

Tying Off A Munter Belay And Rescuing A Fallen Climber A Sequential Article to Accompany Instruction



version 1.2

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WARNING: Failure to use any or all of the devices or systems explained or illustrated in this article in an appropriate manner could result in property damage, injury or death. Expert instruction and constant practice are mandatory. This is not an instructional article. It is designed to accompany professional instruction and practice under supervision.

Introduction:

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This article reviews the sequence of events in which a belayer using a Munter Hitch attached to the anchor stops a fall and then is required to conduct a rescue. The sequence illustrated goes directly into a raising scenario using a 3:1 simple pulley system. Be aware that in a real situation a raising system may actually be your last choice and/or last step.

Always think of how a rescue can be performed in the simplest possible manner. Can the climber continue climbing with tension being provided from the belayer? Can the climber down-climb with a tight rope from above? Can the climber be lowered directly from the belay device? Can they go a short distance to a safe place where they can anchor in and you can join them?

Before you rig any sort of system you must also communicate with the fallen partner and decide if there are any critical medical or other situations that require your immediate attention. Unconsciousness IS an emergency and mandates rapidly accessing the person. This may require tying – off and escaping the belay, anchoring the rope and then rappelling, prusiking or using counterbalance or other advanced techniques to access the injured partner. Similarly, major bleeding should be controlled and may require actions on the part of the climber and belayer as well.

When you finally commit to a system, try to keep your options open. Try to avoid introducing components into your system that are non- reversible. When such components are added, do you know how to get the load off them to remove them in the event that they don't function as anticipated?

When practicing these techniques it is best to start on flat ground and go through the mechanics several times first. Then go to a short, less – than - vertical rock face where communications between you and your partner are simple. Have your partner on belay with a second rope any time you do not have an expert supervising your efforts. Best not to get someone killed practicing rescue techniques!

Prepare for the worst, hope for the best!

Tying Off And Rescuing A Fallen Climber



Step One: Prepare to Tie-Off the Belay. Orient the rope directly in line with the fallen climber so that a minimum of effort is required to keep yourself in balance and you can concentrate on the knots and ropework.



Step Two: With your braking hand still firmly holding the fallen climber, take a bight of rope from behind your braking hand and pass it fully around the main rope in preparation for tying an overhand slip knot.

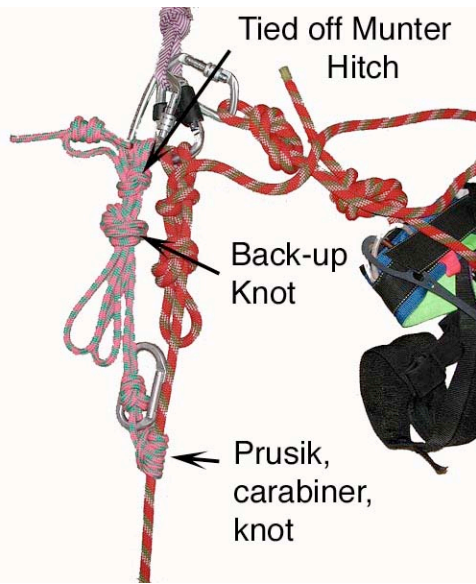


Step Three: Using just a single strand of rope, tie an overhand slip knot directly in front of the Munter hitch so that any additional load that comes on the Munter Hitch continues to tighten the knot. (Practice this under supervision so that it becomes automatic *before* you have to use it in a real situation!)

Pull a large enough bight of rope so that you can tie both an overhand and a backup knot. (Note: Tying – off a Munter hitch has also been called “locking – off” or “blocking” a Munter hitch.)



Step Four: Using the bight of rope that exits from in front of the slip knot, tie an overhand knot as a back-up. At this point you have effectively escaped the system and can proceed to make decisions regarding what action to take next.



Step Five: Prepare to Transfer the Load to the Anchor via a Prusik cord. Tie a knot in the end of a 4 – 6 meter long Prusik cord of the appropriate diameter. Find the center of the cord directly opposite the knot. Tie a Prusik hitch on the rope directly in front of the belay device. Right next to the Prusik Hitch tie a figure of eight or overhand knot on both strands of the cord. Clip a carabiner in the small loop thus formed.

Using a separate carabiner tie the end of the Prusik cord to a “tied-off” or “blocked” Munter Hitch with a back-up knot. For details on this procedure see the article “*Transferring a Load from Belayer to Anchor via a Prusik Sling*”. Once the sling is properly tied, slide the Prusik hitch as far forward on the rope as possible.



Step Six: Using another separate carabiner tie the main rope coming from the belay device directly onto the anchor leaving about 30 – 50cm of slack. This acts as a back-up while allowing enough free rope to be available to rig a pulley system or other rescue system. (Note this step can be performed before attaching the Prusik cord.)



Step Seven: Transfer the Load to the Anchor Prusik. Untie the back-up overhand knot in the main line. Then the overhand slip knot next to the Munter hitch is untied in such a fashion that the belayers' brake hand is once again on the rope at all times. The load is slowly transferred from the main line to the Prusik attached to the anchor.

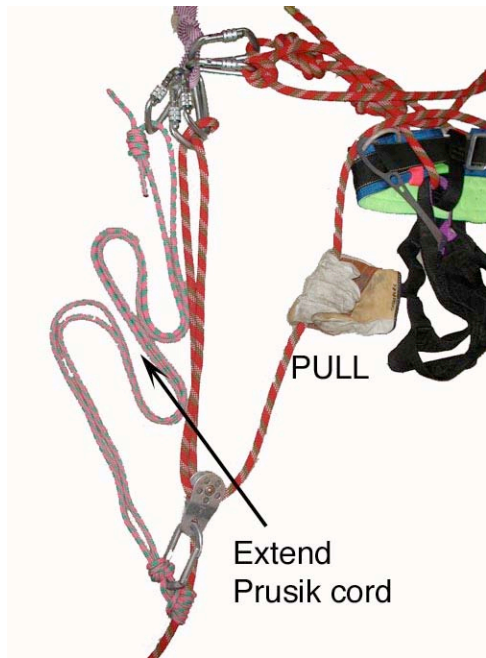


Step Eight: At this point you must decide which rescue procedure must be performed. If you decide to raise the fallen climber then **Rig the Raising System**. In this case a Garda hitch is attached to the rope to act as a “progress capture device”.

For alternatives to the Garda hitch, see the article “*Progress Capture Devices for Improvised Rescue in Climbing and Caving with Single Person Loads*”.

In this photo a pulley was not available and the rope was clipped directly into a carabiner with a resultant loss in efficiency. For a discussion of pulley use in improvised rescue, see the article “*Pulleys and the 3:1 Pulley System*.”

Before beginning to raise, **Test The System**. Raise the fallen climber through three full resets of the Prusik Hitch to ensure your progress capture device (Garda hitch) and other system components are functioning correctly.



Step Nine: *Extend Your Prusik Cord.* For longer pulls and fewer resets of your system you may decide to remove the tied - off Munter Hitch and back-up from the Prusik cord and clip the cord directly into the carabiner instead. This allows much longer pulls and perhaps less effort on the part of the rescuer.

When extending your Prusik cord you should be sure the main rope is backed up with an appropriate knot while this transition takes place.

It is possible that an experienced rescuer who is very familiar with these systems and their proper function may actually completely detach the Prusik cord from the anchor. This is a decision that only an experienced person should make as it removes one of the system redundancies.

Note that a pulley has now been added to increase the efficiency of the system.

Continue Hauling and Resetting. Raise your fallen partner to your stance and reconsider your options again.



Advanced Procedure: *Attach a Load Releasing Hitch if required.*

Before beginning your hauling efforts, advanced rescuers may consider a “load releasing hitch” of some description in case they need to take the load off the Garda hitch or other progress capture device.

In this case a Radium release Hitch 2:1 has been used. See the articles “*Radium Release Hitch 2:1 for Improvised Rescue*” and “*Load Releasing Hitches*” for further information.

Once you have decided whether you need a load releasing hitch, ***Test The System.*** Raise the fallen climber through three full resets of the Prusik Hitch to ensure your progress capture device (Garda hitch) and other system components are functioning correctly.

Note that a pulley has now been added to increase the efficiency of the system.

About the Author



Cyril Shokoples is an internationally certified Mountain Guide and Past-President of the Association of Canadian Mountain Guides. He has been a member of the Alpine Club of Canada and Edmonton Section since 1975 and became a “Senior Member” in 1979. He received the Silver Rope award in 1988 and the Distinguished Service Award in 2002. He also received the Distinguished Service Award from the Association of Canadian Mountain Guides in 2003. In 2005, the Edmonton Section of the ACC awarded Cyril with the George Stefanick Legacy Award (only the second time this award has been presented).

Cyril has been teaching mountain leadership for over two decades and he continues to broaden his background and skills into many related areas of safety and rescue education. He trained Emergency Medical Technicians for over a decade and is a life member of the National Association for Search and Rescue (US). He has been training the Canadian military Search and Rescue Technicians in mountain climbing and mountain rescue for over fifteen years. He created the Parks Emergency Responder program for National Park Wardens and has taught that program across Canada for well over a decade. He is a PADI Rescue Diver and a DAN Dive Emergency Specialist. He is also a professional member of the Canadian Avalanche Association, a CSIA Ski Instructor and a licenced Advanced Amateur Radio Operator. Cyril has taught courses and seminars in BC, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, The Yukon and North West Territories.

Cyril currently resides in Edmonton, Alberta, Canada and is the proprietor of the firm Rescue Dynamics, which is involved in climbing, rescue and safety instruction, as well as mountain guiding.

Further information on courses as well as additional copies of this and other technical notes in this series can be obtained directly from Rescue Dynamics. On the internet, visit the Rescue Dynamics Website at – <http://www.rescuedynamics.ca>