TAPE"**



**CONNECTION OF THE TWO PARTS
OF THE HARNESS WITH AN
"AUXILIARY CORDELLETTE"**



CASE 3: COMBINED HARNESS

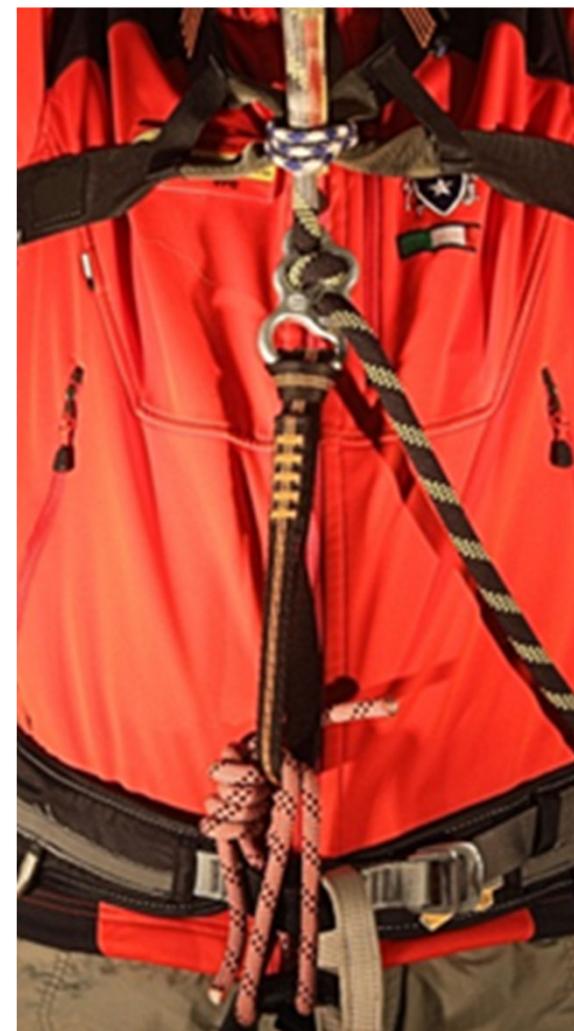


**CONNECTION WITH
"AUXILIARY CORDELLETTE"
"AUXILIARY TAPE"
"AUXILIARY SLING TAPE"**

The set is connected to the lower part of the harness with an auxiliary loop (tape, cordellette, etc.) of **proper length**.

In this way, the ferrata set is properly connected to both upper and lower part of the harness, and its working principle maintained.

In the picture, the case of a connection with an auxiliary cordellette.





CASE 3: COMBINED HARNESS

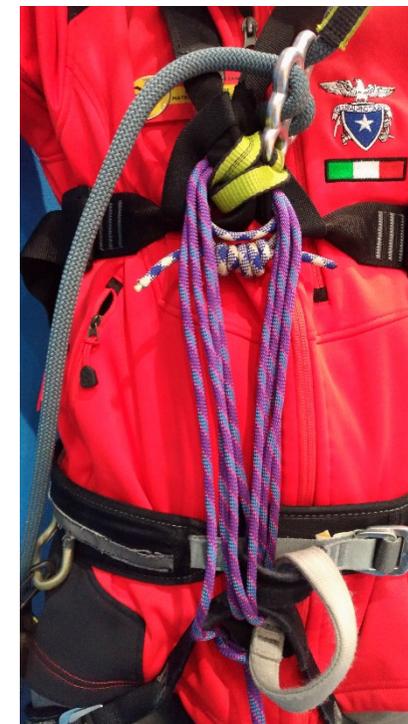


CONNECTION OF THE TWO PARTS OF THE HARNESS WITH AN "AUXILIARY CORDELLETTE"

In this case, we connect the lower and upper part of the harness with an auxiliary loop. In practice, this is equivalent to the case of a full body harness.

The ferrata set is then connected to the two points of the chest harness and in auxiliary loop at the same time!

ATTENTION: The length of the loop must be calibrated in such a way to distribute the fall force between the two parts of the harness (the loop must be slightly tensioned in rest conditions)





FOR MORE INFORMATION, REFER TO

CENTRO STUDI MATERIALI E TECNICHE

www.caimateriali.org

References:

- [1] G. Bressan (CSMT), M. Polato (CSMT VFG), *“Un set... di legature!”* LAV 2016 - 2
- [2] Collana manuali CAI, N° 2, *“La sicurezza sulle vie ferrate: materiali e tecniche”*, G. Bressan, C. Melchiorri, A. Monteleone, 2a edizione - giugno 2011.
- [3] G. Bressan, M. Polato, CSMT VFG, *“Fettucce: Normal, midi, micro...”*; LAV 2014 - 2



Buone vie ferrate!