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Training Manual
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Clinical Aspects of Cold Weather Assignment Section

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ASSIGNMENT 1

CLINICAL ASPECTS OF COLD WEATHER

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Reading Assignment: Clinical Aspects of Cold Weather, pages 1 - 13

1-1. The most famous description of the adverse effects of cold on the combat soldier was by
1. Baron de Larrey
2. Napoleon
3. Xenophon
4. Alexander of Macedonia

1-2. Which of the following increase(s) the incidence of cold injury?
1. Prolonged exposure to cold temperature
2. Failure to perform personal hygiene
3. Lack of adequate warm food and fluids
4. All of the above

1-3. Epidemiologically, what is the specific agent of cold injuries?
1. Humidity
2. Wind
3. Cold
4. Precipitation

1-4. Which of the following environmental factors affect(s) the rate at which the body loses heat?
1. Humidity, precipitation, wind velocity
2. Temperature, humidity, wind velocity
3. Temperature only
4. Temperature, humidity, precipitation, wind velocity

1-5. Epidemiologically, age, rank, race, and physical condition are _____ factors.
1. psychological
2. host
3. personal
4. statistical

In items 1-6 through 1-9, select from column B the type of cold that is characterized by the physical occurrence in column A. Items in column B are used more than once.

A. Physical Occurrences	B. Types of Cold
1-6. Alternate freezing and thawing of the ground	1. Dry cold 2. Wet cold
1-7. Wet snow	
1-8. Dry snow	
1-9. Ground usually stays frozen	

1-10. All of the following are classical physical routes of heat transfer from the human body EXCEPT
1. convection
2. evaporation
3. metabolism
4. radiation

1-11. Water has a heat removing capacity that is _____ that of air.
1. less than
2. twice
3. 10 times
4. 20 times

1-12. Heat loss through the respiratory tract is an example of which type of heat transfer?
1. conduction
2. convection
3. radiation
4. evaporation

1-13. Evaporative heat loss is greater and more efficient in wet atmospheres than in those with low humidity.
1. true
2. false

1-14. The human body functions at an optimum core Celsius temperature of
1. 36 degrees
2. 37 degrees
3. 98 degrees
4. 99 degrees

1-15. The role of the temperature regulatory center in the body is
1. to maintain a balance between overheating and overcooling
2. to ensure uniformity of temperature in the various regions of the body
3. to keep the entire shell temperature constant
4. all of the above

1-16. Which gland acts as a thermostat for the body?
1. pituitary
2. thyroid
3. parathyroid
4. hypothalamus

1-17. Human ability to maintain a fairly constant body temperature is best described by the term
1. hypothermic
2. homogenetic
3. homoiothermic
4. homeostatic

1-18. The energy required to sustain all body functions, both at rest and during activity, is derived from
1. stimulations of the medial nuclei of the hypothalamus
2. the oxidative combustion of fuel substrates
3. carbon dioxide, water, and nitrogenous wastes
4. the enzymatically controlled endothermic combustion of carbohydrates, fats, and proteins

1-19. Which highly vascular system or parts of the body is/are predominately responsible for producing heat as a by-product of the metabolic process?
1. cardiovascular system
2. gastrointestinal system
3. preoptic regions of the brain
4. large muscle tissue and liver

1-20. At rest the average man of 70 kilograms of body weight with 2 square meters of skin surface produces ___ kilocalories of heat per hour.
1. 70
2. 80
3. 90
4. 100

1-21. The average man can produce up to ___ kilocalories per hour during periods of very strenuous physical effort.
1. 800
2. 700
3. 600
4. 500

1-22. The human body is ___ efficient in converting the enzymatically released energy into productive work.
1. 10% to 15%
2. 15% to 20%
3. 20% to 25%
4. 25% to 30%

1-23. The initial physiological response to total body cooling is manifested by the conservation of thermal energy and by a decrease in body heat production.
1. true
2. false

1-24. During the initial response to cold exposure, stimulation of the sympathetic nervous system causes a reflex superficial vasoconstriction with blood shunting to the internal organs.
1. true
2. false

1-25. Constriction of cutaneous capillary beds is manifested by
1. pallor
2. mottling
3. cyanosis
4. all of the above

1-26. Following total body cooling, water pooling in the extravascular spaces results in
1. reflex shivering
2. hemoconcentration
3. decreased blood elements
4. hypervolemia

1-27. Ventricular arrhythmias such as ventricular fibrillation and cardiac arrest may be expected whenever the rectal temperature falls below
1. 90 degrees F
2. 87 degrees F
3. 83 degrees F
4. 80 degrees F

1-28. All of the following are included among the first in indicators of hypothermia EXCEPT
1. unconsciousness
2. fatigue
3. stubbornness
4. stumbling

1-29. Prolonged operations in cold, snowcovered areas can be emotionally stressful to even the most disciplined and physically fit individual.
1. true
2. false

1-30. High winds, sunglare on snow and ice, and extended periods of daylight or darkness are conditions commonly found in ____.
1. polar areas
2. high altitude areas only
3. the North Atlantic
4. Southern Pacific

1-31. The wearing of gloves is less cumbersome and more protective than mittens.
1. true
2. false

1-32. The pathophysiological features of cold injury are dependent on all of the following EXCEPT
1. exposure time
2. individual susceptibility
3. educational background
4. environmental temperature

1-33. Cold injuries may occur when temperatures are well above freezing.
1. true
2. false

1-34. The term used to describe the combined effects of wind velocity and temperature is
1. humidity
2. windchill
3. exposure
4. dew point

1-35. Which statement is false?
1. Most gloves come in a set consisting of an insulating liner and a durable exterior shell.
2. The Navy Standard extreme cold weather mitten is actually a cross between a glove and a mitten.
3. One piece exposure suits are a hazard to wear.
4. Hoods and hats provide excellent protection.

1-36. What part of the body may account for up to 80% of the heat loss?
1. feet
2. head
3. hands
4. legs

1-37. The biggest single threat to maintaining body warmth is
1. wet clothing
2. sleep deprivation
3. poor nutrition
4. medication

1-38. The windchill chart takes into account relative humidity and solar radiation.
1. true
2. false

1-39. If the wind velocity is 40 mph and the temperature is 20 degrees F, what is the equivalent temperature according to the windchill chart.
1. - 5 degrees F
2. -10 degrees F
3. -15 degrees F
4. -20 degrees F

1-40. At a thermometer reading of -30 degree F and a wind speed of 30 mph, the equivalent temperature using the windchill chart is
1. -30 degrees C
2. -75 degrees F
3. -95 degrees C
4. -95 degrees F

1-41. If the windchill equivalent temperature is 0 degrees F at a wind velocity of 25 mph, what is the actual thermometer reading?
1. 40 degrees F
2. 35 degrees F
3. 30 degrees F
4. 25 degrees F

1-42. Freezing injuries to dry, exposed skin may occur even when the windchill equivalent temperature remains above freezing.
1. true
2. false

1-43. An individual's level of activity and the wearing of proper dry clothing will modify the effects of the windchill.
1. true
2. false

1-44. Dressing for maximum flexibility and protection in the cold can best be accomplished by attention to which of the following?
1. clothing material
2. layering principle
3. types of clothing
4. waterproofing

1-45. Trapped moisture in clothing enhances its insulating capability.
1. true
2. false

1-46. To receive optimal benefit from the layering principle, the inner garment should be
1. white
2. waterproof
3. porous
4. nonporous

1-47. Cold weather clothing is designed to allow
1. no ventilation
2. the escape of body heat
3. ventilation
4. the body to overheat

1-48. More cold weather clothing is required for a wet cold environment than for a dry cold environment.
1. true
2. false

1-49. Leaving soap in the fabric of washed articles enhances the insulating capacity of clothing.
1. true
2. false

1-50. In the field one way to dry damp clothes is to sleep on them in your sleeping bag.
1. true
2. false

1-51. During military operations what part of the body is most likely to be seriously affected by cold?
1. face
2. hands
3. feet
4. ears

1-52. Blousing garters are not worn with cold weather trousers because they
1. are uncomfortable
2. create a safety hazard while skiing
3. cause the feet to sweat more
4. restrict circulation to the feet.

1-53. Black vapor barrier boots provide more protection at low temperatures than white vapor barrier boots.
1. true
2. false

1-54. Both types of boots are equipped with an air valve that must be manipulated when you are undergoing altitude changes.
1. true
2. false

In items 1-55 through 1-60, select from Column B the layer and type of cold appropriate for the articles listed in column A. Items in column B may be used more than once.

A. Articles	B. Layers and Types of Cold
1-55. Black insulating boots	1. third layer - wet cold
1-56. Wool and nylon glove inserts	2. Fourth layer - dry cold
1-57. Arctic mittens	3. Fourth layer - wet cold
1-58. White insulating boots	4. Sixth layer - dry cold
1-59. Quilted nylon field coat liner	
1-60. Wool mitten inserts	

1-61. Socks used with the vapor barrier boots must be changed and dried about ___ times a day.
1. 2
2. 3
3. 4
4. 5

1-62. In the majority of cases, cold injuries are preventable.
1. true
2. false

1-63. The use of tobacco is discouraged during cold weather operations because it causes
1. vasodilation
2. vasoconstriction
3. slowing of the metabolism
4. difficulty in breathing

1-64. The daily caloric intake requirement while you are working in a severe cold environment is ___ or more.
1. 3000
2. 3500
3. 4000
4. 4500

1-65. Rich sources to increase calories for the needed energy production are found in
1. carbohydrates and proteins
2. carbohydrates and fats
3. proteins and fats
4. proteins and vitamins

1-66. During light activity in cold weather operations, a person will lose ___ liters of water daily.
1. 1/2 to 1 1/2
2. 1 to 2
3. 1 1/2 to 2 1/2
4. 2 to 3

1-67. Arctic air is generally
1. extremely cold but moist
2. low in oxygen content
3. low in humidity
4. filled with ice crystals

1-68. When dehydration reaches a point that the body's water pools are depleted, the resulting vasoconstriction sets the stage for
1. pernio
2. hypothermia
3. frostbite
4. dehydration

1-69. During cold weather operations, an individual suffering from dehydration may exhibit
1. impaired mental functioning
2. gastrointestinal problems
3. increased judgment errors
4. all of the above

1-70. "Snowflake" is a term that describes the marks made by urinating in the snow.
1. true
2. false

1-71. Eating snow is an excellent source for water replacement.
1. true
2. false

1-72. Eating snow can be detrimental because
1. it is contaminated
2. it reduces the core temperature
3. it causes painful oral mucosal lesions
4. all of the above are true

In items 1-73 through 1-75, select from column B the degree of dehydration in which the symptom in column A appears. Items in column B may be used only once.

	A. Symptoms	B. Degree of Dehydration
1-73.	Headache, decreased salivation, labored respiration	1. Mild
1-74.	Nausea, fatigue, constipation	2. Moderate
1-75.	Dysuria, loss of skin turgor, delirium	3. Severe