



# Denver Leader Safety

*The Safety Letter for Denver Leaders of the Colorado Mountain Club*

[www.hikingdenver.net](http://www.hikingdenver.net)

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All honest parents can attest to less than stellar moments in child rearing. I am no exception to that. As a highly trained and educated medical professional, I told my daughter to “Walk it off!” when she injured her ankle running over first base. Turns out she had a fracture of her fibula, the smaller lower leg bone next to the tibia. See, I do know my anatomy. If that wasn’t enough, I made my other daughter walk to school on, not one, but two fractured metatarsals (long bones of the foot). In my defense, I did supply her with a sturdy, rigid shoe.

Two incidents involving leg injuries were presented at our recent Leader Appreciation night. In the first, a leader was blown 60 ft, while descending Mt. Lady Washington. The other involved an epic rescue on Mt. Sacagawea in the Wind Rivers. A large boulder rolled over a climber’s leg, severely fracturing both the tibia and fibula.

I am therefore dedicating this month’s article to the first aid of lower leg injuries. In addition, I will send a copy to my children so we can hopefully put those unfortunate events behind us.

Fractures of the leg usually involve a large amount of force. The adage, “If you can walk on it, it ain’t broken,” is not true in all instances. You can walk on stable fractures. These often occur with the fibula at the ankle level. Often times, you can walk out with the aid of good splinting and help from your fellow hikers.

As in all cases, make a proper assessment and provide the basic 1st aid:

**Rest** - Initially lay the person down and keep them warm. Hypothermia is not only the result of cold weather, but also the body’s reaction to injury.

**Ice** – If possible, apply something cold such as a baggie of snow or cold water. Do not apply directly to the skin.

**Compression** – Address any blood loss. Pad the injury and place a reasonable amount of pressure on it, such as an elastic bandage. Take care not to apply it so tightly as to cut off circulation. Apply a splint if necessary.

**Elevate** – Try to keep the extremity above the heart. This may not be possible on the trip down, but watch for a decrease in blood supply and excessive swelling.

In addition, suggest an anti-inflammatory/NSAD/pain killer such as ibuprofen or Tylenol, providing they are not allergic to it. Stabilize the injury. Consider factors such as weather, time of day, severity of injury, amount of mobility, distance from the trailhead and the general condition of the patient when deciding to call SAR. Remember even if you don’t have cell reception, you can still use your cell phone to place an emergency call or text.

As in all injuries, it is important for the leader to suggest they accompany the injured hiker to urgent care. While we cannot force someone to seek help we can always “strongly” suggest this option. It protects both the leader and the injured hiker.

## Knee Injuries:

Fractured/dislocated patella (kneecaps) – These are usually a result of a direct blow to the kneecap. On a hike up to Mt. Bancroft a hiker slipped and fractured her patella. She could not bear weight and was experiencing intense pain. She had to be mainly carried down. In this case, the injury was apparent with sudden swelling and bruising. Most often you can see or feel the deformity.

Torn ligament/cartilage – On Mt. Lady Washington, Mike sustained a small fracture of the femur, torn posterior cruciate ligament and popliteal muscle. While a fracture of the femur is usually major, in this case it wasn’t. I’ll concentrate on the knee injury.

Upon injuring the criss-cross ligaments (ACL & PCL) of the internal knee, the person may feel their knee has “given way”. These injuries are usually the result of a twisting motion. In some cases, there may not be a great deal of pain. In a significant tear, there will be marked signs of instability and immediate swelling. There may

be a feeling of the knee slipping backward or a clicking sensation. The knee may feel loose.

In a meniscus or cartilage tear, the person may also feel instability in addition to popping or grinding. One significant symptom is locking of the joint. In this case, the person may not be able to straighten out the knee.

### **Lower Leg Injuries:**

**Tibia (shinbone) Fractures** – Oh, you'll probably know when this happens. There are all different types of fractures. Often there is immediate and intense pain. The person may have felt a crack as the injury occurred. They will most probably not be able to bear weight and can experience a grinding sensation when the limb is moved. If the bone protrudes through the skin it is called an open fracture.

Most often you will have to call emergency services for assistance and evacuation. In the meantime, lay the person down, provide warmth, address any bleeding, and stabilize the limb.

**Fibula Fractures** – These can be tricky for there may or may not be a lot of pain associated with certain types of these injuries. This is the small bone adjacent and on the outside of your tibia. Mid shaft fractures most often occur in conjunction with a tibial fracture or from a direct blow to the leg. There may be isolated tenderness to the outside of the leg. I will address the lower fibula in ankle injuries.

### **Ankle Injuries**

The tibia, fibula and talus (lower part) comprise the ankle joint.

The motions causing ankle injuries include twisting, rolling, falling directly on the joint, and sometimes over extension or flexion. Generally sprains involve the soft tissue and ligament. Fractures involve the bones and require a significant amount of force. Fortunately, most ankle injuries are sprains.

**Fractured Ankles** – Fibula fractures may be so slight as to not cause significant pain, as my daughter will tell you. Sometimes they do not show up on the initial X-ray. These may be described as stable fractures, meaning you can walk on them providing the ankle is supported.

All other fractures will have significant pain and tenderness over the bones. The person may complain of a grinding or gritty sensation. Swelling and bruising is often immediate. They may experience a deep, sharp

pain upon movement. With a dislocation or fracture, you may be able to see a significant deformity. If in doubt, compare both feet. Most probably, they will not be able to walk on it.

**Sprained Ankles** – Ice and compression are of the essence here. Severe ankle injuries should always be ruled out for fractures. Once you've determined it most probably is not a fracture, you will want to take immediate first aid measures. Check for numbness. Have them wiggle their toes. They may have felt a pop associated with the injury. Is there swelling and bruising? Swelling starts a vicious cycle of pain and suffering. Keeping the boot on will help in preventing further swelling and provide stability at the same time. This is usually the best solution in the wilderness but there are other options such as taping, splinting, or applying an elastic bandage.

At some point, ice will be crucial in reducing the swelling. There are emergency cold packs. They are activated much the same way as a hand warmer is. I bought a couple at a dollar store and stuck them in the car.

Here are some tips for splinting. If you carry a SAM Splint then you get a gold star.

- Always pad the entire length of the splint (next to the limb). Use lots of padding.
- The splint should extend above and below the injury. The more severe the injury the longer the splint.
- A compression bandage should be looser at both ends to prevent loss of circulation.
- Other things can substitute for splints such as: curved bark from trees, pieces of wood/branches, backpacks or the removable frames, ground pads, poles, magazines (as if you'd have one in your pack).
- Substitutes for bandages: duct tape, bandanas and pieces of clothing (rip them into strips), shoelaces, webbing/rope.
- Always reevaluate the condition of the person throughout the course of evacuation.
- Place padding under the knee to keep it slightly bent.

Should you straighten a broken leg?

This is a tough call. For the non-professional, it's probably best to just stabilize and splint. Trying to straighten out a fracture may cause tissue damage from the broken bone severing tissue and possibly blood vessels. If there is an apparent decrease in circulation such as toes turning blue or numbness, you may want to gingerly change the position.

For those of you who are visual learners here are a couple links.

<http://www.youtube.com/watch?v=NoPgd1XXkSo&feature=>

<http://www.youtube.com/watch?v=mDh6eZY0k3k>

<http://www.youtube.com/watch?v=tQF9gblvOTo>

