the cutting edge

in sports medicine

TEXAS ORTHOPEDIC AND SPORTS MEDICINE

ORTHOPEDIC SPECIALISTS GIVE THEIR EXPERT OPINIONS ON:

- Injuries and Treatments of the Knee
- Fractures and Broken Bones
- Comprehensive Back Care
- Overuse Injuries
- Total Joint Replacement

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(next to The Texas Sports Medicine Center)

281.351.7261
I have a torn PCL. What is the PCL? Will this get worse and need surgery or can I just leave it alone?

The PCL refers to the posterior cruciate ligament, one of two major ligaments in the knee that prevents the tibia (shin bone) from sliding backwards on the femur (thigh bone). PCL injuries are much less common than ACL (anterior cruciate ligament) injuries, which usually occur in football and basketball players and often ends a sports career.

In general, an injury of the PCL is relatively benign because it does not cause a lot of disability. However, if your knee exam shows significant laxity or looseness of the ligament, it is reasonable to consider surgery. Recent scientific studies have shown that PCLs with moderate laxity may cause the knee to deteriorate and lead to arthritis in the future.

I suggest that if you have a torn PCL you should be examined by an orthopedic surgeon to determine the best course of action based upon your age, activity level, the amount of laxity and any problems this is causing you.

How are patella alignment problems treated surgically?

Patella (kneecap) alignment problems are a complicated area. In general, if the patella is sliding off the knee to the outside, but there is no significant malalignment, rehabilitation of the knee may help. If it doesn’t, an arthroscopic lateral release can be performed.

However, if the patella is malaligned because the insertion of the patella on the tibia (shin bone) is more lateral than normal, the problem usually cannot be treated in this manner. A problem like that is referred to as having an increased “Q” angle. The “Q” angle is the angle the patella tracking mechanism makes with the femur (thigh bone). If this angle is very high, a tibial tubercle transfer would be considered. This involves actually moving the insertion point of the patella tendon on the tibia over from the outside to the inside to realign the patella so it will track in a straighter line.

The muscle that controls the patella on the medial (inner) side of the knee, the vastus medialis obliquis (VMO) may be weak. Strengthening this muscle will give it a more efficient pull.

Again, this problem is quite complicated and depends on the biomechanical alignment of the patella. Certainly, if you are having problems with instability or pain, you need to be evaluated by an orthopedic surgeon. The alignment can be assessed and decisions made based upon the number of symptoms you’re having, whether the patella is actually malaligned and whether the musculature of the knee is well developed. Your surgeon may want to try a good rehabilitation program with a physical therapist before considering surgery.

My son is 13 and injured his ACL playing football. He really loves sports and wants to continue to play. I don’t want him to have problems for the rest of his life, though. Could you tell me about ACL reconstruction on an adolescent?

The ACL (anterior cruciate ligament) is one of the two major ligaments in the knee. It prevents the tibia (shin bone) from sliding forward. An ACL injury is fairly common in football players. A torn ACL in an adolescent can be problematic. The specific issue is whether the growth plate is still open. Most 13-year-old boys still have an open growth plate and that must be assessed before discussing surgery to repair the tear.

In adolescents who are nearing the end of the growth period, repairing the ACL with a graft appears to have very few complications. If such an adolescent injures the ACL and wants to pursue an athletic career, strong consideration should be given to reconstructing the ACL. However, if the adolescent has a fair amount of growth left, then caution must be applied because the ACL graft may cause damage to the growth plate.

In discussing this with your orthopedic surgeon, keep the following questions in mind:

• How developed is the adolescent? Is he a big, well-developed 13-year old who has the necessary surface area on his growth plate to accommodate a 10 millimeter hole for the ACL graft or is he relatively small with a lot of growth left?
• Is he motivated to pursue an aggressive rehabilitation program?
• What is the amount of laxity in his other joints?
• Has bracing been effective?
• Has physical therapy been effective?

Frequently, if the decision is to postpone surgery, bracing with a good commercial brace fitted by an orthopedic surgeon can protect the knee for several seasons until he is mature enough to have the surgery.

Expert opinion from orthopedic specialist William Hayes, M.D.
WHAT BONES ARE MADE OF

To understand why bones break, it helps to know what bones do and what they are made of. The bones of the body form the human frame, or skeleton, which supports and protects the softer parts of the body and into white blood cells that help fight disease. Bones also contain the minerals calcium and phosphorus. These minerals are combined in a crystal-like or latticework structure. Because of their unique structure, bones can bear large amounts of weight.

HOW FRACTURES OCCUR

Bones are rigid, but they do bend or "give" somewhat when an outside force is applied to them. When this force stops, bone returns to its original shape. For example, if you fall forward and land on your outstretched hand, there is an impact on the bones and connective tissue of your wrist as you hit the ground. The bones of the hand, wrist and arm can usually absorb this shock by giving slightly and then returning to their original shape and position. If the force is too great, however, bones will break, just as a plastic ruler breaks after being bent too far.

TREATING A FRACTURE

Because fractures hurt and make it difficult to use that injured part of the body, most people call a doctor or seek emergency care quickly. In some cases, however, a person can walk on a fractured bone in the leg or foot, or use a fractured arm. Just because you have use of your hand or foot doesn’t mean you don’t have a fracture. If you think a bone may be broken, get medical help immediately. A medical examination and x-rays are usually necessary to tell for sure and to ensure proper treatment.

It is very important to control the movement of a broken bone. Moving a broken or dislocated bone can cause additional damage to the bone, nearby blood vessels, and nerves or other tissues surrounding the bone. That’s why people giving first aid or emergency treatment may splint or brace your injury before medical treatment is given. Also, if there is an open wound it should be covered by a clean cloth or bandage on the way to further medical treatment.

At the emergency room, clinic or doctor’s office, the physician usually applies a splint to prevent further damage, to lessen the pain, and to help stop any bleeding. The patient is usually asked to recline and elevate the injured part. Elevation helps to reduce the bleeding and swelling.

X-rays can help the physician determine whether there is a fracture, and if so, the type of fracture. If there is a fracture, the doctor will “reduce” it by restoring the parts of the broken bone to their original positions. "Reduction" is the technical term for this process.

All forms of treatment of broken bones follow one basic rule: the broken pieces must be put back into position and prevented from moving out of place until they are healed. Broken bone ends heal by “knitting” back together with new bone being formed around the edge of the broken parts.

The specific method of treatment depends on the severity of the break, whether it is "open or closed", and the specific bone involved. A broken bone in the spine (vertebra) is treated differently from a broken leg or a broken rib.

Treatment options can be as simple as cast immobilization or as complicated as internal or surgical fixation. One thing is certain, successful treatment of a fracture depends greatly on the patient’s cooperation.

A cast or fixation device may be inconvenient and cumbersome, but without one a broken bone can’t heal properly. The result may be a painful or poorly functioning bone or joint. Exercises during the healing process and after the bone heals are essential to help restore normal muscle strength, joint motion and flexibility.

People often think that a fracture is less severe than a broken bone, but fractures are broken bones.

“Thank goodness it’s only a fracture. I thought it might be broken.”

Michael Blackwell, M.D.

expert opinion

from orthopedic specialist

fractures are broken bones

People often think that a fracture is less severe than a broken bone, but fractures are broken bones.
A healthy back is straight and strong, moves easily and is free of pain. Chronic back injury, or chronic back pain is pain in any area of the back for a long period of time. The most common area of chronic back injury is the lower back, called the lumbar spine.

The bones of the back (spinal column) supports the upper body and gives it flexibility. Each area of the back has differently shaped bones that allow for good movement. The spine has 24 bones called vertebrae (pronounced ver-te-bray). There are seven vertebrae in the neck, 12 in the upper (thoracic - pronounced thor-a-cic) spine, and five in the lower (lumbar) spine. A triangular bone called the sacrum is immediately below the lumbar vertebrae. The sacrum is actually comprised of five bones fused together. The sacrum and the two pelvic bones form the base of the trunk. The tailbone (coccyx - pronounced cahk-sics) is actually made of three or four very small bones. The bones in the back are kept in good alignment by support of the muscles in the abdomen. A healthy back is straight, strong, flexible and free of pain.

Back pain is usually defined as either acute or chronic. Doctors may diagnose low back pain as acute if it lasts less than a month and is not caused by serious medical conditions. Most cases clear up in a few days without medical attention, although recurrence after a first attack is common. If the pain persists, it’s considered chronic back injury and is also called chronic back pain. This constitutes only one to five percent of back pain cases.

The most common area of back injury is the lumbar spine. A lumbar strain is said to occur when the muscles of the lower back are torn. Herniated (pronounced her-nee-a-ted) discs are also a common source of back pain. Small cushions of cartilage, called intervertebral discs, separate vertebrae in the back from each other. Inside each disc is a jelly-like substance and 80 percent of the disc is water which makes it very elastic. A disc does not contain blood and relies on nearby blood vessels to keep it nourished. A herniated disc occurs when the cartilage between the vertebrae tears. As a result, the cartilage and its contents will bulge from between the vertebrae, often putting pressure on the nerves in the area. This may produce muscle spasm at the site and pain or weakness in the leg.
Many times the cause of chronic back injury is not known.

- Poor posture is the most common cause of back pain.
- Injury due to lifting heavy objects is also a frequent cause of back pain.
- Overweight and little exercise can increase the risk of back injury.
  Some types of arthritis can cause chronic back pain.

Some injuries will cause muscle spasms in the back and pain or weakness in a leg. Back pain can develop anywhere from the neck to the lower spine. The pain can be localized or spread across a wide area and radiate from a central point. Muscle spasms may occur at the site of the pain. Some people also get pain or weakness in a leg as a result of back injury.

Pain Relief
Acetaminophen is often the first medication chosen to treat back pain. A common form of acetaminophen is Tylenol. It can relieve pain but does not reduce inflammation.

If back pain is a result of inflammation, your doctor may recommend nonsteroidal anti-inflammatory drugs (NSAIDS - pronounced eneds). NSAIDS help to reduce pain and swelling of the joints and decrease stiffness. However, they do not prevent further joint damage.

Muscles and other tissues that hold joints together weaken when they aren't moved enough, so the joint loses its shape and function.

Moderate stretching exercises will help relieve the pain and keep muscles and tendons around the affected joint more flexible and strong. Low impact exercises like swimming, walking, water aerobics and stationary cycling can all reduce pain while maintaining strength and flexibility. Always consult a doctor before beginning an exercise program.

Surgery
If no other treatments provide relief, your doctor or rheumatologist may recommend surgery. However, surgery is rarely required for chronic back injury.

Outcomes
Seventy percent of people with back pain recover within a month. Back pain that persists for more than six months occurs in only one percent to five percent of the chronic back injury cases. About half of the people with longterm back injury return to work.

Texas Sports Medicine Center was the first hospital-based sports medicine program in the greater Houston area. It was developed in response to the need for specialized treatment and rehabilitation of sports-related injuries. The newly expanded Center provides a wide variety of sophisticated physical therapy equipment and the latest condition exercise equipment to help patients recover as fully as possible from injuries in the first place.
Call 281.351.6300 for more information.
The human body has a tremendous capacity to adapt to physical stresses. In fact, many positive changes occur as a result of this.

With exercise and activity, bones, muscles, tendons, and ligaments get stronger and more functional because of an internal process called remodeling.

There are basically two types of injuries: acute injuries and overuse injuries. Acute injuries are usually the result of a single, traumatic event (macrotrauma). Common examples include wrist fractures, ankle sprains, shoulder dislocations, and hamstring muscle strain.

Overuse injuries are more subtle and usually occur over time as a result of repetitive microtrauma to the tendons, bones and joints. Common examples include tennis elbow (lateral epicondylitis), swimmer's shoulder (rotator cuff tendinitis and impingement), Little League elbow, runner's knee, jumper's knee (infrapatellar tendinitis), Achilles tendinitis and shin splints.

In most sports and activities, overuse injuries are the most common and the most challenging to diagnose and treat.

The human body has a tremendous capacity to adapt to physical stresses. In fact, many positive changes occur as a result of this. With exercise and activity, bones, muscles, tendons, and ligaments get stronger and more functional because of an internal process called remodeling. The remodeling process involves both the break down and build up of tissue. There is a fine balance between the two and if breakdown occurs more rapidly than build up, injury occurs.

This can happen when you first begin a sport or activity and try to do too much too soon. If you begin playing tennis and play for several hours in an attempt to improve rapidly, you are setting yourself up for an overuse injury. This is because you are trying to do too much and don't allow the body adequate time to recover. As a beginner, you may also have poor technique which may predispose you to tennis elbow. With overuse injuries, it often takes detective-like work to understand why the injury occurred.

Training errors are the most common cause of overuse injuries. These errors involve a too rapid acceleration of the intensity, duration or frequency of your activity. A typical example is a runner who has run several miles three times a week without any problem. The runner then begins advanced training for running in a marathon, running a longer distance every day at a faster pace. Injury or breakdown is inevitable. Overuse injuries also happen in people who are returning to a sport or activity after injury and try to make up for lost time.

There are also technical, biomechanical and individual factors. Proper technique is critical in avoiding overuse injuries. Slight changes in form may be the culprit. For this reason, coaches, athletic trainers and teachers can play a role in preventing recurrent overuse injuries.

Some people are more prone to overuse injuries and this is usually related to anatomic or biomechanical factors. Imbalances between strength and flexibility around certain joints predispose to injury. Body alignment, like knock-knees, bow legs, unequal leg lengths and flat or high arched feet, is also important. Many people also have weak links due to old injuries, incomplete rehabilitated injuries or other anatomic factors.

Other factors include equipment, like the type of running shoe or ballet shoe, and terrain, hard versus soft surface in aerobic dance or running.

The diagnosis for overuse injuries can usually be made after a thorough history and physical examination. This is best done by a sports medicine specialist with specific interest and knowledge of your sport or activity. In some instances, X-rays are needed and occasionally additional tests like a bone scan or MRI are needed.

Treatment depends on the specific diagnosis. In general, for minor symptoms, cutting back their intensity, duration or frequency of the offending activity brings relief. Adopt a hard/easy workout schedule and cross train with other activities that allow you to maintain overall fitness levels while your injured part recovers. This is very important for treating the early symptoms of overuse injuries.

Working with a coach or teacher or taking lessons can assure proper training and technique. Paying particular attention to proper warm-up before activity and using ice after activity may also help. Aspirin or over-the-counter anti-inflammatory medications can also be taken to relieve symptoms.

If symptoms persist, a sports medicine specialist can create a more detailed treatment plan for your specific condition. It may include a review of your training program and an evaluation for any predisposing anatomic or biomechanical factors. Physical therapy and athletic training services may also be helpful.

Most overuse injuries can be prevented with proper training and common sense. Listen to your body. Remember that “no pain, no gain” does not apply here.

The 10 percent rule is very helpful. In general, you should not increase your training program or activity more than 10 percent per week. This allows your body adequate time for recovery and response. The 10 percent rule also applies to increasing pace or mileage for walkers and runners, as well as to the amount of weight added in strength training programs.

Seek the advice of a sports medicine specialist when beginning an exercise program or sport to prevent chronic or recurrent problems. Your program can also be modified to maintain overall fitness levels in a safe manner while you recover from your injury.
A joint is formed by the ends of two or more bones which are connected by thick tissues. For example, your knee joint is formed by the lower leg bone called the tibia or shin bone, and your thighbone called the femur. The hip is a ball and socket joint formed by the upper end of the femur, the ball, and a part of the pelvis called the acetabulum, the socket. The bone ends of a joint are covered with a smooth layer called the cartilage. Normal cartilage allows nearly frictionless and pain-free movement. However, when the cartilage is damaged or diseased by arthritis, joints become stiff and painful.

Why is total joint replacement necessary?
The goal is to relieve the pain in the joint caused by the damage done to the cartilage. The pain may be so severe a person will avoid using the joint, weakening the muscles around the joint and making it even more difficult to move the joint. A physical examination, possibly some laboratory tests and x-rays will show the extent of damage to the joint. Total joint replacement will be considered if other treatment options will not relieve your pain and disability.

How is a total joint replacement performed?
After an anesthetic is given, the surgeon replaces the damaged parts of the joint. For example, in an arthritic knee, the damaged ends of the bones and cartilage are replaced with metal and plastic surfaces that are shaped to restore knee movement and function. In an arthritic hip, the damaged ball (upper end of the femur) is replaced by a metal ball attached to a metal stem fitted into the femur, and a plastic socket is implanted into the pelvis, replacing the damaged socket. Although hip and knee replacements are the most common, joint replacement can be performed on other joints, including the ankle, foot, shoulder and fingers.

The materials used in a total joint replacement are designed to enable the joint to move just like your normal joint. The prosthesis is generally composed of two parts; a metal piece that fits closely into a matching sturdy plastic piece. Several metals are used, including stainless steel, alloys of cobalt and chrome, and titanium. The plastic material is durable and wear resistant (polyethylene). A plastic bone cement may be used to anchor the prosthesis into the bone. Joint replacements also can be implanted without cement when the prosthesis and the bone are designed to fit and lock together directly.

Materials and surgical techniques are improving through the efforts of orthopedists working with engineers and other scientists. The future is bright for those who choose to have a total joint replacement to achieve an improved quality of life through greater independence and healthier pain-free activity.

What is the recovery process?
In general, your orthopedist will encourage you to use your "new" joint shortly after your operation. After total hip or knee replacement you will often stand and begin walking the day after surgery. Initially, you will walk with a walker, crutches, or cane. Most patients have some temporary pain in the replaced joint because the surrounding tissues are weak from inactivity and the tissues are healing. But it will end in a few weeks or months.

Exercise is an important part of the recovery process. Your orthopedic surgeon or the staff will discuss an exercise program for you after surgery. This varies for different joint replacements and for differing needs of each patient.

After surgery, you may be permitted to play golf, walk and dance. However, more strenuous sports, such as tennis or running, may be discouraged. The motion of your joint will generally improve after surgery. The extent of improvement will depend on how stiff your joint was before surgery.

Preparing for total joint replacement:
Before surgery, your orthopedic surgeon will make some recommendations, such as suggesting that you:
- donate your blood so that, if needed, you may receive it during or after surgery
- stop taking some drugs before surgery
- begin exercises to speed your recovery
- evaluate your need for discharge planning, home therapy, and rehabilitation after surgery

Is total joint replacement permanent?
Most older persons can expect their total joint replacement to last a decade or more. It will give years of pain-free living that would not have been possible otherwise. Younger joint replacement patients may need a second total joint replacement.

Call Dr. Bahrani at Texas Orthopedics & Sports Medicine, 281.351.7261, to find out if any of these choices would be of benefit to you.
THE TEXAS SPORTS MEDICINE CENTER was the leader in physical therapy in 1983 as the first hospital-based sports medicine program in Houston. Today, we’re still the preeminent facility for anyone with an injury - from athletes to senior adults.

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