

# Sports Medicine

*Treatment of Sports Injuries*

*Pinnacle Sports Medicine and Team Care*

*Pinnacle Medical Network*



## About Pinnacle Sports Medicine

*South Louisiana's Premier System for the Delivery of Musculoskeletal Health Care.*

*Our talented team and professional staff offer a fully-equipped facility for the comprehensive care of your bones, joints, ligaments and muscles. Our team is dedicated to your complete care, from assessment to full recovery. Our primary goal is your safe return to work, sports, play and the activities of daily living. Allow our medical professionals to advance your orthopedic care.*

# Agenda

- *What is Sports Medicine?*
- *Common Sports Injuries*
  - *Achilles*
  - *Knee*
  - *Shin Splints*
  - *Shoulder*
  - *Muscle Cramps*
- *Injury Prevention*
- *Treatment Options*

# Sports Medicine

*An estimated 7 million Americans seek medical attention for sports-related injuries each year.*



*Source: WebMD, August 2006*

# What is Sports Medicine?

*A multidisciplinary approach, drawing on expertise from:*

- *athletic trainers*
- *coaches*
- *bioengineers*
- *physical therapists*
- *chiropractic specialists*
- *exercise physiologists*
- *medical doctors (MD)*

*Sports Medicine Specialists are experts in the diagnosis, treatment, and prevention of common injuries that occur during sports or exercise.*

# Types of Injuries

## Overuse *injuries*

- *Occur over time from repetitive trauma to the tendons, bones, and joints*

## Acute *injuries*

- *Usually result from a single traumatic event, like wrist fractures, ankle sprains, shoulder dislocations, and hamstring muscle strains*

# Sports Related Conditions

*Traumatic injury to the bone and soft tissues*

*Cartilage, ligament, and tendon injuries and disorders*

*Common overuse injuries*

# Soft Tissue Injuries

*Some of the soft-tissue injuries you're most likely to experience include:*

- *sprains*
- *strains*
- *contusions*
- *tendonitis*
- *bursitis*
- *stress injuries*
- *tendon rupture*





# Sprains

*A stretch or tear of a ligament*

*Ankles, knees and wrist are vulnerable to strains*



# Strains

*A stretch or tear in a muscle or tendon*

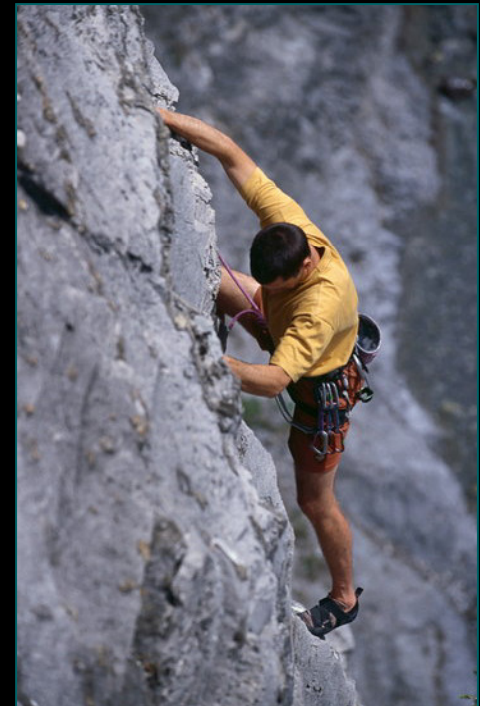
*Usually in your foot or leg*



# Contusion

*A bruise caused by a blow to your muscle, tendon or ligament.*

- *caused when blood pools around the injury and discolors your skin*



# Tendonitis

*Overuse and inflammation*

*You may experience mild pain after exercise that gradually worsens.*

- *Mild swelling, morning tenderness, and stiffness may also occur, but may improve with use*

# Bursitis

*Repeated small stresses and overuse can cause the bursa in your shoulder, elbow, hip, knee or ankle to swell.*

- *Many people experience it in association with tendonitis*



# Stress Fractures

## *Tiny cracks in a bone*

- Caused by the overuse and the repetition of movements during exercise*
- Fatigued muscles become unable to absorb additional shock during exercise and transfer the overload of stress to the bone. This constant process causes tiny “microcracks” in the bone.*

*Most common in the weight-bearing bones of your lower legs*

# Stress Fractures

*You may be at risk for a stress fracture if you:*

- *Participate in high-impact sports*
- *Have been told you have low bone density*
- *Suddenly begin an intense training schedule*
- *You are an adolescent (bones are not fully mature)*

*Women are more at risk for stress fractures than men*

- *May be related to nutritional deficiencies and a woman's propensity for decreased bone mass density*

# Tendon Rupture

*A tendon rupture is when a tendon is completely torn in two. The four most common areas of tendon rupture are:*

- *Quadriceps – a group of 4 muscles that come together just above your kneecap. This muscle is used to extend the leg at the knee and aids in walking running and jumping.*
- *Achilles – located on the back portion of the foot just above the heel. This tendon is vital for pushing off with the foot.*
- *Rotator cuff – located in the shoulder and is composed of 4 muscles. These muscles help you raise your arm out to the side, rotate the arm, and keep your shoulder from popping out of its socket.*
- *Biceps – functions as a flexor of the elbow. This muscle brings the hand toward the shoulder.*



# Causes of Tendon Rupture

*Tendon rupture may be caused by:*

- *trauma*
- *advanced age*
- *eccentric loading*
- *steroid injection into the tendon*

# Symptoms of Tendon Rupture

*Symptoms of tendon rupture include:*

- *A snap or pop you hear or feel*
- *Severe pain*
- *Rapid or immediate bruising*
- *Marked weakness*
- *Inability to use the affected arm or leg*
- *Inability to move the area involved*
- *Inability to bear weight*
- *Deformity of the area*

# Achilles Tendon Injuries

## *Achilles tendon:*

- *Largest tendon in your body*
- *Connects the muscles in the back of your lower leg to your heel bone (the calcaneus) and must withstand large forces during sporting exercises and pivoting*

## *Two main types of injuries:*

- *Overuse and inflammation, called Achilles Tendonitis*
- *Tear of the tendon*



# Achilles Tendonitis

*Often occurs when you rapidly increase the intensity of training or start new types of training when your body is not fully conditioned*

*You may experience mild pain after exercise that gradually worsens.*

- *Mild swelling, morning tenderness, and stiffness may also occur, but may improve with use*

# Achilles Tear

*Your Achilles tendon may tear if it is overstretched.*

- *tear may be partial or complete*
- *A snap or crack sound may be heard at the time of injury*

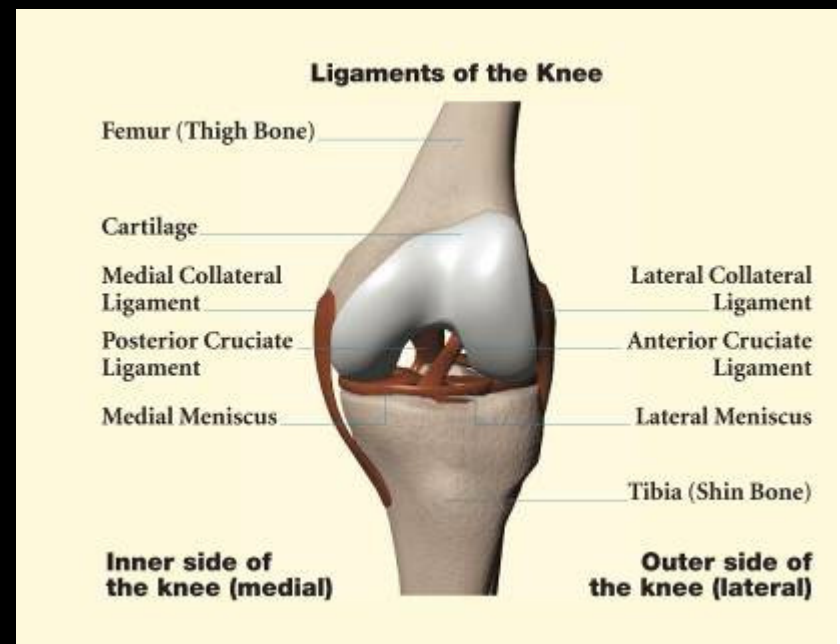
*Signs of an Achilles Tear:*

- *Pain and swelling near your heel*
- *an inability to bend your foot downward or walk normally*

# What are Ligaments?

*Ligaments are tough, nonstretchable fibers that hold your bones together.*

*The ACL connects the thighbone (the femur) to the shinbone (the tibia) and helps stabilize the knee joint.*



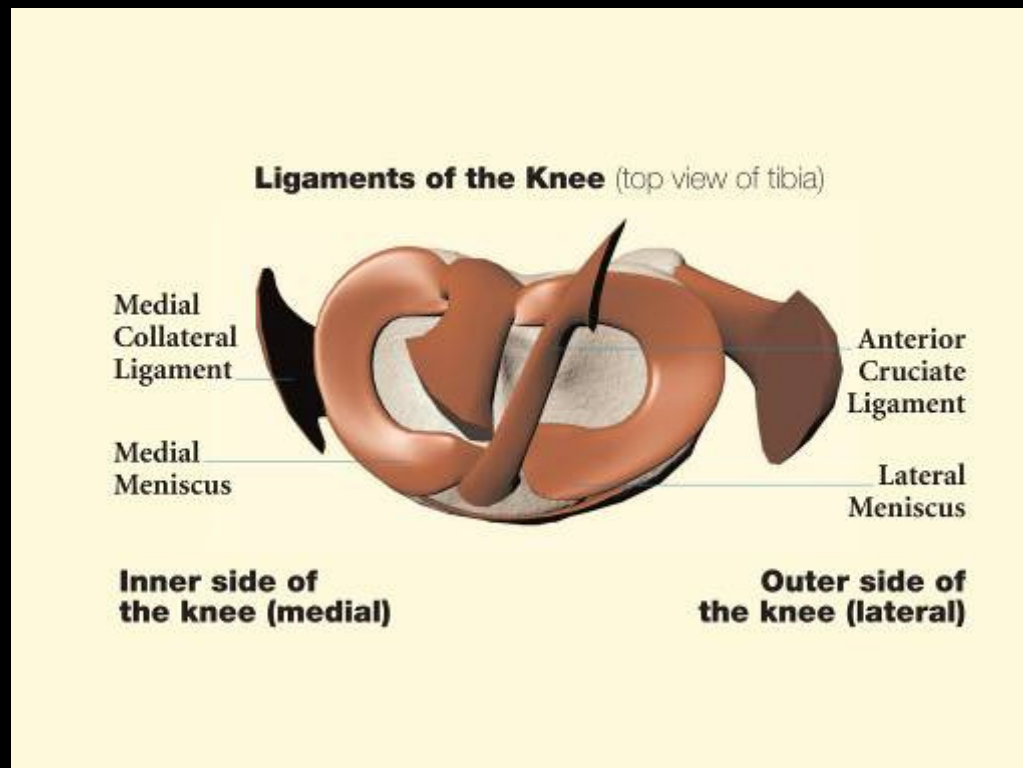
## ACL Tear

*A tear to the Anterior Cruciate Ligament (ACL) is among the most common sport-related injuries*

- *Typically happens by sudden twisting movements, slowing down from running, or landing from a jump*
- *You may hear a popping sound at the time of injury. Your knee may give way and begin to swell and hurt.*

# Meniscus

*The meniscus is a wedge-like, shock-absorbing piece of cartilage found within your knee joint. It is shaped like a C.*





# Meniscus

## *The meniscus:*

- *curves inside and outside the joint to stabilize your knee*
- *allows your thigh (the femur) and your shin (the tibia) bones to glide and twist over each other with movement*
- *provides cushioning support for the weight-bearing job of your legs*

## Meniscal Tear

*Injury to the meniscus often happens during a sudden twisting of the knee, pivoting, or deceleration causes a tear in your cartilage.*

- *You may hear a popping sound at the time of injury to the meniscus*
- *You may still be able to bear weight and walk on the injured knee.*

# Meniscal Tear

- *Pain, swelling, and redness of the joint then develop over the next 12 to 24 hours.*
- *Your doctor may choose to evaluate a possible tear with an MRI scan*
  - *a form of imaging that uses a large magnet to view changes in tissue*

# Runner's Knee

## Patellofemoral Pain

*“Runner’s knee” is a blanket term to describe a number of conditions that cause pain at the front of the knee (patellofemoral pain).*

- *Dull, aching pain around the front of the kneecap (the patella) where it connects to the lower end of the thighbone (the femur)*

## Causes of Runner's Knee

- *The kneecap being out of alignment*
- *Overuse*
- *Previous injury*
- *Weak thigh muscles*



## Shinsplints / MTSS

*The term “shinsplints” refers to the pain that develops along the inside of your shin (the tibia bone).*

- *Also known as medial tibial stress syndrome (MTSS)*
- *Commonly affects runners, aerobic dancers, and people in military boot camp*
- *Repeated movements during exercise cause muscle fatigue.*

## Shinsplints / MTSS

*You may be more likely to develop MTSS if you:*

- *Have flatfeet or abnormally rigid arches*
- *Have “knock-knees” or “bowlegs”*
- *Are a frequent runner*
- *Are an aerobic dancer*

# Burners and Stingers

*Stretching of nerves around the spinal canal causing "stinging" or "burning" pain that radiates (spreads) from the shoulder to the hand*

*Common in contact sports, especially football and wrestling*

## *Symptoms:*

- *Numb immediately following the injury*
- *Weakness*
- *Most commonly occur in one arm only*
- *Symptoms usually last seconds to minutes, but in 5 percent to 10 percent of cases, they can last hours, days or even longer.*



# Shoulder Injuries

*Impingement*

*Rotator Cuff Tears*

*Shoulder Dislocation*

*Labral Tears*

*Frozen Shoulder*

*Acromioclavicular*

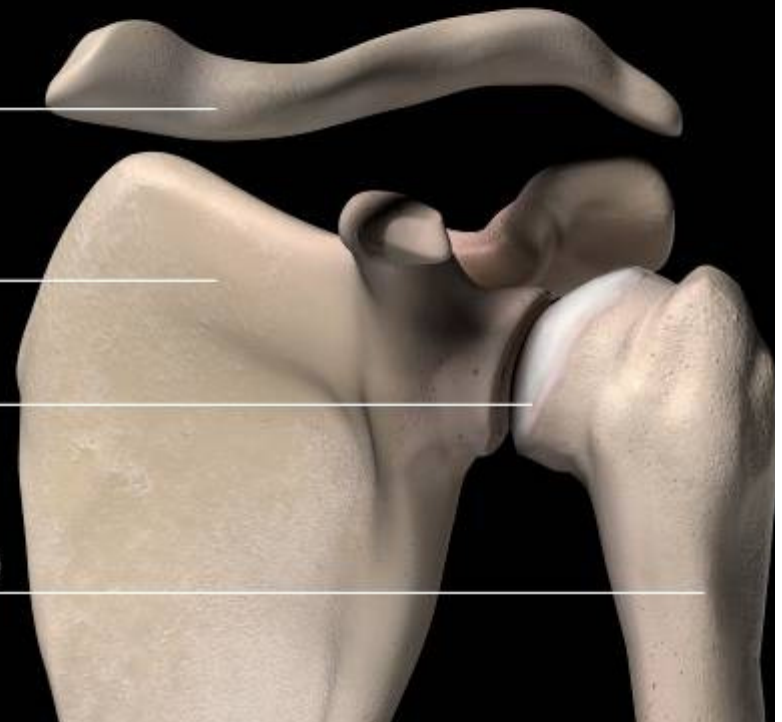
## A Normal Shoulder

Clavicle  
(collar bone)

Scapula  
(shoulder blade)

Healthy  
Cartilage

Humerus  
(upper arm bone)



# Shoulder Impingement

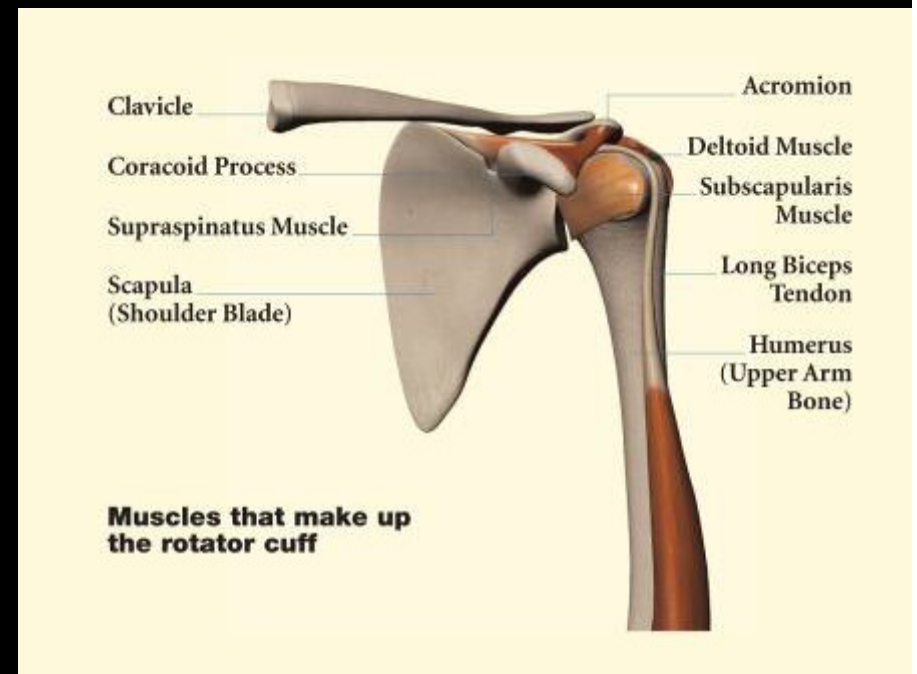
*Your rotator cuff and bursae become inflamed and thickened*

- *Compressed under the acromion (front edge of shoulder blade). This pinching of the rotator cuff is called "impingement" — giving the condition its name*
- *A bone spur projection can cause impingement*
- *May lead to further shoulder problems*

# Rotator Cuff

*4 muscles connecting the humerus with the scapula*

- *supplies stability and balance to the shoulder joint*
- *Proper rotator cuff balance is essential for arm raising and rotation*



# Rotator Cuff Tear

*Pain on outside of shoulder  
and neck*

*Difficult to raise arm*

*Caused by:*

- *overuse*
- *aging*
- *fall*



# Shoulder Dislocation

*Ball (humerus) comes out of socket usually from:*

- *Sudden blow*
- *Fall*
- *Loose ligaments*

*A partial dislocation is called a subluxation*



# Labral Tears

*Thick fibrous rim around socket providing stability in shoulder joint*

*Tears may be seen using a CAT scan*

Labrum of the Left Shoulder  
(Anterior View)



# Frozen Shoulder

*Occurs when the capsule thickens or decreases in size, restricting the joint*

- *Creates pain and stiffness in the shoulder joint*
- *Severely limits your ability to move your shoulder normally*
- *Difficult to raise your arm in front of you or putting your hand behind your head or back*

# Frozen Shoulder

**Stage one:** *The "freezing" stage may last from six weeks to nine months the shoulder loses motion and pain develops.*

**Stage two:** *The "frozen" stage is marked by a slow improvement in pain, but the stiffness remains. Generally lasts 4 to 9 months.*

**Stage three:** *The "thawing" stage is when the shoulder motion slowly returns toward normal and generally lasts 5 to 26 months.*



# Muscle Cramps

*A sudden, tight and intense pain caused by a muscle locked in spasm*

*The most commonly affected muscle groups are:*

- *Back of lower leg/calf (gastrocnemius)*
- *Back of thigh (hamstrings)*
- *Front of thigh (quadriceps)*
- *Causes*
  - *inadequate stretching and muscle fatigue*

# Prevention of Muscle Cramps

## *Hydrate!*

- *Drink water at regular intervals, before you get thirsty.*
- *Drink fruit juice or a sports beverage if you are working in heat or sweating for more than an hour.*

# 10 Tips to Preventing Sports Injuries

- 1 - *Have a routine physical*
- 2 - *Gradually increase time and intensity*
- 3 - *Visit a personal trainer*
- 4 - *Warm up slowly*
- 5 - *Don't workout on an empty stomach*
- 6 - *Drink before you exercise*
- 7 - *Listen to your body*
- 8 - *Rest*
- 9 - *Cross train*
- 10 - *Dress properly*



# Preventing Strains and Sprains

*Here are some tips\* to help reduce your injury risk:*

- *Participate in a conditioning program to build muscle strength*
- *Do stretching exercises daily*
- *Always wear properly fitting shoes*
- *Nourish your muscles by eating a well-balanced diet*
- *Warm up before any sports activity, including practice*
- *Use or wear protective equipment appropriate for that sport*

*\*developed by the American Academy of Orthopaedic Surgeons*

# Non-Surgical Treatment

*The most important way to improve your condition is rest and rehabilitation.*

*At home, general care involves “RICE”:*

- *Rest*
- *Ice*
- *Compression*
- *Elevation*

# Non-Surgical Treatment

## *Bracing and Orthotics*

- *Braces or shoe inserts may be recommended to take pressure off of certain joints*

## *Slings*

- *A sling may be recommended for shoulder injuries*

# Non-Surgical Treatment

*Aspirin*

*Ibuprofen*

*Naproxen*

*Over-the-counter patches, rubs and ointments  
can provide quick pain relief*

# Non-Surgical Treatment

*Nonsteroidal anti-inflammatory medications (NSAIDs) are helpful to relieve pain and inflammation*

- *Side effects*
- *Dosing*
- *Cost*

*Selective Injections*

- *Hydrocortisone*



# Treatment of Muscle Cramps

**Stop** *doing whatever activity triggered the cramp.*

*Gently* **stretch** *and massage the cramping muscle, holding it in stretched position until the cramp stops.*

*Apply heat to tense/tight muscles, or cold to sore/tender muscles.*

## Surgical Options

*In some cases, surgery may be necessary*

- *Arthroscopy, which involves the use of a small, pencil-sized camera, can be used to remove small fragments of kneecap cartilage.*

## What is Arthroscopy?

*A surgical procedure used to visualize, diagnose and treat problems inside a joint.*

*A small incision is made and pencil-sized instruments are inserted that contain a small lens and lighting system to magnify and illuminate the structures inside the joint.*



# Arthroscopy

- *Rotator cuff procedure*
- *Repair or resection of torn cartilage (meniscus) from knee or shoulder*
- *Reconstruction of anterior cruciate ligament in knee*
- *Removal of inflamed lining (synovium) in knee, shoulder, elbow, wrist, ankle*
- *Release of carpal tunnel*
- *Repair of torn ligaments*
- *Removal of loose bone or cartilage in knee, shoulder, elbow, ankle, wrist.*

## Potential Complications of Arthroscopy

- *Infection*
- *Blood clots*
- *Excessive swelling or bleeding*
- *Damage to blood vessels or nerves*
- *Instrument breakage*

*According to the American Academy of Orthopaedic Surgeons, complications occur in far less than 1 percent of all arthroscopic procedures.*

# Knee Rehabilitation

*Performing rehabilitative exercises may gradually return full flexibility and stability to your knee*

- *Building strength in your thigh and calf muscles to support the reconstructed knee is a primary goal of rehabilitation*

*You may also need to use a knee brace for a short time*

*It is important not to return to full activity too soon to prevent reinjury*

**For More Information, Contact:**

**Pinnacle Sports Medicine  
and Team Care  
(985) 674-1700**