

The Joint Handbook

from Orthopaedic Associates of the Lakelands

FINDING YOUR WAY BACK TO AN ACTIVE LIFE WITH JOINT REPLACEMENT

FIND OUT WHAT'S CAUSING
YOUR KNEE PAIN

HOME EXERCISES THAT
RELIEVE JOINT PAIN

MAKO ROBOTIC SURGERY
& ADVANCES IN HIP, KNEE
& SHOULDER REPLACEMENT



TREATING KNEE PAIN

It's estimated that 1 in 4 people experience knee pain at some point. The good news is that many times, the cause can be ligament strain or injury that can be treated with a minor procedure. The key is to understand what may be causing your knee pain and how the amazing knee joint enables us to walk, run, jump and turn.

The knee joint is comprised of four bones. The largest of these is the femur, or thigh bone. Also found in the knee is the tibia, sometimes called the shin bone. Alongside the tibia, on the outside of the leg, is the fibula. The fourth bone found in the knee is the patella or kneecap. It's cradled within the patellar tendon, and lies directly in front of the femur. The patella assists in knee extension, increasing leverage by lifting the quadriceps and patellar tendons away from the joint.

Both the lower end of the femur and upper end of the tibia are covered with articular cartilage, a smooth rubbery material, which allows one surface to glide one upon the other with minimal friction. Articular cartilage is found in the body anywhere two bones meet and glide against each other. Sandwiched between the two bones are meniscus tissue, which acts as an additional cushion for the joint.

Knee pain from meniscus injury

Our knees are fortified with an extra layer of cartilage just between the femur and tibia. Meniscus tissue protects the articular cartilage by acting as a shock absorber and spreading out the forces placed on the joint surfaces during movement. To imagine how valuable this function is, consider that forces on the knee range from about twice our body weight during normal walking, to more than four times our body weight when running, twisting or jumping.

Considering the meniscus layer is only about one-fourth of an inch thick, this padding does a remarkable

job of softening impact when our feet hit the ground when walking, running and jumping. This underscores the importance of injury prevention when it comes to the knee. Once you damage this shock absorber tissue, you are that much more susceptible to arthritis and other damage to the joint.

When we are young, the meniscus is tough and can take some abuse. But it can tear as a result of a sports injury. As we reach our 50s, however, meniscus can tear with just a slight twist of the knee. During arthroscopic surgery of the knee, the knee surgeon can repair and remove the torn part of the meniscus, while at the same time trying to preserve as much of it as possible.

Knee pain from ligament injury

Ligaments connect one bone to another. They are made up of tough collagen fibers that straighten when force is applied and permits the ligaments to endure large internal stresses during normal joint motion. The four major ligaments of the knee are:

1. the anterior cruciate ligament
2. the posterior cruciate ligament
3. the medial collateral ligament
4. the lateral collateral ligament

The stability of the knee is largely due to how all four ligaments work together. They are the structures that ultimately hold the tibia and femur together, while permitting motion.

The anterior cruciate ligament (ACL) is deep within the knee. It crisscrosses the posterior cruciate ligament (PCL) and keeps the tibia from sliding too far forward in relation to the femur. The PCL does the opposite. It prevents the tibia from sliding excessively backwards. The ligaments that provide sidewise stability to the knee are the medial collateral ligament (MCL) and lateral collateral ligament (LCL). These ligaments limit side-to-side motion.

Knee pain is broken down into two categories: acute or chronic. If you fall

down and hurt your knee or twist your knee, that is called "acute" knee pain. Chronic pain is something that occurs more gradually over time, often getting worse as weeks, months and years go by. Unlike acute pain which can be linked to a specific accident – like when you fall or twist your knee – chronic pain is more like an ache that is not linked to any event.

During your visit to Orthopaedic Associates of the Lakelands, the orthopedic surgeon will ask when and how your pain started to learn more about the potential cause of pain. Next, the knee surgeon will use his hands to move the knee joint to test for stability. Diagnostic test like X-rays will show your knee joint in detail.

The most common cause of knee pain

Use the knee pain flow chart in this handbook to self diagnose your knee pain. Most causes of acute knee pain fall into the following categories:

- *Knee cap pain:* Pain from a knee cap usually becomes most noticeable when walking up stairs, going down stairs, running or sitting.
- *Pain from a torn meniscus:* If the meniscus is torn, stretched or out of place, pain may occur when the joint is moved. You may notice symptoms of clicking, popping or locking with a meniscal tear.
- *Pain from ligament tears:* When the ACL is torn, it is often because the leg rotates while the foot stays planted on the ground. Often times an ACL tear is accompanied by a loud popping sound from the knee and the support of the knee gives way. A posterior cruciate injury happens when the knee is forced backwards or when it receives a hard impact. A medial collateral ligament injury most commonly occurs when the knee is hit from the outside. A lateral collateral ligament injury occurs when the knee is impacted from the inside.
- *Pain from tendon problems:* Inflamed tendons that connect the knee cap to the

shin bone can cause pain.

When knee surgery is necessary

When nonsurgical treatment options – like therapy, injections and anti-inflammatory medications – fail to relieve pain symptoms, the only way to heal a knee problem may be through surgery. Also, when joint surfaces have eroded away because of arthritis, then knee surgery may be unavoidable. About 20% of knee patients require surgery.

Surgery to repair a torn ACL

One of the most common knee injuries is a torn ACL. The Anterior Cruciate Ligament (ACL) works a lot like a guide wire that keeps the femur and the tibia stable. When an athlete tears their ACL, usually it is from a sudden twist on the knee joint. This can cause an audible pop and a great deal of pain. The common symptoms of a torn ACL are the audible pop, a feeling of instability in the knee, nausea and swelling.

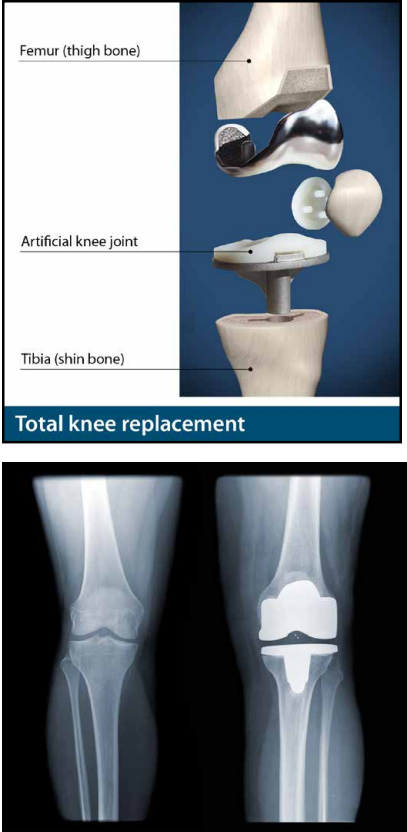
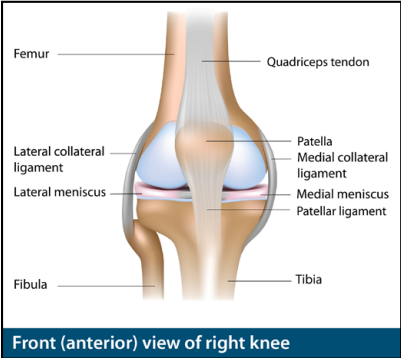
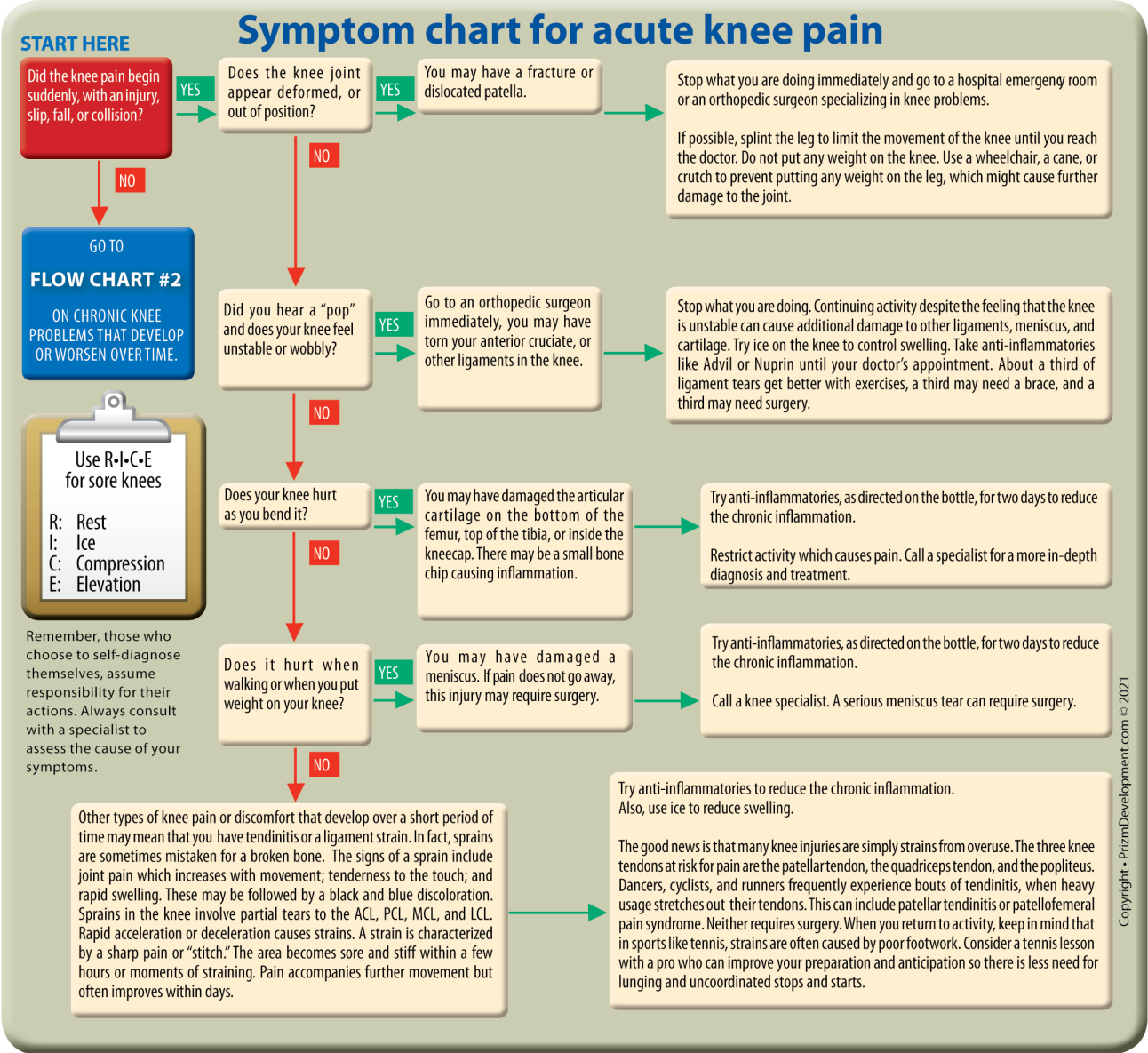
Torn ACLs are one of the most common problems associated with sports. It is important to understand your options if you have a torn ACL.

Repairing the torn ACL does NOT involve sewing two torn ends together. Instead, think of your ACL as a rubber band. Once it snaps, it can not be sewn together. Instead, you have to replace the rubber band completely. And that is exactly what the knee surgeon does. They harvest a similar ligament from another area of your body, attach one end to your shin, thread it through your knee and anchor the other end to your femur.

Some knee surgeons use a patellar tendon while most others use a hamstring ligament. There are pros and cons to each. Harvesting a patellar tendon from the front of the knee involves a more painful recovery and painful rehabilitation. However, professional athletes who are used to pain from training are more able to tolerate this approach, especially



Knee pain affects both young and old. Here are your options.



Knee Replacement Surgery

While ligament and meniscus tears are relatively easy to resolve and enable the person to return to running and full activity, knee pain from an arthritic knee joint is more serious.

Each year there are more than 600,000 knee joint replacement surgeries. Many of these are preventable because degenerative knee joints are often caused by obesity. Sadly, one-third of Americans now are obese or morbidly obese, and the knee joint was never designed to carry a heavy moving object.

Because the life of an artificial knee joint is about 15 to 20 years, a knee surgeon will attempt to delay surgery to avoid having to remove a worn out artificial joint, which can be complex surgery, and involve removing more healthy bone. Consequently, before even

considering knee replacement surgery as an option, generally an orthopedic surgeon will try to find other ways of relieving knee pain symptoms.

For instance, physical therapy, anti-inflammatory medication, steroid medication and walking aids may be used for knee pain stemming from arthritis. However, when other treatments fail to provide pain relief, knee replacement surgery may be the only option left.

Artificial knee joint replacement surgery typically lasts less than two hours. The knee is opened up and the kneecap is moved out of the way. The knee surgeon then shaves off the bottom of the femur and the top of the tibia. The prosthesis is then fitted and glued to the bones with surgical cement. The knee is then sutured back



Dr. Lee Patterson, orthopedic surgeon, reviews a patient's knee X-ray at Orthopaedic Associates of the Lakelands in Greenwood, SC.



Most knee pain relates to soft tissue injury to the meniscus, articular cartilage or ligaments in the knee which can be treated with minor arthroscopic surgery. In many cases the person is able to get back to running and other activities like the new craze, pickle ball.

together.

After surgery, the patient will probably require the aid of a walker for a few days before putting full weight on the leg. Most patients are 85% recovered after six weeks, but it may take up to 6 months or a year for full recovery to activity.

Who Is A Candidate?

Knee replacement is typically a procedure reserved for those who are over 50 years of age who are in relatively good health. In fact, 70 percent of knee replacements are done on those over the age of 65.

Knee replacement candidates will find it comforting to know that they will be able to resume some athletics following surgery such as hiking, biking, swimming, doubles tennis and golf.

Those who are overweight are not good candidates as the artificial joint (just as the natural knee) can be damaged from excessive weight.

Consequently, most knee surgeons will require an obese or morbidly obese candidate to lose significant weight before they perform a knee replacement surgery.



Treating knee pain from ligament or meniscus injury will require special exercises that improve the strength and flexibility in the knee joint. This will help prevent additional injury. A chair is essential to provide support.

Standing Knee Raises

Stand behind a chair. Bend operative leg at the knee. Hold knee in bent position for 5 seconds. Return to ground. Do 10 repetitions on each side, repeat 3 times a day.

Seated Knee Extension

Sit down in a chair. Straighten leg at the knee. Hold knee out for 5 seconds. Return to the ground. Alternate sides. Do 10 repetitions on each side, repeat 3 times a day.

Chair Knee Extension

While seated, keep one leg on the ground and place operative leg on a chair in front of you. Press knee down towards chair and hold for 20 seconds. Do 10 repetitions, repeat 3 times a day.

Ankle Pumps

Lie on your back, or sit in a chair as shown, and point your foot on the operative leg away from body. Then flex foot up towards body, holding for 5 seconds. Do 10 reps every hour.

Those who diagnose and treat themselves with home remedies and exercises do so at their own risk. ALWAYS discontinue any exercise that causes pain.

WHAT CAUSES Shoulder pain?

Do you have shoulder pain? You're not alone. About 8% of Americans have shoulder pain, according to the American Academy of Orthopedic Surgeons. The good news is that unlike hip joint pain which is often linked to arthritis, shoulder pain is often linked to injury of the ligaments, tendons and rotator cuff mechanism.

The shoulder is composed of three bones: the upper arm (humerus), the shoulder blade (scapula), and the collarbone (clavicle). The upper arm fits into a rounded socket in the shoulder blade. The muscles and tendons keep the arm bone centered in the shoulder socket. These tissues are known as the rotator cuff and cover the top of the upper arm bone and attach it to the shoulder blade. The function of the rotator cuff is to raise and lower the arm.

Common causes of shoulder pain

Rather than bone or joint surface issues, most shoulder pain is caused by the soft tissues, muscles, ligaments, and tendons. A majority of these problems fall into three major categories: tendonitis/bursitis, injury/instability and arthritis.

Tendonitis: A tendon is a cord which connects muscle to bone or other tissue. Similar to the wearing process on the sole of a shoe which eventually splits from overuse, most tendonitis is a result of the wearing process that takes place over a period of years.

Rotator cuff tears: As the most flexible joint in the body, the shoulder is capable of performing a wide range of activities. However, with this incredible range of motion, the shoulder joint is at high risk for instability. The instability can lead to pain. Overuse can lead to rotator cuff tears. Causes of a rotator cuff tear can be improper lifting, falling down, or repetitive strain on the shoulder. Baseball pitchers, for example, have the number of pitches counted and are pulled from the game as they approach 100 pitches to prevent overuse syndrome and permanent damage to the joint. Sometimes rotator cuff problems can respond well to non-surgical treatment options. This can include the "RICE" approach: (REST from the activity causing the pain, apply ICE to the injured area, COMPRESS the injured area, and ELEVATE the injured area above the heart to reduce swelling).

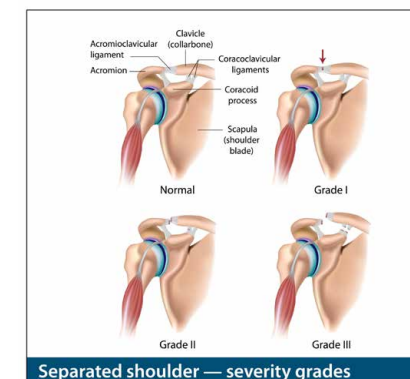
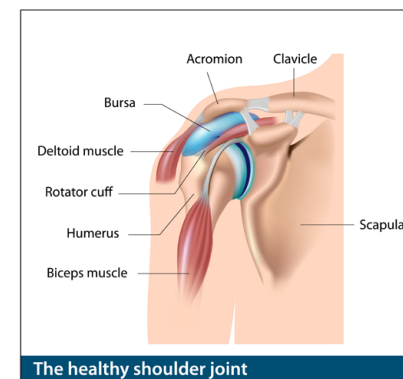
Bursitis: In some cases, excessive use of the shoulder leads to inflammation and swelling of a bursa, a condition called bursitis. Bursas are fluid-filled sacs located around the joints which lessen the friction caused by movement of the joint. Sometimes the many tissues in the shoulder become inflamed and painful, which in turn may limit the use of the shoulder. The joint may stiffen as a result, a condition known as a "frozen shoulder." The good news is that this condition can often resolve itself.

Dislocated shoulder: A shoulder can be partially dislocated or fully dislocated. This can happen from falling or from contact sports like football. A hard hit pulls the arm out of the shoulder socket causing it to swell up, become numb and weak.

Arthritis: Arthritis can also cause shoulder pain. There are many types of arthritis, but generally it involves wear and tear changes with inflammation of the joint, causing swelling, pain and stiffness.

Treatment of shoulder pain

Your orthopedic surgeon at Orthopaedic Associates of the Lakelands



may first recommend a series of exercises to strengthen the muscles around the shoulder. The physical therapist at the clinic can help restore stability and balance to the shoulder and provide relief from pain and instability. Non-steroidal anti-inflammatory medicines (i.e. ibuprofen) can help with the pain and inflammation. Steroid injections may also be used to reduce inflammation and pain, making the rehab process easier.

Sometimes, however, for those problems that can not be treated non-surgically, the patient may have to undergo one of the following surgeries to completely fix the shoulder problem.

Arthroscopy: Using a scope with a camera and cutting device in the end, the orthopedic surgeon is able to operate through a few small half inch incisions to fix rotator cuff tears. The rotator cuff tear is repaired by suturing the torn tendon back to the humerus. Recovery from surgery can be quicker and less painful, which explains why professional athletes elect for surgery to speed return to their sport. During surgery for a rotator cuff tear, the surgeon removes debris from the damaged shoulder cuff tendon. Next, if bone spurs are present, the surgeon will smooth the acromion area to prevent the acromion from pinching the tendon.

Shoulder Impingement Surgery: This minimally invasive procedure is often performed on an outpatient basis. Shoulder impingement helps relieve pain by decompressing the small enclosed area around the rotator tendon of the shoulder joint. During the procedure, the bursa is removed and the orthopedic surgeon trims back the acromion bone to allow for normal pain-free motion. In most cases, this procedure is performed arthroscopically.

Shoulder Replacement Surgery: Arthritis or injury can also damage the

shoulder joint preventing a person from lifting their arm. In severe cases, the only treatment available is shoulder joint replacement surgery. Shoulder replacement surgery has been around since the 1950s and was originally used for severe fractures, but because of its success, it has since been broadened to address arthritis.

Each year, 53,000 people in the U.S. have shoulder replacement surgery and most patients are under 50 years of age. In one study, 93% of patients got back to activity and were satisfied with the result of their shoulder replacement surgery.

Reverse shoulder replacement is another variation that was developed

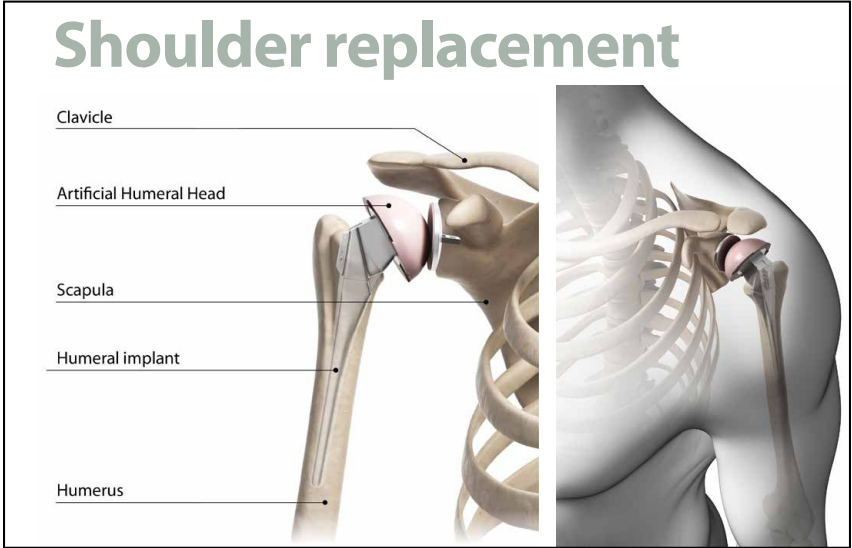
in the 1980s. This is used for those with completely torn rotator cuffs or have had a shoulder replacement surgery that did not relieve symptoms or restore motion significantly.

In reverse shoulder replacement surgery, the position of the ball and socket are “reversed” where the ball is attached to the shoulder and the plastic socket is attached to the upper arm. This enables the person to lift the arm using a different muscle than the rotator cuff.

Shoulder replacement surgery has one of the best outcomes in helping people back to activity, with 93% of patients able to return to golf and other recreational sports.



Dr. John Cathcart at Orthopaedic Associates of the Lakelands specializes in treatment of shoulder problems and performs shoulder replacement surgery.



Some shoulder pain can be caused by ligament strain. These exercises with a Sportcord can help strengthen the shoulder and increase flexibility.

Shoulder Internal Rotation

Keep the Theraband around waist level. Use the arm right next to the band, keeping your elbow in at your side. Turn your arm towards your stomach. Keep your arm parallel to the ground. Return to starting position slowly. Repeat.

Shoulder External Rotation

Keep the Theraband around waist level. Use the arm opposite from the band, keeping your elbow in at your side. Turn your arm away from your stomach. Keep your arm parallel to the ground. Return to starting position slowly. Repeat.

Military Press

While sitting on a ball or chair, with dumbbells in each hand, position your arms at shoulder level as shown, and then press upward to the ceiling. Do 10 repetitions. Try to do 3 sets.

Arm – Triceps Pulldowns

Anchor your Theraband or Sportcord at the top of door frame. Grasp the ends/handles, and pull down toward your hips, keeping your upper arms by the side of your body. Hold for 5 seconds, then relax. Repeat 10 times.

Shoulder Extension

Hold the Theraband slightly below waist level, keeping the band right next to your side. Pull band across your body, stopping when you reach slightly over your head. Return to starting position slowly. Repeat.

Those who diagnose and treat themselves with home remedies and exercises do so at their own risk. ALWAYS discontinue any exercise that causes pain.



WHEN IT'S TIME FOR HIP REPLACEMENT

Unlike the knee and shoulder joints which have ligaments, muscles and tendons that can all cause pain symptoms — and can respond to non-surgical options and less invasive surgical procedures like arthroscopy to remove torn cartilage — the hip joint is different.

Most pain originating from the hip area is often caused by arthritis that damages the surface of the ball and

socket joint, causing painful bone-on-bone friction that can make walking excruciatingly painful.

Causes of Hip Pain

Some of the causes of hip pain include arthritis, osteoarthritis, excess body weight, avascular necrosis and mechanical abnormalities.

Once the hip joint becomes arthritic there are few treatment options

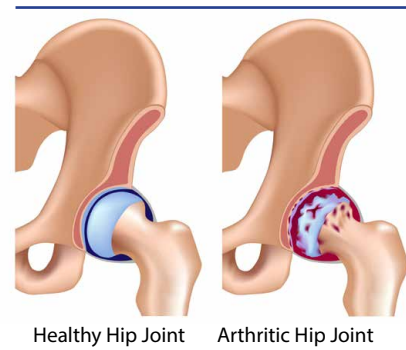
other than hip joint replacement with an artificial hip implant.

Sadly, excess body weight puts an extra load on a degenerating hip joint and can worsen the pain symptoms. More than one-third of Americans are now obese, which is 20% over normal body weight. The best way to avoid needing hip replacement surgery is by reducing your weight to the normal recommended weight range for your body size. For a 6 foot tall man, normal body weight would be about 184 pounds.

Osteoarthritis is the most common form of arthritis, affecting over 21 million Americans. Three times as many women suffer from the disease than men. Osteoarthritis occurs when the covering on the ends of bones gradually wears away, becoming frayed and rough. It typically develops due to many years of use and affects people middle-aged and older. Osteoarthritis targets hands and weight-bearing joints, such as knees, hips, feet and back.



Dr. Richard Christian at Orthopaedic Associates of the Lakelands consults with a patient on artificial hip surgery.



Arthritis affects many seniors as they age into their 50s and 60s. An artificial hip joint can restore pain-free movement.



Each year in the U.S. more than 450,000 hip replacements are done and that is increasing because of two trends. First, baby boomers are now in their 60s and 70s and they expect to maintain an active life. The second reason is that one-third of Americans now are obese, which puts more wear and tear on the hip joint. Advances in hip replacement, including the use of robotic technology, has made the procedure safe and effective at restoring the ability to walk without pain and enjoy an active retirement.

Risk Factors include:

- Age – 45 years or older
- Gender- majority are women
- Defective cartilage/malformed joints
- Joint injuries from trauma or sports
- Obesity
- Diseases that damage cartilage

Symptoms

- Pain and inflammation
- Swelling and stiffness
- Loss of range of motion
- “Sticking” and weakness
- Loose fragments of cartilage cause locking or sticking.
- Joint may lose strength, buckle or lock.

Body weight and hip pain

Our hips form and develop in proportion to the amount of weight our body was designed to hold. So if you are a small woman, your hips are meant to hold a smaller amount of weight than if you are a six-foot tall man. Although the body is very adaptable and can learn to hold different weights, a point can be reached where the body is simply not comfortable supporting excess weight.

Avascular necrosis occurs when the tissue in the joints literally die when the blood supply is cut off to the bones. This can be a temporary blood supply loss or a permanent loss. Causes of avascular necrosis can include alcoholism, steroids, or blood disorders. In the early stages of avascular necrosis, pain only occurs when pressure is put on the joint. However, as the necrosis worsens the pain is present even while resting. In many cases, the blood supply is lost permanently and the damaged tissue must be removed and replaced with a hip replacement.

Mechanical abnormalities are rare, but can stem from childhood disfigurement or fractures that never healed properly. Initially, the body will try to compensate for the abnormality. However, as time passes, this will create

wear and tear on other parts of the body. Ultimately, the remedy for this can be hip replacement.

Osteoporosis

Those with fragile bones that may easily break have osteoporosis. The disease is the result of lower than average amounts of phosphate and calcium in the bones, which causes them to become porous and brittle. Your hip surgeon at Orthopaedic Associates of the Lakelands will determine if this is a problem for you.

Hip Replacement Surgery

The goal of hip replacement surgery is to restore function to the hip joint for an average of 15 to 20 years, which is the typical life of a artificial hip joint.

This explains why hip surgeons try to delay — where possible — hip replacement surgery so the artificial hip joint outlives the patient. That's because removing a worn out artificial hip joint is complex surgery.

Consequently, in the United States, about 65 percent of hip replacements are on patients in their mid 60s. It is also not recommended for the extremely obese as their extreme weight would destroy the implant prematurely.

Hip replacement surgery replaces the surfaces of the joint that glide over

each other. In the ball-and-socket joint, the ball is replaced with a ceramic or metal ball. An incision is made to gain access to the hip joint. The surgeon then removes the diseased bone and cartilage. The socket is smoothed down and a metal cup with a plastic, ceramic, or metal liner is placed into it.

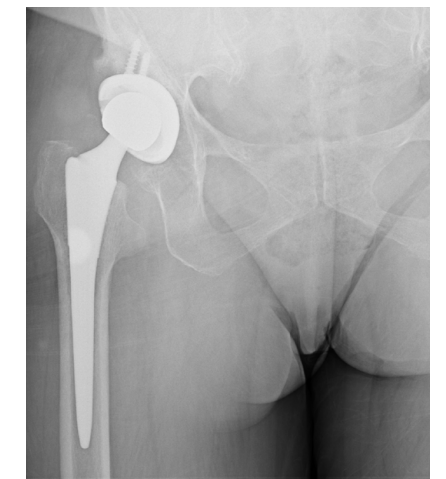
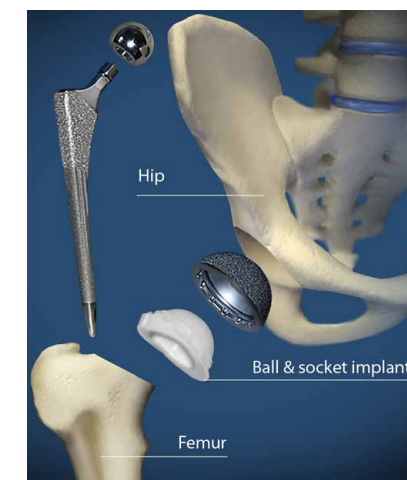
Anterior Hip Replacement

Direct Anterior Hip Replacement is a surgery method that is an alternative to the standard hip replacement surgery. In the past, hip replacement surgery required cutting certain muscles and tendons in order to access the area being fixed. Direct anterior hip replacement uses a technique that doesn't require cutting of muscles or tendons to expose the joint being treated.

Advances in hip surgery

Hip replacement has improved greatly over the past 10 years. Years ago all hip replacements were done in the hospital and involved several days of recovery in the hospital. Today, about 15 percent of hip replacements are done in an ambulatory surgery center with the patient going home later in the day or the next morning.

In “traditional total hip replacement,” the incision can be 12 inches long. The hip surgeon removes





the top of the thigh bone and removes the arthritic bone in the hip socket. A new ball and socket joint implant replaces the arthritic joint. A ceramic, metal, or plastic spacer is put between the head and the socket so they can glide smoothly against each other.

In “mini hip replacement” the incisions are smaller and different instruments are used prepare the bones and insert the new artificial joint. The surgery can involve a smaller incision of about 4 to 6 inches. Or the surgeon makes two incisions with each being about 2 inches long. In mini hip replacement X-ray images are used to guide the surgeon. A mini hip replacement provides the following benefits:

- Because the incisions are smaller, there is less damage to soft tissues.
- Recovery is faster and less painful.
- Outcomes studies imply the results match traditional hip replacement.

Robotic technology for hip surgery

New robotic technology has emerged that uses the power of the computer to create 3D images of the damaged hip joint. In advance of



surgery, the hip surgeon uses the robotic technology and CT-scan images to map out the optimal cuts which then use a robotic arm to assist in the precise bone cuts. The robotic technology can be helpful in sparing bone during surgery by just removing the damaged arthritic bone and leaving as much healthy bone as possible.

The other benefit is that the mapping and robotic arm accuracy improves the alignment and placement of the artificial joint which can improve the function of the joint after surgery.

BEFORE hip replacement surgery

It’s important to make some adjustments to your home to help your recovery, including the following:

- Install a higher toilet seat.
- Put a seat in your shower or bathtub.
- Install a hand-held shower spray.
- Remove things that could trip you up, like cords and rugs.

AFTER hip replacement surgery

After surgery, the patient will probably require the aid of a walker for a few days before putting full weight on the hip joint. Physical therapy will

be necessary to strengthen the hip joint muscles after surgery and improve the range of motion.

Some patients are able to speed recovery over a month, while others might need several months to return to walking. At home, you’ll need to keep the incision site dry until your stitches come out to prevent infection.

For the first week after surgery, daily activities and moving around will be hard to do on your own. You will need a person to help out as you recover, otherwise you may need to stay at a rehab hospital as you regain strength.

While there will be some pain during the first month as you regain strength and movement in the hip joint, it’s important to follow your surgeon’s instructions. This may include walking and to avoid sitting for too long.

Longer term, your new hip joint should enable you to return to an active life without hip pain. Your hip surgeon will provide recommendations on approved activities. Generally low-impact sports are safe after having a total hip replacement. This includes golf, tennis, biking, hiking, swimming and low-impact aerobic exercise.



Start position



Finish position

Hip exercises will be an important part of recovery after hip replacement surgery to increase flexibility and restore the range of motion to the hip joint.

Hip Abduction – Standing

Stand behind a chair for balance. With your operative leg, keep it straight and raise it out to the side with feet pointing forward. Hold in extended position for 5 seconds. Return to start position. Do 10 repetitions on each side, repeat 3 times a day.



Start position



Finish position

Straight Leg Raise

Lie on your back. Bend your left leg. Extend right leg. Slowly lift right leg off floor without letting the knee bend. Do 15 repetitions once a day. Repeat exercise to the other leg.



Start position



Finish position

Ankle Pumps

Lie on your back, or sit in a chair as shown, and point your foot on the operative leg away from body. Then flex foot up towards body, holding for 5 seconds. Do 10 reps every hour.



Start position



Finish position

Heel Slide

Lie on your back. Slowly slide one heel towards your buttocks. Return to start position. Alternate sides. Do 10 repetitions on each side, repeat 3 times a day.

Those who diagnose and treat themselves with home remedies and exercises do so at their own risk. ALWAYS discontinue any exercise that causes pain.

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PREPARING FOR Joint Replacement

If you've exhausted all the non-surgical treatment options for your joint pain, it may be determined that you need hip, knee or shoulder joint replacement surgery. If so, will need to do several things to prepare for your joint replacement surgery:

4-8 weeks prior to surgery

You'll need to prepare some things before joint replacement surgery. Surgery may make moving around and completing everyday activities difficult until the body begins to recover, so it is important that the patient is thoroughly prepared. This section will cover many of the steps the patient should take to be comfortable and safe after surgery.

Clean bill of health

It is important that the patient is healthy as possible before undergoing surgery. We recommend that the patient visit the dentist at least four weeks before surgery to ensure that there will be no need for any dental appointment after joint replacement

surgery. The issue with the dentist is that bacteria is spread via the blood stream with dental work and if you have a joint replacement operation the bacteria can end up in the joint causing an infection.

Some doctors recommend for all patients to take one dose of antibiotics before any dental work for the rest of their lives. It is not recommended to return to the dentist for at least six months after surgery.

Diet and weight loss

The patient should begin a healthy diet including whole grains, fruits and vegetables, protein, and iron rich foods six weeks before surgery. Drink plenty of water or healthy fruit juices to ensure your body is as healthy as it can be.

Because the more body weight you place on an artificial hip or knee joint, the faster it can wear out, your surgeon at Orthopaedic Associates of the Lakelands may recommend that you lose excess weight before undergoing surgery. Losing weight is not an overnight process, so a weight loss plan

should begin immediately to provide the greatest opportunity to meet your goal weight prior to surgery. This can be achieved through a combination of a healthy diet and exercise. Your physician may recommend the help of a dietitian to help meet your weight loss goal. Ultimately, the less weight pushing on a new joint, the greater the lifespan of a healthy new joint.

Quit smoking

In addition to obvious breathing problems, smoking can actually slow down the healing process after surgery. It is recommended that the patient takes steps to decrease smoking or to quit smoking completely. This process can be very difficult, so begin trying to decrease smoking months before surgery. Ask your physician for help if needed.

Work release

Be sure to take necessary steps to inform your employer that you will be missing work after surgery. Depending on the level of activity required by your

job, it may be necessary to take at least two to four weeks off. Your surgeon can sign a work release if needed.

Exercise

Building strength before surgery is one of the most important ways to ensure a successful recovery after the surgery. This Joint Handbook offers many exercises you can do to strengthen joint areas. Always ask your physician if an exercise is safe to do with your injured joint. Begin exercising eight weeks before surgery to give the muscles adequate time to gain strength.

Two weeks before surgery

You will need to do some things around your home to make it more comfortable and safe for you after surgery. You need to prepare your bathing area with cleansing supplies and hand grips for stability if possible. Remove any rugs or furniture that could trip you causing a fall.

Prepare a meal list filled with nutrients to help speed your recovery. Consider preparing meals ahead of time, and freezing them for use after surgery. Place anything you expect to need following surgery at a reachable level.

Plan some comfortable outfits and place them in an area that is easily accessible, allowing plenty of room for

dressing and undressing.

Use a steady object or railing for balance, or have someone assist you, when changing clothes. If you have a pet, consider having a family member or a friend care for it after surgery. The goal is to eliminate as many tripping hazards as possible and you won't be as agile avoiding pets that get under your feet.

Medications

Many over the counter supplements or medications may need to be stopped two weeks before surgery. Be honest with your surgeon about all the pills you are taking, and they will tell you which ones should be stopped before surgery.

Health check

Be sure to notify your surgeon if you do not feel well, have contracted an illness, had exposure to Covid, or if you think you have an infection of some kind. Certain conditions or infections may warrant rescheduling of your surgery until you are feeling better.

Transportation

Make sure you have arranged for transportation from the hospital after your surgery. Also, make sure the car has space for you to extend your legs, if you are undergoing knee or hip surgery.

What to Expect

You will most likely begin by reading, filling out and signing forms, so it is very important that you arrive to the hospital or ambulatory surgery center on time. After completing all paperwork, the nurses will take you to a pre-op area where you will put on a hospital gown and an intravenous line (IV) will be started in your arm. This IV will allow the anesthesiologist to give you fluids and medications during the surgery. It is common that the anesthesiologist will come to visit you in your hospital room and run over a few things before your surgery. Also, your surgeon may put his initials on the joint that is going to be replaced. This is done to prevent any confusion in the operating room.

After surgery

After the surgery you will be taken to a recovery room for one hour. Nurses will monitor your blood pressure, breathing, pulse and temperature. Nurses may instruct you to perform deep breathing and coughing exercises to help get oxygen back into cells after undergoing anesthesia.

In the recovery room, you may be instructed to perform certain exercises that work the new artificial joint. It is important to engage in these exercises and activities because it aids

TESTS & DIAGNOSTICS IN ADVANCE OF YOUR SURGERY

Most patients require preoperative blood tests (like a complete blood count, etc.) and other routine health assessments in advance of any surgery. With joint replacement becoming more minimally invasive and faster than in previous decades, there can be less need for blood during surgery. If blood is needed, there are two types of blood transfusions:

- Autologous blood transfusion is your own blood. It is the safest option.
- Allogeneic blood transfusion is receiving blood from a blood bank donor.

Most joint replacement specialists do not use blood bank donations, but are sure to have the patients blood typed and cross-matched if a blood bank is needed in an emergency.



in a successful recovery by increasing circulation throughout the body.

You may also have a catheter in place. This is a tube that allows urine to drain from the bladder. Do not be alarmed if you do not have a bowel movement for a few days because the pain medicine you received via IV and orally, as well as the anesthetic administered during surgery, can cause constipation.

Recovery and rehab after surgery

After surgery, your surgeon at Orthopaedic Associates of the Lakelands will require you to work with our physical therapist to help you with gain strength and recover the correct range of motion

in the new joint.

It is recommended that after surgery, you have someone stay with you after you return home from the hospital. If necessary, arrangements can also be made to stay at a rehabilitation facility after your surgery.

The surgeon may recommend the use of a walker for a few weeks as you recover and regain strength in the joint. It may be from two to six weeks to be able to operate a car efficiently. It will take around two to four weeks to go back to work if your job requires you to sit all day, and around eight to 12 weeks if your job requires you to stand.

Some life-long restrictions you need to observe to protect your new

joint include avoiding running on hard surfaces, contact sports that could dislodge the implant, or extreme sports that could cause a fall and dislocation. These have the highest chances of damaging your joint. If you stay healthy, active and avoid heavy impact, then the new joint should last about 15 to 20 years.

After surgery, the surgeon will typically encourage you to get out of bed and be as active as possible. Doing joint exercises while in bed will help increase circulation and stops blood clots. There are always inherent risks with any major surgery, but medications are given to reduce the risk of blood clots and antibiotics to help ward off infection after surgery.

You will be instructed to take anticoagulant medication, like Coumadin, to reduce the chance of clots. Coumadin (warfarin) helps keep your blood from clotting, but can increase your risk for bleeding.

There are other medications, both by mouth and by injection, that are given to thin the blood and prevent blood clots. Don't take any other medications without checking with your surgeon first. Report immediately to your surgeon if you experience bleeding that doesn't stop in 10 minutes, coughing up blood, diarrhea, dark urine or stool, dizziness, red or black and blue marks on the skin, or chest pain.

After surgery you may feel pain, swelling, minor bloody drainage coming from incision site, numbness around the incision, and a low-grade temperature. This is all normal.

It is important to let your doctor know if you have extreme swelling or high amounts of drainage at the incision site, have high fever or are unable to bear weight on your operated leg.

Deep vein thrombosis (DVT) is a blood clot that forms in a deep vein. If not treated, the clot can travel to your lungs and cause life-threatening complications. Common symptoms usually occur suddenly and in only one leg. They include pain in the deep muscle, swelling, aching or tenderness. If the clot has moved to the lung you may experience shortness of breath or chest pain. This is a medical emergency, and you should call 911.

Pain medication

You will be prescribed pain medication to make you more comfortable. It is very important that you take the medication as directed by your surgeon. It is best to take pain medication with food and before pain begins. Do not consume alcohol or attempt to drive while on pain medication. You can use ice and anti-inflammatory drugs like Advil to reduce pain after you have stopped your blood thinner.

Return to activity with your new joint

It should be your goal to maintain a healthy lifestyle years after the surgery has taken place. The artificial joint operates best and has a longer lifespan when there is less weight pushing down on it. Practice healthy eating and exercise to lose weight and keep it off. Your new joint will thank you for it.

With that said, keep in mind that artificial joints are subject to damage and wear-and-tear. Generally speaking, the goal is for an artificial joint to last 15 to 20 years. Although joint replacement will help you get back to activity, remember that an artificial joint is never quite as effective as the healthy, natural joint you were born with.

Robotic Surgery

Orthopaedic Associates of the Lakelands uses the precision of MAKO robotic technology to map out in advance precision cuts that spare bone and improve patient outcomes from joint replacement.

Decades ago an orthopedic surgeon would treat all types of joint problems. With ever-increasing new technology and treatment advances specific to different joints and bones, that's changed dramatically. Over the past 15 years, orthopedics has become super-specialized with surgeons now specializing in a specific body part, such as foot, ankle, hand, arm, knee, hip or spine.

One example is the use of new Robotic Surgery Technology. The hip and knee surgeons at Orthopaedic Associates of the Lakelands make use of Mako Robotic Surgery that improves the outcomes from hip and knee replacement.

The technology enables the joint replacement surgeon to map out in advance of surgery the optimal cuts in the bone for the best surgical outcome and to spare as much bone as possible.

In a clinical study, the Mako Robotic Surgery system created more accurate placement and alignment of hip implants. This resulted in Less likelihood of hip dislocation; reduced blood loss because the procedure was faster; and patients reporting that the hip implant had the feeling of a natural hip joint.

Prior to surgery, the orthopedic surgeon uses a CT scan of the patient's hip joint to generate a 3D virtual model of the patient's unique joint space. The 3D model enables the surgeon to visualize the joint better than with a traditional x-ray. This enables the surgeon to precisely map out in advance the optimal cuts that spare the most bone and while improving the placement and positioning of the artificial joint implant.



The Day of Surgery: What to do

- ☑ Sleep on clean linens the night before to prevent germs.
- ☑ Wear something comfortable & easy to get out of.
- ☑ Pack an extra outfit and extra underwear.
- ☑ Bathe or shower the night before the surgery.
- ☑ Use some type of antibacterial to help clean all areas of your body. Do not apply any perfumes or lotions after showering.
- ☑ Use clean towel for drying.
- ☑ Bring eyeglasses. Do not wear contacts.
- ☑ It is important to be on time for your surgery.
- ☑ Read all papers thoroughly and sign what is needed.
- ☑ Bring driver's license, insurance card, and medicare/medicaid card (if applicable).
- ☑ Most recovery rooms do not provide the patient their belongings. They monitor the patient for one hour and then they go to their rooms. Once in their rooms it would be good to have books, playing cards, etc.
- ☑ Notify the doctor of all the medications you take, and what medications you want to take after surgery.

What NOT to do

- ☒ Do not take medications that contain aspirin or ibuprofen for seven days before your surgery.
- ☒ Do not take any medications the day of your surgery unless your doctor approves so.
- ☒ Do not eat or drink anything after midnight the night before your surgery or the morning of your surgery.
- ☒ Do not swallow any liquid the morning of the surgery.
- ☒ Do not smoke the morning of your surgery.
- ☒ Do not chew gum or eat candy on the morning of your surgery.
- ☒ Do not wear any makeup, nail polish, or jewelry including any type of ring.
- ☒ Do not apply any perfumes or scented lotions.
- ☒ Do not shave the affected area.
- ☒ Do not take insulin (unless instructed otherwise).

UNDERSTANDING JOINT PAIN SYMPTOMS & WHEN YOU NEED TO SEE THE DOCTOR

TRAUMA, FALL, FRACTURE:

TRAUMA: Any time there is trauma (fall, impact, car accident) along with pain, a bone or joint could have fractured. X-rays will be needed to check for broken bones. See an orthopedic specialist or an Emergency Room.

SHOULDER:

FROZEN SHOULDER can develop from overuse or inflammation.
BURSITIS can make it difficult to raise the arm with twinges of pain.
TENDONITIS is inflammation of the tendon which connects muscle to bone. Self care for all three can include anti-inflammatories and R-I-C-E: Rest, Ice, Compression & Elevation. Rest your shoulder for a day or so, using ice for 10 minutes at a time. Compress the shoulder snugly with an elastic band (not tightly) and lie down with the shoulder elevated. An orthopedic surgeon can provide a steroid injection to improve motion and relieve pain.

KNEE:

TORN ACL: A torn anterior cruciate ligament can involve an audible "pop" followed by a feeling of nausea and instability. A complete ACL tear will require surgery where a new ligament is harvested from the hamstring or patellar tendon.
BURSITIS can cause inflammation of the "bursae" in the joint resulting in pain upon movement.
SHIN SPLINTS involve pain on the lower leg following exercise or stress.
DISLOCATION occurs with an injury or fall moving the knee "out of joint."
TORN MENISCUS can be caused by an injury during activity.
ARTHRITIC KNEE can be common with age and can worsen when the person is overweight or obese. Long term treatment may include knee replacement. Self care for many knee pain ailments can include anti-inflammatories and ice. An orthopedic surgeon can provide a knee injection to relieve pain, or drain the knee of excess accumulated fluid in the knee. A person should see an orthopedic surgeon for a complete evaluation to determine the cause of knee pain.



HAND:

NUMBNESS/WEAKNESS IN ARM / HAND: Numbness or weakness in the arm or hand can be an emergency symptom related to a herniated disc in the neck. Left untreated, the symptom can become permanent. You should see a spine specialist within 3 days.

NUMB FINGERS: Numbness in the tips of the fingers can relate to Carpal Tunnel Syndrome. Watchful waiting with the use of a brace can be tried for a couple months. Numbness, if ignored over several months, can become permanent and lifelong, along with weakness in grip. Treatment can include a 30-minute surgery to relieve the tightness in the wrist.

HIP PAIN not linked to dislocation due to trauma, fall or car accident, is often linked to bursitis (inflammation of the joint) or degeneration of the hip joint due to arthritis which damages the surface of the top of the thigh bone and the socket within the pelvis.
• Self care for hip joint pain can include: anti-inflammatories; rest; ice or heat; and physical therapy.
• Visit an orthopedic surgeon for a thorough evaluation for the cause of your hip joint pain and treatment options. You should see a doctor when you have a hip joint that appears deformed, if you are unable to move your leg or hip, or bear weight on the leg.
• Long term treatment for an arthritic hip joint is hip joint replacement through artificial hip replacement or mini hip replacement. Hip replacement is often delayed where possible to minimize the likelihood of the patient outliving the artificial joint which would require a complex revision surgery and a second artificial joint surgery.

ANKLE PAIN at the back of the leg above the ankle can be related to a sprained or ruptured Achilles tendon, which can be accompanied by a pop while performing an activity, followed by intense pain and impaired ability to walk. A torn Achilles tendon may require surgery.
ANKLE SWELLING following activity or awkward landing on the ankle can relate to a sprained ankle. If the swelling and pain does not self resolve over several days, an orthopedic surgeon should evaluate the ankle. Other persistent ankle joint pain can be caused by arthritis.
PAIN IN THE HEEL is often plantar fasciitis and may require an orthopedic surgeon evaluation & treatment.
PAIN IN THE BIG TOE JOINT can be caused by a bunion (bone spur) that causes a deformed and painful toe joint. Surgery may be required to remove the bunion.

NUMBNESS/WEAKNESS IN LEG OR FOOT: Numbness or weakness in the leg or foot can be an emergency symptom related to a herniated disc in the back. Left untreated, the symptom can become permanent. You should see a spine specialist within 3 days.

Those who self diagnose and self treat themselves do so at their own risk. We accept no responsibility for any problems that may result from the use or misuse of educational information intended to be helpful guidance. Copyright © 2021 Prizm Development, Inc. • All Rights Reserved • Centers of Excellence for Better Healthcare

Orthopaedic Associates of the Lakelands

Orthopaedic Associates of the Lakelands is a comprehensive medical and surgical practice devoted to the care of bone, joint, ligament, nerve and muscle problems. The orthopedic group includes seven orthopedic surgeons, several physician assistants, a nurse practitioner and support staff that are available at several satellite locations across the Lakelands region of western South Carolina.

John Cathcart, M.D.
Board-Certified Orthopedic Surgeon
Fellowship-trained in Shoulder & Sports Medicine

Dr. Cathcart received his Medical Degree from the Medical University of South Carolina and completed a residency in orthopedics at Georgia Baptist Medical Center, a busy referral center for trauma located in downtown Atlanta. Dr. Cathcart then completed a fellowship – the highest level of medical training in the U.S. — at the prestigious Hughston Clinic. The Hughston Clinic, based in Columbus, GA is a national referral center for complex orthopedics and sports medicine, treating many prominent professional athletes over the years.



Richard Christian, M.D.
Board-Certified Orthopedic Surgeon

Dr. Christian received his Medical Degree from the Medical University of South Carolina and completed a residency in orthopedics at Greenville Memorial Hospital in Greenville, South Carolina.



John King, M.D.
Board-Certified Orthopedic Surgeon
Fellowship-trained in Shoulder & Sports Medicine

Dr. Cathcart received his Medical Degree from the Medical University of South Carolina and completed a residency in orthopedics at Georgia Baptist Medical Center, a busy referral center for trauma located in downtown Atlanta. Dr. King then completed a fellowship – the highest level of medical training in the U.S. — at the University of Pittsburgh, Pennsylvania.



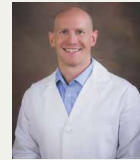
Michael Maughon, M.D.
Board-Certified Orthopedic Surgeon
Fellowship-trained in Shoulder & Sports Medicine

Dr. Maughon received his Medical Degree from the Medical University of South Carolina and completed a residency in orthopedics at Georgia Baptist Medical Center, a busy referral center for trauma located in downtown Atlanta. Dr. Maughon then completed a fellowship – the highest level of medical training in the U.S. — at the prestigious Hughston Clinic. The Hughston Clinic, based in Columbus, GA is a national referral center for complex orthopedics and sports medicine, treating many prominent professional athletes over the years.



Mark Oliver, M.D.
Board-Certified Orthopedic Surgeon

Dr. Oliver received his college degree from Notre Dame and his Medical Degree from the Indiana University School of Medicine. Dr. Oliver then completed a residency in orthopedics at the University of Toledo, Ohio.



Lee Patterson, M.D.
Board-Certified Orthopedic Surgeon

Dr. Patterson received his college degree from Clemson University and his Medical Degree from the University of South Carolina Medical School. Dr. Patterson then completed a residency in orthopedics at Atlanta Medical Center, GA.



Douglas Powell, M.D.
Board-Certified Orthopedic Surgeon

Dr. Powell received his college degree from the University of Georgia and his Medical Degree from the Medical College of Georgia. Dr. Powell then completed a residency in orthopedics at Georgia Baptist Medical Center, Atlanta, GA and Scottish Rite Hospital.



Anthony Timms, M.D.
Board-Certified Orthopedic Surgeon

Dr. Timms received his college degree from Clemson University and his Medical Degree from the Medical University of South Carolina. Dr. Timms then completed a residency in orthopedics at the Medical University of South Carolina.



Additional clinic staff at
Orthopaedic Associates of the Lakelands:

Alan Baker, Nurse Practitioner
Robert Brun, Physician Assistant
Krystyna Kuchinski, Physician Assistant
Andrew Otto, Physician Assistant
Jessica Willard, Physician Assistant
Julia Adams, NP
Alan Baker, NP
Zane Newton, NP

ORTHOPAEDIC ASSOCIATES OF THE LAKELANDS

102 Gregor Mendel Cir • Greenwood, SC 29646

ORTHOPAEDIC ASSOCIATES OF THE LAKELANDS

Appointments & Referrals:

877-299-BONE (2663)

LakelandOrthopaedics.com

MAIN CLINIC LOCATION:

102 Gregor Mendel Cir
Greenwood, SC 29646

SATELLITE OFFICES SOUTH CAROLINA:

103 Commercial Drive, Abbeville

Self Medical Center Savannah Lakes
207 Holiday Road, McCormick

Self Medical Center Laurens
22580 Highway 76 East, Suite 200, Laurens

Family Healthcare Edgefield
155 Ridge Medical Plaza Rd, Suite A, Edgefield

Family Healthcare South Saluda
102 RL Sawyer MD Drive, Saluda



As a community service, Orthopaedic Associates of the Lakelands produced this educational Joint Handbook on joint problems and has an educational web site at LakelandOrthopaedics.com. The educational Internet site has symptom charts that explains when to see the doctor, home remedies for various joint pain problems, medical illustrations on orthopedics and videos of various procedures.

Designated as a

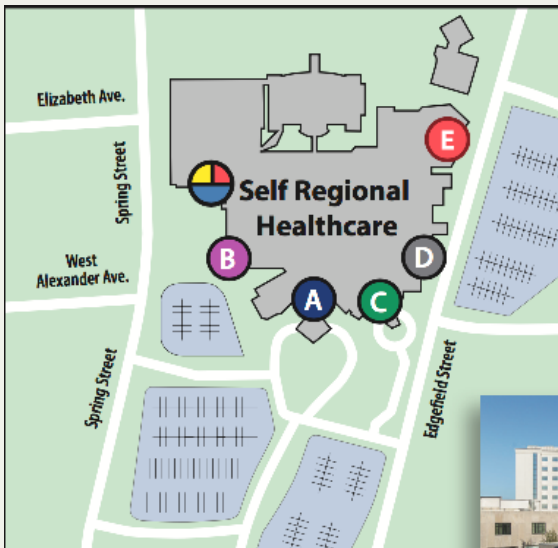
**Blue
Distinction
Center®**

for Knee and Hip Replacement



South Carolina

THE JOINT CENTER at Self Regional Healthcare is credentialed by Blue Cross Blue Shield as Blue Distinction for Knee and Hip Replacement and receives Blue Cross spine patients from across the State of South Carolina. CareChex quality rating agency named Self Regional Healthcare as one of the top 10% of hospitals in the United States for major joint replacement.



The South Carolina Joint Center

is located at Self Regional Healthcare
1325 Spring Street
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