If you are reading this you are registered for—or have completed—a standard Wilderness First Aid course and wish to use it to re-certify your WAFA, WFR, or WEMT. The purpose of this study guide is to:

- Give you an overview of our testing philosophy.
- Let you know how the tests are scored.
- Share effective study and testing strategies.

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WMTC Testing Philosophy

Our online tests have both learning and assessment goals: They set a minimum baseline foundation for anatomy, physiology, pathophysiology, prevention (where possible), assessment, and treatment in order to prepare you for real-life situations.

There are two types of tests: content tests and application tests. The content test questions are different than the application test questions. The content test contains simple case studies while the application test questions are complex case studies, many of these questions require you to use your new knowledge in less than ideal situations (just like real life); they also contain pathophysiological questions directly related to the patient's problem. *The answers to the judgment-based questions are subjective and reflect what most experienced guides/outdoor leaders with a solid grasp of wilderness medicine would do when faced with a similar situation. In some cases, the correct answers to these questions conflict with the ideal treatments presented in our handbook and you will need to make a difficult decision. You will be faced with similar types of decisions and situations in real life.*

The first step in answering any application test question correctly is to identify the mechanism of injury (MOI); there may be more than one. Traumatic and Medical mechanisms of injury are often affected by the environment; it's rare to have all three MOI present.

How Application Tests are Scored

In the multiple-answer questions, points are awarded for correct answers and subtracted for incorrect answers. The sum is the number of points awarded for that question; note that you cannot receive less than 0 points. *Because the point value for each answer varies, you will not be able to guess the answer.* See below:

If you get all the answers correct, you will see:
Correct: The answer is correct. "__" points.

If you get some of the answers correct and you were awarded points, you will see:
Partial Credit: The answers are partially correct. "__" out of "__" points.

If you get some of the answers correct but the sum is ≥ 0, you will see:
No Credit: Some of the answers are incorrect for no credit. 0 points.

Multiple choice questions use round "radio" buttons and have only one answer; choose the best one. If you are ever in doubt whether the question is a multiple choice question or a multiple answer question, simple try and choose two answers. If the system lets you choose two answers, it's a multiple answer question.

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Effective Strategies for Answering Multiple-answer Test Questions

Many of the answers to multiple-answer test questions are mutually exclusive and may be grouped into sets. The sets can be individual problems, treatments, or evacuation plans.

For example, if the possible answers to a multiple answer question include:

- Mild concussion
- Moderate concussion
- Severe concussion
- Increased ICP

You know that only one of the four possible answers can be correct. The same is true for "Compensated (early) Volume Shock" and "Uncompensated (late) Volume Shock;" only one is correct. Or, "Unstable Right Ankle and "Stable Right Ankle;" again, only one is correct.

With respect to treatments and evacuation plans: You may need to decide if it's safe for an ambulatory patient who fails your focused spine assessment should self-evac, or not.

Therefore, an effective strategy is to identify all the possible answers that are mutually exclusive—it doesn't matter whether they are problems, treatments, or evacuation plans—and choose only one answer from that group.

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Effective Trauma Test Question Strategies

To answer an application Trauma test question correctly, you need to review the specific traumatic mechanism of injury (what part of the patient's body was hit?) and the clinical pattern (MOI + Signs + Symptoms) for each of the potential problems.

There are a finite number of traumatic problems, each with their own specific clinical pattern. Students typically choose incorrect answers to Trauma questions for two reasons: (1) not correctly identifying the possible problems (based on what part of the body received the traumatic impact) and/or (2) not correctly identifying the clinical pattern associated with that problem. I've listed the possible traumatic problems below; it's similar but a slightly different take on the Trauma Index on pages 6-7 of the *Wilderness Medicine Handbook*.

- *Possible problems from hitting your head are:*
  - Mild concussion
  - Moderate concussion
  - Severe concussion
  - Increased ICP (early & late)
  - Cervical spine injury

- *Possible problems from hitting your chest are:*
  - Respiratory distress (mild, moderate, & severe)
  - Internal bleeding/volume shock (early & late)
  - Thoracic spine injury

- *Possible problems from hitting your abdomen are:*
  - Internal/bleeding/volume shock (early & late)

- *Possible problems from hitting your pelvis are:*
  - Unstable pelvis
  - Internal bleeding/volume shock (early & late)
  - Unstable lumbar/sacral spine injury

- *Possible problems from hitting an extremity are:*
  - Stable injury
  - Unstable injury
  - Dislocation

- *Possible problem from hitting your back is:*
  - A spine injury
  - A spinal cord injury

- *Any wound can cause severe bleeding; in most cases severe bleeding is controlled during Basic Life Support and does not lead to volume shock.*

A third reason students make mistakes in answering Trauma questions is that they fail to distinguish between possible problems, current problems, and anticipated problems. A brief definition of each follows:

- *Possible Problems* are derived from the mechanism of injury (MOI). In the case of traumatic MOI, they are based on what part of the body the patient was hit (see above).
- *Current Problems* are possible problems that cannot be ruled out based on the patients signs & symptoms.
- *Anticipated Problems* are derived from your current problem list. They are not happening now—the patient has the MOI but not all the S/Sx—but they may develop in the future. As a rescuer you have little control over whether an anticipated problem will develop or not.

The chart at the end of this file details all the traumatic Current Problems together with their associated Anticipated Problem. Note:

- The progression and the difference and similarities in S/Sx between each problem.
- A significant difference between the early and late S/Sx of the all the critical system problems is the patient's AVPU level: Patients are Awake early and VPU late.
- Remember, a patient cannot have a mild concussion, moderate concussion, severe concussion, and increased ICP at the same time; they may only have one. Similarly, a patient cannot have early and late increased ICP at the same time; nor early and late volume shock at the same time; the S/Sx of each problem are different.

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Effective Environmental Test Question Strategies

Similar to the application Trauma test questions, students choose incorrect answers on application Environmental test questions when they fail to distinguish between possible problems, current problems, and anticipated problems: see the charts at the end of the file; note the differences between traumatic and environmental problems and their progressions.

Students also make mistakes answering Environmental test questions when they don't understand the specific environmental hazards described in the case studies. When reading a question look carefully for scene safety issues: Is it snowing and is that avalanche chute going to slide? Are the students in the case study acclimatized to the new heat challenge? Is a storm eminent? Some questions relate to prevention, others to early assessment and treatment. If you get some of these questions wrong, learn from them; hopefully, you won't make similar mistakes in real life.

In some of the application Environmental test questions you will be asked to make judgment decisions in less than ideal situations with conflicting treatments. Many of your conflicts will be because you have an ambulatory but potentially spine or spinal cord injured patient—whom you would prefer to evacuate in a litter—and an environmental emergency that requires moving the patient without waiting for a help or a litter. *When faced with two seemingly opposing treatments, the priority goes to the treatment that is associated with less risk.* For example, a ambulatory patient with a suspected spine injury faces a possible spinal cord injury if they attempt to self-evac off an exposed ridge *if they fall and re-injure their spine in the same place.* Conversely they face severe hypothermia and death if they were to remain on the ridge waiting for outside assistance. In this instance, they should choose self-evacuation and take care to protect the patient from falling again.

While it may appear that you need to have mastery of a specific outdoor activity—climbing, whitewater, skiing, canyoneering, etc.—in order correctly answer a question, in general, this is not true. Find and evaluate the traumatic (minor or major) or environmental mechanism not the activity.

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Effective Medical Test Question Strategies

There are a *maximum* of four question types for each medical case study:

- Evacuation questions are based on the presence of medical "Red Flags" for a Level 1 or Level 2 Evacuation. In some cases, a problem will present with no Red Flags but develop them over time. *Many of these questions can be answered by referring to the General Evacuation Guidelines on page 88 of the Wilderness Medicine Handbook.*
- In most cases, you will be asked to identify the specific problem based on the patient's S/Sx. *Use the Medical Index on pages 84-85 in your handbook to identify possible problems based on the patient's primary S/Sx and then see if the S/Sx of any of the possible problems match. You can also use the charts on pages 89-90 of the handbook to narrow down problems associated with abdominal pain and tenderness.*
- In some cases you will also be asked how to treat a patient, and specifically asked: "What should you do?" If you've identified the problem correctly, this should be relatively easy....
- You may also be asked if you should do CPR on a patient. Remember to distinguish between the urban context where Advanced Life Support is easily and quickly accessible where you might start CPR and the wilderness context where it is not and while you might start CPR, you would not continue it beyond 30 minutes.

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The Tests

Preparation

Most recertification candidates can simply start taking the content test. Look up anything you don't understand. If you feel rusty, skim the handbook and study the material you don't feel comfortable with before taking the content test.

Content Tests

The content test is open book; you may start and stop at any time. *You may only take the content test once; it is essentially a practice test.* You will receive the correct answer and an explanation as soon as you submit your answer. While the content tests are scored, a low score will not prevent you from moving on to take the first application test. That said, the score is a reasonable indication of how well you understand the material.

While taking a content test: Look up information you don't know. If you get an answer wrong, review the explanation and make sure you understand the correct answer and take notes before moving on to the next question. It's common for students to miss questions on the application test that track back to errors on the content test.

Application Tests

The application tests are also open book; you may start and stop at any time; however, once you start an application test you must complete it within 10 days or it will be counted as a "fail." Once you understand the mistakes you made on the content test and have reviewed the above strategies for the specific MOI, you are ready to take the first application test.

There are two application tests; you only have to pass one. *Many questions have "Hints;" if a hint is provided, read it thoroughly to see how it applies to the question and answers before attempting to answer the question.*

If you score less than 80% on the first application test, review the common errors (above), study the problems discussed in each question, and closely review each answer before taking the test again. Most students will pass the first application test on their second attempt. If you pass, you're done.

If you score less than 80% on the first application test *twice*, you will receive the correct answers along with an explanation. Thoroughly review the answers and explanations before moving on to take the *second* application test. If you score less than 80% on your *first* attempt at the *second* application test, you will have a four-hour mandatory "cooling off" period before you will be able to take the test again. *If you fail the second test twice, email the WMTC office and request feedback. Upon receipt, a senior instructor will review your last attempt and send you an email with feedback and give you an opportunity to take the second test a third and final time. You may reply to ask questions or clarify their response before taking the test again.*

If you score less than 80% on your third attempt of the second application test, you will not be able to re-certify your WFR or WEMT.

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What about the Patient Assessment System?

It's important to keep in mind our Patient Assessment System (PAS) as you study and take the online tests. The triangles of PAS define the what you do and when you do it (refer to page 1 in your handbook as you read this). In real life, every time you enter a scene you:

1. Size-up the scene before you enter it. As you approach a patient try to identify the primary MOI (or MOIs), if a rescue is needed and if you are capable of carrying it out safely, and what your resources are. (Do you need to call for help now?)
2. Stabilize the patient: Address any Basic Life Support problems on arrival.
3. Gather and write down the patient's SAMPLE history, vital signs, and do a thorough physical exam.
4. If the MOI is major trauma and the patient is reliable, attempt to rule out a potential spine injury.
5. Evaluate the patient based on their clinical pattern.
6. Prioritize their injuries and your field treatment.
7. Treat and evacuate them as necessary.
8. Continue to monitor them as necessary.

It's easy to forget steps 2 and 3 when you are taking a test because the test questions provide you with all the information you need to move directly to assessment and treatment. Yet, remembering the entire process and mentally reviewing it step by step will help you visualize the scene and better prepare you for real life and, oddly enough, to correctly answer the test questions.

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Specific Traumatic MOI	Current Problem	Anticipated Problem
Head Trauma	Mild concussion	None, if treated appropriately
	Moderate concussion	Severe concussion
	Severe concussion	Early increased ICP
	Early increased ICP	Late increased ICP
	Late Increased ICP	Death 2º increased ICP
Chest Trauma	Fractured rib(s)	Respiratory distress 2º lung damage
	Tender and/or bruised ribs (with initial breath knocked out of patient)	Respiratory distress 2º lung damage Compensated (early) volume shock
	Respiratory distress (tenderness on one side)	Worsening/increasing respiratory distress 2º lung damage
	Respiratory distress (tenderness on both sides)	Death 2º respiratory arrest 2º lung damage
	Compensated (early) volume shock	Uncompensated (late) volume shock
Spine Trauma	Spine Injury	None, if treated appropriately
	Spinal Cord Injury	None, if treated appropriately
Pelvic Trauma	Stable pelvic injury	None, if treated appropriately
	Unstable pelvic injury	Compensated (early) volume shock Uncompensated (late) volume shock
Extremity Trauma	Stable extremity injury	None, if treated appropriately
	Unstable extremity injury	None, if treated appropriately

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Specific Environmental MOI	Current Problem	Anticipated Problem
Low Water Intake	Dehydration	Heat Exhaustion/Stroke in a heat challenge if not treated.
Sun Exposure	Sunburn	Dehydration.
	Phototoxic Reaction	None, if treated appropriately.
	Photoallergic Reaction	None, if treated appropriately.
	Photokeratitis (snow blindness)	None, if treated appropriately.
Heat Challenge	Heat Stroke	None, if assessed early and treated appropriately. Death if untreated or treated late.
	Heat Exhaustion	None, if treated appropriately. Heat stroke if not treated.
	Heat Rash	None, if treated appropriately.
	Heat Cramps	None, if treated appropriately.
	Heat Syncope	None, if treated appropriately.
	Hyponatremia (low sodium)	None, if assessed early and treated appropriately. Death if treated late.
Cold	Cold Response	None, if treated appropriately.
	Mild Hypothermia	None, if treated appropriately. Moderate hypothermia if untreated.
	Moderate Hypothermia	Varies depending on treatment & evacuation. Severe hypothermia if untreated.
	Severe Hypothermia	Varies depending on treatment & evacuation. Death is possible.
	Reynaulds	None, if treated appropriately.
	Chilblains	None, if treated appropriately.
	Cold Water Immersion Injury (trenchfoot)	None if minor, assessed early, and treated appropriately. Pain, infection, loss and of tissue/limb if serious.
	Frotnip	None, if treated appropriately.
	Frostbite	Pain, infection, and loss of limb if serious.
Submersion in Water	Drowning (recovery with no respiratory distress)	Respiratory distress 2º delayed pulmonary edema.
	Drowning (recovery with respiratory distress)	Respiratory arrest & death 2º pulmonary edema.

Advance to the next page for 2nd environmental chart.

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Specific Environmental MOI	Current Problem	Anticipated Problem
Hot Air, Water, Metal, & Fire	Respiratory Burns (with no respiratory distress)	Respiratory distress 2º delayed pulmonary edema.
	Respiratory Burns (with respiratory distress)	Respiratory arrest & death 2º pulmonary edema.
	Thermal Burns	Pain if minor, assessed early and treated appropriately. Pain, volume shock, infection, and death if serious.
Lightning	Awake with no S/Sx	None.
	Awake with S/Sx	Varies, death is unlikely.
	VPU	Varies, death.
Altitude	Mild Acute Mountain Sickness	None, if treated appropriately.
	Moderate Acute Mountain Sickness	None, if treated appropriately. Severe AMS if unable to treat.
	Severe Acute Mountain Sickness (HAPE/HACE)	Death 2º high altitude pulmonary edema and/or high altitude cerebral edema
SCUBA	POPS (pulmonary overpressure syndrome)	None if minor, assessed early, and treated rapidly. Death if serious and decompression is delayed.
	Nitrogen Narcosis	None if diver surfaces.
	Bends (decompression sickness)	None if minor, assessed early, and treated rapidly. Death if serious and decompression is delayed.
	Squeeze (barotrauma)	None, if treated appropriately
Free Diving	Squeeze (barotrauma)	None, if treated appropriately
	Shallow Water Blackout	Death if not promptly rescued.
Sea & Motion Sickness	Sea & Motion Sickness	None, if treated. Dehydration if untreated.
Absorbed Toxins **Ingested Toxins** **Inhaled Toxins** **Bites & Stings**	Systemic Toxic Reaction	Varies. Depends on the specific toxin.
	Local Toxic Reaction	Varies. Depends on the specific toxin.
	Systemic Allergic Reaction	None, if assessed early and treated appropriately. Death if serious and treatment is delayed or unavailable.
	Local Allergic Reaction	None, if treated appropriately

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