

THE HEALTH LINK

BRONX, WESTCHESTER & CONNECTICUT

The Role of Muscles in Pain



By Howard Liss

Muscles seem like they shouldn't be too hard to understand. Many are superficial and within the reach of the examiner's or our own hands. We have used terms like strains, cramps and spasm for ages. Trainers, massage therapists and muscle relaxants have existed for years. Yet confusion abounds as to what muscle tenderness really means and what we should do about it.

Strains are tears of muscle fibers that can range from microscopic to frank tears. Strains can occur from sudden overload of a muscle or repetitive microtrauma. Once the injury has occurred, pain can be appreciated with either stretch or contraction of the muscle. The injury is associated with inflammation and some degree of bleeding and swelling within the muscle. The involved muscle and nearby muscles tend to shorten and weaken as a guarding response to the presence of pain. The injured cells release chemical mediators that lead to repair of the injury through "clean-

ing up debris" and laying down of scar tissue. Therefore, although the body acts to repair the injury, the muscle can be left in a weakened as well as shortened state with the presence of scar tissue, which is less elastic than normal muscle tissue and more prone to repeated tearing.

The treatment of muscle strains includes immediate icing, compression and elevation to control bleeding and swelling. At times, a physician must examine the patient to ascertain that there has not been a fracture or complete tear of a tendon or ligament. It is important to counter the loss of elasticity and strength as early as it is safe to do so. Restoring stretch to the injured muscle appears to be critical to restoring function to the pre-injury level. At times, taping, splints or orthotics are required to support the injured area. Analgesics may be necessary to control pain early on although there is no evidence that any medication accelerates healing. The use of anti-inflammatory medications is controversial because they may interfere with the healing process. Treatment must include strengthening supportive muscles and maintaining the individual's aerobic capacity. The patient must

be guided in his return to activity. Every effort should be made to address factors that may have made the patient prone to the injury in the first place. These factors may include specific characteristics of the patient such as areas of tightness or weakness, abnormal posture or poor sports technique. A change in sports equipment (racket or footwear) may be advisable. At times the patient should be counseled in terms of modifying or changing his form of exercise.

Cramps are sudden, relatively brief (several seconds to minutes), painful, involuntary contractions of muscle. They are not well understood and the overwhelming majority occur in people without any known medical condition or abnormalities on blood testing that would explain the cramp. Cramps occur most often at night and tend to occur in individuals that exercise often if the level of exercise is vigorous or has been increased in intensity. They also seem to occur more often in patients that have weakness in the involved muscle. At times, cramps occur during or immediately after exercise. Dehydration appears to make people more prone to cramps. Although low potassium or calcium levels can cause cramps, it is the small minority of patients that are found to have these issues. From my experience, stretching

the involved muscles, particularly at bedtime, reduces the occurrence of cramps. Some patients have to sleep with a splint to keep the involved muscle in a somewhat stretched position. Quinine, as contained in small doses in tonic water, reduces cramps in some people.

The medical definition of muscle spasm is an involuntary increase in muscle tone that is associated with diseases or injuries of the brain or spinal cord. However, the term muscle spasm is often interchanged with muscle cramps. More often, patients use "muscle spasms" to describe having widespread pain in an area of their body, most commonly the lumbar (low back) area. In actuality, very few patients that feel they are having pain from spasms are having pain from muscle tissue at all. They usually have an underlying injury or condition that is the source of their pain. Diffuse muscle tenderness is rarely if ever a condition in and of itself. It represents either muscular guarding or trigger points (see below) that is due to an underlying painful condition. The most important thing that can be done for patients who feel that they are having muscle spasms is to take a careful history and perform a detailed physical ex-

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