

Preventing and Treating Sprains and Strains

By Erin O'Brien

Almost everyone has experienced a sprain or strain at some point in their lives. Whether the injury is due to an on-the-job accident or a game of touch football in the backyard, the result is still the same. While these injuries certainly are not life-threatening, they may prevent a worker from performing day-to-day activities on the job, possibly for an extended period of time. Most strains and sprains can be prevented and, if they do occur, can heal quickly with proper care. This article will define sprains and strains, how to prevent them and what to do in case of injury.

One of the most common injuries a worker may suffer from is a strain. A strain involves the stretching or tearing of muscle fibers due to an overload of resistance or an abnormal muscle contraction. A mild strain is characterized by the stretching of the muscle fibers and results in immediate sharp pain, difficulty moving the affected joint and later followed by soreness, bruising and swelling. Moderate to severe strains involve a partial or complete tearing of the muscle fibers and the symptoms are much more severe. A severe strain could result in the loss of function in that joint for an extended period of time. Common locations for strains are the lower back, neck, hamstring and bicep. Strains are usually caused by lifting heavy objects, a sudden muscle contraction or an accident involving force, such as a fall or car accident. (Fig. 1)

A sprain is the partial or complete tearing of a ligament. A ligament is a band of soft tissue that connects bone to bone. The severity of the sprain depends on the amount of fibers torn and in the most extreme case, the ligament is completely torn. Sprains are caused by a quick, forceful movement in the joint that exceeds the ligament's strength and are especially common during athletic activities. Stepping off a ladder onto an uneven surface, falling from a height and slipping on a wet work surface are examples of on-the-job

Fig. 1

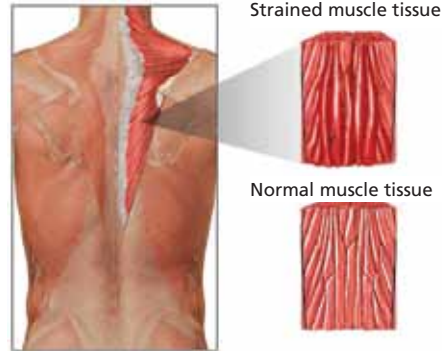


Fig. 2



accidents that could cause sprains. Symptoms of a sprain are similar to those of a strain. The main difference between strains and sprains is that muscles affected by strains have a blood supply, which helps them to heal. Ligaments injured by sprains have little to no blood supply and therefore do not heal. The only way to "fix" a ligament injury is with surgical intervention or by allowing the ligament to scar down. Surgery is normally only required in extreme cases and requires a lengthy recovery. A ligament will scar down with physical therapy, but this scar tissue will make the joint stiffer. If treated properly, recovery time from a sprain that does not require surgery could be as little as a few days. Common sites for sprains include the ankle, knee, elbow and wrist. (Fig. 2)

Strains can be prevented in most cases, while sprains are a little more unpredictable. If a muscle is tight or cold, it is more likely to be injured. A light warmup before any physical activity will loosen the muscle and warm it up by increasing blood flow to the area. Also, workers should use common sense on the job when attempting to lift heavy objects. Using proper lifting techniques, asking for assistance

and avoiding lifting objects weighing over 75 pounds will greatly reduce a worker's risk of muscle injury. Since ligaments do not normally stretch, and sprains involve ligaments, it is harder to prevent a sprain. Warming up the muscles around the joints to be used will help those muscles support the joint and reduce the risk of a sprain. If a worker has a history of injury to a certain joint, they should wear a brace for added protection.

Pain, swelling, bruising and difficulty moving the joint are all normal symptoms of sprains and strains. These symptoms will normally be worse on the first and second day after injury and will gradually decrease in subsequent days. Rest, ice and anti-inflammatories such as Advil, Motrin or Ibuprofen are the best treatment for these injuries. If the symptoms last more than a few days, do not get better or are extremely painful initially, further medical assistance may be necessary. Once a sprain or strain has occurred, the worker is much more likely to sustain another injury in the same area, so precautions must be followed as the next injury will likely be worse.

While they can be debilitating, time-consuming injuries, most strains and sprains are preventable. Proper stretching and warm-up before engaging in high-risk activities will greatly reduce a worker's risk of sustaining one of these injuries. If injury does occur, take care of the injured area and seek medical help if necessary.

For more information on the subject of preventing sprains and strains, please review the newly-released CSDA/OSHA Alliance Toolbox Safety Talk, CSDA-OTST-1001, by visiting www.csda.org and clicking on the Alliance logo.

Erin O'Brien, MS, ATC is a Certified Athletic Trainer. She received her Bachelor of Science degree in Athletic Training from Ohio University and her Master of Science degree in Applied Physiology and Kinesiology from the University of Florida. She can be reached at erin@csda.org or 727-577-5004.