

LIGAMENOUS SPRAIN

Ligaments are connective tissues made up of parallel collagenous bundles with a large admixture of elastic and fine collagenous fibers woven among the parallel bundles. They are as strong as tendons but have only a slight amount of elasticity. Their shape varies according to the role of support each performs. They may take the form of cords, bands or sheets. Their principle job is to provide attachment. Their deep surfaces may form part of a joint's synovial membrane, but in such cases, their superficial surfaces are covered with fibro-elastic tissue that blends with surrounding connective tissue.

The over-stretching of a ligament, without causing it to tear, results in a *ligamentous strain*. *Ligamentous strain* produces immediate sharp pain at the site of injury followed several hours later by stiffness and soreness in associated joints. Referred pain into other areas (usually distal) may also be produced. Additionally, stability of an involved joint may be permanently compromised by stretch that exceeds the ligament's elastic limit, since a ligament stretched beyond its ability to rebound will not spontaneously return to its original length, even over time.

Improper posture or prolonged stress from awkward joint positions may cause protracted ligamentous strain and result in discomfort. *Ligamentous strain* may also occur when co-supportive muscles are unable to compensate for sudden pressure applied to a joint with sufficient force to exceed the tensile strength or elastic limit of the supportive ligament without tearing it. For example, ligamentous over-stretching occurs when one "turns an ankle" without tearing supportive ligaments or avulsing involved tendons.

Ligamentous strain produces a sharp pain at the site of injury that may not be accompanied by swelling. The predominant symptom of ligamentous strain is a decrease in joint stability. Joint stability may be evaluated through manipulative testing for a *draw sign* (joint play against resistance). The most common symptom of ligamentous strain is inflammation. Untreated or mistreated ligamentous strain may easily turn into a chronic condition inflammatory condition. Ligamentous inflammation problems most commonly seen in the clinic are associated with knee and ankle injuries, as well as saddle joint over stretching.

Treatment

Treatment of **acute** ligamentous strain involves protecting the joint from further injury with supportive splinting, taping, and rest. If inflammation is present, as defined by differential skin resistance survey, relieve the inflammation and reduce any associated swelling.

Treatment of the **chronic** condition involves providing artificial compensatory joint support through bracing, strapping, or taping when the joint is expected to be subjected to stress. Additionally, compensatory muscle toning and shortening may help to provide some restoration of joint integrity.

Treatment of ligamentous inflammation includes ice packing, phonophoresis of an effective topical anti-inflammatory, manipulation to break any accompanying adhesions, joint rest, and (as above) supportive splinting or taping to protect the ligament from further injury.