

## Prevent Sprains and Strains

Athletes in training know their abilities and their limitations, because going beyond what is physically possible leads to strained and sprained muscles and ligaments. Those injuries could put the athlete out of competition.

Your job may include lifting and carrying heavy material. You should be aware of how much you can do in order to avoid an injury that could put you on the bench for a while.

Sprains and strains can occur anywhere--in the workplace, during recreational and sporting events, and at home.

In order to understand these injuries, it is necessary to understand a little about the makeup of the human body.

The human body is designed with some very sound mechanical principles. It is a combination of a number of systems that complement each other. Today we are going to discuss just two of these--the skeletal and muscular systems. Because they are so closely related, physicians refer to them as the musculo-skeletal system.

The skeletal system consists of the 204 bones of the body. The bones make up the framework of the body and determine its size. The skeletal system varies from individual to individual. Some people have short thick bones; others have long, rather thin bones. There are a few people who may be missing one bone or another, but in general the number of bones is 204.

This solid framework keeps the human body from being a blob, such as a jellyfish. The skeletal system acts as a support for the other systems in the body. It also serves as an anchor for the muscular system.

The muscular system is made up of all the muscles of the body. Muscles are the motors that move the bones and make it possible for the body to move and stand erect. There are many different muscles, but today we are going to discuss those that are most commonly sprained and strained.

When doctors talk of sprains and strains, they speak of ligaments and tendons. Ligaments are tough, fibrous, cord-like materials that connect bone to bone. Ligaments most commonly are associated with joints, with one bone connecting to another--at the elbow where the forearm is joined to the upper arm, at the knee, at the shoulder, at the wrist, at the hip.

Wherever there is a joint, you'll find ligaments. Tendons are of similar material, but their function is to attach muscle to bone.

Muscles of motion are almost always found in pairs, and usually cross the joints of bones. When one muscle contracts to move a part of the body, its partner relaxes. You most likely have at one time or another experienced a cramp in your leg or foot. This occurs when the body is confused and contracts both muscles at the same time. Because they are balanced, each tries to overcome the other's resistance without success, and this "ties you up in knots."

This background information will help you understand why sprains and strains happen. You probably all know about sprained ankles and strained elbows, but the back is an area where strains and sprains often occur.

Back sprains and strains are also the most costly to the individual.

A strain occurs whenever a muscle is stretched beyond its limit. Muscles do a great deal of work. However, they must be conditioned if they are to perform in a given way. Professional athletes condition their muscles through rigorous training. We also must condition our muscles. A worker who is accustomed to manually handling a large number of pieces of material in a given workday can do so with ease. Those of us who have different duties would find it difficult to do that same amount of work without paying for it with aching muscles. If we should continue to do the work, however, we would soon be conditioned and be able to perform the job without pain.

However, even the conditioned athlete or worker cannot exceed the limitations of the muscles. When a muscle is stretched too much, the ligaments pull and sometimes even tear. Stretched ligaments and tendons are termed strains. A sprain is when tearing has occurred.

The industrial setting provides many opportunities for the occurrence of sprains and strains; the most common is material handling. We all handle material in one way or another. Even the office worker is involved with material handling when picking up a package, box or chair to move it.

Let's take a minute to consider all the operations in our area that might involve material handling and how they might cause a sprain or strain.

**Note to Discussion Leader:**

Try to get employees to tell you about potential sprain and strain operations in their area. Do not argue the point or dismiss any item; just list them.

Material handling strains and sprains often are caused by overexertion.

You can see from the list we just made that we do have the potential for sprains and strains in our area.

Other movements can also cause sprains and strains--overreaching or overextending a part of the body; reaching over something to pick up a load; or trying to reach a top shelf without using a proper stool or ladder. Can anyone give me an example of a strain or sprain case? It doesn't have to be work related; remember, these injuries also happen off the job.

**Note to Discussion Leader:**

Try to get someone to tell about a sprain or strain injury. If necessary, tell of an injury yourself.

What can we do to minimize these injuries? Well, this meeting is a beginning. If we understand what causes sprains and strains, we are better equipped to prevent them.

**A few basic rules to remember are:**

- Before you begin, size up the job. Is there a better way? Look into ways to eliminate or reduce lifting, lowering, pushing, pulling and carrying whenever possible.
- Get help when the load is heavy, awkward or unstable.
- Make sure there are no slipping or tripping hazards in your work area or around your home. The sudden jerk caused by a slip or trip can cause a sprain or strain.
- Don't overextend yourself--use a step stool or ladder when lifting above shoulder height.
- Try to keep yourself in good condition.
- Take a lesson from athletes--don't rush into a job cold. Warm up your muscles first.
- Hold the load close.
- Avoid twisting your body while handling a load. Work smarter, not harder--it's easier and safer.