TECHNICAL MOUNTAIN RESCUE AND MEDICAL CONSIDERATIONS

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AFFILIATIONS

Medical Director for:

- Grand Teton National Park
- Teton County Search and Rescue
- Jackson Hole Fire / EMS

* No financial or other conflicts to declare.
OBJECTIVES

- Describe the realms of Technical Mountain Rescue
- Acknowledge special medical considerations
- Discuss treatment and evacuation strategies
REALMS OF MOUNTAIN RESCUE

- Avalanche / Snow
- Swiftwater
- Cave
- High / Low Angle
- ICS - Managing Search Function
REALMS OF MOUNTAIN RESCUE

Crossover to:
- Tactical/Combat
- Urban
- Disaster
The Mountain Rescue Association (MRA) was established in 1959 at Timberline Lodge at Mount Hood, Oregon making us the oldest Search and Rescue association in the United States.

With over 90 government authorized units in the US, Canada and other countries, the MRA has grown to become the critical mountain search and rescue resource in the United States.

Portland Mountain Rescue to host 2009 Spring Conference.

June 26-28, 2009

Meridian Online, the quarterly publication of the Mountain Rescue Association

Download the latest edition of the Meridian


Website Design by Robert Dietz & Tod Lokey. Photos by Charley Shimanski.
Hosted by Netfirms.
A man with Alzheimer's wanders away from home, a hunter or hiker is missing, a group of school children is stranded in a flood... Search and rescue is a life-saving vocation. And the ability to save a life is often dependent upon how quickly the person can be found and accessed. If the missing person is one of your loved ones, you will expect well-equipped, well-trained search and rescue professionals to bring your loved one home safely to you. The National Association for Search and Rescue (NASAR) has dedicated itself to preparing those involved in search and rescue to meet your expectations.

Welcome to the National Association for Search and Rescue

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CASES IN MOUNTAIN RESCUE
AVALANCHE
CASE
23 yo Male caught in avalanche after cornice broke

- Carried 1,300 ft
- Buried - Self recovered
- Severe pelvic pain - pt. didn’t want to move
STAGING - GO OR NO GO?
HIKING THE RIDGE OF GLORY BOWL
(TETON PASS)
ACCESSING THE RESCUE CACHE
SKIING WITH RESCUE EQUIPMENT
0018

PATIENT FOUND AND EXTRICATED
PATIENT ASSESSMENT

- Alert - Brief LOC
  Intermittent nausea - No Vomiting
- ABC’s Intact
  Strong Radial Pulse - 80
- Head - Normal
  No Helmet
- Chest - Normal
- Abdomen - Bilateral lower quad pain
- Genitalia - significant scrotal hematoma and perineal ecchymosis
- Pelvis Stable
  AP/Lat Compression
PATIENT ASSESSMENT

- No C-spine or T-spine pain/deformity
- L-spine with lower midline pain/abrasion
  No step-off/deformity

- Normal Neuro Exam
- Extreme pain with movement of legs and pelvis
TREATMENT

Hypothermia

- Remove wet clothing
- Insulate from ground/surroundings
- External heat input
  - Fire (psychological comfort, light)
  - Heat packs (chemical, water, charcoal)
- Calories (eating/drinking)
TREATMENT

- Hypothermia
- Backboard - ? Spine Injury
  No C-collar Used, Transported Supine
  Rolled on side during night for comfort
- Oxygen ???
  Only 1 ‘D’ bottle
  - 15 min NRFM at 15 lpm
  - 2 hrs NC at 2 lpm

- ALS Treatment???
- Very limited supplies
  Airway supplies - ETT
  Pain Medications
No IV
Morphine IM (5mg x 4 doses)
20 mg total

Vitals remained stable
Alert, HR 80

Intranasal Fentanyl???
PACKING
HELICOPTER LZ
TIMELINE

1530 - Injury
1803 - SAR callout
2045 - Ground Team Departs
0018 - Ground team reaches pt.
0200 - Base camp established
0745 - Helicopter extraction
0752 - Arrive hospital
INJURIES

- Ruptured Spleen
  Non-operative
- Pneumomediastinum
- Petechial Cerebral Bleeds
- Multiple muscle tears
HOSPITAL COURSE

- Several Day Hospitalization
- Doing well with some mild rehab
AVALANCHE INJURIES

Trauma

- Head Injuries
- Neck/Back Injuries
- Internal Injuries
  - Chest/Abdomen
- Extremity Injuries
AVALANCHE BURIALS

- Airway obstruction
- Asphyxia
  - Die within 3-5 min (no ice mask)
  - Mouth/Airway packed with snow
  - Identify upon extrication
AVALANCHE BURIALS

- Ice Mask / Air Pocket
- Triple H Syndrome
  - Hypoxia
  - Hypercarbia
  - Hypothermia
AVALANCHE SURVIVAL

- Related to speed of recovery from burial
  - 92% at 15 min
  - 30% at 35 min
  - 3% at 130 min

Falk and Brugger 1994
SNOWMOBILE

- High Speed
- Sometimes low common sense
swiftwater rescue

Jackson Hole Daily

Valley pilot dies in crash

BY MARTIN REED
JACKSON HOLE DAILY

Rescue crews recovered the body of a Jackson Hole man who died in a Civil Air Patrol plane crash in Snake River Canyon on Friday morning.

Fletcher F. Anderson, 57, died at the scene from injuries he suffered in the crash that happened at about 8:55 a.m., according to the Civil Air Patrol’s Wyoming Wing.

The plane crashed in the Snake River about 17 miles south of Hoback Junction near Wolf Creek. No one else was aboard the Jackson-based Civil Air Patrol plane.

Anderson may have collided with a cable hanging across the canyon while flying the single-engine Cessna 182R, and Doug Henry, a member of Star Valley Search and Rescue and Civil Air Patrol.

“May have not been aware of the hanging cable” used to measure the river’s flow, Henry said at the scene. “We don’t know why he was that low.”

A Wyoming Highway Patrol trooper who discovered the crash said the canyon did not have clouds at the time. “He stated it was clear,” Trooper George Nykun said after talking with his colleague.
Swiftwater Rescue

- Special Technical Skills
- Equipment
  - Dry Suit/Wet Suit
  - PFD
  - Throw Bag
  - Cow’s Tail (releasable tether)
Swiftwater Rescue

- Patient Transport Considerations
- Backboard???
  - PFD
- Drowning/Hypothermia
CAVE RESCUE

- Confined Space Rescue
- Special Rescue Techniques and Training
  - Communication
  - Environment
  - Prolonged
CAVE RESCUE

- Medical Considerations
- Backboard??? - SKED
- Hypothermia
- Delayed Care
- Pain Control
HIGH ANGLE RESCUE
HIGH ANGLE RESCUE

- Highly Technical
- Special Training and Proficiency
- High Consequences of System Failure
LOW ANGLE RESCUE

- Car over Teton Pass
Right Equipment and Training?
PROLONGED PATIENT CARE
STANDARD PATIENT CARE
MOUNTAIN RESCUE CONSIDERATIONS

- Scene Size Up (Safety, MOI, Number of Pts.)
- Initial Assessment (ABCs - Spine Assessment)
- Rapid Trauma Assessment
- SAMPLE, Vitals (BP?)
- Evacuation Plan (and backup)
IMMOBILIZATION

- Padding
- Bend Knees
- More Padding
SUPPORT BODY FUNCTIONS

- Hydration
- Urination
- Defecation
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<th>Known Location</th>
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EVACUATION

- Rehab patient - walk out
  - Safest for all (patient and rescuers)

- Ground
  - Wheeled Litter
  - Improvised Litter
  - Horse
  - Four Wheeler/Snowmobile

- Helicopter
HELICOPTERS
SHORT HAUL
HELI.COPTERS

- Rapid Transport of Resources
- Rapid Extrication
- Risk Evaluation
Technical Mountain Rescue has many areas of focus. Special training is essential for personal, team, and patient safety. Patient care considerations change in each environment - Evaluate RISK vs. BENEFIT.