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Winter 2009/2010



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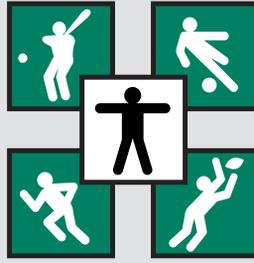
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## Common Orthopaedic Procedures

The surgeons of Tri-State Orthopaedics & Sports Medicine are Board Certified in Orthopaedics and treat a variety of musculoskeletal injuries and conditions including fractures, sports-related and occupational injuries. The list below contains some of the more common orthopaedic diagnoses and surgical techniques used by our physicians.

### **Shoulder**

**Diagnoses:** Rotator Cuff Tears, Bankart/SLAP Tears, Biceps Tendinopathy, Subacromial Impingement/Bursitis, Adhesive Capsulitis (Frozen Shoulder).

**Surgical Techniques:** Arthroscopic and Open Rotator Cuff Repair, Labral/Bankart Repair, Shoulder Replacement/Reconstruction, Decompression.

### **Elbow**

**Diagnoses:** Medial/Lateral Epicondylitis (Golfers/Tennis Elbow), Ulnar Neuritis/Entrapment, Distal Biceps Ruptures, Cartilage/Ligament Injuries.

**Surgical Techniques:** Minimally-Invasive Epicondyle Release, Elbow Arthroscopy, Ulnar Nerve Transposition, Biceps Repair.

### **Hand/Wrist**

**Diagnoses:** Carpal Tunnel Syndrome, Trigger Finger, de Quervain's Tenosynovitis, Tendon Injuries, Hand/Wrist Arthritis.

**Surgical Techniques:** Minimally-Invasive/Mini Incision Carpal Tunnel/Trigger Finger Release, Wrist Arthroscopy, CMC Arthroplasty, Tendon Reconstruction, Joint Replacement of the Hand/Wrist, Micro-Surgery.

### **Hip**

**Diagnoses:** Labral Tears, Arthritis, Bursitis.

**Surgical Techniques:** Hip Arthroscopy, Arthroscopic Bursectomy, Tendon Repair, Hip Replacement.

### **Knee**

**Diagnoses:** Meniscus Tears, ACL Tears, Ligament Injuries (MCL/PCL), Cartilage Defects, Quad Ruptures, Degenerative Joint Disease (DJD).

**Surgical Techniques:** Knee Arthroscopy, ACL Reconstruction, Minimally-Invasive Partial and Total Knee Replacement, Cartilage Transplantation.

### **Back/Neck**

**Diagnoses:** Disc Herniations, Degenerative Disc Disease (DDD), Vertebral Fractures.

**Surgical Techniques:** Micro-Discectomy, Laminectomy, Cervical and Lumbar Spinal Fusion, Kyphoplasty

### **Foot/Ankle**

**Diagnoses:** Ankle Sprains, Achilles Tendinitis/Ruptures, Plantar Fasciitis, Adult Acquired Flat Foot Deformity, Arthritis, Bunion, Hammer/Claw Toe Deformity, Cartilage Injury.

**Surgical Techniques:** Tendon/Ligament Repair, Reconstruction, Bunionectomy, Hammer/Claw Toe Correction, Ankle Arthroscopy.

## Common Orthopaedic Terminology

**Sprain** - A partial or complete tear of a ligament (the fibrous tissue holding bones together at a joint).

**Strain** - A partial tear of a muscle.

**Fracture** - A disruption in the integrity of the bone. Commonly referred to as a break or "broken bone".

**Contusion** - A bruise.

**Laceration** - A cut, tear or open wound of the skin.

**Tendon** - Fibrous tissue that attaches muscle to the bone.

**Tendinitis** - Inflammation of a tendon.

**Tendinosis** - Tiny tears in the tissue around the tendon caused by overuse.

**Instability** - Looseness, unsteadiness or inability to withstand normal weight-bearing and/or motion.

**Impingement Syndrome** - Shoulder pain caused by tendinosis or irritation of the rotator cuff tendon.

**Minimally-Invasive Surgery** - Surgical technique that uses a small incision and small specialized surgical instruments.

**Micro-Surgery** - A type of minimally-invasive surgery that is performed under a microscope.

**Arthroscopy "Scope"** - A form of minimally-invasive surgery using a fiber-optic camera and surgical instruments allowing the surgery to be performed through a small incision.

If you have any questions about an orthopaedic diagnosis or procedure, please email our Clinical Liaison, Heather Malacki, R.N. [hmalacki@tristateortho.com](mailto:hmalacki@tristateortho.com)

# Knee Injuries and the Road to Recovery

By: Jeffrey N. Kann, M.D.

The knee is the largest joint in the body and it is vital to movement. Sometimes we take the function of the knee for granted--until it is injured.



## About the Physician

Dr. Jeffrey Kann joined Tri-State Orthopaedics & Sports Medicine, Inc. in 1998. He is Board Certified in orthopaedic surgery and has completed advanced fellowship training in foot and ankle surgery. Dr. Kann provides general orthopaedic care and specializes in foot, ankle and knee surgery. He is also an active member of the American Foot and Ankle Society.

**I**T can happen on the sports field, at work, or even at home. It can happen in an instant—with a single misstep. “The knee is more likely to be damaged than most other joints because it is subject to tremendous forces during vigorous activity,” notes the *World Book Encyclopedia*.

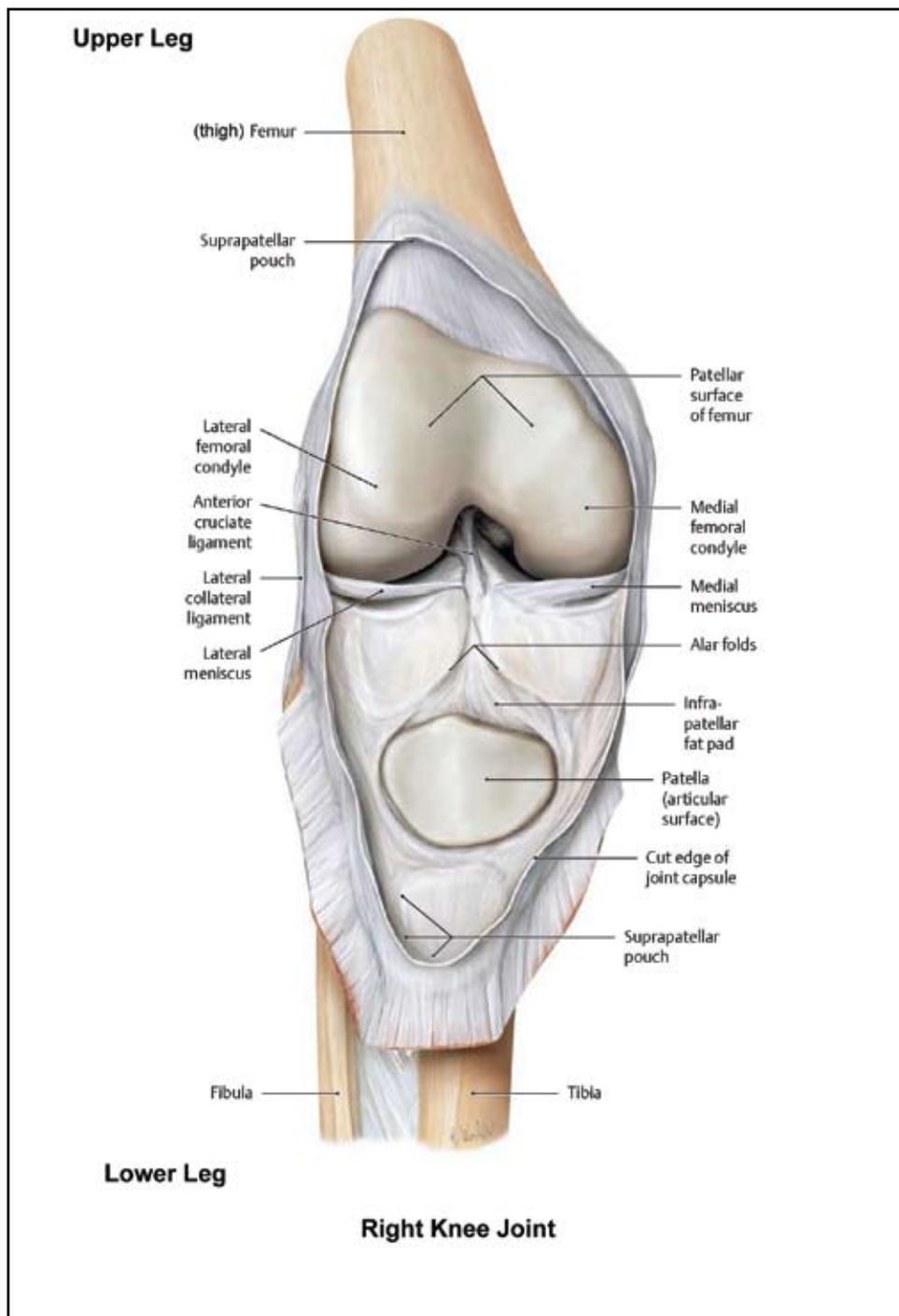
## DISASTER WAITING TO HAPPEN

Consider some of the factors that make a knee injury so common, and some of the specific approaches to treatment that have proven to be successful.

The simple act of walking puts pressure on your knee that is about five times

greater than your body weight. So it is hardly surprising that knee injuries are such a common and widespread problem. Often, we attribute knee injuries to sports. While the playing field is a common place to experience an injury, damage to the knee can happen anywhere. Any time you are standing and moving you are at risk for injury. The following are two examples of the prevalent types of knee injury.

**Patellar Pain.** This is the most common type of knee problem when the patient has no specific history of injury. Patellar pain is common to skiers, soccer players, and cyclists. Runners



Repetitive loading of the knee such as deep squatting and jumping common in such sports as volleyball or basketball, can aggravate symptoms of Chondromalacia. Other mechanical factors such as body alignment, flexibility and strength may affect lower body positioning and lead to Chondromalacia. In severe cases, surgery may be required to realign the lower extremity, specifically the knee cap, to allow normal movement and reduce stress to the joint. Most often an orthopaedic surgeon will perform a "Lateral Release". This procedure is minimally invasive and is performed arthroscopically (through a scope). This allows the patient to go home the same day and usually results in a faster recovery.

**Torn Cartilage.** "A torn knee cartilage or deranged knee is one of the most common injuries of athletes and people who do strenuous work," says *The New Illustrated Medical Encyclopedia and Guide to Family Health*. "It is likely to happen when the knee is twisted or subjected to extreme pressure while in a partially flexed position."

The menisci make up the cartilage tissue that acts as a shock-absorber to the knee joint. Each knee joint has an inner (medial) and an outer (lateral) meniscus. A meniscal injury usually occurs when there is a twisting stress on the knee joint—for example, when a football player rotates the knee while the foot is planted firmly on the ground. When the injury occurs, there may be a popping sound or a 'giving way' of the knee, perhaps even resulting in a collapse.

Pain, swelling, and impairment of knee function are common symptoms of a meniscus tear. The pain is usually most severe when straightening the leg. Some are able to resume normal activity shortly after injury occurs. If there is no marked swelling and the pain dissipates, then there likely is no need to seek immediate medical attention. However, persistent pain, loss of motion, and swelling are good indications to be evaluated by an orthopaedic surgeon.

To help control initial pain and swelling, some recommend the "RICE" formula: Rest, Ice, Compression (by means of a bandage) and Elevation. When pain is mild or only intermittent, physical

can also be affected, especially if they try to increase their distance in a short time frame.

Patellar discomfort takes place along the underside of the patella (i.e. the kneecap). A dull pain becomes especially evident when going up and down stairs or when kneeling or squatting. Sometimes a creaking noise called crepitation is heard when bending the knee. These symptoms point to a condition known as "Chondromalacia." If there is no swelling and normal activity is not affected, it may not be necessary to seek medical attention.

When daily routine is interrupted, however, physical therapy is usually a good idea.

How is the condition treated? "Many doctors recommend that patients with Chondromalacia perform low-impact exercises that strengthen muscles, particularly the inner part of the quadriceps, without injuring joints," says Greg Petcash, Director of Tri-State Physical Therapy. He adds, "Swimming, riding a stationary bicycle and using a cross-country ski machine are recommended as long as the knee is not bent more than 90 degrees".

## ***The good news is that most knee injuries can be treated by various forms of physical therapy.***

therapy (which can strengthen the supporting structures of the knee) is all that is needed. Some meniscal tears may heal themselves in time. Other injuries are more severe and require surgery. In virtually all cases, meniscal tears can be treated arthroscopically and no sutures are needed for the small incisions that are made. This procedure is also performed on an outpatient basis and most enjoy a fast and full recovery in about a month.

### **THE ROLE OF PHYSICAL THERAPY**

The good news is that most knee injuries can be treated by various forms of physical therapy. One of the initial

challenges is to help the patient regain mobility. Initiating physical therapy as soon as possible after the injury takes place and finding a physical therapist that will work with the orthopaedic surgeon in establishing a regimen that is tailored to the patient's unique needs is imperative to a good outcome. In cases of knee arthroscopy, patients should be instructed to begin physical therapy 1-2 days following surgery. According to Greg Petcash, PT, "The focus of physical therapy following a knee arthroscopy is to reduce pain, control edema, and improve range of motion. As the patient progresses, quad strengthening exercises will likely be added to the protocol. Most

patients can expect to attend a formal physical therapy program for 4-8 weeks following surgery.

The efforts made by the individual are critical to the attainment of a satisfactory result and expedient recovery. Weeks of self care are involved, including a home exercise program.

If you suffer from a knee injury, take comfort in the fact that you are not alone. Each year, some eight million people visit an orthopaedic surgeon because of knee problems. In the hands of a skilled professional, however, the road to recovery can be a smooth one. ■

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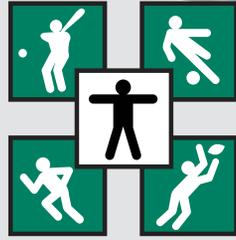
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## **Platelet Rich Plasma Therapy: Autologous Conditioned Plasma (ACP) at Tri-State Orthopaedics**

Recent trends in modern orthopaedic science have focused on biological methods of aiding or accelerating the healing process in musculoskeletal tissues. At the microscopic level, we find that tendons and muscles heal in a predictable way after they are injured. Sometimes this healing process can take months to progress enough to allow patients to return to pain-free function.

For nearly a decade, researchers in Europe and the United States have experimented with using growth and healing factors from special blood cells called platelets to improve the healing process. Recently, there have been several studies that have shown good results using these factors, derived from a patient's own platelets, **to speed up recovery from muscle, tendon and ligament injuries**. This has gained international acceptance amongst professional athletes and their physicians. As reported by the *New York Times*, the team physicians of the Super Bowl XLIII champion Pittsburgh Steelers used ACP / platelet-rich plasma therapy to assist Hines Ward in recovery from a knee ligament injury and Troy Polamalu with a calf strain during the 2009 playoffs. This nonsurgical treatment using the athlete's own blood to help speed the repair of injuries is becoming more common with high school, collegiate and professional athletes.

**The physicians at Tri-State Orthopaedics & Sports Medicine were selected to be one of the first practices in Pennsylvania to provide patients with access to Autologous Conditioned Plasma (ACP) in the office setting.** ACP is a form of *platelet-rich plasma therapy*. It is not appropriate for all patients, but is offered to select patients whose injuries and recovery requirements might benefit from a more rapid healing time. Conditions like tennis elbow, hamstring strains and certain types of knee ligament injuries are areas that have shown a promising response to ACP.

The process is easy and relatively painless. First, a simple blood draw is performed safely in our office by a trained technician or physician. Next, the blood is placed sterilely into a filtration machine (centrifuge) that spins quickly and separates out the red blood from the clear plasma portion which contains the healing factors. This conditioned plasma is then carefully injected directly into the site of muscle, tendon, ligament or joint injury. Some patients may require more than one injection.

**To learn more or schedule an appointment for an ACP evaluation with one of our physicians, please contact our Tri-State Orthopaedics office at (412) 369-4000 Ext 317.**

The ACP products/services are not currently covered by insurance.

# Common Golf Injuries: Don't Get Knocked Off Course

By: Steven E. Kann, M.D.

One of the more common injuries that orthopaedic surgeons see in golfers is Medial Epicondylitis, commonly known as "Golfer's Elbow".



## About the Physician

*Dr. Steven Kann is board certified in orthopaedic surgery and is responsible for bringing minimally invasive techniques for carpal tunnel and trigger finger surgery to Western Pennsylvania. Dr. Kann is fellowship trained in hand and upper extremity surgery and has received a Certificate of Added Qualification (CAQ) for hand and micro-surgery.*

According to the U.S. Consumer Product Safety Commission, there are more than 100,000 golf-related injuries treated in doctors' offices, clinics and emergency rooms incurring a total cost of more than 2 billion dollars annually. Just like learning how to hit your ball out of a sand trap, utilizing proper technique and considering common factors that contribute to injury is important, as the majority of these injuries can be prevented.

Golf can be a good outdoor fitness activity, especially when players walk the course. However, the sport does pose potential risk of injury for golfers of all ages. In fact, nearly

one-quarter of golf-related injuries reported occurred in children under the age of 19. Overuse injuries that lead to common ailments such as tendinitis, bursitis, strains and sprains can put a halt to a golfer's game. One of the more common injuries that orthopaedic surgeons see in golfers is Medial Epicondylitis, commonly known as "Golfer's Elbow".

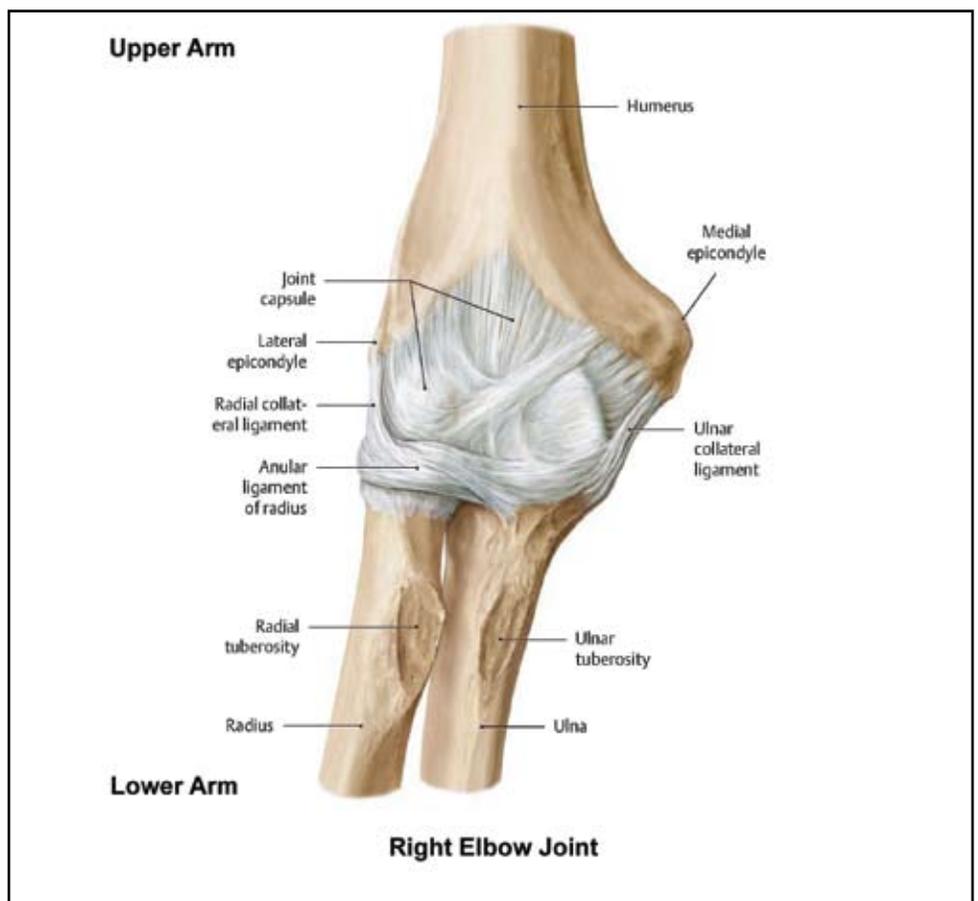
**Medial Epicondylitis** (Golfer's Elbow) can be described as pain and inflammation of the tendons that connect the forearm to the elbow. You may also have heard of a similar condition called "Tennis Elbow" or Lateral Epicondylitis. Golfer's Elbow and Tennis

Elbow can occur in anyone even if you have never stepped foot on the green or held a tennis racket. Both of these conditions are a form of tendinitis of the elbow, but Golfer's Elbow involves the inside of the elbow while Tennis Elbow involves the outside of the elbow. Treatment for these conditions is similar and usually includes activity modification and non-steroidal anti-inflammatory drugs (NSAIDs) such as Ibuprofen. Other treatment options include steroid injections and physical/occupational therapy. Braces that are designed to reduce the stress placed on the tendons are another option to relieve pain. A referral to an Occupational Therapist, ideally a Certified Hand Therapist is recommended for both conditions. According to David Lecce, CHT and Director of Rehabilitation, Occupational & Hand Therapy for Tri-State Physical Therapy, "It is important that the patient regain full and pain free elbow range of motion. Occupational therapy emphasizes soft tissue and joint mobilization to improve the mobility and ultimately the function of the joint and surrounding muscles. We may also use modalities such as electrical stimulation, ultrasound and cold laser for pain control and healing of the soft tissues. Educating the patient the proper way to lift and how to grasp objects to prevent over-stress to the tendons is important in reducing symptoms and preventing re-injury," continues Lecce. "Patients also receive education regarding a home exercise program so that they can continue their rehabilitation at home."

The good news is that greater than 85% of patients suffering from Golfer's Elbow or Tennis Elbow improve with conservative treatment alone. Surgery may be indicated if a patient is still having symptoms after six months of conservative treatment including therapy. The surgery is performed on an outpatient basis and involves removing the damaged section of the tendon and repairing the remaining tendon. The typical recovery following this type of surgery is six weeks.

To avoid Golfer's Elbow, David Lecce, CHT, recommends that golfers not over emphasize their wrists when swinging and to build their forearm muscles by completing the following exercises:

- Eccentric wrist strengthening exercises such as wrist extension



curls using 1-2 pound dumbbells.

- Deep forearm massage before and during golf activities.

The American Academy of Orthopaedic Surgeons (AAOS) also offers these simple tips to help prevent common golf injuries in general:

- Take golfing lessons and begin participating in the sport gradually.
- Choose the correct golf shoes: ones with short cleats are the best.
- Warm up and stretch before golfing. Improving your flexibility helps your muscles accommodate all sorts of demands.
- Incorporate strength training exercises into your warm up routine. Visit [orthoinfo.aaos.org](http://orthoinfo.aaos.org) for golf-related strength training exercises.
- Do not hunch over the ball too much, as it may predispose you to neck strain and rotator cuff tendinitis.

Help minimize low back injuries – often caused by a poor swing – by performing these simple exercises to

help strengthen lower back muscles:

- Rowing: Firmly tie the ends of rubber tubing. Place it around an object that is shoulder height (like a door hinge). Standing with your arms straight out in front of you, grasp the tubing and slowly pull it toward your chest. Release slowly. Perform three sets of 10 repetitions, at least three times a week.
- Pull-downs: With the rubber tubing still around the door hinge, kneel and hold the tubing over your head. Pull down slowly toward your chest, bending your elbows as you lower your arms. Raise the tubing slowly over your head. Perform three sets of 10 repetitions, at least three times a week.
- Keep your pelvis as level as possible throughout the swing.

Additional safety tips and injury prevention information on golf and other sports can be found in the Prevent Injuries America!® program section of the AAOS's website, [www.aaos.org](http://www.aaos.org) or [www.orthoinfo.org](http://www.orthoinfo.org)



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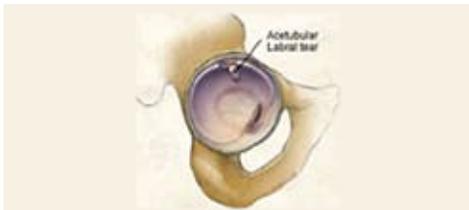
# Tri-State Orthopaedics Brings Arthroscopic Hip Surgery to Western PA

## The Next Frontier in Minimally Invasive Joint Preserving Surgery

**F**or many years, patients have suffered from pain or dysfunction of the hip and pelvis. Until recently there were few answers to help them get back on track. With advances in diagnosing hip and pelvic injuries have come the need for minimally invasive treatments that do not involve replacing the joint with metal.

Arthroscopic surgery is a familiar procedure whereby surgeons can precisely repair damaged areas of joints through small incisions using a special camera. Due to the complexity of the hip joint, the technology and skill needed to safely apply arthroscopic techniques to treat the hip have only become available in the last decade. Fortunately, hip arthroscopy is currently possible and safely performed by a select group of surgeons. With specialized training and skilled physical therapy in the recovery period, increasing numbers of patients are benefiting from this surgical advancement.

Patients suffering from severe pain or “catching” of the hip, groin or buttock during or after physical activity could benefit from this arthroscopic hip procedure. In addition, many patients report that their hip symptoms become gradually worse over several seasons of sports participation. Generally, younger patients without severe arthritic changes are the best candidates. Patients should have symptoms (documented) for at least six months and have failed conservative treatment by a qualified physical therapist before considering this surgery.



*John Christoforetti, M.D. routinely performs arthroscopic hip surgery for patients of Tri-State Orthopaedics & Sports Medicine and is a recognized regional expert in diagnosis and treatment of hip injuries. Dr. Christoforetti is a leading member of the International Society for Hip Arthroscopy. He is also a master instructor of hip arthroscopy for the Arthroscopy Association of North America and was awarded the 2008 Aircast Award for his research on hip injuries in Major League Baseball Players by the American Orthopaedic Society for Sports Medicine. For more information on Dr. Christoforetti and hip arthroscopy, please visit our website at [www.tristateortho.com](http://www.tristateortho.com), then click on the 'Physicians' link.*

# Tri-State Physical Therapy: *Wii* can Help You!

By: Ben Kivlan, PT, SCS, OCS, CSCS

The current landscape of rehabilitation is always changing and there is often an overlap between societal trends and those that are followed in the world of rehabilitation. An effective rehabilitation program embraces these current trends by creatively integrating them into a complete therapy program.

One way Tri-State Physical Therapy is keeping up with the times is by incorporating specific video game features into their therapeutic protocols. The *Wii* system by Nintendo offers video games and applications that can be a fun and interactive component of an effective rehabilitation program. With proper instruction, patients of all ages and various injuries can benefit from use of the system. The *Wii* system can help patients mimic and practice functional and sports-specific movements, while giving them feedback regarding their performance. This is nicely disguised in the context of “playing a fun video game”.

The *Wii Fit* package is an extremely unique tool that integrates the use of a balance board to perform specific strengthening, aerobic, and/or balance training exercises. The score/feedback is useful for patients to begin to relate their exercise score with maintaining good form, balance, and body control during the exercises. These are elements that are crucial to the success of any rehab program. With so many patients already familiar with or owning their own *Wii* system,



therapists can instruct patients how to independently use the system at home to provide an ongoing benefit to their rehab progression. In a clinical setting, our therapists supervise the execution of the “games” and may change body position, alter the body region being emphasized, or add a different challenge (such as adding tubing or weighted resistance) to give the exercise additional therapeutic value. While it will never replace the role of a qualified therapist, *Wii* is a fun way to encourage patient compliance with

their home therapy program, which could result in a more effective and timely recovery. Once our patients have the fundamentals and good form, the *Wii* system nicely complements our home exercise protocols.

Who says rehabilitating an injury isn't any fun? With the *Wii* system, patients may discover a new level of enjoyment while performing their rehabilitation exercises. So with your next visit to Tri-State Physical Therapy, ask how *Wii* can help you!

***The Wii system by Nintendo offers video games and applications that can be a fun and interactive component of an effective rehabilitation program.***

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**Jack P. Failla, M.D.** is Board Certified in Orthopaedic Surgery. Dr. Failla is a founding partner of Tri-State Orthopaedics & Sports Medicine in 1976 and has made many great contributions in the area of sports medicine. In 1979, he established the North Hills Sports Medicine Center- one of the first multidisciplinary sports medicine facilities in Western Pennsylvania. In 1981, he was named Orthopaedic Consultant of the Pittsburgh Pirates baseball team and served in that capacity for 23 years. Dr. Failla is a Fellow of the American College of Surgeons and a Fellow of the American Academy of Orthopaedic Surgeons.



**Victor J. Thomas, M.D.** is Board Certified in Orthopaedic Surgery. In addition to his general orthopaedic practice, he specializes in arthroscopy, joint replacement and spine surgery. Since joining Tri-State Orthopaedics & Sports Medicine in 1984, he has taken on many leadership roles within the Pittsburgh medical community. Dr. Thomas is a Fellow of the American Academy of Orthopaedic Surgeons. He also serves as the Medical Director for Independent Medical Evaluation (IME) Services at *The Center for Musculoskeletal Evaluations, Inc.*, an affiliate of Tri-State Orthopaedics & Sports Medicine.



**Paul A. Liefeld, M.D.** is Board Certified in Orthopaedic Surgery with advanced fellowship training in Spine Surgery. In addition to general orthopaedics, his practice spans the fields of joint replacement surgery, spine surgery, arthroscopic surgery and treatment of sports-related injuries. Dr. Liefeld joined Tri-State Orthopaedics in 1988 and currently serves as Vice Chairman of the Department of Surgery at Ohio Valley General Hospital. He is a Fellow of the American Academy of Orthopaedic Surgery and has served on the Board of Directors for Lutheran Affiliated Services.



**Brian F. Jewell, M.D.** is Board Certified in Orthopaedic Surgery and has completed his advanced fellowship training in Sports Medicine and Arthroscopic Surgery, specializing in arthroscopic and reconstructive surgery of the knee and shoulder. Dr. Jewell cares for Pittsburgh's professional and amateur athletes and also serves as a team physician for local athletic programs including North Allegheny and Seneca Valley Area High Schools. Dr. Jewell also serves as Chairman of the Department of Orthopaedics at UPMC Passavant Hospital and is a member of the Association of Professional Team Physicians.



**Mark J. Langhans, M.D.** is Board Certified in Orthopaedic Surgery and has completed his advanced fellowship training in Sports Medicine and Arthroscopic Surgery and has received a Certificate of Added Qualification (CAQ) in Sports Medicine. Dr. Langhans specializes in arthroscopic and reconstructive surgery of the shoulder and knee. He also cares for Pittsburgh's professional and amateur athletes and as serves as a team physician for the Washington Wild Things and athletic programs at area high schools including North Allegheny and Seneca Valley. Dr. Langhans is a member of the American Orthopaedic Society for Sports Medicine and a Fellow of the American Academy of Orthopaedic Surgeons.



**Steven E. Kann, M.D.** is Board Certified in Orthopaedic Surgery with advanced fellowship training in Hand and Upper Extremity Surgery and Microsurgery, and has also received a Certificate of Added Qualification (CAQ) in Hand Surgery and Microsurgery. Dr. Kann is responsible for bringing minimally invasive techniques for carpal tunnel and trigger finger surgery to Western Pennsylvania. To complement his upper extremity practice, he also cares for Olympic athletes, tri-athletes and professional golfers, bowlers, baseball, hockey, football and tennis players, as well as musicians. Dr. Kann is the Medical Director of Workers' Compensation Services at Tri-State Orthopaedics & Sports Medicine.



**Jeffrey N. Kann, M.D.** is Board Certified in Orthopaedic Surgery and is fellowship-trained in Foot and Ankle Surgery. Dr. Kann joined Tri-State Orthopaedics in 1998 and his practice includes general orthopaedics and sports-related care with a sub-specialty in knee, foot and ankle surgery. Extensive knowledge and expertise in conditions of the foot and ankle has enabled Dr. Kann to write many articles and book chapters for prominent medical journals. He served as Clinical Instructor of Orthopaedics at the University of Pittsburgh School of Medicine. Dr. Kann is an active member of the American Foot and Ankle Society and a Fellow of the American Academy of Orthopaedic Surgeons.



**Gerard J. Werries, M.D.** joined Tri-State Orthopaedics & Sports Medicine in 2003. Dr. Werries is Board Certified in Orthopaedic Surgery with advanced fellowship training in Spinal Surgery. His practice focuses on caring for conditions of the spine and neck, specializing in minimally invasive spinal surgery. Dr. Werries completed his advanced fellowship training in Spine Surgery at Harvard Medical System where he also served as a Clinical Instructor in Orthopaedics at Harvard Medical School. He is a renowned speaker for national spine meetings with an expertise in the cervical and lumbar spine. Dr. Werries is a Fellow of the American Academy of Orthopaedic Surgeons and a member of both the American Medical Society and the North American Spine Society.



**John J. Christoforetti, M.D.** joined Tri-State Orthopaedics & Sports Medicine in 2007. He is Board Certified in Orthopaedic Surgery and specializes in arthroscopic and reconstructive surgery of the hip, shoulder and knee. Dr. Christoforetti attended the University of Notre Dame for undergraduate studies and graduated from Georgetown University School of Medicine, and stayed at Georgetown University Hospital to complete his orthopaedic surgical residency. He completed his advanced fellowship training in Sports Medicine at the Steadman-Hawkins Clinic of the Carolinas. Dr. Christoforetti has assisted in the care of numerous amateur and professional athletes and currently serves as head Team Physician for Peters Township High School.



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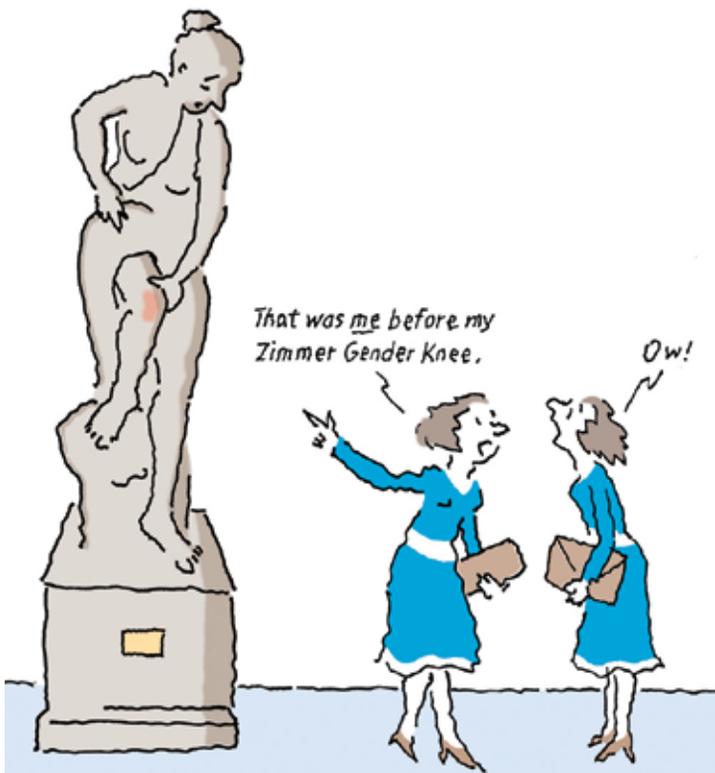
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# Shoulder Dislocations: What you need to know

By: Mark J. Langhans, M.D.

Shoulder dislocations or “subluxations” most often occur when an athlete falls on an outstretched arm or when the arm is suddenly forced backward, upward and/or outward in a collision with another athlete.



## About the Physician

Dr. Mark Langhans joined Tri-State Orthopaedics & Sports Medicine in 1994. Dr. Langhans specializes in arthroscopic and reconstructive surgery of the shoulder and knee. He completed his advanced fellowship training in sports medicine and arthroscopic surgery at the Cleveland Clinic. Dr. Langhans is Board Certified in orthopaedic surgery and is a member of the American Orthopaedic Society for Sports Medicine and fellow of the American Academy of Orthopaedic Surgeons.

**T**raumatic shoulder instability can occur in patients of all ages, but is most common in young, athletic people. In fact, shoulder dislocations and subluxations (partial dislocations) are among the most common sports-related injuries of the shoulder in teenagers and young adults. The younger and more active a person is when the first dislocation occurs, the more likely that patient is to develop recurrent instability. Treatment strategies are tailored to suit each patient's age and lifestyle.

## UNDERSTANDING SHOULDER ANATOMY

The true shoulder (glenohumeral) joint can be simply modeled as a golf ball on a tee. The “ball” represents the humeral head (joint surface at the top of the arm bone) and the “tee” represents the glenoid (a specialized joint surface located at the outermost corner of the flat, triangular scapula or shoulder blade). The shoulder joint has the widest range of motion of any joint in the body, but it is not inherently very stable. Stability is provided primarily

by the interplay of three important soft tissue components (See Shoulder Anatomy).

**The Labrum:** Essentially a gristle tissue washer which runs around the rim of the tee, deepening the surface and acting as a ring-shaped bumper to keep the ball centered on the tee.

**The Capsule:** A cone of gristle tissue running from around the rim of the tee out around the edge of the joint surface of the humeral head. Within the capsule, there are discreet thickenings or ligaments that tighten equally at extremes of motion to keep the ball centered on the tee.

**Rotator Cuff:** The third primary component of shoulder instability is the rotator cuff, composed of four muscles that originate from the back, top and front surfaces of the shoulder blade. This continuous hood of muscles runs immediately on the surface of the capsule, enclosing and attaching to the ball.

These important soft tissue components normally work efficiently together to keep the joint stable during highly stressful activities such as throwing a baseball, swimming, bench pressing, back hand-springs or when making a tackle on the football field.

### HOW DO DISLOCATIONS/SUBLUXATIONS OCCUR?

Shoulder dislocations or subluxations most often occur when an athlete falls on an outstretched arm or when the arm is suddenly forced backward, upward and/or outward in a collision with another athlete. The shoulder joint is positioned at the very base of the arm where it is forced to absorb all of the force of impact applied through the arm.

In greater than 90% of the cases, the arm is in the abducted/externally rotated (back, up and out) position at impact, forcing the golf ball in our example forward and downward off of the tee, resulting in an **anteroinferior** dislocation or subluxation of the shoulder. In 10% or less of cases, force is applied to the shoulder joint through an adducted/internally rotated (forward, up and across the front of the body), forcing the ball backward off of the tee, resulting in a **posterior** dislocation or subluxation.

### WHAT HAPPENS TO THE SHOULDER JOINT DURING A DISLOCATION?

The nature of the structural damage which occurs within the shoulder joint during a dislocation is determined primarily by the patient's age at the time of injury. In teenagers and young adults, the labrum is often torn from its attachment along the anteroinferior rim (the 3 to 6 o'clock area) of the glenoid, resulting in a **Bankart lesion**. In some cases, a fragment or fragments of bone are pulled away at the edge of the glenoid, resulting in a bony Bankart lesion. In addition to disrupting the ring bumper function of the labrum, this injury also loosens the attachment of the important ligament thickening in the front lower portion of the capsule, creating slack or abnormal laxity in this area. If one thinks of the lower capsule as a hammock, this situation is analogous to one rope on one side of the hammock being significantly loosened. This combined labrum/capsular injury results in a high risk of recurrent instability, reported from 65% to nearly 100% in teenage athletes.

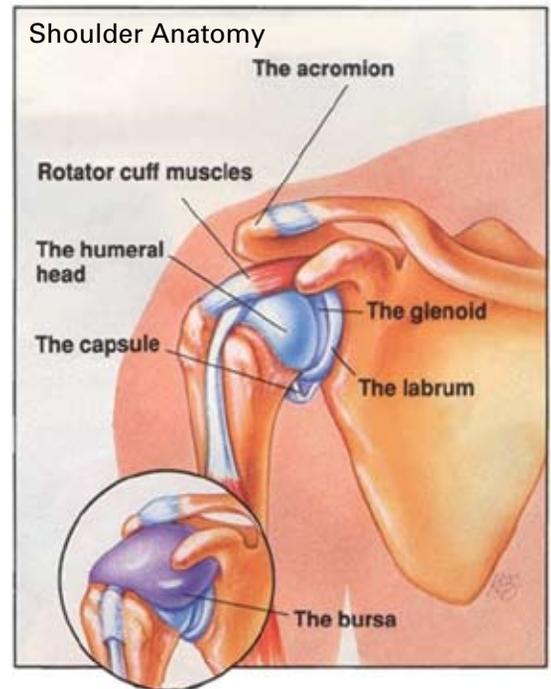
In patients over age 40, the capsule itself is often weaker than its attachment at the labrum. Dislocation typically results in a tear within the substance of the capsule. These tears typically heal via scar tissue, resulting in a much lower risk of re-current instability. However, dislocations in older adults are much more likely to result in associated tears of the rotator cuff tendons.

### WHAT ARE THE SIGNS & SYMPTOMS OF A SHOULDER DISLOCATION?

A person who experiences a shoulder dislocation often feels a prominent pop or clunk, accompanied immediately by significant shoulder pain and sometimes by pain, tingling or numbness radiating down the arm. Shoulder motion is severely restricted. In the case of the more common anterior dislocation, the shoulder hangs down and forward.

### TREATMENT FOR SHOULDER DISLOCATION

When a qualified Sports Medicine physician and certified athletic train-



er are present on the athletic field and able to immediately evaluate the athlete with a shoulder dislocation, a reduction (relocation) of the shoulder dislocation may be performed at that time. However, in most cases, shoulder dislocation requires a trip to the nearby Emergency Room. At the ER, x-rays are obtained to confirm the dislocation and check for a possible associated fracture. The dislocation is then reduced (or put back in its proper place) by the emergency room physician or orthopaedic surgeon. Several different techniques may be employed to relocate the shoulder, sometimes with the aid of intravenous pain medication and/or sedation. Restoration of normal joint position usually results in immediate pain relief. Follow-up x-rays are obtained to confirm the reduction. The patient is typically placed in a sling to rest and protect the injured shoulder and is advised to follow up within a few days with an orthopaedic surgeon.

### ORTHOPAEDIC EVALUATION

The orthopaedic surgeon typically discusses the patient's shoulder injury with him or her and performs a physical examination of the injured shoulder, assessing range of motion, stability and rotator cuff strength and looking for signs of any associated nerve injury in the involved upper extremity. If an associated rotator cuff tear or fracture is suspected, further imaging of the injured shoulder with

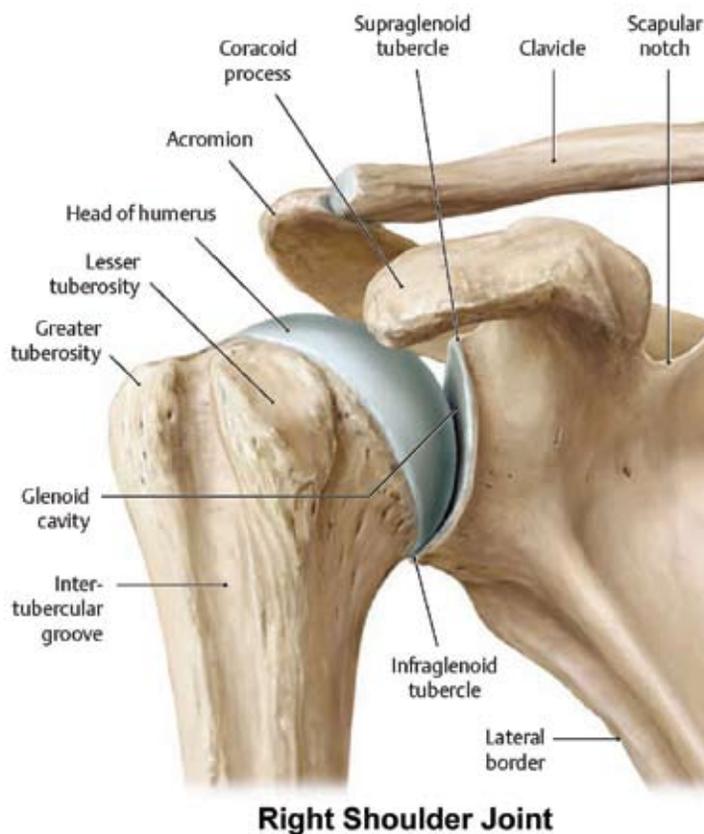
## **...shoulder dislocations and subluxations (partial dislocations) are among the most common sports-related injuries of the shoulder in teenagers and young adults.**

an MRI or CT scan may be ordered. If surgery is planned to address recurrent instability or following an initial dislocation in a young, high-level athlete, a shoulder MRA (Magnetic Resonance Arthrogram) may be performed. In this study, a contrast material called gadolinium is injected into the shoulder prior to the MRI. The contrast material outlines the labrum, capsule and joint surfaces, making it easier to confirm a labral detachment, capsular laxity and other potential results of dislocation such as Hill-Sachs lesions (or a contour defect of the humeral head).

### **NON-OPERATIVE TREATMENT**

In most cases, treatment following an episode of shoulder instability focuses on a progressive, structured rehabilitation program, guided by a certified physical therapist. According to Debra Hanselman, Director of PT from Tri-State Physical Therapy, "once the pain and swelling are controlled, use of the sling or immobilizer is tapered and the focus shifts to restoration of shoulder range of motion (ROM) and initiation of basic isometric, rotator cuff, scapular stabilizer and core muscle strengthening exercises".

Early emphasis is placed on restoration of smooth, synchronous shoulder blade motion. This allows progression to a more complex dynamic shoulder girdle strengthening and coordination exercises and eventually to sports-specific activities. Effective rehabilitation of all the muscles about the shoulder is essential to compensate for the deficiencies of the labrum and capsule



resulting from the dislocation and to reduce the risk of recurrent instability and the possible need for surgery.

### **IN-SEASON ATHLETES**

Young athletes may be allowed to return to their sport following an episode of shoulder instability once they have successfully completed an appropriate rehabilitation program and provided that they are able to demonstrate full range of shoulder motion without pain or apprehension, good strength and coordination of the rotator cuff and scapular stabilizer muscles and good dynamic stability of the shoulder during supervised sports-specific activities. A shoulder brace may be prescribed for use during high risk/contact activities such as football or hockey.

### **OPERATIVE TREATMENT**

In patients who experience recurrent shoulder instability or in some young, high-level athletes following an initial dislocation, surgical repair of the unstable shoulder may be recommended. In the majority of cases, repair of the detached labrum to the glenoid using suture anchors and retention of the lax shoulder capsule can be performed as a minimally invasive outpatient procedure using arthroscopic techniques. In a small percentage of cases, large bony glenoid or humeral head defects may contraindicate arthroscopy and require open surgical reconstruction. Surgery is typically followed by an approximate four weeks of sling use to protect the repair and promote early healing. Physical therapy is typically initiated during this period and progresses in a structured, step-wise fashion such as that described above over the ensuing 4 ½ to 6 months.

Results after instability surgery and appropriate postoperative rehabilitation are generally excellent with approximately 95% of patients successfully returning to full activities with no limitations. Most competitive athletes are able to return to full participation by six to eight months post-surgery, depending on the sport, position played, level of competition and the specific shoulder structures injured and repaired.

Shoulder dislocations can stop athletes in their tracks, but with accurate diagnosis and timely, appropriate treatment, they can get back in their game. 

# Conquering Hip Pain

By: Victor J. Thomas, M.D.

**Our first step is to understand the nature of the condition through proper diagnosis and determine what techniques might be effective in treating the symptoms and restoring normal function of the hip.**



## **About the Physician**

*Dr. Victor Thomas has been with Tri-State Orthopaedics & Sports Medicine, Inc. for more than 25 years and is Board Certified in orthopaedic surgery. In addition to general orthopaedics, he performs minimally invasive hip and knee replacement surgery.*

**S**erving as the critical link between the lower extremity and the trunk, the hip joint has an important role in the concert of motion between our upper and lower body. As we age, however, the hip can also become a common source of disabling pain. Thankfully, there are treatments available to alleviate much of the suffering that comes with hip pain. Our first step is to understand the nature of the condition through proper diagnosis and determine what techniques might be effective in treating the symptoms and restoring normal function of the hip.

## **OSTEOPOROSIS**

Osteoporosis is a condition that results in the weakening of the bones. It occurs when there is a slowing of the body's ability to restore normal bone strength. The process of bone restoration and replenishment that is usually a constant and ongoing process in the human body is slowed with Osteoporosis and unable to keep up with the pace of bone loss and resorption of the body. Traditionally thought of as a disease that only affects women, Osteoporosis affects both men and women alike and is more likely to occur in the later years of life.

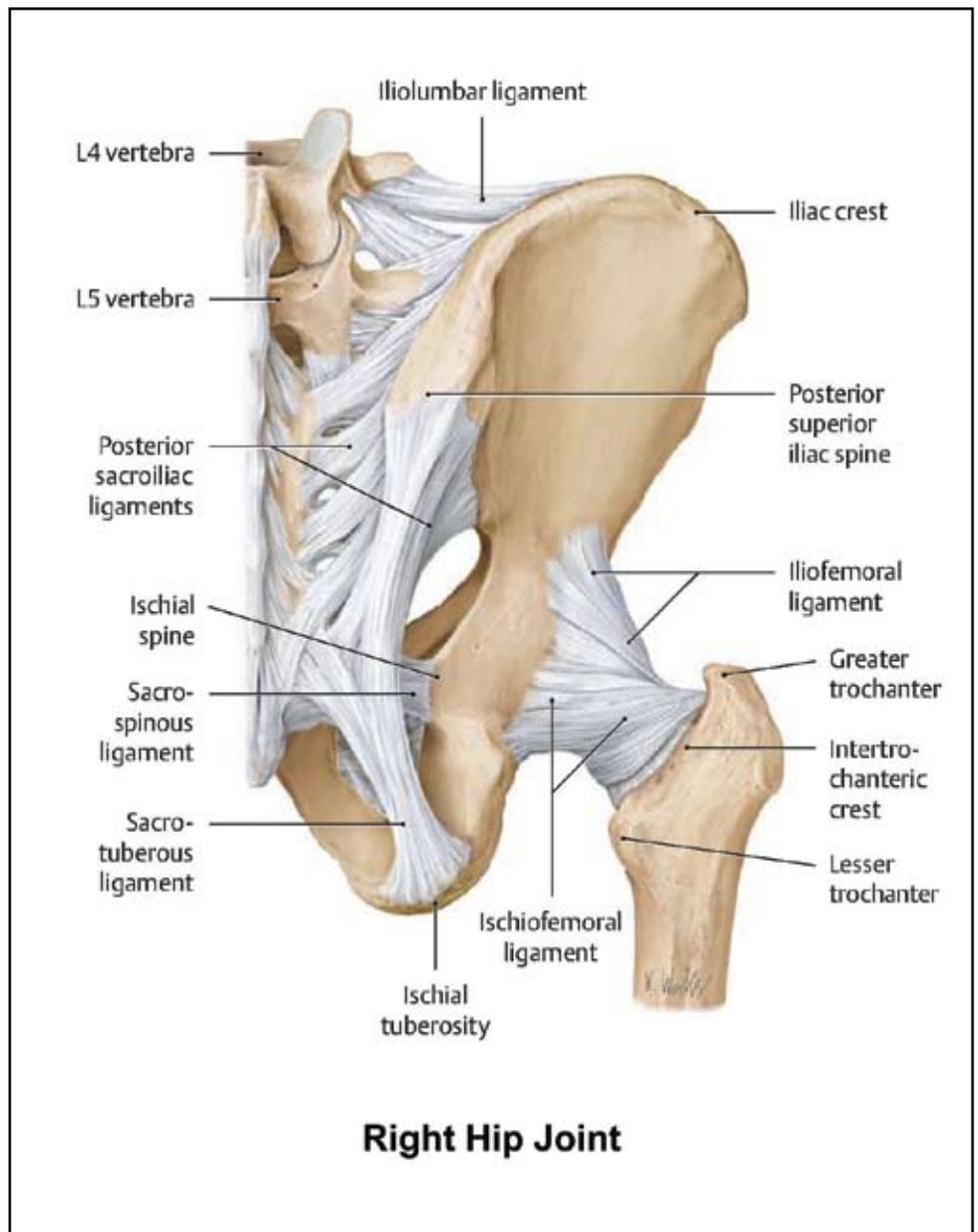
The hardness and density of bone is largely the result of the minerals calcium and phosphorus. "Calcium is necessary for bones to stay strong and every cell in the body needs calcium to work properly," says the website of the National Osteoporosis Foundation ([www.nof.org](http://www.nof.org)). "Maintaining an adequate calcium intake is an important step towards good bone health throughout life." Hormones play a role in bone growth as well, including growth hormone, parathyroid hormone, calcitonin, estrogen (in women) and testosterone (in men). Vitamin D is also essential, because it absorbs calcium into the bones.

Maximum bone strength is reached at about 30 years of age. "After that," notes the Merck Manual of Medical Information, "bones slowly decrease in density. If the body isn't able to regulate the mineral content of bones, the bones become less dense and more fragile, resulting in osteoporosis."—1997, published by Merck Research Laboratories, Whitehouse Station, New Jersey.

Because of the loss of bone strength due to decalcification, Osteoporosis makes the key weight-bearing bones of the hip more vulnerable to fracture. Hip fracture has serious implications as it causes loss of mobility, loss of independence, and prolonged confinement for the elderly. This can lead to further complications that are more serious than the fracture itself, including blood clots and disorientation.

### OSTEOARTHRITIS

The most common of all joint disorders, osteoarthritis, afflicts millions of Americans. Men and women are equally affected, but research shows that men tend to have an onset earlier in life. Caused by repetitive "wear-and-tear", osteoarthritis is characterized by



the break down of joint cartilage, resulting in joint pain and stiffness.

Osteoarthritis most often occurs in weight-bearing joints, including the hip, knees, back, and neck. How does the condition develop? According to the American Academy of Orthopaedic Surgeons (AAOS), "the smooth and

glistening covering (articular cartilage) on the ends of your bones that helps your hip joint glide may wear thin. Your first sign may be a bit of discomfort and stiffness in your groin, buttock or thigh when you wake up in the morning. The pain flares when you're active and gets better when you rest."

***Traditionally thought of as a disease that only affects women, Osteoporosis affects both men and women alike and is more likely to occur in the later years of life.***



## ***...with recent advances in technology, hip replacements are lasting for decades before a second revision surgery is necessary.***



Those most at risk of developing osteoarthritis of the hip include the elderly, the obese, and those who have suffered a previous injury that puts stress on the hip cartilage. “If you don’t get treatment,” says the AAOS, “the condition keeps getting worse until resting no longer relieves your pain. The hip joint gets stiff and inflamed. Bone spurs might build up at the edges of the joint. When the cartilage wears away completely, bones rub directly against each other. This makes it very painful for you to move. You may lose the ability to rotate, flex or extend your hip. If you become less active to avoid the pain the muscles controlling your joint get weak and you may start to limp.”

Osteoarthritis cannot be reversed, but treatment can decrease the pain. X-rays can detect the presence of bone spurs and any abnormalities—for example, whether the space between the joints has changed. In the early stages of osteoarthritis, resting the hip may suffice. Non-steroidal anti-inflammatory drugs (NSAIDs) such as Ibuprofen can relieve pain. In addition, physical therapy and supervised light exercise may improve the range of motion in the joint. As Scott Buchanan, Director of PT of Tri-State Physical Therapy explains, “The commitment to an outpatient Physical Therapy Program is a good first step towards reducing pain, swelling and improving range of motion. Doing this will allow the patient to start an exercise program and gradually return to a more functional lifestyle.”

Total hip replacement surgery is recommended in the later stages of osteoarthritis, when joint pain affects sleep or when the hip is deformed. Regarding the procedure, the AAOS

explains: “You will get a two-piece ball and socket replacement for your hip joint. This will cure your pain and improve your ability to walk. You may need crutches or a walker for awhile after surgery. Rehabilitation is important to restore your hip’s flexibility and work your muscles back into shape.”

### **OSTEONECROSIS**

When there is a loss of blood supply to the bones (either temporary or permanent), osteonecrosis can develop. This condition also referred to as avascular necrosis, aseptic necrosis, and ischemic necrosis, results in the rapid degeneration and deformation of the hip joint that limits its function and can cause significant pain and disability.

Doctors are seeing up to 20,000 new cases of osteonecrosis each year. Although the condition can occur in any bone (including the knees, shoulders and ankles), most often it is found in the femur, the bone that extends from the knee joint to the hip joint. Osteonecrosis is serious, as it can lead to the collapsing of the hip joint.

No one knows the precise cause of osteonecrosis, but the risk factors are well documented. They include corticosteroid use as well as a number of glandular problems and diseases. Alcoholism presents another risk, since heavy drinkers can develop fatty substances that block blood vessels, thus compromising the blood supply to the bones. Blood vessels can be affected following an injury as well. This is known as trauma-related osteonecrosis.

According to the National Institute of Health ([www.nih.org](http://www.nih.org)), “the amount of disability that results from osteone-

rosis depends on what part of the bone is affected, how large an area is involved, and how effectively the bone rebuilds itself. Normally, bone continuously breaks down and rebuilds as old bone is replaced with new bone. This process, which takes place after an injury as well as during normal growth, keeps the skeleton strong and helps it to maintain a balance of minerals that maintain the integrity of the bones. In the course of osteonecrosis, however, the healing process is usually ineffective and the bone tissues break down faster than the body can repair them. If left untreated, the disease progresses, the bone collapses, and the joint surface breaks down, leading to pain and arthritis.”

The diagnosis of osteonecrosis is made by means of X-rays and MRIs. While anti-inflammatory medicines can help, treating osteonecrosis of the hip is challenging, since the disease tends to progress rapidly despite intervention. In some cases, surgery is the best option available.

Total hip replacement is a common surgical approach to treating osteonecrosis. Osteonecrosis can occur at any age and total hip replacement may need to be performed at a young age. However, with recent advances in technology, hip replacements are lasting for decades before a second revision surgery is necessary.

The hip is an important weight-bearing joint and its health is critical to the overall well-being and health of the patient. Understanding the conditions that affect the health of the hip joint and discussing your symptoms with a qualified orthopaedic surgeon is an important step in maintaining good health and optimal function. 



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**D**id you know that Tri-State Physical Therapy (TSPT) has qualified and experienced occupational therapists that are certified in hand therapy?

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Many orthopaedic conditions of the hand, wrist and elbow can also be successfully treated using non-surgical techniques such as specialized CHT hand therapy and custom splinting. The experienced CHT's at TSPT can fabricate splints for the elbow, wrist, hand and fingers. Hand therapy combined with these custom splints effectively treats many conditions of the hand and upper extremity such as carpal tunnel syndrome, wrist tendonitis and DeQuervain's tenosynovitis (a form of thumb tendonitis).

Whether your condition requires surgical or non-surgical intervention, be sure to seek the expertise of a CHT. Hand therapy and/or splinting services can help you resume your normal activities and get you back to feeling good again!



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# Do You Need a Knee Replacement?

By: Paul A. Liefeld, M.D.



**D**o one or both of your knees hurt? Do they swell or feel stiff? Are you unable to bend or straighten your knee(s) the way you used to? Are they especially sore after you are active? Can you hear or feel grinding in your knee?

causes osteoarthritis. Aging alone is not sufficient to cause it, but its stiffness and pain affect about a third of all Americans over the age of 45 and it is the most common disabling health condition in people over the age of 65.

When osteoarthritis affects the knee, it can cause symptoms ranging from mild discomfort after activity to unbearable pain. Loss of motion, swelling, limping, stiffness and pain during activity or at rest are common symptoms. The normally smooth, firm and slightly rubbery cartilage surfaces that slide across each other become rough and break down, or fragment. The result is an inflamed joint that produces excessive fluid, but the joint is poorly lubricated by that fluid. During early stages of the disease, medicines to reduce the inflammation, called non-steroid anti-

If you answered YES to one or more of these questions, you are likely one of the millions of Americans who has osteoarthritis. Osteoarthritis is one of the most common forms of arthritis, and the knee is one of the most common locations for this type of degenerative arthritis. Osteoarthritis results from the breakdown of the healthy cartilage surfaces that line the ends of the bones inside our joints. While injury can start that process and genetics can influence who gets arthritis and who does not, we really do not know what



## About the Physician

Dr. Paul Liefeld, joined Tri-State Orthopaedics & Sports Medicine in 1988. Dr. Liefeld is Board Certified in orthopaedic surgery and his practice includes total joint replacement surgery, spine surgery and arthroscopic surgery. Dr. Liefeld currently serves as Vice-Chairman of the Department of Surgery at Ohio Valley General Hospital and he is also a Fellow of the American Academy of Orthopaedic Surgeons.

## ***Osteoarthritis is one of the most common forms of arthritis, and the knee is one of the most common locations for this type of degenerative arthritis.***

inflammatory drugs (NSAIDs), usually help to reduce symptoms. Cortisone injections into an affected joint can also be helpful, but should be used cautiously. A newer treatment, injection of the joint with hyaluronic acid typically derived from chicken cartilage, also can help to reduce symptoms (this injection treatment is often referred to as “visco-supplementation”). Physical Therapy can be helpful to preserve mobility and improve strength. However, for most people once the process of degeneration begins, it will continue to progress and the loss of cartilage eventually will lead to the bone ends rubbing together painfully. When the symptoms of arthritis can no longer be controlled with medicines or injections and most daily life activities are painfully affected, it may be time to consider surgical replacement of the damaged joint surfaces.

Each year in the United States over a quarter of a million people undergo total knee replacement surgeries. It is one of the most successful and reliable operations in orthopaedics today and considering the economic costs of the disability caused by degenerative arthritis of the knee, it may be one of the most cost-effective orthopaedic operations. Attempts to resurface the arthritic knee surgically with artificial surfaces date back seventy years, but implant designs similar to what we use today have evolved in the last thirty-five years. All systems used today have the common theme of replacing damaged joint surfaces that are painful when in contact with artificial surfaces firmly fixed to the bone that glide smoothly against each other, permitting motion and load bearing without pain.

Most knee replacements done today are unconstrained, meaning that the parts of the knee replacement are attached to the tibia, the femur and the patella but

not directly to each other. The parts fit like caps over the ends of the bones and the surgeon removes just enough bone to allow those caps or components to fit against each other in a way that is as similar as possible to the original healthy joint surfaces. The ligaments and muscles and tendons around the joint provide the pressure to hold the surfaces together and when properly balanced allow joint movement, which is usually pain free and very similar to the normal motion of a healthy joint. The most common materials used today are a very highly polished and smooth metal on the femur and a hard, smooth plastic on the tibia and on the



*Osteoarthritis of the knee*

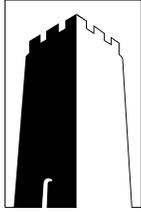
back of the patella. The surgery can be performed through surgical incisions or approaches of different lengths, but the long-term and even short-term results are very similar regardless of the approach. The ultimate goal is the conversion of a knee joint that is unacceptably painful to the patient to one that does not hurt at all, or so little that normal life activities can be resumed.

A knee replacement performed today can be expected to last fifteen to twenty years or longer. Although there is no “too young” or “too old” age for

total knee replacement surgery, most surgeons will advise waiting as long as reasonably possible in order to lessen the likelihood of revision surgery (second procedure to replace old prosthesis that may become loose from years of wear and tear). But the results of the surgery have proven to be so good and predictable that younger individuals are having knee replacement surgery rather than continuing to suffer the pain and physical limitations of their arthritis.

Total knee replacement requires a skilled surgeon but a patient committed to the effort of recovering from that surgery is just as important. Exercises to strengthen the leg before surgery are helpful, but the real work begins in the hospital. This continues with an outpatient rehabilitation program to restore movement in the knee and strengthen the leg. A close working relationship with a qualified Physical Therapist helps to establish and reach goals vital to achieving the most complete recovery possible. As summarized by Ben Kivlan, Director of PT at Tri-State Physical Therapy, “Physical Therapy can assist in the management of pain and supervise a progression of range of motion (ROM) and strengthening exercises. As pain and ROM improve, physical therapy programs will progress to weight bearing and balance exercises. This allows a patient to be more independent without the use of walkers or crutches”.

*Are you now or might you in the future be a candidate for a total knee replacement? Or can other treatments provide relief of your knee pain symptoms?* Your orthopaedic surgeon can help you with these questions and help guide your choices if you are bothered by swelling, pain or stiffness in your knees. 📄



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