

Trail Medicine #17

Hiking -Related Injuries: Treatment

by David B. Tyler , M.D.

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A few years ago about 14 miles into a proposed 36-mile hike on the Northville-Placid Trail, one of my companions developed such severe knee pain that he couldn't continue. There we were, three doctors stuck 14 miles from anywhere with few options but to get out of the woods in the safest possible manner. Having three people allowed us to send one for help while I stayed with my injured friend. Even as doctors we were pretty helpless to deal medically with this situation. We spent a day resting and recuperating while waiting for help to arrive, which it did in the form of a boat rented in Long Lake. That event gave me pause to think of other injuries that can take place in the woods and of how to provide basic first aid. Some injuries, cuts and blisters for instance, are easy to diagnose. Others are much more subtle. There are times when you can deal with an injury with basic first aid and then move on down the trail, and there are times when moving an injured hiker can be life-threatening. Here are a few possible hiking-related injuries and ways to deal with them.

The most common hiking injuries are probably blisters on the feet. This problem has been covered in detail in past articles as have sunburn and other skin ailments.

Sprains and fractures are next on the injury list. These can be very serious problems if the victim is in a remote area. What do you do in case of an injured leg or ankle? Immobilization and elevation of the injured area are the mainstays of early treatment. Keeping the leg or ankle from moving reduces pain and may prevent injuries to surrounding tissues in case of an unstable fracture. A splint should be applied to prevent movement if a fracture is present or is suspected. Elevation eases the pain and helps to keep swelling down. Ice, if available, helps to decrease early swelling and reduce pain, but it should be used with caution in cold weather because of the risk of hypothermia. Ice should never be applied directly to the skin for fear of



damaging the skin and surrounding tissue. Cold compresses are also useful if water is nearby.

A sling is very helpful to decrease movement and reduce pain in case of an arm or shoulder injury. Immobilization also applies if a finger or toe is broken. A finger can be splinted with a stick or taped to an adjacent finger. A fractured toe should be taped to its neighbor.

Lacerations are frequent injuries but are not usually serious.

Bleeding, while frightening, can most often be stopped quickly. If bleeding is from an extremity, that part should be elevated to reduce pressure in the injured blood vessels and decrease blood flow. Direct pressure on the site of bleeding is the next step, and it almost always works. A clean cloth or bandage should be placed directly on the wound and pressure applied. It is seldom that direct pressure on an open wound will fail to stop bleeding.

Should a tourniquet be used? A tourniquet may be a lifesaver, but thanks to the clotting power of blood it is very rarely necessary and should be used only as a last resort. To be effective a tourniquet must be applied tightly enough to exceed the arterial blood pressure. This cuts off the blood flow to the extremity. If not applied tightly enough, it can prevent venous blood from leaving the arm or leg while allowing the arterial blood to continue to flow into it. This can greatly increase venous bleeding. This is why a tourniquet that does not exceed arterial blood pressure is placed around your arm when you have blood drawn for testing purposes. It increases venous pressure and makes the veins more accessible.

The only time a tourniquet may be valuable is when there is uncontrollable arterial bleeding. Bright red blood that is pumping out is arterial, while venous blood is darker and flows constantly. Venous bleeding is low pressure and should respond to the application of direct pressure. If major arterial bleeding is not stopped with pressure, then a tourniquet can be applied above the bleeding point and slowly tightened until the

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bleeding stops. One must remember that this stops all blood flow and that the tourniquet should be slowly released every half hour to re-nourish the limb with blood. The tourniquet should be removed as soon as bleeding is under control. Bleeding significant enough to require a tourniquet would have to come from a very deep laceration or a puncture wound that disrupted a major artery. Fortunately these rarely occur, and in over 30 years of medical experience, I have never seen an injury that required a tourniquet.

Internal bleeding is much more subtle and is very dangerous. It should be suspected if a person has somehow been struck in the abdomen or back or has had a hard fall. Continuing abdominal pain after such an injury can signal damage to an organ, particularly the spleen or liver. A person with internal bleeding may quickly become pale, cold, and clammy and may feel faint or nauseated. These are all signs of blood loss. An individual in this situation should be kept quiet and help should be summoned at once! While some internal bleeding will stop on its own, it is not unusual for emergency surgery to be required, so a person should be evacuated as quickly as possible.

Other serious problems that may be encountered are injuries to the head or neck. A person who loses consciousness or has severe headaches, nausea, visual disturbances, or lack of coordination after a blow to the head may have intra-cranial bleeding. This condition requires special diagnostic and therapeutic measures, and the victim should be kept still while help is being urgently sought.

Neck injuries are particularly frightening. The spinal cord in the neck is very vulnerable to injury. Any trauma to the neck that is followed by a loss of function or feeling in an extremity should be taken very seriously, as witnessed by the heightened sense of urgency when dealing with football players and other athletes injured in this manner. The individual should not be moved. The head should be immobilized as well as possible to keep it from turning. Any movement could worsen the injury and cause permanent spinal cord damage and paralysis.

Eye injuries are common and are usually caused by being poked by a twig. If it is as simple as having a bug or other foreign object in the eye, it may be

possible to wash it out or have a companion remove it. However, if it is persistently painful or affects vision, it may represent a corneal abrasion or laceration that requires specialized care. In this instance, you should patch the eye with a clean cloth and head to the emergency room.

It is likely that an injured person will not be able to return to safety without help. This may necessitate spending one or more nights in the woods. During this time, it is important to keep the injured person warm and dry to avoid hypothermia. It pays to be prepared, which means having equipment and clothing appropriate for the weather conditions and terrain that may be encountered.

Here are a few of the basics:

- ◆ First aid kit containing clean bandages, moleskin for blisters, band-aids, a roll of tape, and perhaps some mild pain medicine such aspirin, Tylenol, or ibuprofen
- ◆ Waterproof windbreaker, wool hat, and gloves
- ◆ Fleece jacket, extra underwear (cotton should not be worn next to the skin) and socks
- ◆ Ground cloth or space blanket
- ◆ Good, solid hiking boots
- ◆ Matches in a waterproof container and a flashlight
- ◆ Extra food and plenty of water
- ◆ A cellular phone

Someone at home should be aware of your planned destination and your expected time of return. Although I frequently break this rule, it is unwise to venture into remote areas alone. Ideally it is best to travel with three people or more. This allows one person to stay with an injured hiker, while the third goes for help.

To have a successful hike, we must come home safely, be reasonably comfortable, and have fun. Fun and comfort are somewhat subjective, but safety is paramount for us all. Let's hope that by proper preparation with conditioning and equipment and constant vigilance along the trail, we can all avoid injury and have happy and fulfilling hiking experiences. □

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