



FACT SHEET

Delaware County Community Emergency Response Team Supplemental Training Series

INTRODUCTION TO WILDERNESS SEARCH & RESCUE

Section VI - SAR Safety

Different SAR Environments

- Technical rock rescue
- Caves and mines
- River, white water, and ocean rescues
- Ice rescues
- Avalanche
- Wilderness
- Urban Sprawl
- Regardless of the environment, remember:
 - Trained technical personnel should be used for technical environments.
 - Communication is key: Keep everyone informed.
 - Use accepted procedures to care for and protect the subject.
 - Safety, safety, safety

Types of Foot Travel

- Foot travel may be required in one of two forms during a SAR incident:
 - Non-technical: Walking, searching, getting the search area.
 - Technical: Climbing, accessing a search area, examining a high-risk area, technical rescue.

Preparation

- Determine the best type of travel (e.g., snowshoe, ski, hike, climb)
- Plan the best route.
- Maps and experienced individuals are valuable tools.
- Plan your travel, know the route, and follow your plans.
- A SAR incident could occur at any time, so you should be prepared at all times.
- Maintain a level of physical conditioning.
- Eat proper foods in appropriate amounts and get plenty of rest.
- Maintain hydration by drinking plenty of water before and during a mission.

- Be properly clothed for the type of travel anticipated.
- Pack and carry the appropriate equipment for the type of travel anticipated.
- Before traveling in a SAR mission, plan your travels and know your route.

Pace

- Pace and rest play a big part in traveling efficiency.
- Maintain a realistic pace.
- Keep body temperature stable by reducing the practice of quick starts and lengthy rests.
- A realistic pace is essential in high altitude to avoid hypoxia.
- Any group pace is governed by the pace of the slowest group member.

Rhythmic Breathing

- Will reduce headaches, nausea, lack of appetite, and irritability
- Simply a consistent breathing cycle to a set pace.
- Maintaining regular breathing and pace ratio allows for a more relaxed walking.
- Takes the mind off of the drudgery of monotonous travel.

Rest

- Fatigue in the SAR environment is dangerous.
- Fatigue increases the chance of accident, injury, and poor judgment.
- Everyone needs rest, but do not force it.
- A rest of 10 minutes per hour on easy terrain is usually acceptable.

Walking Downhill

- Less fatiguing than walking uphill
- Toes jam into the front of shoes.
- Knees are jarred.
- Entire body begins to ache from dropping the weight of the body onto locked knee and leg
- at each step.



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General Wilderness Travel

- Requires constant awareness
- Two important rules:
 - Keep your weight directly over your feet.
 - Keep the soles of your boots flat on the ground to improve traction.
- Can be accomplished by taking small steps at a slow, steady pace
- Avoid an angle of descent that is too steep.

Trails

- Likely spots for clues
- Traveling on trails is easy and deserves little time dedicated to technique.
- Guidelines are helpful:
 - Give space to team members.
 - Loosen shoe laces.
 - Rest off trail to other may pass.
 - Keep your eyes open for clues.

Brush

- Get through it quickly or travel around it.
- Found in gullies and drainages where water and rich soil are prevalent.
- Can be small trees, shrubs, or vines
- Downhill brush can be dangerous because a foot may slip, catch the vegetation, and cause a fall.
- Thorns may be present
- If you can't get through brush, consider searching for the subject there.

Grassy Slopes

- Watch your footing.
- In ascending, use indentation protrusions for traction.
- Step on the upper side of protrusions.
- Descending, traverse the slope.
- Be especially careful if grass is wet.
- Look for signs of travel – Grassy areas tend to easily show signs of travel.

Wet Crossings

- Take time to examine the possibilities before deciding to jump in.
- Cross at a 45 degree angle downstream.
- Never attempt to ford a stream directly above, or close to, a deep or rapid waterfall.
- Avoid rocky places, since a fall may cause serious injury.
- Before entering the water, have a plan of action for making the crossing.
- Use a rope assisted, pole assisted, or team to cross the stream.
- Unfasten the waist strap and remove one shoulder strap.

Lightning

- Lightning causes more casualties annually in the U.S. than any other storm-related phenomena
- except floods.
- No place is absolutely safe from lightning but some places are safer than others.
- Safety rules:
 - If you can see or hear it, you are at risk.
 - Do not go outside or stay in your car.
 - If outside, seek shelter in a building, cave, or ditch.
 - In an open forest, seek shelter under head-high trees.
 - Avoid high open fields, ridges, or hill/mountain tops.



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Hypothermia

- Body's core temperature drops well below normal and the person becomes ill.
- Major cause of death among outdoor travelers.
- Caused by immersion, traveling in cold, improper dress, alcohol abuse.

Mild Hypothermia: Signs and Symptoms

- Body core temperature between 97°-91°F.
- Complaining of cold with goose bumps.
- Shivering
- Inability to keep up with crew.
- Sluggish and slurred speech.

Mild Hypothermia: Treatment

- First determine that condition is mild hypothermia.
- Remove victim from cold environment.
- Prevent further heat loss & make victim comfortable.

Severe Hypothermia: Signs and Symptoms

- Body core temperature between 90°F or below.
- Exposed skin may be blue and swollen.
- May be careless about protecting him/herself.
- Confusion, irrational behavior.
- Unable to walk with poor muscular coordination.
- At less than 70°F core temperature, cardiac arrest occurs.

Severe Hypothermia: Treatment

- Is a true medical emergency.
- Evacuate victim as soon as possible.
- Do not try to re-warm in the field.
- Remove wet clothing gently, if possible.

Freezing and Cold-Related Injuries

- Frostbite: Frozen tissue.
- Frostnip: Very superficial frostbite.
- Trench Foot (immersion foot): Exposure of foot to wet, cold conditions.
- Chilblain: Exposure of dry skin to cold temperatures.

Freezing Injuries: Symptoms

- Frostnip
 - Burning sensation.
- Frostbite
 - Burning/pain dissipates.
 - Skin turns pale or white.

Freezing Injuries: Treatment

- Frostnip
 - Re-warm as quickly as possible.
- Frostbite
 - Remove victim from cold.
 - Remove all constricting clothing.
 - Immobilize affected area and elevate.

Cold-Related Injuries: Symptoms

- Immersion foot
 - Redness of skin.
 - Swelling or blisters.
 - Numbness or pain.
- Chilblain
 - Redness of skin.
 - Tender, warm, swollen, and itchy in affected areas.

Cold-Related Injuries: Treatment

- Immersion Foot
 - Remove from environment.
 - Re-warm in warm water (100°-108°F).
 - Keep dry.
- Chilblain
 - Remove from environment.
 - Re-warm.
 - Keep dry.

Prevention of Cold-Related Injuries

- Proper nutrition
- Proper hydration
- Proper clothing
- Avoid touching metal or organic liquids (solvents, gasoline, or alcohol).



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Heat-Related Problems

- Heat Cramps: Symptoms
 - Muscle pains.
 - Sudden cramping in lower extremities, abdomen, or both.
 - Profuse sweating.
- Heat Cramps: Treatment
 - Remove from exposure.
 - Replenish lost water and salts.
 - Rest
- Heat Exhaustion: Symptoms
 - A generalized (whole body) problem.
 - Headaches, fatigue, dizziness, and nausea.
 - Profuse sweating and skin cool to the touch.
 - Pulse may be rapid and weak.
- Heat Exhaustion: Treatment
 - If minor, same as for heat cramps.
 - If severe, advanced medical treatment may be required.
 - In the field, keep cool while evacuating.
- Heat Stroke: Symptoms
 - Life-threatening emergency.
 - Sweating mechanism stops and temperature increases.
 - Skin is hot, reddened, and dry.
 - Strong pulse.
 - Headache, dizziness, dry mouth.
 - Seizures or coma.
- Heat Stroke: Treatment
 - Lower body temperature by immersing in cool water.
 - Cold packs to pulse points.
 - Remove clothing immediately.
 - Transport immediately to a medical facility.

Prevention of Heat-Related Problems

- Proper nutrition.
- Proper hydration.
- Proper clothing.
- Education on how the body works in hot weather.

Solar Injuries

- Sunburn
 - Symptoms
 - Redness, pain, and swelling of affected area.
 - Chills, fever, or headache.
 - Treatment
 - Prevent further exposure and protect the affected area.
 - Cold, wet dressings to relieve pain.
 - Soothing lotions may help discomfort.
 - If large areas affected, should be treated as a major burn.
- Snow Blindness
 - Symptoms
 - Sunburn of the eyes.
 - Symptoms may not occur for hours after the injury.
 - May feel irritated and dry at first.
 - Feeling of "sand in the eyes".
 - Eyes red, eyelids swollen.
 - Treatment
 - Prevent further exposure and protect the affected area.
 - Cold, moist coverings to relieve discomfort.

Other Environmental Injuries

- Water Deprivation
 - Symptoms
 - Thirst, dry mouth and eyes, loose skin.
 - At elevation: fatigue, weakness, and light-headedness.
 - Treatment
 - Consumption of liquids and rest.
 - If unconscious, immediate evacuation.



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Other Environmental Injuries (Cont.)

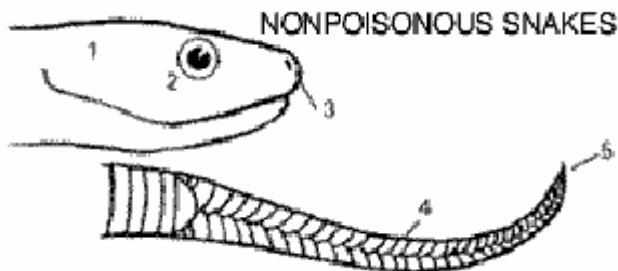
- Blisters – Fluid-filled pockets under the skin caused by friction.
 - Treatment:
 - Do not rupture.
 - Cut a hole the size of the blister in moleskin and layer to protect.
 - If rupture needed: Pierce corner with sterile needle and clean ASAP.
- Hot spots – Reddened area on the skin prior to becoming a blister
 - Treatment:
 - Apply moleskin over the area.
 - Adjust/correct shoe or responsible garment.

Snakes

- SAR responders have a better chance of dying from a domestic animal attack
- than a snake bite.
- Only 12 to 15 deaths per year from snake bites
- Prevention is the key in snake country.

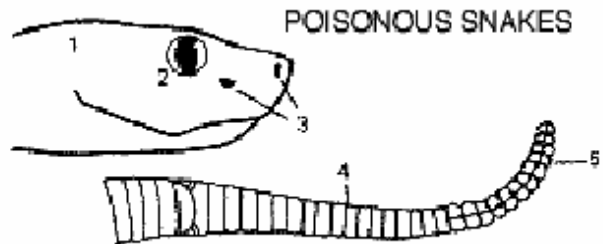
Nonpoisonous Snake Characteristics

1. Head usually oval, but may be somewhat triangular.
2. Pupils round.
3. No pits-only nostrils present.
4. Divided scales on underside of tail
5. Although many snakes vibrate their tail nonpoisonous snakes don't have rattles



Poisonous Snake Characteristics

1. Head distinctly triangular.
2. Pupils elliptical.
3. Pits as well as nostrils present.
4. Undivided scales on underside of tail.
5. Except for the copperhead, tail ends in a rattle.



Helicopter Safety

- Follow the crews' direction and lead.
- Don't approach until directed by the pilot or flight crew.
- Use ear and eye protection.
- If debris gets into your eyes, drop to your knees and assistance will come.



Landing Zones (LZ)

- Generally 100 feet x 100 feet
- Clear in all directions for additional 250 feet of trees, wires, structures, etc.
- Clear of any FOD
- No more than a 7 degree slope
- Use proper markings (Never use strobes)