

ROPE RESCUE SYSTEMS

1. Notification: When the need for a rescue of a patient is determined. The starting point.
2. Management Considerations: A plan should be developed early in the incident to address the following issues in case of a status 2/3 find or injuries to field team members.
 - How the notification was received: Via field team, phone call to/report at base, or phone call to local 911.
 - Who the patient is: Is it the search subject, field team personnel or other?
 - Description of Injuries: BLS? Need to arrange for ALS? Need to get ALS provider *and equipment* to the patient?
 - Size up/Location Description: Vertical? Scree? Low angle? Simple carryout? Distance to trail/road? Water crossing?
 - Rescue Personnel: People in base (Task force of 4-6 trained FTL's?), Re-direct teams in field to assist (Accountability?), Qualified BRO to talk to Evac team (Dedicated separate rescue channel?)
 - Equipment: Where is the vertical equipment (keys to a locked car) and how are you going to get it to the scene?(ATV's), Is the appropriate medical equipment on scene or do you need to send more? Is radio communication to Evac team appropriate or do you need to create a relay? Additional team support (food, clothes, lights, batteries, CISD) *Notify local EMS organization* for transport from trailhead to hospital.
3. Field Team Leader Considerations:
 - Ensure team safety first: Restrict access to scene, including your own team members, no more patients please.
 - Can you access the patient safely?: If not attempt voice contact.
 - Determine all information in bold above: Report findings to base.
 - Medical Assessment: If possible have team medic initiate patient care.
 - Inventory team equipment and abilities: Assign tasks. Don harnesses. Send two to flag route to nearest trail/road (light sticks at night).
4. Rescue (Evac) Team Considerations:
 - First Priorities:
 - Team safety: Initiate Evac command, appoint a safety officer, everyone helmeted and harnessed. Anyone within ten feet of edge needs to be tethered.
 - Accessing Patient: Get someone to the patient. Ideally lower/climb two people (at least one medic) with medical gear and hasty hitch.
 - Second Priorities:
 - Setting up the System: Patient medical stabilization and packaging. Continuous medical care. System operation. Carryout. Transfer to EMS. Demob.

ROPE RESCUE SYSTEMS

The three basic parts of any rope rescue system:

- Anchors
- Belays
- Patient Package

Review of Personal Rigging: Swiss seat, ASRC seat, commercial harness, chest harness.

Anchor to what?:

- Trees (Over 8" dia. and *well rooted*)
- Rocks (Stable boulders, horns or flakes)
- Vehicles (To frame, away from chemicals/heat, in park, parking brake on, and chocked)
- Artificial (Hexes, wedges, etc. *Use for backup only*)
- Built (Deadman, T, etc.)

- Pad all sharp edges, especially where movement of the rope occurs. Use carpet (pile side down), fire hose or edge frames.
- All forces (the weight of the patient package) should be as much in line with the anchors as possible. Less than 90 degree angle between anchor rope strands.
- All forces should also concentrate along any carabiners spine. Whenever possible biners should be positioned locking down.
- When in doubt distribute forces among multiple anchors.
- All anchors should be redundant, backed up, and available to withstand shock loads.
- You must trust every anchor to hold the weight of the rescuer(s), the patient and the equipment.**

BOMBPROOF

ANCHORS:

- Single Point: Direct tie in that has a Fig. 8 follow through knot in line.
- Three Bight:** Webbing loop clipped with a biner.
- Multi-Loop/Wrap-three pull two:
- Tensionless tree wrap:** No knot. Strongest anchor. Minimum of four wraps.
- Load Releasing Hitch:** Necessary whenever there is a prusik.
- 3 point static: Redundancy. With front anchor loaded on a prusik.
- 2 point dynamic: When a changeover is needed.
- 2 and 3 point self equalizing:** With webbing and rope.
- 2 point distributive:
- Directional: When you need more room, especially for a haul team.
- Soft Interface: Use of a prusik for adjustability and loading indication.
- Anchor Plate: Connection point for various anchors.

BELAYS:

- Proper stance and attentiveness
- Belayers in safe position.
- Utilize edge attendants with tethers to help near edge.
- Use different color ropes for communication ease.
- Litter attendants (rescuers) need a radio and whistle.
- Whistle commands:
 - 1-stop
 - 2-up
 - 3-down
- Belay System checks:
 - Physical/Visual: Every component checked by safety officer and Evac command.
 - Test Load: In a safe position.
 - Verbal Check: Rescuers, Belayers, Safety officer gives final OK.
 - Whistle Test: Everything holds when people let go.

Belays going down:

- Tandem prusik belay: Push prusiks in load direction to catch fall.(55" and 60")
- Munter Hitch: Reversible. Good for emergencies and highlines.
- Figure 8 Plate: Used for rescuer lowering, pick offs and litter lowers with one attendant. Use for rappelling only with bottom belay. Not efficient for raising evolution. Locking off a fig. 8. Not designed to be used as a collection ring.
- Rappel Racks: Used for heavy load lowers and long lowers where high heat buildup is possible. Back it up with prusiks. Locking it off. Proper lacing.

Belays going up:

- Prusik minding pulley belay:
- 3-to-1/Z-haul:
 - For both above: Have a lowering system ready (fig.8) and a L.R.H. for every prusik.

Dynamic Belays and Climbing above an Anchor:

PATIENT PACKAGE

- 2" Webbing for body contact.
- Hasty Hitch:
- Teton wrap:
- Foot Hitch:
- Seat Harness Hitch:
- Use a solid stokes only.
- Litter orientation: Vertical vs. Horizontal.
- Bridle configuration: To middle vs. To head and feet.
- Collection ring between main lines and spider/bridle.
 - Daisy chain or monkey line .
- Fig. 8 tails to rescuer and patient as backup.
- Tag lines
- Soft interface at bridle.
- Vomit strap.
- Edge helpers

Low angle issues:

- Not hooking in: lifting ergonomics and 5-7 person load.
- Tree wrap: abrades rope and the tree.

Highline/Tyrolean Review:

- Carriages, dual lines together with carabiner, broken ground traverse.

Special Situations:

- Litter rigging for helicopters
- Guiding lines and Zip lines
- Snow and Ice

Scenario Evolution: