

TerranearPMC Safety Share

Week of July 25, 2016– Sprains and Strains

During a morning tailgate meeting or when describing musculoskeletal disorders in a health and safety plan or Job Hazard Analysis (JHA or sometimes Activity Hazard Analysis – AHA), we often talk about sprains and strains. And while sprains and strains are common injuries when describing workplace hazards involving the musculoskeletal system, we use them interchangeably; when, in fact, they are different physical conditions.

Firstly, a *sprain* is an injury involving the stretching or tearing of a ligament. Ligaments are tissues that attach or connect bone to bone. This typically occurs at joints where they help to provide joint stability. Typical symptoms due to a sprain include pain, inflammation, and in some cases, the inability to move a limb (arm, leg, foot). Sprains occur when a joint is forced beyond its normal range of motion, such as turning or rolling your ankle.

Strains are injuries that involve the stretching or tearing of muscles and tendons. Muscles are tissue composed of elongated cells, functioning to provide contraction which produces movement for various parts of the body. A tendon is a fibrous connective tissue which attaches muscle to bone. An acute (instant) strain is when there is an extended stretch or tear of a muscle or tendon or musculo-tendon interface. When this happens, the muscle or tendon, is forcefully separated from the connecting bone. These strains typically occur during a sudden contraction, as with running or jumping. This type of injury is frequently seen in runners who strain their hamstrings. Many times the injury will occur suddenly while the runner is in full stride. Symptoms for an acute muscle strain may include pain, muscle spasm, loss of strength, and limited range of motion.

Chronic (long-lasting) strains are injuries that gradually build up from overuse or repetitive stress, resulting in tendinitis (inflammation of a tendon). For example, a tennis player may get tendinitis in his or her shoulder as the result of constant stress from repeated serves.

Physicians categorize sprains and strains according to severity. A Grade I (mild) sprain or strain involves some stretching or minor tearing of a ligament or muscle. A Grade II (moderate) sprain or strain is a ligament or muscle that is partially torn but still intact. A Grade III (severe) sprain or strain means that the ligament or muscle is completely torn, resulting in joint instability.

Grade I injuries usually heal quickly with rest, ice, compression, and elevation (RICE). Therapeutic exercise can also help restore strength and flexibility. Grade II injuries are treated similarly but may require immobilization of the injured area to permit healing. Grade III sprains and strains usually require immobilization and possibly surgery to restore function.

The key to recovery is an early evaluation by a medical professional. Once the injury has been determined, a treatment plan can be developed. With proper care, most sprains and strains will heal without long-term side effects.



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Ankle injuries are often thought of as sports injuries. But you don't have to be an athlete or even a "weekend warrior" to turn your ankle and hurt it. Something as simple as walking on an uneven surface can cause a painful, debilitating sprain.

Ankle injuries can happen to anyone at any age. However, men between 15 and 24 years old have higher rates of ankle sprain, compared to women older than age 30 who have higher rates than men. Half of all ankle sprains occur during an athletic activity. Every day in the U.S., 25,000 people sprain their ankle. And more than 1 million people visit emergency rooms each year because of ankle injuries. The most common ankle injuries are sprains and fractures, which involve ligaments and bones in the ankle. But you can also tear or strain a tendon.

Ankle injuries are defined by the kind of tissue (bone, ligament, or tendon) that's damaged. The ankle is where three bones meet – these are the two bones in the lower part of the leg, being the tibia (front bone, sometimes referred to as the shine bone) and the fibula (located just behind, or lateral of the tibia, often referred to as the calf bone) of your lower leg with the talus (upper most bone in the foot). These bones are held together at the ankle joint by ligaments (strong elastic bands of connective tissue that keep the bones in place while allowing normal ankle motion). Tendons, on the other hand, attach muscles to the bones to do the work of making the ankle and foot move, and help keep the joints stable. Meanwhile, a fracture describes a break in one or more of the bones.

Muscle and tendon strains are more common in the legs and lower back. In the ankle, there are two tendons that are often strained. These are the peroneal tendons, and they stabilize and protect the ankle. They can become inflamed as a result of overuse or trauma. Acute tendon tears result from a sudden trauma or force. The inflammation of a tendon is called tendinitis. Microscopic tendon tears that accumulate over time, because of being repeatedly over stretched, and don't heal properly lead to a condition called tendinosis. Tendons can also rupture. Subluxation refers to a tendon that slips out of place.

When working in the field, walking on uneven surfaces and rocky ground is typical. One wrong step and an ankle can unexpectedly twist, resulting in a sprain. This can result in a serious condition; one that can require strong medication and days away from work. And while we may all enjoy a few days away from work, being in pain and incapacitated is not an ideal vacation. Therefore, prevention can be the best medicine! By conducting a quick scan-of-the-area to note rocks and other surface hazards, we can identify and therefore, help prevent ankle injuries. This is typically referred to as taking a *2-minute drill*. Wearing sturdy shoes that extend over the ankle for good support can also be beneficial. Finally, practicing flexibility exercises and maintaining a fitness program can also ensure strong foot support.

Life is not a matter of holding good cards, but sometimes, playing a poor hand well. Jack London

