The Rescue Aspect

Tools of the Trade

What, Me?

Persons meeting the Basic Ground Searcher Standard are not expected to be qualified to use rescue equipment.

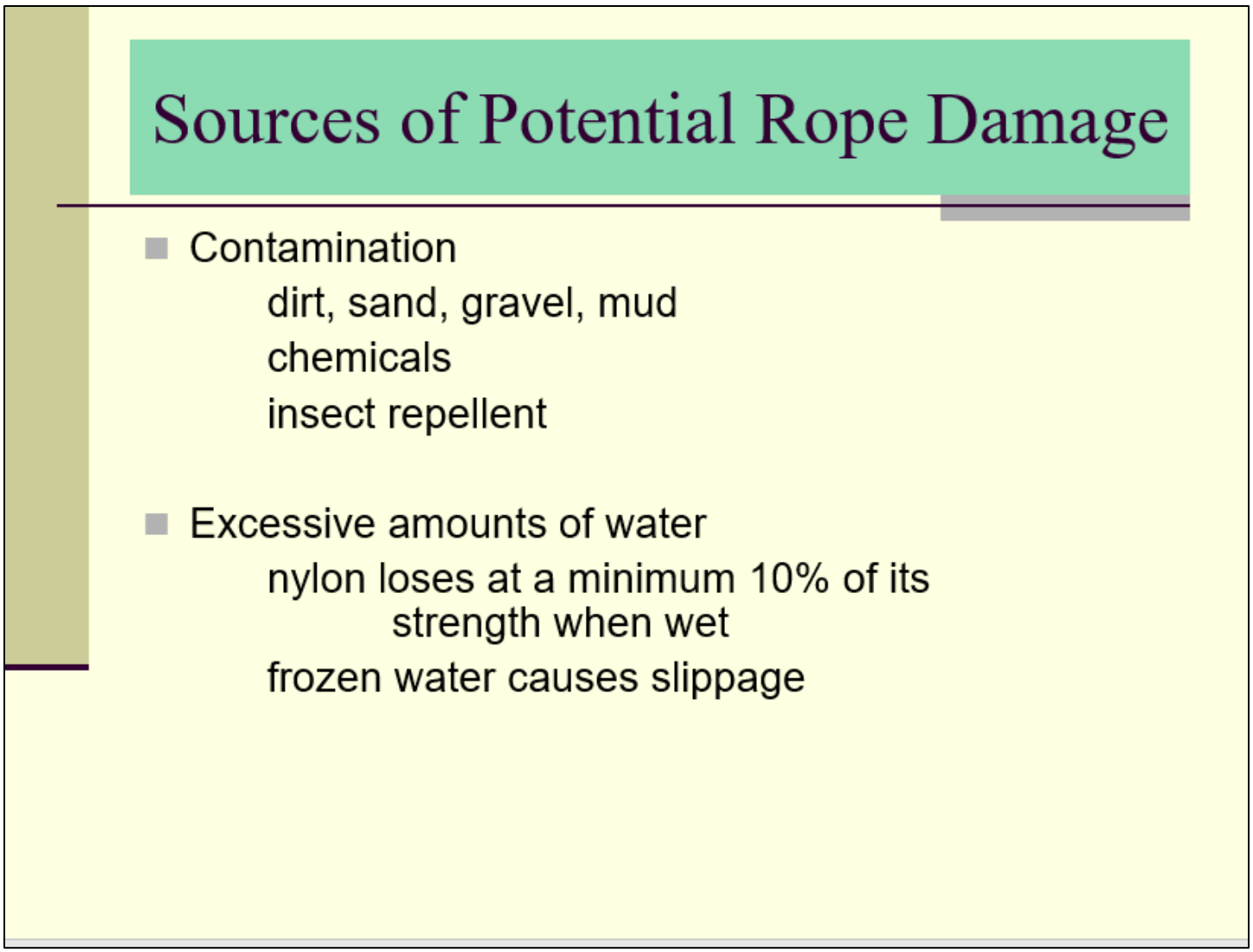
They are expected to know how to assist trained rescuers.

A primary means of support is to assist in protecting gear from damage.

This module is NOT designed or intended to train you to become competent in technical rescue!

This module delivers information that is important in order to work around teams who are using technical skills to access or otherwise "rescue" a lost person. This is the classic case where the goal is how to avoid becoming part of the problem rather than being part of the solution.

IF YOU SEE SOMETHING THAT LOOKS DANGEROUS, SPEAK UP IMMEDIATELY TO ONE OF THE TRAINED RESCUERS. YOU NEVER KNOW WHEN YOU MIGHT SPOT SOMETHING THEY OVERLOOKED. THEY WOULD RATHER HAVE YOU TOO CAUTIOUS THAN NOT.



Ropes in the right hands are incredible tools and can become extensions of our arms increasing our "reach" if you will. Like our arms, they are subject to damage and once damaged they are far less useful, much as a broken arm.

The enemies of rope include anything that either abrades the fibers or chemically degrades the fibers. For that reason **be careful about handling rope with insect repellent or any other chemical on your hands**.

Physical damage can be avoided by being watchful of where the rope is "running". If you note mud, sand, rocks, or grit, especially where the rope is under tension, say something.

Some ropes are designed to maintain more of their strength when exposed to soaking water, but all ropes will lose strength overall.
Oftentimes "dry" rope is merely a coating on the outer sheath. One big difference between water rescue ropes and climbing ropes is that water rescue ropes are designed to float. As a general rule, keep ropes out of water whenever possible.

While "dry" ropes and water rescue ropes are somewhat better, all ropes become problematic when water becomes frozen. Freezing not only stresses fibers (remember, water expands as it freezes), it also causes slippage in rope-holding devices and knots.

More Sources of Damage

- Sunlight
  - keep ropes and webbing bagged
  - do not store in direct sunlight
- Impacts from dropping or from falling objects
  - aluminum is subject to stress cracking

- Extreme Heat
  - fires, motorized equipment exhaust, sparks

Rope is also degraded by prolonged exposure to sunlight.

Remember, while it is important to keep rope stored in stuff-bags, don't store when still wet for any reason.

Rope is more tolerant of having rocks, etc. fall onto it when slack than when under tension. Neither is a good thing, but rope under tension is extremely easy to damage. Crampons have a way of finding rope, so keep your feet under control. Sharp objects such as an ice axe can instantly sever a tensioned rope, so be particularly cautious of loadbearing nylon slings and ropes.

Even hardware can get stress fractures, which are often so tiny as to not be visible. Even a short drop of a few feet can damage hardware, and longer falls are especially hazardous. If you drop something tell one of the technical rescue team!

While climbing and water rescue ropes are very stable, people-generated heat loads such as from rappelling will stress a rope further. Like most synthetic materials they do not do well at all when exposed to flame, hot metal objects, or sparks.

During Use

- The same conditions apply during use as for storage
- Lay out equipment on tarps to protect from the ground (also helps keep track of all the gear)

- Keep equipment off travelways
- Keep organized and bag when not in use
- Mark damaged or suspect gear

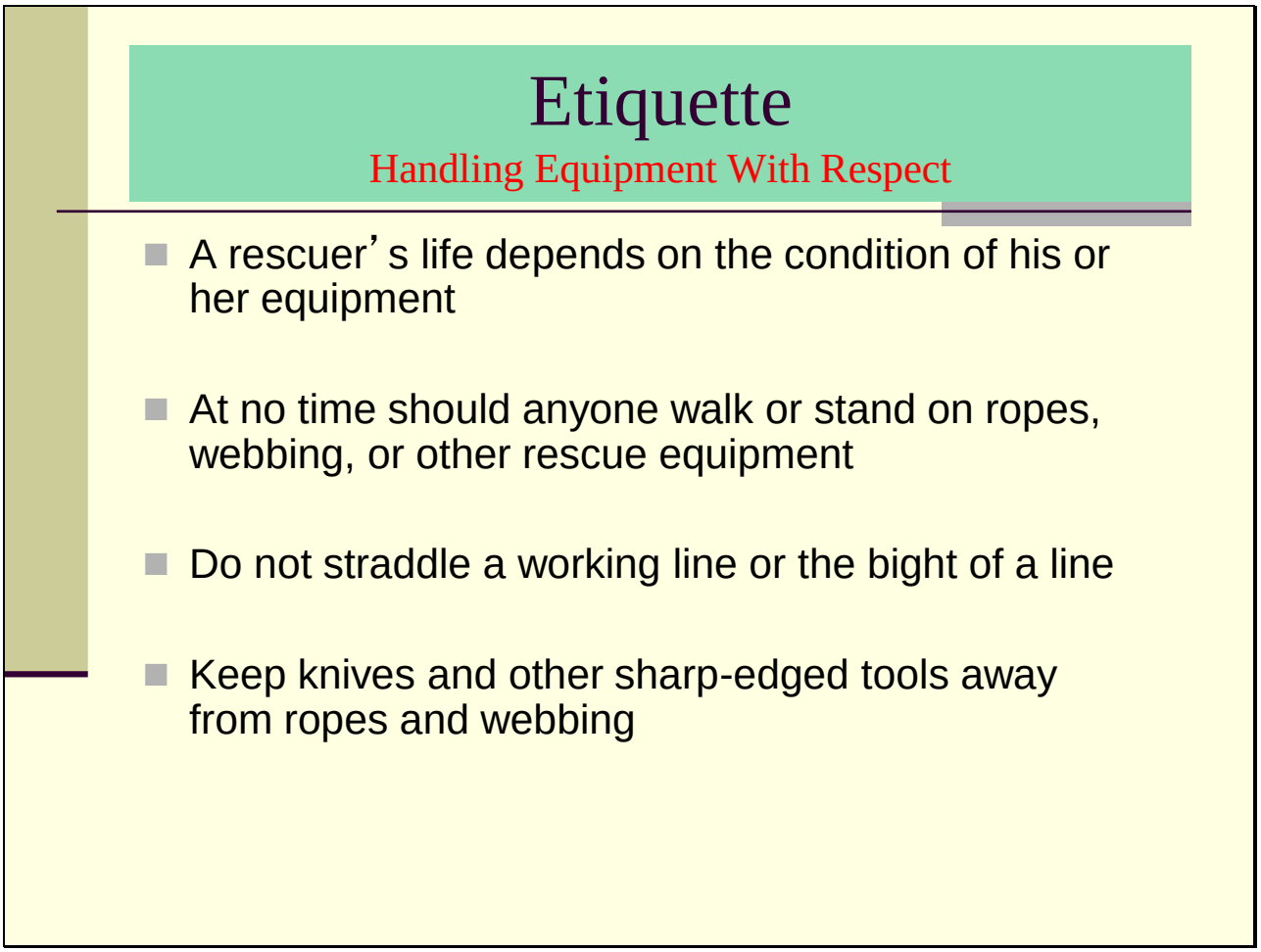
On the scene it is critical to collect all team gear in one location, in sort of a staging area. Frequently a tarp or “space blanket” is put on the ground for the gear. Managing the gear-stash is a function suitable for ground searchers and you may be asked to assist with it. Always ask for clarification if you don’t understand what is being asked of you.

While everyone is a safety officer on a technical rescue, it is particularly important as a non-technical person to be watching for things that are obvious safety violations such as if searchers have helmets, that helmets are strapped. Be sure that equipment is not along travel ways and is protected from grit, not being abraded, etc. Apply your good judgement.

If you are the “gear-person”, be sure you separate and “mark” any gear that is suspected of damage away from the working gear.

There are different types of rope. Water-rescue lines are not safe for climbing use. Low stretch (or static) ropes are preferred for raising and lowering systems. Dynamic ropes are used for climbing.

Anyone, including you, can and should call an immediate stop to operations if you suspect anything is wrong. One generally accepted way of doing this is to just call out “all stop”.



This slide covers some critical points for your and others safety:

- Best practice is to wear gloves at all times when working with rope.
- **NEVER STRADDLE A ROPE OR STEP IN THE BIGHT, OR LOOP, OF A ROPE.** This may seem a fine point, but folks have been painfully injured when a slack rope on the ground suddenly came up under tension. Someone can let go of braking devices resulting in dropping loads, and folks not appropriately secured can be propelled off the edge.

Speaking of which, the "edge" zone is a place ground searchers do not belong without being properly harnessed or on a tether. If you are unsure how close you may go to the edge, ask the technical team leader or safety officer.

NEVER, EVER HANG OVER THE EDGE TO WATCH THE RESCUE

Webbing is simply "flat rope". It has different characteristics, such as the fact that it has no core or sheath and provides a "flattened" surface. It is subject to the same damaging factors as rope.
A final caution: ropes and webbing under tension will sometimes "lash" out in event of a catastrophic failure. That means it's whipping around under significant force.

Common Litters in The Field

- Rigid Basket
  - Can be tubular metal with wire mesh or hard plastic
  - Generally the most useful in SAR

- Flexible Wrap-around
  - SKED is the most common plastic sheet with holes and webbing
  - Becomes rigid when wrapped around patient

Generally, rigid basket stretchers will all have a metal frame. Some have wire mesh forming the basket, others have plastic composites or fiberglass.

Depending on manufacturer, some may be one piece and others capable of breaking down into two pieces for easier transport in a wilderness setting.

The flexible stretcher is also very common. It typically is secured in a “wrap” around the patient and in so wrapping it becomes considerably rigid.

Rigid (Basket)

Advantages

- Loading free-hanging
- Hoisted at any angle
- Protects occupants during vertical evacuation
- Easily carried by up to six bearers
- Positions can be rotated during evacuation
- Wide range of options to secure patient
- Wheel option
- ‘Split’ option into 2 lighter pieces

Disadvantages

- Tight maneuvering can be an issue
- Width may prevent access through narrow openings
- Shape and rigidity may make loading on the ground somewhat difficult
- Fixed dimensions may not work with obese or tall persons

Another disadvantage of the rigid basket stretcher is that it can be quite bulky compared to a flexible litter.

Lighter weight versions made of Titanium are available but this adds considerably to the cost.

Rigid (Basket)

In general only the rigid litter will be accepted by helicopters for hoisting on its own.

Some helicopter units do allow the use of a SKED for lifting. This is frequently done by placing the SKED into the basket carried by the helicopter crew and strapping the subject and SKED into the basket.

Some helicopter services will also only hoist using their own litters. You should find this out before fully packaging your patient if you are anticipating a hoist rescue.

A small bridle is used to hoist the litter and patient. A tag line, or rope attached to the litter and held by someone on the ground is used to keep the patient from spinning during the hoist operation.

This operation may be viewed in the Helicopter Operations Module of this course. Note the tag line during the lift on the video in that module.

Flexible (SKED)

Advantages

- Lightest and most compact
- Easy to transport to the scene
- Easy to handle and maneuver in confined spaces

Disadvantages

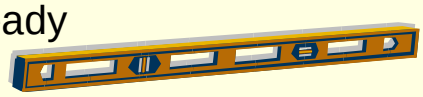
- Best suited for vertical evacuation
- Relatively unsuitable for longer distance transport (no wheel)
- Less patient protection than a basket stretcher
- Requires more practice to employ properly

Another advantage of this type of rig is that it can be used as a sled on smooth surfaces year-round, particularly on snow.

They also have flotation systems that can adapt the litter for use in water.

General Protocols for Evacuation

- Person at the head is generally in charge
- Lifting, lowering and changes in movement are on a three-stage command
    1. Indicate the action to come
    2. Ask if anyone is NOT ready
    3. Begin the action



- Maintain level head to foot and side to side if possible
- Keep hands and equipment clear of patient
- Avoid idle chit-chat
- How to Pass an obstacle on the trail (taught during practical day)

Clearly there can be only one person in charge. Usually the person at the head has the best view of the patient overall and will monitor them casually while assuming two responsibilities:

- Managing the stretcher
- Communicating constantly with the patient. This communication includes exactly what is going to happen and goes a long way to keeping the patient calm which makes your job much easier. For seriously injured patients a separate 'medical officer' should be assigned responsibility for patient care and monitoring.

All stretcher commands are in three parts: state what you are going to do, check if everyone is ready, and then initiate the action. Commands to proceed should be phrased by asking if anyone is <u>not</u> ready. For example:

- "Alright we are going to lift on three."
- "Is anyone NOT ready to lift?" After hearing no responses…
- "One, two, three"

We do the commands like this because if you ask if everyone IS ready you may miss someone saying no among all the responses, or somebody may fail to respond because they didn't hear the question or were distracted.

The subject's head should be on kept on the uphill end of the litter whenever possible.
Whoever is close to the foot of the stretcher, assuming in most cases it will be moving foot-first, has the best view of obstacles along the path and should advise the other bearers of rocks on the route, slippery areas, etc. to help them be aware of what is coming up. It should be stated something like, "Rocks coming up on the left."

The general rule is to pass, or caterpillar, the stretcher over obstacles without rescuers moving in the process as it is much safer for both the searchers and the patient.

Litter Adjuncts

The use of a litter wheel where terrain permits can greatly reduce the amount of energy and number of rescuers needed to complete an evacuation. The wheel will hold most of the weight of the patient and makes for more efficient movement.

Some models have brakes to assist with controlling the speed of the litter on downhills.

There are also adjustable handle systems that may allow for fewer rescuers to move and maneuver the litter.

A litter shield helps protect the patient's head and face from the weather, branches and falling objects. Absent a shield putting a helmet and protective eyewear on the patient if feasible can help protect the patient during the evacuation.

Most of these adjuncts are only available on rigid litter systems (e.g. not for the SKED).

Proper Litter Carry

This carry is on a narrower trail but nowhere near as narrow as we find at times. This team had a hard day with no one to swap out with to take a break due to a lack of manpower.

During a litter carry, the two people in front are responsible for calling out obstacles on the path that may cause other carriers to stumble and fall. For example: “ROCK RIGHT!”

Proper Litter Carry

A good example of a proper litter carry by Waterbury Backcountry Rescue and Stowe Mountain Rescue. Note 6 people on the litter with others in front to switch out periodically to ensure no one gets too over worked and putting the rescuers and subject at risk. This part of the carry is on a very narrow section of trail where it would be difficult to move around the litter. Having rescuers in front of the litter makes it easier to let new rescuers take over by simply passing the litter forward to the waiting crew.

Also notice the use of a rope tag-line on the rear of the litter as they have just descended a steep section of trail. The use of a tag-line helps take some of the weight on a steep descent and also provides a backup braking device if rescuers were to trip and let go of the litter.

Navigating An Obstacle

It is common to use a technique called caterpillaring (or passing) to navigate obstacles. On this rescue there were plenty of people to set up a line on each side of the litter in order to pass the litter down a ledge. Once everyone in the lines had good footing the litter was moved hand to hand to the team below who can then continue the carry.

Congratulations, you have finished this module

You may close this window to return to the main course and select another module to complete.

Be sure you keep track on your course checklist so you know which modules you have completed.