



## FIRST AID- SPRAINS AND STRAINS

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The terms sprain and strain are often misused when describing injuries to the musculoskeletal system, the muscles and bones of the human body.

A **SPRAIN** is an injury to a ligament, tissue connecting one bone to the same or another bone. Ligaments generally cross a joint, the intersection of two different bones. Therefore, a joint dislocation is a type of sprain.

A **STRAIN** is an injury to muscle or tendon that connects muscle to bone. Common strains include those to the quadriceps, muscles on the front of the thigh, or hamstrings, muscles on the back of the thigh.

The terms sprain and strain are not synonymous. A muscle cannot be sprained and, conversely, a ligament or joint cannot be strained.

Both types of injuries are ranked by degree.

A *first-degree injury* means a structure was stretched but no fibers torn. The injured tissue is painful, but functional and stable.

A *second-degree injury* indicates structural damage including some fiber tearing. The injured structure is partially intact. An evaluation of the number of damaged fibers may vary from 1-2% up to 99%. The injured structure is not totally functional or stable due to this tearing.

A *third-degree injury* indicates the tissue is torn in half. This is obviously a very serious injury with accompanying instability and loss of function.

### TREATMENT

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Initial treatment for all strains and sprains of any degree is **PRICE: protection, rest, ice, compression, and elevation**. This first aid helps reduce swelling and pain associated with the injury. It also helps prevent additional damage to nearby cells from the pressure of the swelling. If a lower extremity sprain or strain is painful when bearing weight, the athlete should not walk until the injury is evaluated by a medical professional. If an upper extremity sprain or strain is painful during movement, the arm should be immobilized in a sling until evaluated by a medical professional.

**IF THERE IS ANY DEFORMITY OF THE INJURED BODY PART (compared with the opposite side) OR ANY PAIN OUT OF PROPORTION TO THE APPARENT INJURY, THE ATHLETE SHOULD SEEK MEDICAL ATTENTION IMMEDIATELY.**

**PRICE** should be continued for an absolute minimum of 48-72 hours following any acute injury. Ice should be kept in place for 15-20 minutes and repeated every 2-3 hours. Ice should not be wrapped on the injured area too tightly due to the possibility of frostbite. **Do not ever wrap a chemical cold pack, either instant or reusable, on an injury. The pack is too cold and will cause frostbite.** If the athlete is improving with **PRICE** treatments, they can continue past the 72-hour phase of injury.

If the icing results in extreme numbness or any tingling, it should be removed immediately. **Never use heat for initial treatment of an injury as it may produce additional swelling and damage that will complicate the healing process.**

## **PREVENTION**

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Many sprains and strains are preventable. Warm-up thoroughly before activity. Include stretching, but remember stretching by itself is not a warm-up. An adequate warm-up combines stretching with large muscle activity such as running, cycling, drills, etc., intense enough to cause sweating. Sweating indicates your internal body temperature is above resting levels, and the body is ready for activity.

**Get in shape to play your sport; do not use your sport to get in shape.** Many injuries occur in early season practices and games because athletes are not in condition, aerobically or anaerobically. Consequently, they become fatigued, cannot react as quickly to situations, and may be more easily injured.

Lack of strength or flexibility may contribute to injury. Strength permits athletes to control their bodies. Flexibility permits extra motion around a joint, allowing it to absorb additional energy before being injured.

Inspect your personal equipment. Shoes wear out, reducing their support. Protective equipment wears, reducing its protective ability. Loose clothing may be comfortable for you but a hazard to another athlete's hands and fingers.

Inspect the area where you are practicing or competing. Are there any obstacles such as holes, bushes, or trees in the immediate area? Are there any slippery spots due to water or mud?

Athletes with prior injuries should not practice or compete until fully rehabilitated and released by their physician. Lack of strength, flexibility, or conditioning, either aerobic or anaerobic, will predispose an athlete to re-injury. Coaches should not permit any athlete returning from an injury to jump into a full practice the first day back. Individual and team sport skills must be gradually re-introduced until the athlete can perform at a level with the rest of the team. **When in doubt, keep athletes out!**

*The preceding information was gathered from: American Red Cross, Community First Aid & Safety, Mosby Lifeline, 1993 and ©1992 United States Olympic Committee, Sports Medicine Division (revised 23 October 1999).*