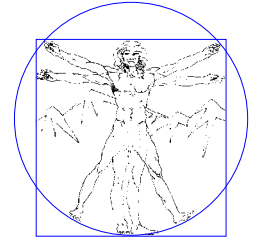


the Wilderness Medicine Training



Instructor Training Course & Apprentice Program

WMTC is a small company well known for excellence in course design and delivery. WMTC certifications are recognized by Outward Bound (OB), National Outdoor Leadership School (NOLS), American Camping Association (ACA) and all state and federal guide licensing agencies. We have some of the best instructors in the world; not everyone is suited to be a WMTC instructor. The training process is *potentially* long and difficult. Instructors are not employees; they are subcontractors who own their own businesses. We believe ownership provides the necessary motivation and commitment to maintain course quality. Our instructors are with us for the long haul. Applicants must demonstrate mastery of:

- Wilderness medicine
- Didactic and experiential teaching
- Basic outdoor expedition skills
- Advanced outdoor skill in one of the following areas: climbing, mountaineering, whitewater paddling, sailing, skiing, and/or sea kayaking.

WMTC supports its instructors and courses in the following manner:

- Nationally recognized certification in wilderness medicine (WFA, WAFA, WFR, & WEMT)
- Course research & development
- Instructor training
- High quality course materials
- Contracting, scheduling, & billing
- National advertising
- Web Store

At minimum all lead instructors are required to maintain a current EMT-B and AHA BLS instructor certifications. Licensed nurses, physicians, and veterinarians with emergency room training and experience meet this requirement. Instructors are also required to maintain active membership in the Wilderness Medical Society and must attend a Wilderness Medical Society conference every five years.

All applicants must download and complete the WMTC: Instructor Application Form; We give preference to applicants who are graduates of a WMTC WFR course with an instructor recommendation. This is to experientially expose them to WMTC curriculum and teaching methodology. The WFR also provides an opportunity for a pre-ITC evaluation.

Applicants must successfully complete our Instructor Training Course (ITC) to become an Apprentice Instructor. The course is intensive and will prepare you to teach wilderness medicine. In addition to general instruction, students are preassigned specific lecture topics, skill sessions, and simulations to present during the ITC. The course closes with the ITC students teaching a local Wilderness First Aid Workshop. ITC enrollment is limited to six students.

ITC General Syllabus (14 days)

Day 1

~ Foundation Skills: WMTC teaching methodology, strategies, progressions, and tools for instructing wilderness medicine.

~ Designing & Managing WFR Level Introductory & Critical System Anatomy & Physiology Lectures

Day 2

~ Student Practice & Feedback: WFR Level Critical System Anatomy & Physiology Lectures

~ Designing & Managing WFR Level Trauma Lectures

Day 3

~ Student Practice & Feedback: WFR Level Trauma Lectures

~ Designing & Managing WFA Level Trauma Lectures

Day 4

~ Student Practice & Feedback: WFA Level Trauma Lectures

~ Designing & Managing WFA Level Environmental Lectures

~ Managing Simulation, Quiz, & Case Study White Board Reviews

Day 5

~ Student Practice & Feedback: WFA Level Environmental Lectures

~ Practice White Board Reviews & Feedback

Day 6

~ Designing & Managing Skill Labs & Demonstrations

~ Splinting Demos, Practice, & WFA assignments

~ Wounds Lab Demo, Practice, & WFA assignments

Day 7

~ ~ BLS Demos, Practice, & WFA assignments

~ Designing & Managing BLS Simulations

Day 8

~ Student Practice & Feedback: BLS Simulations

~ Designing & Managing Full Simulations

Day 9

~ Student Practice & Feedback: Full Simulations

Day 10

~ Managing an Injection Lab

~ Final WFA planning.

Day 11-13

~ Student Teaching: Wilderness First Aid Workshop

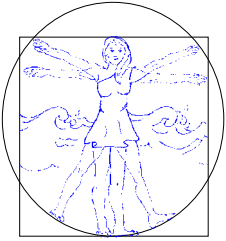
Day 14

~ WMTC Paperwork

~ WMTC Apprentice Program Details

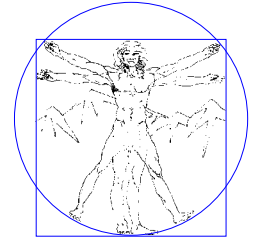
~ Course Closure & Clean-up

~ Personal Interviews



the Wilderness Medicine Training

Instructor Application Form



Please print clearly.

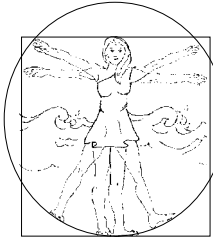
Name: _____ Day Phone: _____
Street Address: _____ Evening Phone: _____
Post Office Box: _____ Cell Phone: _____
City: _____ E-mail: _____
State: _____ Birth Date: _____
Zip Code: _____ SSN: _____

On a separate sheet of paper please answer the following questions:

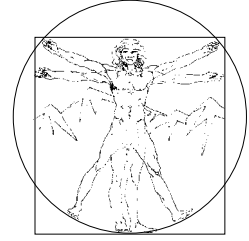
- 1) Why do you want to instruct for the Wilderness Medicine Training Center?
- 2) List a detailed history of your:
 - Outdoor Skills.
 - Medical training, certification, and experience; include copies of all certifications.
 - Experiential and didactic Instructor training and experience.
- 3) Give three references for the above history, their address, phone number(s), and e-mail. Briefly explain your relationship to each person. One reference should be from a WMTC instructor.
- 4) Please describe your thoughts and feelings about being a subcontractor rather than an employee?
- 5) How many courses per year can you work? When are you available? What will you do the remainder of the year?
- 6) What did you REALLY like about your WMTC course? What would you change, how, and why?
- 7) Please complete and return the instructor exams. The exams are open book and reflect the material covered in our courses. You must score above 90% to be accepted into the ITC. It will be extremely helpful to have both our text and handbook available during the exam. You may retake the exam until you pass; however, you must wait one month between attempts. If you are confused by a question either part of the exam, you may write an essay on the topic in addition to answering the question to the best of your ability. Please type all essays on a separate sheet of paper.

There is no application fee. Please return the completed application form to:

WMTC Instructor Training
POB 11



the Wilderness Medicine Training Center



Instructor Exam

Answer all questions; many questions have multiple answers. Score: _____ Name: _____

1. Circle all statements that are true regarding the spine ruling out process:

- if a local injury limits movement in a patient's hand or foot, the exam may be considered normal if the patient is able to successfully perform one normal motor test with the injured limb
- the sensation for pain is carried in different spinal tracts than the sensation for light touch
- if a patient reports weakness, numbness, tingling, electric, or shooting pains the sensory exam is considered abnormal
- in the presence of a localized foot or ankle injury, the patient's big toe may be used for the motor exam
- it is unusual to have an abnormal sensory exam without an abnormal motor exam
- when examining a patient's spine, pain or tenderness at a specific site indicates potential instability at that site

2. Respiratory distress due to chest trauma may be secondary to:

- swelling of the lower airway
- constriction of the lower airway
- delamination of the pleura and subsequent "collapse" of the injured lung
- pulmonary edema (fluid in the alveoli)
- bruised lung tissue

3. A person experiencing sympathetic (fight or flight) ASR:

- may faint (secondary to central pooling of their blood in the digestive organs)
- may be unaware of their injuries (secondary to the increased production of endorphins)
- have an increased pulse and respirations similar to volume shock (secondary to the release of adrenaline)
- may be anxious (secondary to the release of adrenaline)
- may have flushed skin (secondary to vasodilation)
- may have pale skin (secondary to vasoconstriction)

4. A person with early (compensated) volume shock should:

- be handled very gently because the bleeding may be contained in an organ's capsule that may rupture with rough handling
- be taken to a major hospital capable of surgery
- be transported with ALS if possible
- is in danger of developing increased ICP over the next 24 hours due to blood loss

5. Significant internal bleeding that may lead to volume shock may occur when the MOI is trauma to the:

- head
- chest
- abdomen
- thighs (femur)
- lower legs

- hips and pelvis
- arms

6. In most cases clinically significant swelling due to the inflammatory response reaches its peak within:

- 6 hours
- 48 hours
- 18 hours
- 24 hours

7. Circle all that apply to moving and packaging a spine injured patient:

- if the spine injury can be localized in the patient's lower lumbar spine you do not have to immobilize the patient's neck and head
- you should secure the patient's head and neck to the backboard before their body
- a cervical collar is considered a splint and replaces a "head sandwich"
- use large rapid movements
- when moving a patient onto a litter, horizontal loading is preferable to axial loading
- rolling is safe and is the preferred method of loading when the patient presents on their stomach

8. Your patient is voice responsive from a severe blow to their head. Your problem list should include:

- a concussion
- early volume shock
- late volume shock
- early increased ICP
- late increased ICP
- respiratory distress
- unstable spine

9. One of your students has been hit in the head and is bleeding from a small cut on his forehead. He is awake and slightly nauseous with mild headache; he can remember what happened. He has:

- early increased ICP
- late increased ICP
- a head wound
- a concussion
- sympathetic ASR (fight or flight)
- parasympathetic ASR (rest or digest)

10. You have a major trauma patient with minimal external bleeding. He is awake and complaining of pain on his lower right site. He remembers the event and is breathing easily; however, his pulse is 104 and regular. What is your problem list:

- increased ICP
- internal bleeding (compensated volume shock)

11. A climber takes a 30 foot lead fall, pulls his protection, and hits the ground. He lands on his back in rocks and talus. He is unresponsive and bleeding from a head wound and his lower left leg is deformed. There is some crepitus in his left lateral chest wall. His pulse is 98 and regular and his respirations are 22 and slightly labored. His problem list includes:

- a. concussion
- b. increased ICP
- c. unstable spine
- d. respiratory distress
- e. volume shock
- f. unstable left lower leg
- g. stable left lower leg
- h. head wound

12. A person who has taken a severe blow to the right side of their chest is awake and anxious with some difficulty breathing; they can remember the entire event. Their right lateral chest wall is tender with some crepitus. Their pulse and respirations have increased significantly during the past 45 minutes. Your problem list should include:

- a. early increased ICP
- b. concussion
- c. volume shock
- d. respiratory distress
- e. possible broken ribs

13. A friend is thrown from his mountain bike after missing a sharp turn and crashing into a log. He is pain responsive and bleeding from a head laceration. His left ribs are extremely tender and his left forearm is bent at an unusual angle. His breathing is 18 and easy and his pulse is 94 and regular. His problem list should include:

- a. concussion
- b. increased ICP
- c. volume shock
- d. respiratory distress
- e. spine injury
- f. unstable left forearm
- g. stable left forearm
- h. head laceration

14. True or False

- a. ___ A patient can have a concussion and increased ICP at the same time.
- b. ___ A patient with increased ICP and volume shock will show a pulse rate and blood pressure consistent with the clinical pattern for volume shock.
- c. ___ In most cases, deep wounds should not be closed in a field setting.
- d. ___ Patients with a broken vertebrae and an intact (undamaged) spinal cord will not be able to stand or walk.

15. Stable musculoskeletal injuries should be treated in the field in the following manner

- a. local rest or splint (if it must be used)
- b. pain & anti-inflammatory medications
- c. ice: 20-30 minutes on followed by 90 minutes off to permit reperfusion
- d. elevate above the heart to increase venous return
- e. after 24 hours the limb may be used normally
- f. use an elastic wrap to increase venous return by applying it lightly distal to and continuing past the injury site

16. To clean a high risk wound you should

- a. flush the wound with lots of clean (drinkable) water
- b. use only sterile water
- c. flush with a 100% PI (povidone iodine) solution, alcohol, or hydrogen peroxide
- d. pick out any foreign debris
- e. remove poorly attached or dead skin
- f. scrub the wound thoroughly with a brush until it begins to bleed freely

17. Circle either stable or unstable for each of the following musculoskeletal signs and/or symptoms:

- a. persons with stable / unstable injuries can either bear weight or use the limb
- b. ROM (range of motion) is intact in all stable / unstable injuries
- c. decreased CSM indicates an stable / unstable injury
- d. if the patient hears/feels a pop, snap, or other "noise" the injury is usually stable / unstable
- e. deformity indicates an stable / unstable injury

18. A wound is considered at high risk for developing an infection if it is:

- a. deep
- b. dirty with ragged edges
- c. a puncture wound
- d. a clean shallow laceration
- e. animal bite

19. Unstable musculoskeletal injuries should be treated in the field in the following manner:

- a. align unstable long bones by tractioning the limb into anatomical position UNLESS the patient's pain is increased or physical resistance is encountered
- b. in most cases, unstable joints should be splinted in the position they are found
- c. apply a strong, lightweight, and multidimensional splint
- d. all dislocations may be safely reduced in the field
- e. pain and anti-inflammatory medications may be given
- f. the injured area should be well supported during the splinting process
- g. distal CSM should be continually monitored
- h. once splinted, the limb may be used normally
- i. wounds associated with an unstable injury should be cleaned within two hours, and the patient evacuated ASAP

20. While scrambling downhill in talus your friend slips as a rock rolls under his foot. His left foot becomes trapped in a hole and you both clearly hear a snap as his body falls forward. His left lower leg is bent at 45° above the ankle. A splintered section of his tibia is sticking out through a hole in his skin. There is some bleeding but it is NOT severe. He reports feeling faint from the extreme pain. You should:

- a. wrap gauze tightly around the wound and exposed bone, splint in position, and transport
- b. flush the wound thoroughly with first water and then a diluted Povidone Iodine solution, traction his leg into normal anatomical position, bandage, splint, and transport
- c. treat as a high risk wound, splint in position, and transport
- d. traction his leg into normal anatomical position, splint, and transport

21. Unstable joint injuries should be tractioned into mid-range anatomical position

- when the patient requests it
- when the joint is severely displaced and it is necessary for safe transport
- when the patient's distal CSM is impaired
- if the pain gets worse with traction

22. Match the signs & symptoms in the second column to the problems in the first column. The MOI is major trauma.

Problems

- ___ concussion
- ___ early increased ICP
- ___ late increased ICP
- ___ internal bleeding (compensated volume shock)
- ___ uncompensated volume shock
- ___ respiratory distress
- ___ unstable spine
- ___ unstable spine & cord injury
- ___ unstable musculoskeletal injury
- ___ stable musculoskeletal injury
- ___ parasympathetic ASR (rest & digest)
- ___ sympathetic ASR (fight or flight)

Signs & Symptoms

- awake, wired, & anxious, pale skin, increased pulse, respirations, & blood pressure
- head wound, persistent vomiting, V P or U
- awake & reliable with spine pain and or spine tenderness, normal motor and sensory exams
- awake & reliable with failed motor and/or sensory exams (no local injuries)
- pain, tenderness, swelling, decreased ROM, decreased CSM, cannot use limb
- head wound, amnesia, awake & irritable or lethargic, severe headache, persistent vomiting
- pain, tenderness, swelling, intact ROM, intact CSM, near normal strength
- awake, increased pulse & respirations, pale skin, normal blood pressure
- awake, head wound, amnesia, mild headache, nausea
- V P or U, increased pulse & respirations, pale skin, decreased blood pressure
- dizzy or faints, nausea, pale skin, decreased pulse, respirations, & blood pressure
- awake, complaining of difficulty breathing, increased pulse & respirations

23. True or False:

- ___ All toxic reactions are accompanied by significant swelling.
- ___ All allergic reactions are life-threatening.
- ___ Acute allergic reactions are caused by "abnormal" (IgE) antibodies.
- ___ All toxins contain digestive enzymes that destroy local tissue.
- ___ Antidotes or antivenin is specific to the toxin.
- ___ Treatment of allergic reactions depends on the type of reaction (local or systemic), NOT the mechanism (sting, bite, food, skin contact, etc.).
- ___ Allergic reactions and mild toxic reactions frequently occur at the same time from the same MOI.
- ___ Pain is usually caused by a toxic (versus an allergic)

reaction

- ___ One reason most people never develop allergic reactions to poisonous snake bites is that prior exposure to snake venom is very rare.
- ___ The dermatitis often seen 12- 24 hours after contact with poison ivy, oak, or sumac is caused by "abnormal" killer T-cells produced by the patient's immune system.

24. Your friend has been stung on his right ankle by a wasp. He has no history of allergies. The sting is painful; within ten minutes his entire ankle is swollen.

The majority of swelling is due to:

- a toxin reaction from the wasp venom
- a local allergic reaction
- a systemic allergic reaction (anaphylaxis)

The pain is due to:

- a toxin reaction from the wasp venom
- a local allergic reaction
- a systemic allergic reaction (anaphylaxis)

You should:

- wait to see if he develops respiratory distress before administering epinephrine
- give an antihistamine
- give a .3 cc injection of epinephrine immediately in his thigh or deltoid
- use a Sawyer Extractor to remove the venom
- watch for rebound

25. One of your students has been stung by a ground bee on his right wrist. He has a history of systemic allergic reactions to ground bees and is currently undergoing desensitization treatment. Within a half hour his entire right arm is swollen.

The majority of swelling is due to:

- a toxic reaction from the bee venom
- a local allergic reaction
- a systemic allergic reaction (anaphylaxis)

The pain is due to:

- a toxic reaction from the bee venom
- a local allergic reaction
- a systemic allergic reaction (anaphylaxis)

You should:

- wait for the first signs & symptoms of anaphylaxis before administering epinephrine
- give an antihistamine
- give a .3 cc injection of epinephrine immediately in his thigh or deltoid and evacuate him
- use a Sawyer Extractor to remove the venom
- watch for rebound
- apply heat and elevate his right arm
- monitor him for a systemic allergic reaction (anaphylaxis)
- wait for respiratory distress before administering epinephrine

26. The following creatures' venom contain a systemic neurotoxin:

- brown recluse spider
- coral snake
- cotton mouth (water moccasin)
- black widow spider
- copperhead
- timber rattler

27. You are canyoneering in a remote canyon in the desert southwest when one of your friends is bit by a Mojave rattlesnake. She is extremely pale and scared. Her pulse and respirations are high. The snake is gone. There are two small fang marks above her left ankle. After ten minutes, her ankle has swollen to three times its normal size with localized bruising. The pain has increased significantly and she has difficulty standing.

The swelling and pain are due to:

- “digestive” enzymes in the snake venom
- a systemic allergic reaction (anaphylaxis)
- a local allergic reaction

Her anticipated problems include:

- death of local tissue
- infection
- destruction of red blood cells from a hemotoxin in the snake venom
- AVPU changes from a neurotoxin in the snake venom
- volume shock caused by increased vascular permeability and hemorrhage
- there are no serious anticipated problems

You should:

- splint her left leg and begin an immediate evacuation
- administer .3 cc of epinephrine by injection into her thigh or deltoid
- apply a constriction band above the fang marks and begin an immediate evacuation
- take a few deep breaths, relax, heighten your awareness, and continue your trip; she was not envenomated
- use a Sawyer Extractor to remove the venom
- administer an antihistamine
- administer 3 units of snake antivenin
- ice the site and wait; she is in no serious danger

28. It's 105° F on the first day of a multi-day river trip. During lunch, an unacclimatized female student is bitten by a fire ant on the top of her right foot; she initially complains of pain at the site and burning pain in her groin. She has no history of allergic reactions. Within a few minutes both her feet are flushed and hives appear on her stomach and flanks.

The flushed skin and hives are due to:

- a toxic reaction from the ant venom
- a local allergic reaction
- a systemic allergic reaction (anaphylaxis)
- heat rash

The pain at the site and in her groin is due to:

- a toxic reaction from the ant venom
- a local allergic reaction
- a systemic allergic reaction (anaphylaxis)

You should:

- wait to see if she develops respiratory distress before administering epinephrine
- give an antihistamine
- give a .3 cc injection of epinephrine immediately in her thigh or deltoid
- use a Sawyer Extractor to remove the toxin
- watch for rebound
- evacuate her according to your protocols
- apply heat to the site and evacuate

n. cool her immediately and then fully evaluate her

29. For most people 80% of heat acclimatization takes place during the first 4-5 days with 100% acclimatization occurring within 2-3 weeks. Circle the physiologic changes that take place with full heat acclimatization:

- sweating increases and starts at a lower core temperature thus enhancing the body's cooling process
- metabolic efficiency increases and more usable energy is produced with less heat
- daily caloric demands increase
- daily water requirements decrease
- electrolyte loss (sodium and potassium) is minimized

30. People unacclimatized to a heat challenge are predisposed to:

- electrolyte sickness
- dehydration
- heat rash
- heat stroke
- sun burn
- heat exhaustion

31. Important criteria for assessing a patient's current water balance is:

- the amount of water consumed during the previous 24 hours
- their pulse rate
- their blood pressure
- their urine color and output
- the rate and quality of their respirations
- their skin color and temperature
- the environmental temperature
- their level of activity

32. A full body sunburn predisposes people to:

- dehydration
- concussion
- diarrhea
- hypoglycemia
- hypothermia

33. A unacclimatized client on the first day of a strenuous desert hike is becoming increasingly more irritable. It's a clear day with little wind; the temperature is 110° F. You should:

- cool them immediately and then fully evaluate them
- encourage them to drink lots of water
- prevent them from eating salty foods
- stop hiking and seek or create shade
- rest for a few minutes and then continue with the hike

34. It's 112° F on a clear sunny day in the desert southwest. You meet a female hiker in the canyon you are hiking in. She complains of being extremely hot. She is pale with a core temperature of 103° F, has a headache, and is slightly nauseous. She last urinated five hours ago and said it was very dark and concentrated. Her major problem is:

- heat stroke
- electrolyte sickness
- heat exhaustion
- a flu

Problems

- dehydrated
- heat exhaustion
- early heat stroke
- late heat stroke
- electrolyte sickness
- sunburn

Signs & Symptoms

- a. unacclimatized, awake, nausea, headache, clear urine, increased urine output, history of high H₂O intake and not eating, seizures are possible
- b. acclimatized, awake, nausea, headache, dark urine, history of limited H₂O intake
- c. unacclimatized, V P or U, seizures are possible, core temperature > 105° F
- d. unacclimatized, awake, nausea, headache, dark urine, decreased urine output, history of low H₂O intake, increased core temperature but < 105° F
- e. red, hot, painful skin after sun exposure, blisters are possible
- f. unacclimatized, awake & irritable, complaining of the heat, core temperature > 105° F

36. Rewarming deep frostbite in the field:

- a. is a serious undertaking and should only be considered if the evacuation time to definitive care is over 24 hours
- b. requires a thermometer, 104°-108° F water, and a container big enough to submerge the frozen limb in
- c. is extremely painful and requires strong pain medication
- d. may permit the patient to continue with the expedition
- e. will make evacuation easier
- f. may lead to serious complications during an evacuation
- g. should only be considered if the damaged tissue will not become refrozen

37. True or False:

- a. a patient with frostbite or frostnip may complain of numbness, no feeling, or movement
- b. in frostnip the injured tissue is soft & pliable
- c. in frostbite there are ice crystals within the skin layers
- d. in frostnip the tissue is hard & wooden
- e. before rewarming frostbitten tissue may be swollen and either blue (cyanotic) or red
- f. mild frostbite may cause clear fluid filled blisters before rewarming
- g. frostnip may cause blood filled blisters after rewarming
- h. frostbite may destroy tissue and lead to amputation

38. Match the signs & symptoms in the second column to the problems in the first column. The MOI is a significant cold challenge.

Problems

- cold response
- mild hypothermia
- moderate hypothermia
- severe hypothermia
- frostbite
- frostnip
- trench foot (immersion foot)
- chilblains
- dehydration

Signs & Symptoms

- a. skin has been in direct contact with a cold surface, severe pain and itching upon rewarming, temperature is above freezing
- b. patient is awake & "umbling" may decrease to V+, impaired mental status (inability to adapt to the environment), increased peeing, decreased dexterity, severe shivering, pale or cyanotic skin
- c. the skin is white, hard, cold, and wooden in appearance, ice crystals are visible within the skin layers, tissue is numb with no feeling or movement, temperature is below freezing
- d. patient is awake & complaining of the cold, normal mental status, increased peeing, decreased dexterity, mild shivering, pale skin
- e. patient is V+ to V-, severe shivering is possible, cold diuresis, pale or cyanotic skin, heart tissue is irritable
- f. patient is awake with nausea, headache, dark urine, decreased urine output, history of low H₂O intake
- g. limb has been immersed in cold water (usually for hours), skin is pale, cold, and often wrinkled, numbness is common, blisters may form upon rewarming, temperature is above freezing
- h. the skin is cold and stiff but pliable, tissue is numb with no feeling or movement, temperature is below freezing
- i. patient is P or U, pale or cyanotic skin, GI & GU systems have shut down, vital signs are significantly decreased, heart tissue is extremely irritable

39. You are at 13,000 feet after ascending 1,500 feet during the day on easy snow. You are awakened at 02:00 in the morning because one of your clients is experiencing a severe headache and difficulty breathing. His lungs sound wet and he has vomited once. You should:

- a. consider administering 500 mg of acetazolamide and reassess his status in the morning
- b. descend 2,000-4,000 feet immediately
- c. consider administering AMS drugs (10 mg nifedipine sublingual and/or 4 mg dexamethasone by IM (intramuscular injection) as adjunctive treatment during the descent/evacuation
- d. consider administering AMS drugs (10 mg nifedipine sublingual and/or 4 mg dexamethasone by IM (intramuscular injection) and reassess his status in the morning

40. You have successfully rescued and resuscitated a drowning victim. Trauma is NOT a MOI. She currently has a normal pulse and respirations. She is pain responsive. Your anticipated problem list should include:

- a. volume shock
- b. respiratory distress secondary to delayed pulmonary edema
- c. increased ICP secondary to hypoxia
- d. concussion

41. Tissue damage from immersion foot (trench foot):

- a. is usually permanent
- b. is treated by rubbing the limb vigorously
- c. is treated after rewarming by drying the affected area, removing the dead tissue, and treating it as a high risk wound
- d. is prevented by keeping the feet warm and dry
- e. may take weeks or months to heal

42. True or False:

- ___ The feathery burn-like patterns on the skin of some lightning victims is harmless and will disappear within a few days without treatment
- ___ Lightning victims in cardiac arrest cannot be resuscitated with CPR alone and will always require defibrillation and ALS cardiac meds
- ___ Expanding steam (from sweat, rain, snow, etc.) can tear holes in a lightning victims clothing and blow their shoes off
- ___ 50% of lightning victims have at least one ruptured ear drum
- ___ A sleeping pad will completely protect you from ground current
- ___ Significantly more trip leaders/outdoor instructors die from lightning strikes than their students
- ___ All lightning victims should be treated as major trauma patients and their spine immobilized during your initial treatment

43. A young female complains of an internal burning pain while urinating. She says that during the last 24 hours she has had to pee more often and that she is not producing much urine. She reports that she has been sexually active immediately prior the trip and admits that her personal hygiene has been poor. She has no abnormal vaginal secretions or odor. You suspect:

- dehydration
- clearing of a toxin
- ectopic (tubal) pregnancy
- a urinary tract infection (UTI) or urinary tract condition (UTC)
- a vaginal infection
- a sexually transmitted disease (STD)

44. You can confirm a diagnosis of UTI in the field:

- by testing her urine for nitrite using an OTC dipstick test
- by testing her urine for sugar using an OTC dipstick test
- you cannot verify your assessment in the field
- by testing her urine for a bitter taste

45. When taking antibiotics you should:

- finish the entire course
- stop when the patient feels better
- have permission from a licensed physician
- should use them prophylactically on a regular basis to prevent diseases from becoming established
- double the dose after four days if they are not working

46. The effectiveness of an inhaler in the treatment of an asthma attack is increased when:

- you remove the irritant or mechanism
- a spacer is used correctly
- the patient lies down
- you reassure the patient and encourage the them to take deeper slower breaths
- you give an oral antihistamine

47. Severe asthma attacks accompanied by a decrease in the patient's level of consciousness and not relieved by the maximum prescribed dose of patient's inhaler may be treated with:

- additional doses of the inhaler

- .3 cc of epinephrine given by IM injection every few minutes until relief is obtained
- two crushed aspirin placed sublingually
- two tablets of nitroglycerin placed sublingually

48. While hiking off trail through thick underbrush one of your students falls and a twig goes into their ear. They experience a mild pain and there is a small amount of blood in their ear canal. You should

- thoroughly flush their ear with clean water and then cover it with a clean dressing
- cover the ear with a clean dressing and consider an evacuation. If a middle ear infection develops begin oral antibiotic therapy immediately
- apply a few drops of antibiotic solution and cover the ear
- cover the ear and begin a full course of oral antibiotics

49. Glucagon is:

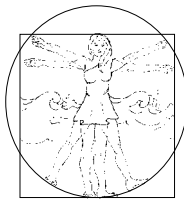
- an oral medication given to relieve hyperglycemia
- an oral medication given to treat HACE
- an oral sugar paste given to treat hypoglycemia
- a hormone that stimulates the release of glucose stores from the liver; it is given by IM injection to severely hypoglycemic patients with a depressed level of consciousness (V, P, or U)

50. Seizures are common in patients with:

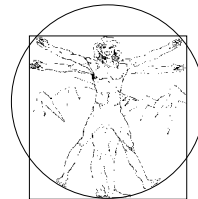
- severe heat stroke
- volume shock
- late increased ICP
- severe hypoglycemia in an insulin dependant diabetic
- severe hypothermia
- neurotoxins
- local allergic reactions
- systemic allergic reactions
- local proteolytic (protein destroying) toxins
- a diagnosed seizure disorder who have NOT taken their medication
- severe sun burn
- electrolyte sickness (low sodium)

51. Circle the signs and symptoms that indicate an abdominal problem serious enough to require immediate evacuation:

- generalized abdominal pain & tenderness with nausea & vomiting that resolves within 12 hours
- abdominal pain & tenderness with a fever and NO nausea, vomiting, or diarrhea
- abdominal pain & tenderness with a black tarry stool
- abdominal pain & tenderness with a "coffee grounds" like vomitus
- abdominal pain & tenderness from a blow to the abdomen with a normal pulse and respirations
- generalized abdominal pain & tenderness that becomes specific
- persistent abdominal pain & tenderness with cramps and abnormal vaginal bleeding
- heart burn from a big meal.
- persistent abdominal pain & tenderness greater than 12 hours with tenderness, vomiting, and diarrhea that is NOT relieved by your supportive treatment
- abdominal pain & tenderness with rebound pain
- abdominal pain & tenderness with a rigid abdomen and guarding



the Wilderness Medicine Training Center



Instructor Exam: Part 2

Patient 1 of 4

Name _____

A 34 year old female was stung multiple times on her right arm, shoulder, and neck while leading a thin 5.12 finger crack. She let go with her left hand and fell 12 feet before being caught by her protection. Her belayer immediately lowered her to the ground. She has numerous scrapes on her arms and legs from passing contact with the rock. You witnessed her fall; she did not hit anything hard and was awake the entire time. She initially complains of severe pain in the fingers of her right hand, nausea, and dizziness. The first two fingers of her right hand are already swollen, blue, and deformed. She reports no history of allergies, is taking birth control pills, and has no significant medical history. She drank one half liter of water during the approach about three hours ago and hasn't urinated since early morning. She doesn't remember the color of her urine. Minutes later small hives appear on her flanks and she begins to scratch. Her skin is slightly flushed and her abrasions are slightly tender and painful. Her fingers are now throbbing. She is currently awake and alert with no spine pain or tenderness; her motor and sensory exams are normal.

Vital Signs at 15:32:

- P: 114 R
- R: 26 E
- BP: Not Taken
- S: slightly flushed, warm, and moist
- T: Not Taken
- AVPU: Awake and Cooperative

At 15:32 what is your problem list, your anticipated problem list, and your treatment plan? Is an

ASSESSMENT				PLAN
Possible Problem List	Time	Problem List	Anticipated Problem List	Treatment & Evacuation Plan
Trauma ↑ ICP / Concussion Respiratory Distress Volume Shock Unstable Spine Musculoskeletal Injuries Wounds Environmental Dehydration/Low Na Hypothermia/Cold Heat Stroke/Exhaustion Frostbite/Burns Local /Systemic Toxin Local /Systemic Allergy Near Drowning Altitude Lightning Diving/SCUBA Medical Infectious Disease Other				

Patient 2 of 4

On a late winter ski expedition in the northern Rockies a 22 year old male is caught in a soft snow avalanche and carried 300 feet before being deposited completely buried against a large tree. The approximate time he was under the snow before recovery was six minutes. He is recovered with no pulse and no respiration. After about a minute of CPR his pulse returns. His respirations also return shortly thereafter; however, he continues to remain unresponsive. After an additional ten minutes, he is able to answer your questions. He doesn't remember the avalanche and is complaining of a headache, nausea, and the cold. He is bleeding from a two inch laceration above his left temple. His right shoulder is painful and tender with poor range of motion and his right wrist is painful and tender with good range of motion. He has good circulation, sensation, and motor function in his right hand. He has a childhood history of severe systemic allergy to penicillin, is taking no medications, and has no other significant medical history. He has been drinking throughout the day but noticed his urine was darker than usual the last time he peed. He is currently awake and alert and reports a stiff lower back with tenderness at L-4 and L-5. The motor and sensory exams in his hands are normal; however, there is a noticeable weakness in the motor exam at his left ankle and he reports a mild electric-like pain shooting down his left leg; the pain originates in his lower lumbar area.

Vital Signs at 11:15

P: 88 R
 R: 20 E
 BP: Not Taken
 S: slightly pale, cool, and moist
 T: Not Taken
 AVPU: Awake and Cooperative

Twenty minutes later he reports that his headache is getting worse and that he is very tired and becoming colder; he is beginning to shiver. He vomits at 11:35 and again at noon. He is noticeably shivering.

Vital Signs at 12:00 noon

P: 62 R
 R: 14 E
 BP: Not Taken
 S: pale, cold, and damp
 T: Not Taken
 AVPU: Awake and Lethargic

What is your problem list, your anticipated problem list, and your treatment plan 11:15 and 12:00? Is an emergency evacuation necessary?

ASSESSMENT				PLAN
Possible Problem List	Time	Problem List	Anticipated Problem List	Treatment & Evacuation Plan
Trauma ↑ ICP / Concussion Respiratory Distress Volume Shock Unstable Spine Musculoskeletal Injuries Wounds Environmental Dehydration/Low Na Hypothermia/Cold Heat Stroke/Exhaustion Frostbite/Burns Local /Systemic Toxin Local /Systemic Allergy Near Drowning Altitude Lightning Diving/SCUBA Medical Infectious Disease Other				

Patient 3 of 4

A 22 year old female fell 12 feet onto a log while crossing a small stream on a hiker's bridge. She landed on her left ankle and twisted as the right side of her chest slammed into a log. She came to rest on her left side in two feet of gently moving water with her right arm trapped behind her. She struggled for a few seconds before rolling into a sitting position. She was wearing a light day pack that stayed in place throughout the fall. She remained awake and alert throughout the fall. The day is warm (70° F) and sunny. The water is cool (50° F). Sometime during the fall she hit her head; there is a small laceration behind her right ear. She is complaining of severe pain in her right ribs, ankle and wrist. Her right wrist is slightly deformed. She is unable to move either her left ankle or right wrist, both are swollen; distal circulation, sensation, and motor function is intact in both hands. The right side of her chest is tender with some bruising just under her right arm pit. She cannot take a deep breath without pain. She is able to breathe easier when she is sitting. She says she heard a pop when she landed on her ankle and her ribs feel "crunchy". She cannot bear weight on her left ankle. On exam there is some crepitus under the bruised area on her right side. She has no allergies, is taking no medications, and has no significant medical history. She last drank two hours ago when she noticed her urine was darker than usual; she hasn't urinated since then. She is currently awake and alert with no spine pain or tenderness and normal motor and sensory exams.

Vital Signs at 11:32:

- P: 98 R
- R: 28 slightly labored
- BP: Not Taken
- S: pale, cool, and wet
- T: Not Taken
- AVPU: Awake and Anxious

At 11:32 what is your problem list, your anticipated problem list, and your treatment plan? Is an emergency evacuation necessary?

ASSESSMENT				PLAN
Possible Problem List	Time	Problem List	Anticipated Problem List	Treatment & Evacuation Plan
Trauma ↑ ICP / Concussion Respiratory Distress Volume Shock Unstable Spine Musculoskeletal Injuries Wounds Environmental Dehydration/Low Na Hypothermia/Cold Heat Stroke/Exhaustion Frostbite/Burns Local /Systemic Toxin Local /Systemic Allergy Near Drowning Altitude Lightning Diving/SCUBA Medical Infectious Disease Other				

Patient 4 of 4

You are day hiking in a little known slot canyon in southern Utah when you bump into a solo hiker. He is sitting on his pack with his head in his hands. He says he is from Prince George, BC (northern Canada) and this is his first time in the southwest canyons. He says this is the morning of his third day and that he has four more days to go. He has a small laceration on head and some abrasions on both arms and legs. He says he tried to climb into a small alcove above the canyon floor and slipped. He says he slid about ten feet and twisted his left ankle when he landed. While the canyon is a bit cooler than the open desert, it has been in the direct sun for the past hour. The temperature is 105° F with no shade or wind. The injured hiker appears reliable and is complaining of the heat, a headache, dizziness, and nausea. He says the abrasions sting and are a bit tender. He has restricted range of motion in his left ankle with good circulation, sensation, and motor function; however, he is unable to bear weight on it. He has a mild sunburn. He has no allergies, is taking no medications, and has no significant medical history. He says he felt okay when he got up. He had a granola bar for breakfast at 06:00 and not eaten since because of the heat and nausea. He says he has been feeling sick for the last three hours, that its too hot to eat, and that he is not hungry. Water is readily available in small pools throughout the canyon and he reports that he has been drinking all morning (about 8 liters) and peeing regularly; his urine is clear. He is currently awake and sick with no spine pain or tenderness and normal motor and sensory exams.

Vital Signs at 12:50

P: 78 R

R: 18 E

BP: Not Taken

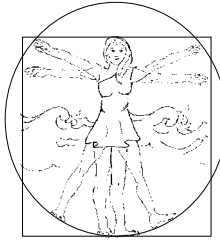
S: warm, slightly flushed, and dry

T: Not Taken

AVPU: Awake and Cooperative

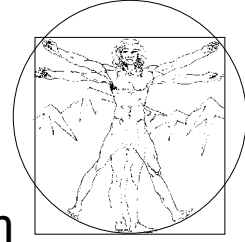
At 12:50 what is your problem list, your anticipated problem list, and your treatment plan? Is an emergency evacuation necessary?

ASSESSMENT				PLAN
Possible Problem List	Time	Problem List	Anticipated Problem List	Treatment & Evacuation Plan
Trauma ↑ ICP / Concussion Respiratory Distress Volume Shock Unstable Spine Musculoskeletal Injuries Wounds Environmental Dehydration/Low Na Hypothermia/Cold Heat Stroke/Exhaustion Frostbite/Burns Local /Systemic Toxin Local /Systemic Allergy Near Drowning Altitude Lightning Diving/SCUBA Medical Infectious Disease Other				



the Wilderness Medicine Training Center

Wilderness CPR & AED Instructor Exam



Answer all questions; many questions have multiple answers. Score: _____ Name: _____

1. Immediately stabilize a person's spine when the MOI is:
 - a. medical
 - b. environmental
 - c. minor trauma
 - d. unknown
 - e. major trauma
2. When examining an unresponsive adult during your initial patient assessment to determine if you should begin chest compressions (CPR), you should check the pulse at:
 - a. the femoral artery located in the groin
 - b. the radial artery located in the arm
 - c. the carotid artery located in the neck
 - d. the brachial artery located in the arm
3. The heart of a hypothermic patient whose core temperature is less than 90° F is extremely irritable and predisposed to ventricular fibrillation (cardiac arrest). When treating this patient in the field you should:
 - a. handle them very gently
 - b. submerge them in warm (102° F) water
 - c. avoid chest compressions
 - d. begin mild exercise ASAP
 - e. assist their breathing if P or U
 - f. add heat slowly to their core by warming the layers of their packaging
 - g. follow your local protocols
 - h. warm them as rapidly as possible using all the available external heat sources
 - i. no special treatment is necessary
4. Your patient is high voice responsive and shivering. You do not have a thermometer. The patient's core temperature:
 - a. may be less than 90° F
 - b. is above 90° F but less than 96° F
 - c. AVPU changes do not reflect a hypothermic patient's core temperature
 - d. is above 96° F
5. CPR alone may be effective when the patient's cardiac arrest is due to:
 - a. drowning
 - b. respiratory arrest 2° trauma
 - c. increased ICP 2° trauma
 - d. lightning
 - e. heart attack
 - f. toxins
 - g. volume shock 2° trauma
 - h. heat stroke
6. Do NOT begin CPR in the wilderness if:
 - a. the patient has a pulse
 - b. there is danger to the rescuers
 - c. the patient has injuries incompatible with life
 - d. you do not have an AED
 - e. other non-arrest patients need your care because personnel and resources are limited
7. Once started, you should continue CPR until:
 - a. resuscitation is successful
 - b. you are in danger
 - c. the patient is turned over to more definitive care
 - d. the patient does not respond to prolonged CPR (approximately 30 minutes)
 - e. you are exhausted and can no longer continue
8. True or False
 - a. ___ Drowning victims have occasionally been successfully resuscitated after prolonged submersion (> 30 minutes) in cold water (< 50° F) but ONLY with ALS intervention.
 - b. ___ You should perform an abdominal thrust on all drowning victims before beginning CPR.
 - c. ___ Lightning victims may be successfully resuscitated with immediate BLS.
 - d. ___ In some lightning victims, respiratory arrest may continue for hours after a pulse has returned.
 - e. ___ Intermittent chest compressions are helpful in severely hypothermic patients.
 - f. ___ If an AED advises "no shock" in a hypothermic patient whose core temperature is below 86° F it means that the patient has either a perfusing rhythm or is asystole (no cardiac activity).
9. While rescue breathing for a patient, you should give:
 - a. as much air as you can
 - b. air until the patient's chest rises
 - c. air until you feel it coming out the patient's nose
 - d. as much air as you can comfortably hold in your own lungs
10. True or false:
 - a. ___ Immediate defibrillation has little or no effect on a heart attack patient's chance of survival.
 - b. ___ Some AEDs can be safely used in light rain or on snow.
 - c. ___ AEDs may safely be used on children one year old and above.
 - d. ___ At most, there are three buttons to push on an AED: power, analyze, and shock; many have only two: power and shock.
 - e. ___ It's okay to touch a patient while the AED is analyzing.
 - f. ___ There is little or no danger to the anyone touching the patient when the shock button is pushed.
 - g. ___ All forms of cardiac arrests are treatable using an AED.
 - h. ___ An AED may instruct you to deliver three sets of shocks separated by about a minute of CPR for a maximum of nine shocks.
11. You are a guide on a horse packing trip. While eating a steak dinner around the fire one of your clients suddenly begins to choke. He is not making any sounds and his face is becoming cyanotic. You have an AED with you. You should:
 - a. pound him vigorously on his back between his shoulder blades until he stops choking
 - b. wait until he becomes unresponsive and then begin chest compressions
 - c. immediately assist him to a standing position and begin abdominal thrusts; continue until his airway is clear.

12. You are a paddle raft guide and trip leader on a Class V river trip. The trip is two hours from the take-out and there is no access or communication while the canyon. After successfully running the most difficult rapid one of your clients, an overweight 44 y/o man abruptly complains of crushing chest pain. He has no history of cardiac problems. There are five paddle rafts and a safety kayaker on the trip. The remaining part of the trip is continuous Class III and IV rapids. You should:

- tell the client to stop paddling, move him to a sitting position in the center of the raft, and do a complete PAS.
- move the trip as quickly as possible towards the take-out
- send the safety kayaker ahead to request ALS assistance at the take-out
- permit him to continue paddling if he feels better
- put all the guides and strong paddlers in your boat and head for the take-out with the safety kayaker; leave the remaining guests to paddle out under the direction of a senior guide

If he arrests and there is no AED on the trip:

- stop the trip and begin CPR; stop CPR after 30 minutes if he doesn't respond.
- begin CPR on the raft and continue it until you reach the take-out

If there is an AED on the trip:

- move the AED immediately onto his boat
- make sure there is a trained rescuer familiar with the AED with him at all times
- if he arrests stop the trip, begin CPR, and initiate the AED sequence; if pulse & respirations DO NOT RETURN, STOP resuscitation efforts
- if he arrests stop the trip, begin CPR, and initiate the AED sequence; if pulse & respirations DO NOT RETURN, continue CPR until you reach the take-out
- if he arrests stop the trip, begin CPR, and initiate the AED sequence; if pulse & respirations RETURN, continue down the river until you reach the take-out; keep patient in a reclining position and monitor; repeat the CPR/AED sequence if he arrests again

13. You are the trip leader for a small adventure travel company running a two week trek in Chile. Part of an old Burma bridge collapses as one of your clients, a 22 y/o female, is crossing it. She falls ten feet into the swift current below the bridge and is quickly swept and pinned against a fallen tree; her head is trapped underwater. By the time you are able to rescue her she has stopped struggling. Three minutes have passed since she first became trapped. She is unresponsive with no pulse or respirations. The water is cold, below 55° F. You DO NOT have an AED with you. You should:

- begin immediate CPR; severe hypothermia is not a problem
- begin immediate rescue breathing and take her rectal temperature. If her core temperature is above 90° F, begin chest compressions.
- do an immediate abdominal thrust to clear her airway and then start CPR
- begin rescue breathing immediately, remove her wet clothes, and place her in a hypothermia package; do NOT begin chest compressions

14. You are part of a professional ski patrol responding to a reported burial out-of-bounds. When you arrive the avalanche victim has been located and uncovered. She has been buried under the snow for approximately 50 minutes and is wearing an AvaLung (a device designed to increase survival time); she is unresponsive with no pulse or respirations.

If you DO NOT have an AED, you should:

- clear her airway, immobilize her spine, begin rescue breathing, and take her core temperature. Reassess pulse & respirations after 3 minutes. If her core temperature is above 90° F with no pulse or respirations begin CPR; if no response after 30 minutes, stop CPR.
- clear her airway, immobilize her spine, hypo package & transport
- clear her airway, immobilize her spine, begin rescue breathing, and take her core temperature. Reassess pulse & respirations after 3 minutes. If her core temperature is less than 90° F with no pulse or respirations DO NOT start CPR. Hypo package, & transport.
- clear her airway, immobilize her spine, and begin CPR. Take her core temperature. If her core temperature is less than 90° F, STOP CPR

If you HAVE an AED, you should:

- clear her airway, immobilize her spine, begin rescue breathing, and take her core temperature. Reassess pulse & respirations after 3 minutes. If her core temperature is above 90° F with no pulse or respirations begin CPR and initiate the AED sequence; if pulse and respirations return, hypo package & transport; if unsuccessful, discontinue resuscitation efforts
- clear her airway, immobilize her spine, hypo package & transport
- clear her airway, immobilize her spine, begin CPR, and initiate the AED sequence. if pulse and respirations return, hypo package & transport; if unsuccessful, discontinue resuscitation efforts
- clear her airway, immobilize her spine, and begin rescue breathing, and take her core temperature. Reassess pulse & respirations after 3 minutes. If her core temperature is less than 90° F but above 86° F with no pulse or respirations initiate AED sequence without CPR; shock if indicated (V-Fib) otherwise hypo package & transport.

15. You have a client who is pale, short of breath (SOB), sweating, and experiencing chest pain. Although he has a history of angina and carries his nitroglycerin tablets with him, he has not had an angina attack in three years. You are two miles from the trail head and your vehicles. It is a half hour further by driving to a hospital. You DO NOT have an AED with you should:

- administer nitroglycerin tablets according to his prescription
- stop hiking and begin an immediate evacuation (limit exercise and carry him if possible).
- if he does not respond to his medication send a runner to notify ALS; request that they meet you at the trail head.
- if the pain stops continue with the trip
- improvise a backboard and evacuate him

16. You are a member of your local SAR team and have been searching for a lost hunter for the past four days. The temperature has been in the teens the entire time with about six inches of snow on the ground. You eventually find him huddled under a brush shelter four hours from the nearest road. He is unresponsive with no respirations or pulse; his right lower leg is deformed. There are cold ashes from an attempted fire next to the shelter. The outer layers of his clothing are frozen. You have an AED with you. You should:

- gently cut off any frozen or wet clothing and place him in a hypothermia package for transport; begin rescue breathing and initiate AED sequence but do NOT start chest compressions; shock if indicated (V-Fib) otherwise transport to the hospital.
- remove his frozen clothes and begin CPR; DO NOT initiate the AED sequence
- build a large fire, remove his frozen clothes, and rub his skin briskly until he wakes up
- begin CPR and initiate the AED sequence