

Preventing and Treating Knee Injuries

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One of the most common injuries at Civil Air Patrol encampments is an injury to the knee. The best approach is to prevent the injury before it occurs. Encampments are successful when both the safety and health officers are on the sidelines. There are several steps that can be taken before and during encampment to decrease the likelihood of a knee injury.

1. **Maintain a Healthy Weight**

Perhaps the greatest risk factor for injuring your knee is being significantly overweight or underweight. Maintaining a healthy weight through a proper diet and regular exercise goes a long way towards avoiding an injury to your knee.

2. **Wear the Right Shoes**

Proper footwear helps maintain a proper gait and stride and offers support when running, climbing, marching, etc. Athletic shoes, work shoes, or combat boots that provide proper support can greatly minimize the risk for twisting and strain to the knee which can lead to injury.

3. **Conditioning**

Being in good physical condition also decreases the risk of injury. Our body reinforces the areas that are under regular stress. By exercising regularly, you can strengthen those areas of your body that may become stressed. Begin with low-impact activities and add weight training. Here are some sample exercises: <https://www.jospt.org/doi/epdf/10.2519/jospt.2018.0509> Build up your workout intensity gradually. If you get to encampment “cold” without physical preparation you are at risk.

4. **Don't overtrain**

Increasing your workout too quickly will not strengthen your knee tendons, ligaments, muscles, and bone but will add stress and potentially injure them.

5. **Stretch and “warm up” before any physical activity**

Remember to prepare yourself prior to strenuous exertion. Even if you are in good condition, sudden stress can result in injury. Stretching and warming up will both improve your performance and decrease your risk of injury.

6. **Use proper technique**

When engaging in activities, it is important to use proper technique. Just as proper lifting technique is important to prevent back injuries, proper technique can prevent injuries to other joints such as knees. For example, don't lock your knees during certain exercises or activities.

7. **Use good posture**

Good posture is essentially keeping your body aligned. By practicing this on a regular basis, your muscles and joints are in the natural position of least stress and are strengthened, able to resist sudden movements that could lead to injury.

However, even the most effective prevention program is not perfect, and some injuries will occur. How do you identify those injuries that need medical attention versus those that are more appropriately managed with simple first aid?

One of the first situations requiring medical attention is the need for an X-ray or other imaging. What are those? This has been well defined for knee injuries that occur with a very clear, abrupt onset. If **one or more of the following is present**, the cadet, or senior member, needs prompt medical attention:

- Aged 55 years or over
- Tenderness at the head of the fibula (that bony bump on the outside of the knee, just below where it bends)
- Isolated tenderness of the patella (only the kneecap hurts)
- Inability to flex knee to 90 degrees
- Inability to bear weight (defined as an inability to take four steps, i.e., two steps on each leg, regardless of limping)

If the knee pain has a sudden onset, it is more likely to require medical attention. This is especially true if there is an obvious trauma to the knee. This may be caused by something hitting it, stepping into a hole or uneven ground, or a firmly-plant-foot-and-twist type of injury. If the lower leg (past the knee) of the injured side feels like it is “more loose” than on the uninjured side, prompt medical attention is required.

Knee pain that is of a gradual onset without a specific triggering event that caused it can usually be managed with ice packs, ace wraps, and similar first aid measures, assuming it does not meet the bullet list of criteria above. An exception to this would be if there is major swelling or redness of the knee or if the injured person is running a fever.

Prevention, recognition, and proper level of treatment are key to addressing knee injuries.