

Ice and Cold Water Rescue Training

Objective:

The student will be able to describe from memory without assistance, to the satisfaction of the instructor the hazards and concerns associated with operations in cold weather, cold water, and ice conditions. Personnel will become familiar with equipment and techniques used to limit exposure to these elements. Personnel will recall the signs and symptoms which may be present when someone suffers the effects of exposure to the cold.

Overview:

- Definitions
- Hypothermia (Signs and Symptoms)
- Wind Chill
- Time of year concerns
- Cold weather operations
- Cold water rescue
- Ice rescue
- Protective equipment
- Practical evolutions

Definitions:

Asphyxia – suffocation from lack of air

Chilblains – lesions that occur from repeated prolonged exposure of the bare skin to water temperatures between 32° and 60° F.

Drowning – death caused by changes in the lungs due to immersion in water.

Freezing (deep frostbite) – the third stage, or deepest, of the three degrees of frostbite. The subcutaneous layers and deeper structures of the body are affected. Muscle bone, deep blood vessels, and organs can become frozen.

Frostbite – the common term for superficial frostbite, the second stage or middle degree of frostbite. Ice crystals form in the skin and subcutaneous layers.

Hypothermia – a generalized cooling that may reduce body temperatures below normal. Lethal in extreme conditions.

Mammalian Diving Reflex – a reaction that occurs when the face is submerged in water. Breathing is inhibited, the heart rate slows, and major blood is sent to the brain, heart, and lungs.

Wind Chill – chilling caused by the convection of heat from the body by the presence of currents or cool air.



HELP ... It's cold in here!!!

Hypothermia:

- Core temps of 96° to 99° F can cause shivering
- 90° to 95° F causes intense shivering and difficulty speaking
- 86° to 90° causes stiff muscles, jerky movements, dulled thinking
- 81° to 85° F patient is irrational, stuporous, slowed vital functions
- 78° to 80° F patient becomes unconscious, erratic heart beat

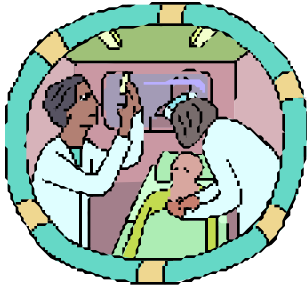
Other Factors Which Influence Exposures:

- Size and weight of victim or rescuer
- Type of clothing worn by persons
- Parts of individual exposed



Mammalian Diving Reflex:

- Reflex most evident in marine mammals
- The colder the water, the more profound the reflex
- The younger the person, the more active the reflex
- It appears the face must be stimulated to activate the response



First Aid:

- Calm and reassure
- Recognize the possibility of hypothermia
- Cover person with warm dry blankets
- Move patient to warm environment
- Support basic life support functions
- Treat shock and administer oxygen
- Contact referral center
- Transport as soon as possible
- Use care when handling subject



Wind Chill

Wind Chill – convection of heat from the body caused by the movement of cold or cool air.

- Affects only living things
- Calculations based on temps and wind speed
- May cause problems with very limited exposure
- Older and younger affected worse

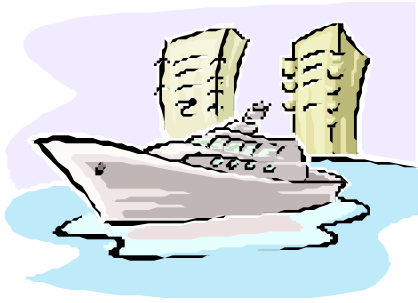
THINK ABOUT SURVIVAL TIMES

***	33 degrees	15 to 45 minutes
***	40 degrees	30 to 90 minutes
***	50 degrees	1 to 3 hours
***	60 degrees	1 to 6 hours
***	70 degrees	2 to 40 hours
***	80 degrees	3 hours to indefinite



THE FACTS OF ICE

- Clouded and discolored ice is very weak
- Ice less than 4” thick should not be expected to hold several persons
- Shoreline ice is dangerous due to tidal changes, and expansion and contraction of ice formations.
- Center of deep lakes and ponds make poor ice due to currents and wind effect.
- New ice is much stronger than clouded ice.
- Clear ice is much stronger than clouded ice.
- Ice around obstructions can be very weak.
- Many factors affect the strength of ice.



Rescue Operations:

(Remember Three Words)

REACH

THROW

GO

Summary:

- Discussed related definitions
- Identified signs and symptoms of exposure
- Discussed wind chill
- Reviewed seasonal changes
- Fire/Rescue operations
- Ice Rescue
- Covered special equipment needs
- Practical evolutions