

Joint and Bone Problems

Definitions

The human body has many joints. These joints use tendons, ligaments and muscle fibers to allow our bones to move. Sometimes these joints move in ways they were not designed. A sprain happens when the ligaments in a joint are stretched or torn. Ligaments are connective tissue that connects two bones or cartilage to bone. Sprains can vary from mild to severe and can happen repeatedly to the same area. A sprain can result in mild to severe pain and swelling which usually limits the ability to move the joint.

A torn or ruptured tendon is often confused with a sprain. A tendon is connective tissue that connects a muscle to bone. An example would be the quadriceps tendon that attaches the quadriceps muscle to the patella, or knee cap. When a tendon ruptures, it is usually due to old age, direct trauma or heavy use of the joint with poor conditioning. Other commonly ruptured tendons include rotator cuffs (shoulders), biceps, and Achilles tendons (along the heel of the foot).

Bones can fracture or break in a variety of ways. Typically, the bones fracture due to trauma. The four main types of fractures are displaced, non-displaced, open and closed. A displaced fracture is one where the bone has broken in two or several pieces and moved away from its original alignment. A non-displaced fracture is when the bone cracks or breaks all the way through but does not change its alignment. When a fractured piece of bone pokes through the skin it is known as an open fracture and when it doesn't it is known as 'closed'. Open fractures can be quite dangerous; they can allow infections to get deep into the bone.

Arthritis is a common joint condition where the joint swells and causes a mild dull aching pain intermittently or constantly. There are many different types of arthritis including the kind caused by previous trauma to the joint, a history of rheumatic fever, simple overuse or detrition of the surrounding bones, a condition called osteoporosis.

Early signs and symptoms

A sprained joint will become immediately painful with slow, steady swelling and it may or may not bear the weight it was intended to support. Sometimes an audible pop or snap sound may be heard or felt at the time of the injury. Typical locations of sprains include wrists and ankles.

It is possible to partially rupture a tendon or rupture the entire tendon. The extent of the rupture must be diagnosed by a doctor. When a tendon ruptures, it can create an instant bulge or deformity underneath the skin near the location of the injury. This is caused by the tendon recoiling. Ruptured tendons cause immediate bruising, extreme pain and swelling. They may also cause the affected area to become immovable and unable to bear weight.

Since bones normally provide structure to the human body, when bones break they can change the shape of an area and inhibits the body's normal function. Broken bones must be diagnosed with a radiograph by doctors. Broken bones can cause swelling at the location of the break and cause mild to severe pain.

Arthritis pain can best be described as stiffness, achiness and pain in the joints. This pain can be mild to severe, constant or off and on. People often say their joints become stiff and painful when bad weather is approaching.

Treatment

Sprained joints can take a long time to heal. They are treated with rest, cold therapy and anti-inflammatory medication to help reduce the swelling. Raising the joint above the level of the heart can also reduce swelling. Sprained joints can be supported with wrappings or braces. These treatment recommendations are easily remembered with the acronym **RICE**: **R**est, **I**ce, **C**ompress (wrappings), **E**levate.

Depending on the degree of damage, a partially ruptured tendon may heal on its own with the RICE recommendations and several weeks of immobilization. In rare situations, surgical reattachment is necessary. Additionally, physical therapy may be beneficial for either treatment method.

Broken bones can require a variety of fixes. Air casts and plaster casts can be used to splint bones that did not require surgery to realign. When bones break into many pieces or puncture the skin, surgery is required. Sometimes the surgeons place pins in the bone to keep it in place while it heals. These pins get removed when radiographs confirm the bone is healed. When pins are required a special cast is made to accommodate the pins.

Arthritis is difficult to fully reverse as there is no full-reversal for arthritis. As contradictory as it may seem, many healthcare providers recommend movement as a preventative of the stiffness that can occur. Most find pain relief in anti-inflammatory medications, such as ibuprofen. Although these medications offer temporary relief, they do not increase the joints' mobility; they only alleviate the pain. Other medications used for the many different types of arthritis are specific to the type of arthritis and must be prescribed by a healthcare provider. For example, gout, a type of arthritis where the joint accumulates uric acid, can be helped with a medication that decreases uric acid retention. Dietary changes, such as eliminating organ meats and alcohol, can greatly reduce the incidents and effects of gout as well.

References and Resources

Sprains:

(Sprains) <http://www.webmd.com/a-to-z-guides/tc/ankle-sprain-overview#1>

(Ankle sprains) <http://www.aofas.org/footcaremd/how-to/foot-injury/pages/how%20to%20care%20for%20a%20sprained%20ankle.aspx>

(Wrist sprains) <http://orthoinfo.aaos.org/topic.cfm?topic=a00023>

Ruptured Tendons:

<http://www.webmd.com/fitness-exercise/ruptured-tendon#1>

Bones:

<http://www.webmd.com/a-to-z-guides/understanding-fractures-basic-information>

Arthritis:

<http://www.arthritis.org/>

<http://www.webmd.com/arthritis/>



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