

Wilderness First Aid



AMERICAN
SAFETY &
HEALTH
INSTITUTE



An HSI Company

Wilderness First Aid

Student Book, Version 8.0

Purpose of this Student Book

This ASHI *Wilderness First Aid Version 8.0 Student Book* is solely intended to facilitate certification in an ASHI Wilderness First Aid training class. The information in this handbook is furnished for that purpose and is subject to change without notice.

ASHI certification may only be issued when an ASHI-authorized instructor verifies a student has successfully completed the required core knowledge and skill objectives of the program.

Notice of Rights

No part of this ASHI *Wilderness First Aid Version 8.0 Student Book* may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage and retrieval system, without written permission from the American Safety & Health Institute.

Trademarks

The ASHI logo is a registered trademark of the American Safety & Health Institute, Inc. (ASHI)

Disclaimer

HSI has used reasonable effort to provide up-to-date, accurate information that conforms to generally accepted treatment recommendations at the time of publication. These recommendations supersede recommendations made in previous ASHI programs. Science and technology are constantly creating new knowledge and practice. Like any printed material, this publication may become out of date over time. Guidelines for safety and treatment recommendations cannot be given that will apply in all cases/scenarios as the circumstances of each incident often vary widely. Signs and symptoms may be incomplete and can vary from person to person. Do not use the information in this program as a substitute for professional evaluation, diagnosis, and treatment from an appropriately qualified physician or other licensed healthcare provider. Local or organizational physician-directed practice protocols may supersede treatment recommendations in this program.

American Safety & Health Institute

1450 Westec Drive
Eugene, OR 97402 USA
800-447-3177

E-mail: response@hsic.com

Visit our website at emergencycare.hsi.com

Copyright © 2018 American Safety & Health Institute.
All Rights Reserved. Printed in the United States of America.

First Edition—2018



Making the Workplace and Community Safer™

Table of Contents

March 2018

PREPARING TO HELP

Wilderness First Aid	1
Protecting Yourself	2
Infectious Bloodborne Diseases	Personal Protective Equipment
Standard Precautions	
Skill Guide 1 — Removing Contaminated Gloves	4
Legal Considerations	5
Duty to Act	Abandonment
Consent	Good Samaritan Laws
Implied Consent	Documentation
Scope of Practice	
Getting Help	7
Go Fast or Go Slow	Mobile Phones
Accessing Professional Medical Help	Evacuation
Moving and Lifting	10
Body Mechanics	Performing a BEAM Move
Performing an Emergency Drag	Placing a Person in a Recovery Position
Log Roll	
Skill Guide 2 — Performing an Emergency Drag	14
Skill Guide 3 — Performing a Log Roll with a Single Provider	15
Skill Guide 4 — Performing a Log Roll with Multiple Providers	16
Skill Guide 5 — Performing a Body Elevation and Movement (BEAM) Move	17
Skill Guide 6 — Placing a Person in a Recovery Position	18

ASSESSMENT

Scene Assessment	19
Personal Safety	Nature of the Illness (NOI)
General Impression	Deciding to Help
Mechanism of Injury (MOI)	Establish Control
Initial (Primary) Assessment	21
Initial Assessment	
Additional Considerations	
Skill Guide 7 — Performing an Initial Assessment — Unresponsive	24
Skill Guide 8 — Performing an Initial Assessment — Responsive	25
Focused (Secondary) Assessment	26
Chief Complaint	Vital Signs
Documentation	SAMPLE History
Hands-On Physical Exam	Ongoing Assessment
Skill Guide 9 — Focused Assessment	32
Skill Guide 10 — Documentation	33
Skill Guide 11 — Performing a Hands-On Physical Exam	34
Skill Guide 12 — Taking Vital Signs	35
Skill Guide 13 — Taking a SAMPLE History	36

SUDDEN INJURY

Shock	37
Skill Guide 14 — Treating for Shock	38
Control of Bleeding	39
Blood Vessels and Bleeding	Tourniquets
Protective Barriers	Packed Dressings
Direct Pressure	External Bleeding Control
Commercial Bleeding Control Devices	Being Prepared
Pressure Bandages	Internal Bleeding
Skill Guide 15 — Using Direct Pressure	45
Skill Guide 16 — Using a Pressure Bandage	46
Skill Guide 17 — Using a Commercial Tourniquet	47
Skill Guide 18 — Using an Improvised Tourniquet	48
Skill Guide 19 — Using a Packed Dressing	49
Major Wounds	50
Large Wounds	Amputation
Injury to the Chest	Impaled Objects
Injury to the Abdomen	
Skill Guide 20 — Treating an Open Chest Wound	53
Facial Injuries	54
Scalp	Teeth
Eyes	Ear
Nose	
Minor Wounds	57
Lacerations	Blisters
Avulsions	Chafing
Abrasions	
Skill Guide 21 — Treating a Blister	60
Cleaning, Closing, and Dressing Wounds	61
Wound Cleaning	Wound Dressing
Wound Closing	
Skill Guide 22 — Cleaning, Closing, and Dressing Wounds	63
Burns	64
Thermal Burns	Electrical Burns
Burn Depth and Extent	Chemical Burns
Supportive Treatment	
Head, Neck, or Back Injuries	66
Injury to the Spine	
Injury to the Brain	
Skill Guide 23 — Providing Spinal Motion Restriction	71
Skill Guide 24 — Straightening the Body	72

Musculoskeletal Injuries	73
Assessment	Bone Injuries
Strains and Sprains	Injuries to Joints
Skill Guide 25 — Supportive Care for Soft-Tissue Joint Injuries (RICE)	80
Skill Guide 26 — Manual Stabilization of an Injured Extremity	81
Skill Guide 27 — Using a Sling and Swathe	82
Skill Guide 28 — Splinting a Long Bone Using a Malleable Splint	83
Skill Guide 29 — Splinting a Long Bone Using an Improvised Splint	84
Skill Guide 30 — Splinting Extremities	85
Skill Guide 31 — Splinting Complicated Fractures	86
Skill Guide 32 — Splinting Non-Extremities	87
Skill Guide 33 — Reducing an Anterior Shoulder Dislocation	88
Skill Guide 34 — Reducing Dislocations	89
Extended Injury Management	90
Ongoing Assessment	MRSA
Wound Infection	Hygiene
SUDDEN ILLNESS	
Altered Mental Status	92
Fainting	Diabetes Mellitus
Stroke	Seizure
Breathing Difficulty, Shortness of Breath	97
Asthma and Inhalers	Pulmonary Edema
Allergic Reaction and Anaphylaxis	
Skill Guide 35 — Using an EpiPen® Auto-Injector	101
Skill Guide 36 — Using an Epinephrine Injection, USP Auto-Injector	102
Abdominal Problems	103
Abdominal Pain	Hemorrhoids
Stomachache (Gastroenteritis)	Bladder Infection
Diarrhea	Kidney Stones
Constipation	Personal and Camp Hygiene
Pain, Severe Pressure, or Discomfort in Chest	107
Poisoning	108
Poison Oak, Ivy, and Sumac	Poisonous Plants and Mushrooms
ENVIRONMENTAL EMERGENCIES	
Heat Emergencies	110
Dehydration	Heat Stroke
Heat Cramps	Low Body Sodium Level (Dilutional Hyponatremia)
Heat Exhaustion	
Cold Emergencies	113
Hypothermia	
Localized Cold Injuries	
Skill Guide 37 — Creating a Hypothermia Wrap	117

Bites and Stings	118
Stinging Insects	
Mosquito Bites	
Tick Bites	
Snakebites	
Submersion	122
Rescue	
Cardiac Arrest	
Lightning	125
Altitude Illnesses	126
Acute Mountain Sickness	
High Altitude Pulmonary Edema	
High Altitude Cerebral Edema	
OTHER WILDERNESS CONSIDERATIONS	
Emotional Considerations	129
Anxiety	
Hyperventilation	
Provider Emotions	
First Aid Kits	131
Kit Considerations	
Medications	
First Aid Supplies	
Protection from the Elements	134
Sun	
Rain	
Heat	
Cold	
Water and Food	136
Water Decontamination	
Food Storage	
Prevention of Food or Waterborne Illness	
ADDITIONAL INFORMATION	
Glossary	139
Sources	145
Endnotes	146
Knowledge Check Answers	147

Wilderness First Aid

First aid is the immediate care given to a suddenly ill or injured person until a medical professional can assume responsibility. Emergency medical services (EMS) in the United States has the ability to respond very quickly to most emergencies. Standard first aid training takes this into account and relies heavily on the fact that professional help is only minutes away.

However, there are circumstances in which professional help can be delayed for hours, or even days.

For those who venture out into remote or wilderness areas, a different type of first aid training is required that takes into account things such as limited access to medical supplies, exposure to outdoor elements, and the extended response time for professional help.



Wilderness first aid is the assessment of and treatment given to an ill or injured person in a remote environment where definitive care by a health care professional and/or rapid transport are not readily available.

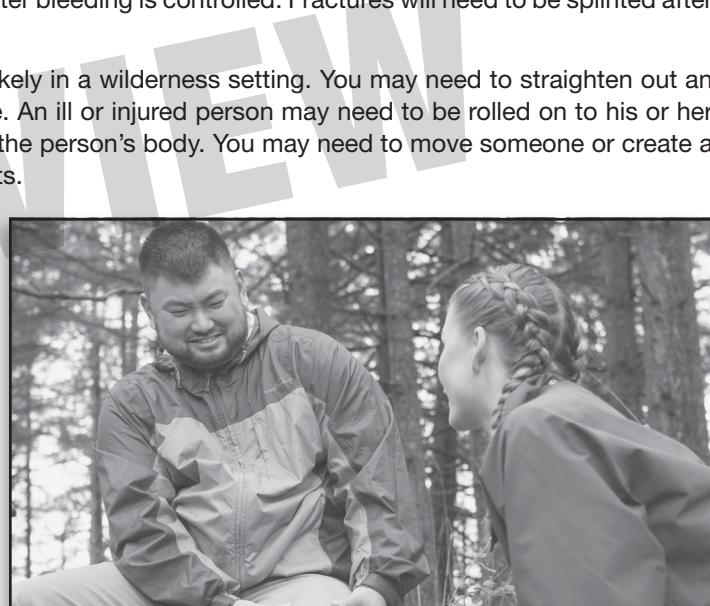
Long hikes, extended lengths of river, large expanses of ocean, and miles of asphalt may separate the person from a medical facility. You, as a provider, and the ill or injured person may have to endure unexpected heat, cold, rain, wind, or darkness. The equipment needed for treatment may have to be improvised from what is available, and communication with professional medical responders may be limited or nonexistent.

One of the focal points of wilderness first aid is the need to provide extended medical care treatments. In addition to the immediate stabilizing treatments found in standard first aid training, additional care will be necessary over time. For example, wounds will need to be cleaned and dressed after bleeding is controlled. Fractures will need to be splinted after initially immobilizing them with hands-on stabilization.

The need to lift and move ill or injured people is more likely in a wilderness setting. You may need to straighten out an injured person's body in order to provide extended care. An ill or injured person may need to be rolled on to his or her side to clear an airway or to get a protective pad under the person's body. You may need to move someone or create a structure to protect him or her from the outdoor elements.

Medical emergencies that are rarely or never seen in an urban setting can more easily occur in the wilderness. Specific illnesses can occur as a result of increasing altitude. Emergencies created by bites and stings are more possible. Poisonous plants pose a greater risk.

The evacuation of an ill or injured person becomes more of an issue when you are in a remote location. The activation of professional medical help becomes much more involved. Informed and deliberate evacuation decisions to have someone walk out immediately, stay put, or be carried out need to be made depending on the circumstances.



First aid supplies and equipment are typically limited or nonexistent in a wilderness setting. Often equipment such as splints or litters need to be creatively improvised from available material.

At its core, wilderness first aid training is intended to:

- Preserve life
- Alleviate suffering
- Prevent further illness or injury
- Promote recovery

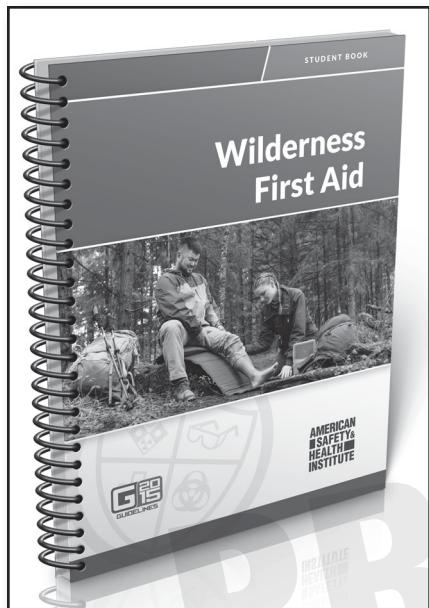
Wilderness First Aid Provider

A wilderness first aid provider is someone trained not only to deal with the immediate care of a suddenly ill or injured person, but also to manage the issues created by being in a remote setting.

Compared to a standard first aid provider, a wilderness first aid provider needs to be trained in a greater breadth of topics and in greater detail.

Purpose of the Wilderness First Aid Course

Wilderness first aid providers need to be prepared to handle a wide variety of situations. This is best accomplished through effective training with plenty of hands-on skill- and scenario-based practice.



This course is designed to provide students with the necessary cognitive knowledge to immediately manage medical emergencies in a remote location, and to initiate and participate in the process of evacuation.

More importantly, this course includes a significant amount of time for practicing skills with hands-on exercises, and for applying those skills to simulated wilderness emergencies. There are limits to the role of the wilderness first aid provider and the level of content covered in this course. This wilderness first aid course has been designed to meet the Wilderness First Aid Curriculum and Doctrine Guidelines, 2017 Edition, established by the Boy Scouts of America for a 16-hour Wilderness First Aid course.

Knowledge Check

What are some issues addressed in training to become a wilderness first aid provider that are not typically included in standard first aid training?



Protecting Yourself

When caring for someone, you can be exposed to blood or other potentially infectious body fluids. While the risk of contracting a disease is very low, it is wise to take simple measures to avoid exposure in the first place. Take precautions every time, no matter who you are giving first aid care to.

First aid in a remote setting usually involves extended first aid treatment time prior to getting an ill or injured person to professional medical care. Extended first aid treatments can be more involved. Both of these factors substantially increase the risk of disease exposure.



Infectious Bloodborne Diseases

Infectious bloodborne diseases and pathogens include hepatitis B, hepatitis C, and HIV, the virus that causes AIDS.

Exposure to infectious bloodborne diseases can occur through the direct contact of infectious material with an open wound or sore, or by absorption through the membranes of the mouth, nose, and eyes. Exposure can also occur through a skin puncture with a contaminated, sharp object.

If you are in a remote or delayed-response situation and suspect you have been exposed to potentially infectious body fluids, report this to any group leader or organizer, and follow up with your healthcare practitioner as soon as you are able.

Standard Precautions

It is important to routinely protect yourself from any exposure. Minimizing your risk of exposure lowers the chance of infection. Standard precautions is a set of protective practices used to prevent the transmission of diseases by exposure to blood or other potentially infectious body fluids, whether or not an infection is suspected. To be effective, your approach is the same for everyone, regardless of relationship or age.

Personal Protective Equipment

Personal protective equipment (PPE) describes protective barriers worn to prevent exposure to infectious diseases.

Disposable, non-latex gloves, such as nitrile, are the most commonly used protective barrier. Make sure they are readily accessible, even in a remote situation, and always use them when managing first aid care.

Inspect gloves for damage or tears when you put them on. If damaged, replace them immediately. If gloves are unavailable or damaged, improvise protective barriers with materials on hand, such as a plastic bag.



After providing care, always remove contaminated gloves carefully and dispose of them properly.

Even after using gloves, use soap and water to clean your hands and any exposed skin. Use an alcohol-based hand sanitizer if soap and water are not available. Take the time needed to wash thoroughly.

Another commonly used type of PPE, a face shield, can prevent mouth, nose, and eye exposure when there is a possibility of splashing or spraying.

Latex Allergy

Natural rubber latex allergy is a serious medical problem. Anyone who uses latex gloves frequently is at risk for developing it. Simple measures such as the use of non-latex alternatives can stop the development of latex allergy and new cases of allergic reaction.¹



Knowledge Check

While you should always protect yourself from exposure to blood or other potentially infectious body fluids when providing first aid care, why is it particularly important to take precautions when providing care in a remote setting?

Removing Contaminated Gloves



Grasp First Glove

- After providing care, always remove contaminated gloves carefully.
- Avoiding bare skin, pinch the glove at either palm with the gloved fingers of the opposite hand.



Remove Inside Out

- Gently pull the glove away from the palm and toward the fingers, turning the glove inside out without snapping it.
- Gather the glove you just removed with your gloved hand.



Slide Finger Under Second Glove

- Carefully slide your bare index finger inside the wrist band of the gloved hand.



Remove Inside Out

- Gently pull outwards and down, inverting the glove and trapping the first glove inside.
- Throw away gloves in an appropriate container to prevent any further contact.
- Use soap and water to clean your hands and any exposed skin. Use an alcohol-based hand sanitizer if soap and water are not available.

Initial (Primary) Assessment

Before you can provide first aid care to an ill or injured person, you must first identify the things that are creating difficulty and harm. This is done through an organized, step-by-step assessment process, used in every situation.

Using a combination of an initial and a focused assessment, this process identifies immediate threats to life, prioritizes treatments, and provides a detailed method for identifying less serious injuries.



Initial Assessment

The goal of an initial assessment is to quickly identify any immediate life threats to an ill or injured person and to provide the indicated life-supporting care without delay. If you discover a threat, stop and attend to it.

Keep this simple and clear goal in mind in every case: Assessing for and treating lesser problems can wait.

The initial assessment steps can be easily remembered using the **ABCDE** mnemonic device:

- **Airway** — Is it clear and open?
- **Breathing** — Is it present? What is the quality of it?
- **Circulation** — Is it present? What is the quality of it? Is there severe bleeding or shock?
- **Disability** — Do you suspect head, neck, or back injury involving the spine?
- **Environment** — Are environmental conditions creating immediate threats?

The activation of professional medical help and a rapid evacuation to advanced medical care is essential for any life-threatening condition. Depending on the circumstances, this must be done in the most immediate way possible.

If it is safe to approach, begin your initial assessment by first determining whether or not a person is responsive in any manner. It could be obvious, or require verbal and physical interaction on your part. If you are unsure, determine responsiveness by tapping or squeezing the shoulder and asking loudly, “Are you all right?”

A person who is unresponsive requires treatment learned in a CPR training course.



Airway

Continue your initial assessment of a responsive person by introducing yourself, indicating your level of training, and asking if it is okay to help. This will help to reassure the person that you are there to help and establish the person’s consent for your help.

If he or she consents to your help, ask an open-ended question about the situation, such as “What happened?” or “What’s wrong?” At this point, because the focus of the initial assessment is to identify life-threatening issues, the answer to your question is less important than forcing a response that enables you to identify any serious problems with the airway.

If responsive, gauge the approximate level of responsiveness. People with a diminished level of responsiveness are more likely to develop a blocked airway due to the relaxation of the tongue in the airway. If the person is found to be semi-responsive, consider placing the person in the recovery position to open and protect the airway.

Look for things such as gum, tobacco, blood, or vomit. Listen for sounds such as gurgling or wheezing. If found, immediately attempt to fix them. Log roll the person if needed to drain fluids from the mouth. If seen, sweep the mouth to remove solid or semi-solid matter.

Breathing

Quickly form an impression of whether or not breathing is adequate based on rate, depth, and effort. Adequate breathing is regular, even, and effortless. Inadequate breathing may be fast, slow, shallow, labored, irregular, or gasping. If breathing does not appear to be adequate, look for injury to the chest that could be interfering with the ability to take a breath. Consider the use of supplemental rescue breaths to assist breathing.

Circulation

Scan the body for any signs of severe bleeding such as spurting wounds, large bloodstains, or pooling blood. Check more closely if bulky clothing is worn that could mask signs of bleeding. If significant bleeding is found, immediately expose the wound and attempt to control the bleeding using direct pressure, a tourniquet, or a packed dressing, such as a hemostatic dressing.

Look for progressive signs of impending shock such as a change in mental status. Check for the presence of a radial pulse in the wrist as a quick measurement of adequate blood pressure. Check the skin for tissue color, temperature, and moisture. Pale, cool, and clammy skin is an indication of shock.

If you suspect shock is occurring or likely to occur, make sure your other primary treatments, such as the control of bleeding, are being effectively provided. Place the person in a supine position, and try to maintain a normal body temperature as soon as you are able to.

Disability

If you suspect a spinal injury may have occurred, immediately place a hand gently on the person's forehead and ask the person to stay still. If another provider is available, have that person manually establish spinal motion restriction as soon as possible.

Environment

If the environmental conditions, such as severe weather, create a serious burden or risk to the immediate or ongoing ability of the person to survive, attempt to change the conditions quickly. If possible, move the person to a more protected or safer area. If you cannot move the person, protect him or her from the environmental conditions as best you can.

Additional Considerations

If an initial assessment has revealed problems that you cannot determine the severity of because they are hidden by clothing or the position of the person, quickly expose the affected area to take a look. Examples would include a chest injury affecting breathing or a wound that is severely bleeding. Cut or tear clothing away as necessary. Log roll a person to expose areas of the body that are inaccessible.

It is okay to do multiple things at the same time. For example, if the mechanism of injury clearly suggests injury to the head, neck, or back, then spinal motion restriction from another provider can be established from the beginning of the assessment. In many cases, the initial assessment takes only seconds when there are no obvious ABCDE life-threatening problems.

Remember to stay focused on only looking for life-threatening issues. Highly visual moderate and minor things such as open wounds can draw your attention away. Treating those effectively does not matter if a person does not survive a primary problem like loss of an airway or inadequate breathing that you neglected to care for.

If a life-threatening condition is present, immediately activate the process for getting help. Do not delay activation with additional assessment or care.

Multiple Injured or Ill People

When there are multiple people affected in an emergency, treat the most seriously ill or injured first. Bypass those with minor problems or even ask them for their help. Leave anyone who is obviously dead alone. Focus first on those who have immediate life-threatening problems, and then move on to those who still need intervention.



Knowledge Check

The initial assessment steps are easily remembered using the ABCDE mnemonic device. What are the 5 steps?

PREVIEW

Performing an Initial Assessment — Unresponsive

Pause and assess the scene for safety. If unsafe, or if it becomes unsafe at any time, get out!



Airway

- Check for response. Tap or squeeze shoulder and ask loudly, “Are you all right?”
- If unresponsive, have someone activate professional medical help and, if available, get an AED.



Breathing

- Position person face-up on a firm, flat surface.
- Look at face and chest for normal breathing. Take no longer than 10 seconds. If unsure, assume breathing is not normal.
- Weak, irregular gasping, snorting, or gurgling is not normal breathing.



Provide Immediate Care

- If person is not breathing, or only gasping, perform CPR beginning with compressions. Apply an AED as soon as possible.
- If normal breathing is found, place an uninjured person in recovery position.
- Resume initial assessment only if circumstances allow.

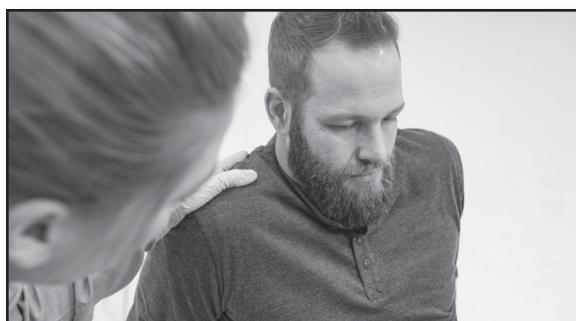
Performing an Initial Assessment — Responsive

Pause and assess the scene for safety. If unsafe, or if it becomes unsafe at any time, get out! Activate professional medical help when a life-threatening condition is found or suspected.



Airway

- Introduce yourself, indicate your level of training, and ask if it is okay to help.
- Check for diminished level of responsiveness. Look and listen for airway issues.
- Consider recovery position. Drain fluids and sweep solid material from mouth if found.



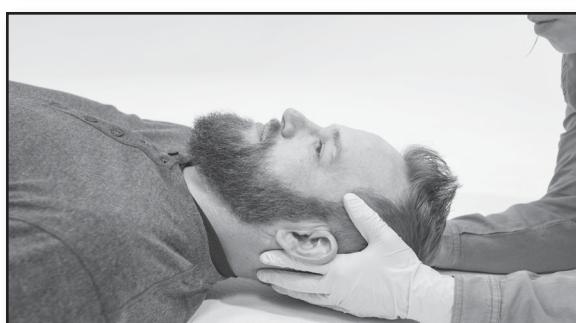
Breathing

- Quickly assess for adequate breathing. If inadequate, consider the use of supplemental rescue breaths.



Circulation

- Scan body for heavy bleeding. If found, control it immediately.
- Check skin signs. Look at face to check tissue color. Depending on skin tone, it may be easier to check tissue color on the palms, fingernails, inside eyelid, or inside the lip. Touch person's forehead with bare wrist to assess skin temperature. Note whether the skin is dry or wet. If shock is suspected, treat for it.



Disability

- Consider if mechanism of injury makes you suspicious of spinal injury. If so, initiate spinal motion restriction.



Environment

- Consider if environmental conditions will impact survival. If so, move person or protect from extreme elements.

AMERICAN SAFETY & HEALTH INSTITUTE

An HSI Company

American Safety & Health Institute
1450 Westec Drive
Eugene, OR 97402 USA
800-447-3177 • 541-344-7099 • 541-344-7429 fax
emergencycare.hsi.com

Wilderness First Aid



Making the Workplace and Community Safer™