

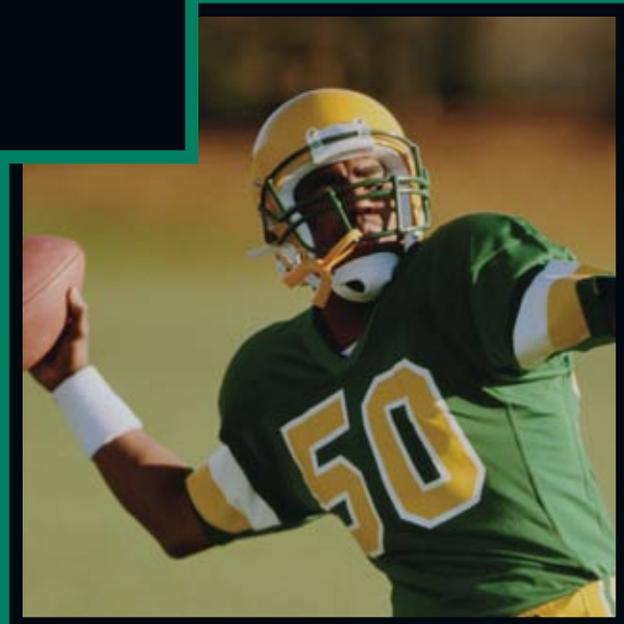


# TRI-STATE ORTHOPAEDICS & Sports Medicine, Inc.

*Premier Issue 2009*



Keeping  
you in the  
game



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# Welcome

It is with great pleasure that we proudly present the first edition of Tri-State Orthopaedics & Sports Medicine's magazine. The physicians of Tri-State Orthopaedics focus on providing the full range of musculoskeletal care. Our dynamic mix of orthopaedic specialists enables us to meet all of our patient's musculoskeletal needs under one roof with a comprehensive and coordinated approach to your orthopaedic health. All of our physicians are board certified or eligible by the American Board of Orthopaedic Surgeons and are fellows of the American Academy of Orthopaedic Surgeons.

Though all of our physicians provide general orthopaedic care, their advanced fellowship training with an additional year of specialized education and experience allows them to specialize in an area of orthopaedics including hand, wrist and upper extremity surgery; foot and ankle surgery; sports medicine; arthroscopic shoulder, knee and hip surgery; joint replacement surgery; and spine surgery. Our physicians use state-of-the-art techniques and equipment, including mini-incision and micro-surgery, proven to have quality outcomes for our patients. We also offer platelet-rich plasma therapy, where the physicians inject your own conditioned plasma directly into the site of the injured muscle, tendon or ligament to help speed recovery without surgery.

Tri-State Orthopaedics has five convenient office locations to serve the communities of western Pennsylvania and those across the country—North Hills, Seven Fields/Cranberry, Robinson Township, Fox Chapel and South Hills. We have served the area's professional and amateur athletes for almost 35 years. We are team physicians for many local high schools including North Allegheny, Seneca Valley, and Peters Township school districts. We are also team physicians for the Washington Wild Things professional baseball team.

In addition to the expertise of our nine physicians, we also provide the full range of physical, occupational and hand therapy services for our patients. Under the direction of our physicians, our therapists provide customized rehabilitation care in a pleasant and professional environment. This coordination and continuity of care, with close and constant communication among physicians and therapists and the active participation of our patients, helps to speed and enhance our patients' recovery process. Certified hand therapy and custom splinting is available, along with spacious gyms and specialized technology and equipment often used by professional athletes including aquatic therapy, Pilates reformer, and computerized integrated exercise equipment.

Our orthopaedic offices are equipped with digital radiology and other advanced technology for an efficient and effective visit. For added convenience, we also have an orthotist on staff (to assist with fitting and fabricating braces or orthotics) and an on-site EMG/NCS specialist (to measure the activity of the patient's nerves in the affected area). All of these services allow for a prompt diagnosis to expedite the treatment phase of your orthopaedic care.

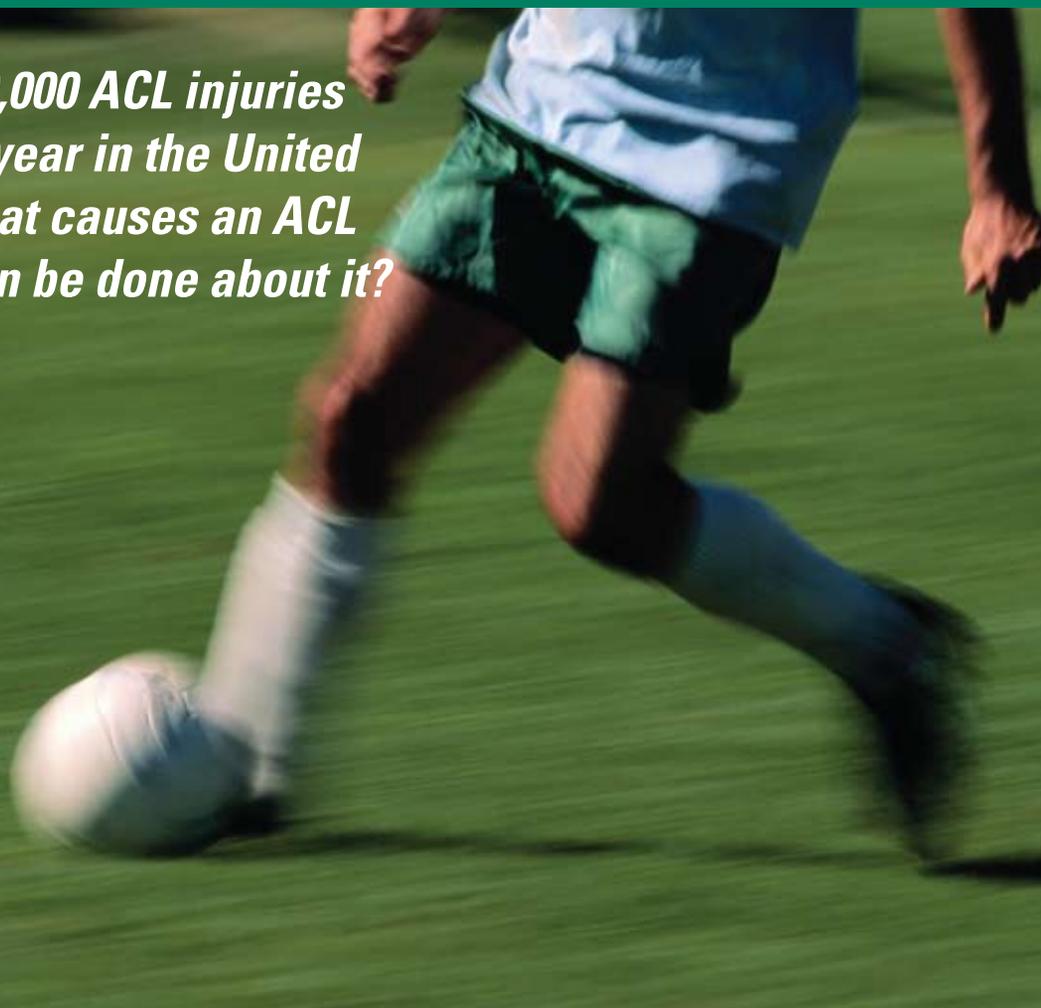
We hope that you enjoy the informative and educational articles in this premier edition. Please share the magazine with friends, family and clients. We are grateful to provide comprehensive and quality orthopaedic care to our surrounding communities. Please visit our website for more information or email me directly at [twarden@tristateortho.com](mailto:twarden@tristateortho.com) with any questions or feedback on the magazine.

Tracy Thompson Warden, MHA, ACMPE  
Executive Director

# Understanding ACL Injuries

By: Brian F. Jewell, M.D.

*An estimated 350,000 ACL injuries take place each year in the United States alone. What causes an ACL tear and what can be done about it?*



## **About the Physician**

*Dr. Brian Jewell, of Tri-State Orthopaedics & Sports Medicine, Inc., is Board Certified in Orthopaedic Surgery and completed advanced fellowship training in sports medicine and arthroscopic surgery. He specializes in arthroscopic surgery of the knee and shoulder. Dr. Jewell is also a member of the Association of Professional Team Physicians.*

**I**f only it were just a game. Basketball, football, soccer, skiing, and other sports were meant to be fun—and they are. Until an accident occurs, that is. An ACL tear constitutes one of the most common sports-related injuries to the leg.

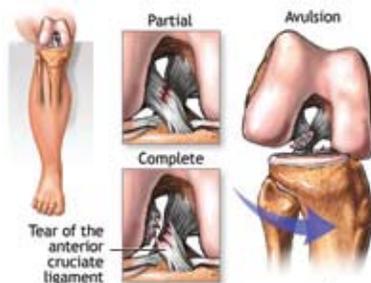
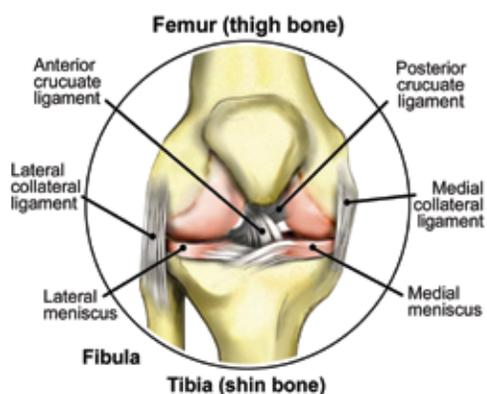
## **A LOOK BEHIND THE KNEECAP**

The term “ligament” refers to the tough band of fibrous tissue that holds the bones together at the joint. The knee has four main ligaments. These are the posterior cruciate ligament (PCL), the medial collateral ligament (MCL), the lateral collateral ligament (LCL), and the anterior cruciate ligament (ACL). Each and all of these segments are crucial to the stability of the knee joint. When properly functioning, the ligaments keep the bones from moving out of position.

The anterior cruciate ligament (ACL), however, is a particular source of concern with regard to the function of the knee. The ACL is the primary restraint to forward motion of the shin bone and also contributes stability to other movements at the joint including the angulation and rotation at the knee joint.

There are two causes of an ACL tear. The most common is a non-contact injury, which usually occurs from bending or twisting the knee during athletic movements such as jumping, cutting, or pivoting. In most cases, the movement of the shin bone rotating inward combined with bending of the knee results in an ACL injury. The second is a contact injury, such as a blow to the knee from an opponent while playing a sport. This accounts

## Knee Joint



ing other times of their menstrual cycle. These findings are not conclusive, however, and the bulk of research seems to be directed more toward the anatomical and mechanical differences than hormonal ones.

### WHAT ABOUT TREATMENT?

There are two simple goals of treatment for ACL tears: (1) to get the pain under control, and (2) to restore the sufferer's motion. In fact, it is important to regain motion in the knee as soon as possible to prevent permanent loss of motion and associated disability. A few days of rest should suffice before initiating treatment.

Once motion is restored, the decision can be made as to whether surgery is needed. Even if you plan to have the ACL reconstructed, most orthopaedic surgeons will not reconstruct your knee until you have regained your motion. The reason is simple—if you start off with a stiff knee before surgery, you will end up with a stiff knee after surgery. The goals of ACL

for approximately one out of every four or five ACL injuries.

When an ACL is torn, the patient may hear a popping sound. There is usually pain and swelling, although it may be only moderate at first. However, within a couple of days the pain and swelling may worsen. This may indicate that an ACL tear has likely occurred. A physical exam—including either an MRI or exploratory arthroscopy—can confirm the diagnosis.

As noted above, athletes are particularly prone to ACL tears. This is understandable when we consider the maneuvers that are required while doing most sports. "ACL injuries appear to occur most frequently during deceleration activities such as a sudden stop, change in direction, or landing from a jump," writes Ben Kivlan, a Physical Therapist with Tri-State Physical Therapy. Ben reaffirms that the vast majority of ACL tears are from non-contact injuries. "This can be viewed with optimism," he notes, "because it says there may be something we can do about one aspect of the problem at a neuromuscular level, rather than hope to accomplish an impossible task by trying to control outside forces such as a tackle from another player."

### WOMEN—ACL'S MOST POPULAR VICTIMS

When it comes to ACL tears, women are more susceptible than men. In fact, they are three to eight times more likely to sustain an ACL injury. Why? Women don't run the same as men in many sports. Women tend to run more upright than men. Two recent studies show that women do indeed

have different body mechanics than men when they run. They don't have as much flexion in the knee when they do cutting maneuvers and they put more stress on the inside of the knee when they change direction.

There are other factors that may make women more likely to sustain ACL injuries. For example, some suggest that hormonal differences may be involved. One researcher found that women are three times more likely to experience an ACL tear during ovulation than dur-



## *An ACL tear constitutes one of the most common sports-related injuries to the leg.*

reconstruction are to restore joint anatomy, provide static and dynamic stability, and expeditious return to all physical activities with minimal pain or disability. Following ACL reconstruction, the patient will need to use crutches for 1-3 weeks and can expect to wear a brace for 2-6 weeks. Post-operative physical therapy will begin the day after surgery. Following surgery, patients can expect to return to light activity in 3 months and should be back to all physical activities within 6 months, including contact sports. Every patient and injury is different, so always consult your physician before resuming any activity or sports.

The option of surgery depends upon several factors, including your age, activity level, and the severity of your symptoms. Generally speaking, a young high school football player who injures his ACL and wants to continue to compete at the same level or higher will require a reconstruction surgery. Another player may decide that he doesn't want to play football in the future and is happy surfing the internet on extreme sports. This person may not require an ACL construction.

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

Physical therapy can facilitate healing an ACL injury. For example, a physical therapist under the physician's direction might be able to help the knee to regain full range of motion. But the patient has to do his or her part through strengthening exercises. Due to its lack of use, the affected leg muscles will atrophy (shrink) and lose strength. Therapy will help you regain strength in the thigh muscles, especially the quadriceps and hamstrings.

Ben Kivlan, PT, recommends taking preventive measures—before an injury occurs. There has been documented success with a jumping program that takes into account form, flexibility, and plyometric strength. Noted benefits are increased overall strength of the ham-

strings and an increase in vertical jump. "Jump training," Kivlan says, "led to a significant decrease in the incidence of ACL injury among women trained in this manner versus untrained women."

Even when an ACL injury occurs, the prognosis for recovery is good. Some knees function almost normally despite having a torn ACL. Of course, many factors—including the age, weight and activity level of the patient—must be taken into consideration. Good knee function is more common in patients who are over thirty years old who are

relatively inactive in sports. Patients who are less than twenty-five years old, regardless of their activity level, tend to have problems with instability and have frequent episodes of "giving way" of the knee. Therefore, surgical reconstruction of a torn ACL is usually recommended for patients who are less than age twenty-five years. However, surgery should be delayed until after the acute injury has subsided (usually at least six weeks following injury). The best option is to consult your primary care physician or orthopaedic surgeon to assess your particular situation.



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**The physicians at Tri-State Orthopaedics & Sports Medicine were recently 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 and 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, hamstrings strains and certain types of knee ligament injuries are areas that have shown a promising response to ACP.

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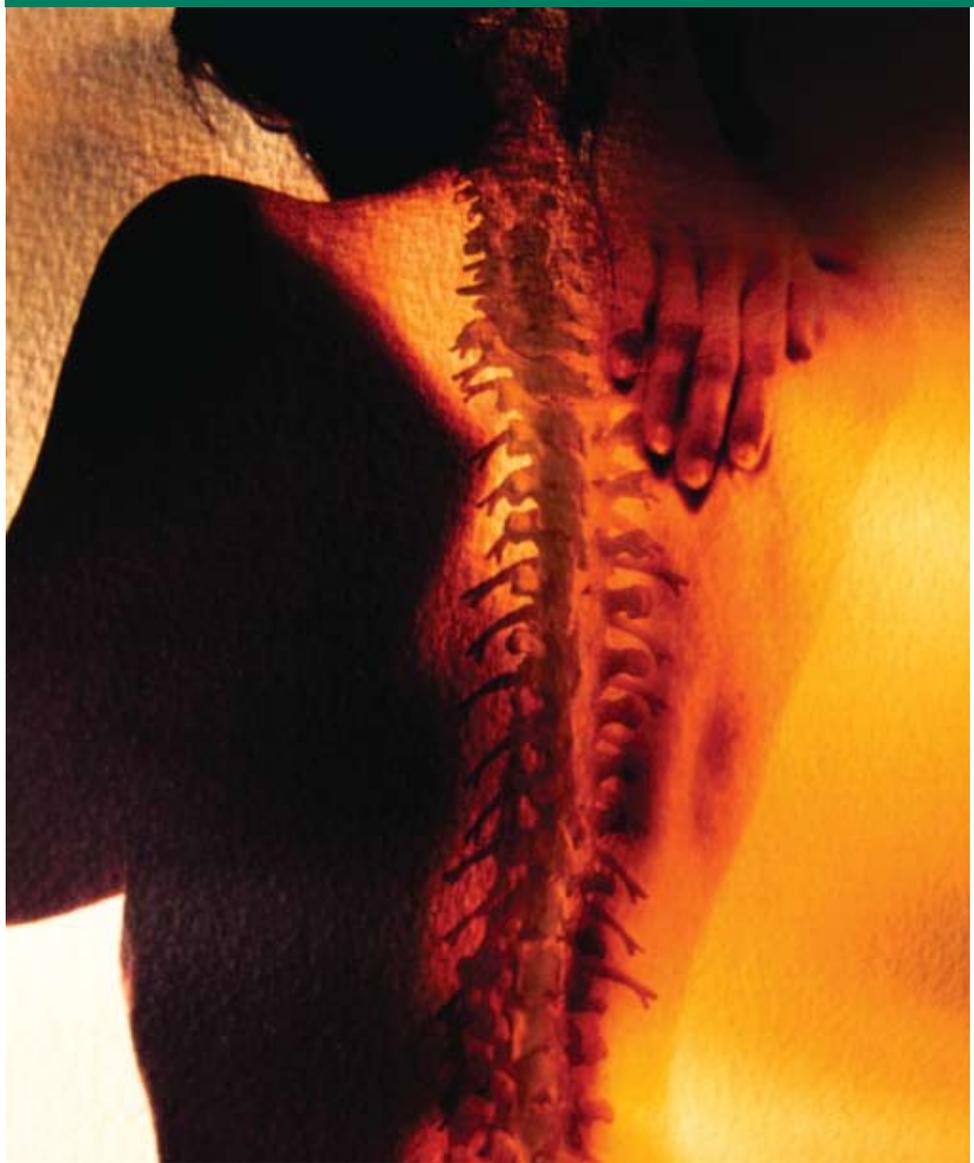
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# A Better Life Through Kyphoplasty

## A New Procedure for Back Pain

By: Gerard J. Werries, M.D.

It is estimated that about 100,000 Americans suffer from multiple myeloma, and half of these will at some point experience a vertebral compression fracture (VCF) along with debilitating discomfort.



### About the Physician

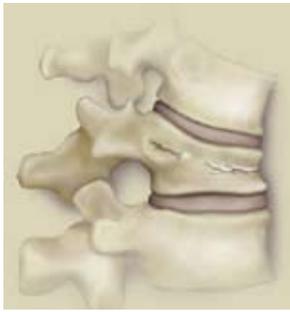
Dr. Gerard Werries of Tri-State Orthopaedics & Sports Medicine, Inc. specializes in the evaluation and treatment of back and neck injuries as well as minimally invasive spinal procedures. Dr. Werries is Board Certified in orthopaedic surgery and completed his advanced fellowship training in spine surgery at Harvard Medical System.

**W**HEN golfer Tom Williams collapsed in sheer pain at the ninth tee, he had no idea what was going on. Later diagnosed with multiple myeloma (cancer of the bone), a tumor had disintegrated a vertebra in the middle of his back. The condition seems like a freak of nature, almost like being hit by lightning. The fact is, though, there are many Tom Williams out there.

It is estimated that about 100,000 Americans suffer from multiple myeloma, and half of these will at some point

experience a vertebral compression fracture (VCF) along with debilitating discomfort. "I couldn't stand for more than a couple minutes without severe pain," Tom says. "And I couldn't play golf, which is my passion."

Multiple myeloma is only one cause of vertebral compression fractures. An additional 700,000 people in the U.S. suffer from osteoporosis, another cause of vertebral compression fractures. Even younger patients have been seen with weakened spines, sometimes due to medications (including steroids) or to



*Vertebral Compression Fracture*



*Balloon Kyphoplasty*

such conditions as lymphoma, kidney disease, and metastatic carcinoma.

All told, it is estimated that on any given day some 150,000 people are “laid up” in a hospital bed due to ailments caused by spinal fractures. The average hospital stay is eight days and the annual cost is more than \$1.6 billion. In many cases, fracture patients spend more time immobilized than those who have had strokes, heart attacks, or who have breast cancer.

### THE FACTS ABOUT SPINAL FRACTURES

Spinal fractures can occur when the bone is weakened due to a loss of mass. In time, this can lead to a vertebral compression fracture, a condition in which the bones partially or completely collapse. This can lead to kyphosis, which results from subsequent fractures. A telltale sign of kyphosis is a rounded back, known as “dowager’s hump.” Left untreated, this spinal deformity can be debilitating and painful.

Vertebral compression fractures (VCF) are physically incapacitating and emotionally crippling as well. In addition to any medical problems they face, VCF patients often suffer from anxiety, depression, and poor self-esteem. Making matters worse, once a patient has had one fracture, the likelihood of having another one increases fivefold.

### COMMON, BUT UNDER-DIAGNOSED

If there seem to be more fractures taking place now than in the past, this is explainable. With an aging population and with people living longer, experts say bone fractures will become a bigger and more costly problem unless more is done to prevent them. Osteoporosis is most common in older adults, particularly women. It is a major risk factor for bone fractures, which can cause significant suffering while carrying high economic costs. As with many ailments, the earlier fractures are treated, the better for the patient.

Spinal fractures are under-recognized. Approximately two-thirds of all osteoporotic spinal fractures go undiagnosed or untreated due to the absence of symptoms or difficulty determining the cause of symptoms, leading some to call osteoporosis a “silent disease”.

The likelihood of experiencing a spinal fracture is quite high. In fact, a quarter of all men over 50 and as many as half of all women of that age group will have one. It is imperative that back pain that has no evident cause, such as accident or other trauma, be investigated by a qualified physician.

Whatever the cause, what can be done about vertebral compression fractures?

### METHODS OF TREATMENT

In the past, a number of approaches have been taken to treat vertebral compression fractures. The simplest of these (and the least expensive) was extended bed rest, braces, and lots of pain medication. Physicians would typically order a Lumbar Support Orthotic (LSO) corset brace for VCF and the patient would be required to wear this corset for at least 3 months. Even if these methods reduced the discomfort, they did nothing to correct the deformity of the spine.

Balloon Kyphoplasty is changing all of that. This treatment is an excellent choice when pain medication fails to control discomfort or when quality of life has been severely compromised (as in cases where the patient is no longer able to walk). Balloon Kyphoplasty can also help in cases where there have been multiple fractures or fractures with progressive collapse.

### HOW IT IS DONE?

Balloon Kyphoplasty is a minimally invasive treatment for spinal fractures. By achieving fracture stabilization and correction of spinal deformity, patients experience significant reduction in pain and improvement of mobility, thus reducing the number of days in bed and increasing overall quality of life.

Treatment typically takes just 15-30 minutes per fracture. The spine surgeon can recommend the type of anesthesia that will be needed, based upon the patient’s overall condition. A hospital stay may be required.

But precisely what occurs during the procedure?

During kyphoplasty surgery, a small incision is made in the back through which the surgeon places a narrow tube. Using fluoroscopy to guide it to the correct position, the tube creates a

***In many cases, fracture patients spend more time immobilized than those who have had strokes, heart attacks, or who have breast cancer.***

***This treatment is an excellent choice when pain medication fails to control discomfort or when quality of life has been severely compromised (as in cases where the patient is no longer able to walk).***

path through the back into the fractured area through the pedicle (i.e. the entry point of the vertebral body) of the involved vertebrae.

Using x-ray images, the surgeon inserts a special balloon through the tube and into the vertebrae, and then gently and carefully inflates it. As the balloon inflates, it elevates the fracture, returning the vertebrae to a more normal position. It also compacts the soft inner bone to create a cavity inside the vertebrae.

The balloon is removed and the surgeon uses specially designed instruments to fill the cavity with a cement-like material called polymethylmethacrylate (PMMA). After being injected, the pasty material hardens quickly, stabilizing the bone.

#### **RISKS AND REWARDS**

The problems associated with Balloon Kyphoplasty are minimal. When all of them (including bleeding, infection, and nerve injury) are taken into consideration, they amount to less than a 0.5 percent risk. Adverse reactions to the bone cement are extremely rare, but could result in hypotension and possibly death. These reactions may be related to performing Kyphoplasty at multiple levels of the spine.

Despite these minor risks, the odds are highly in favor of this new treatment. In fact, by the end of December 2008, nearly 500,000 fractures had been treated by means of Balloon Kyphoplasty and some 7,400 physicians had been trained in the procedure.

In those patients' fractures that were caused by osteoporosis, one study demonstrated that in less than two weeks, about 90 percent of them described an 80 to 90 percent reduction in pain.

Christine, a librarian, can testify to the

benefits of Balloon Kyphoplasty. "I was bed-ridden for over a year," she says. "I was on narcotic medication for pain." After having four fractures repaired through Balloon Kyphoplasty, she says: "I threw away all the pain killers." Christine sums up the success of Balloon Kyphoplasty succinctly: "The cancer caused me to fall apart. This procedure put me back together again."

For golfer Tom Williams, mentioned at the outset, the treatment has been nothing short of a miracle. "My pain was relieved almost immediately after the procedure," he says. "It was truly remarkable. I was able to play golf that summer. I could stand up straight and walk pain-free. I have an immense and renewed appreciation for life and all that goes with it. Every day is precious."





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Since 1976, the physicians of Tri-State Orthopaedics & Sports Medicine have provided a full range of orthopaedic care to communities in the tri-state area and across the country. We have served the area's professional and amateur athletes for more than 30 years and during that time our group has grown to include nine renowned physicians in five convenient office locations. All of our physicians provide general orthopaedic care and have also completed advanced fellowship training in specific areas of orthopaedic care, including hand, wrist and upper extremity surgery; foot and ankle surgery; arthroscopic shoulder, knee and hip surgery; sports medicine; joint replacement surgery; and spine surgery.

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# TRI-STATE ORTHOPAEDICS & Sports Medicine, Inc.



**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.

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**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, specializing in arthroscopic and reconstructive surgery of the hip, shoulder and knee. He 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. Dr. Christoforetti completed his advanced fellowship training in Sports Medicine at the Steadman-Hawkins Clinic of the Carolinas. He has assisted in the care of numerous amateur and professional athletes and serves as a team physician for The Washington Wild Things professional baseball team and Peters Township High School.



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# Evaluation & Treatment of Ankle Sprains

By: Jeffrey N. Kann, M.D.

A sprain of the ankle occurs when ligaments, the tough fibrous bands that connect and stabilize our joints, are injured or torn.



## 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.*

Formed by the tibia, fibula, and talus, the ankle joint connects the lower leg to the foot and is the key joint linking our bodies to the ground. As an important weight-bearing joint, the ankle is put under stresses that make it susceptible to injury.

Ankle injuries are among the most common injuries reported in the United States, where an estimated 27,000 ankle sprains occur each day. Sprains are not always minor and it is important to have them examined and treated by an experienced physician.

A sprain of the ankle occurs when ligaments, the tough fibrous bands

that connect and stabilize our joints, are injured or torn. The ligaments that stabilize the lateral or outside (Anterior Talofibular Ligament and Calcaneal Fibular Ligament) are the most commonly injured. Patients frequently report an incident in which the patient "rolls over" the ankle forcing the foot inward. Surgery to repair damaged ligaments is rare, as they are only completely torn in the event of severe trauma. However, even a small tear of a ligament can cause further damage. For example, a torn vessel or capillary of the ligament tissue can cause blood to seep into the surrounding tissue, resulting in bruising and swelling.

# Ankle injuries are among the most common injuries reported in the United States, where an estimated 27,000 ankle sprains occur each day.

While such sprains are common among those who regularly participate in sports, they also have a high incidence among people whose bone structure or foot type make them more susceptible to injury.

## SIMPLE SPRAINS, NOT SO SIMPLE

Even a so-called routine ankle sprain may be more serious than it appears. In many cases, painful symptoms persist even as long as six months following injury, indicating that more than a simple sprain may have occurred. Sometimes an injury with ongoing and persistent symptoms indicates an associated problem, such as a broken bone, a ruptured tendon, or damage to the cartilage that is located inside the ankle joint. As many as 40 percent of grade III ankle sprains have potential to cause permanent problems.

Common symptoms of ankle sprain include swelling, tenderness, and discoloration. Walking becomes difficult and there may be a degree of instability. Prolonged pain is abnormal, and often indicates damage to the surrounding structures. Seeking a physician's attention is essential.

## DIAGNOSING SPRAINS

A physician will analyze the patient's medical history and take tests to determine the extent and severity of the injury. The physician initially employs a three-part initial examination, which has been referred to as the "look, feel, and move approach." The physician may first **LOOK** for angular deformities, swelling, and bruising that is often associated with ankle sprains. Swelling and bruising are common in ankle sprains, especially more severe ankle sprains, where disruption of the vascular tissue adjacent to the injured ligament may have occurred during the injury

The physician may then **FEEL** the ankle for tenderness and pain. The physician

may be able to appreciate the laxity of the ligaments giving an indication to the severity of the ankle sprain. If there is pain to the touch, x-rays are taken to ascertain whether other injuries have occurred, such as a fracture.

**MOVE.** Palpating while moving the ankle is used to assess the condition of the ankle, subtalar, midfoot, and forefoot joints. Popping or clicking during movement and noting whether these occur with or without pain can help the physician determine the severity of the condition.

Finally, many factors need to be considered, including the location of the pain, its frequency, and its intensity. An accurate diagnosis is essential, as it will affect the mode of treatment chosen.

To help the physician in the diagnostic process and in recommending treatment, sprains are classified by severity, and are referred to as either type-I, type-II, or type-III sprains. A type-I sprain, which involves stretched or slightly torn ligament fibers, is the least severe.

A type-II sprain is indicated when some of the ligaments or fibers are completely torn. With a type-III sprain, the entire

ligament is torn and there is significant instability of the joint. A fracture of the ankle bone or foot may also be present. With type-II and type-III sprains, a brace or boot is needed for as long as 2-4 weeks. I typically use a CAM Walker for these types of ankle sprains.

After the initial examination, radiographs are taken. In some cases, CT scans, MRI studies, and bone scans augment the radiographic scans for a more accurate diagnosis.

## TREATMENT

When an isolated sprain is diagnosed, immediate treatment using the R.I.C.E. protocol can begin (Rest, Ice, Compression, Elevation). This involves four aspects:

**Resting the ankle immediately after injury.** This is crucial, even in the case of a seemingly minor sprain. It has been noted that some patients who hobble along with pain for the first 24 hours following injury often cause further damage. At the very least, they prolong the healing process. If it is necessary to move around, a brace should be used.

**Ice** application helps reduce swelling by constricting torn vessels so that there is less bleeding into the surrounding



tissues. Ice should be applied for 15 to 20 minutes at a time. It is most effective if it is done right after the injury has occurred.

**Compressing** the area with a foam stirrup, air cast, or ace bandage will provide support to damaged structures and the constriction will help reduce swelling. Non-steroidal anti-inflammatory medications such as Celebrex, Motrin or Aleve can help relieve pain and swelling as well.

**Elevating** the leg above the level of the heart facilitates healing. As the R.I.C.E. approach progresses, exercises may be introduced to restore balance and agility. Sometimes crutches are need-

ed for only a few days after injury, and weight bearing may gently and gradually be restored.

Relying too much on crutches can actually hinder healing, so it is important for the patient to be trained in slow but steady rehabilitation. "Injury to an ankle can increase the risk of re-injury as much as 40-70%. Seeing a Physical Therapist is important for regaining range of motion and strength to help decrease their risk" writes Physical Therapist, Scott Buchanan, of Tri-State Physical Therapy. Both land and aquatic therapy can be used in the rehabilitation of the sprained ankle. In time and with proper care, the patient can resume normal activity, including sports.

Eighty-five percent of ankle sprains resolve on their own without surgical intervention. The other 15% may go on to chronic instability. Therefore, surgery may be warranted to tighten the anterior talo-fibular (ATF) ligament. This procedure is done on an outpatient basis and requires a small open incision to tighten the ligament. The surgery takes about 25 minutes to complete. Following the procedure, patients can expect to be back to full contact sports in 8-10 weeks.

In summary, when those who suffer ankle injuries seek immediate professional care and cooperate with treatment, the damage caused by sprains to the ankle can be overcome.

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# The Rewards & Risks of Total Hip Replacement

By: Victor J. Thomas, M.D.



***Many of us go about our activities blissfully unaware of the importance of our hip until it erupts in severe pain. If you suffer from hip pain, you are not alone.***



## ***About the Physician***

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

**T**he hip joint is one of the largest joints in your body. Unfortunately, it is also one of the most easily injured—and not all at once. Osteoarthritis (known as ‘wear-and-tear arthritis’) can set in gradually and can cause not only stiffness but also excruciating pain.

What causes the hip to deteriorate to the point where it needs replacement? Sometimes osteoarthritis is the culprit and it may be that genetics play a role in this. In other cases, the ball of the hip joint (called the femoral head) loses its blood supply and simply dies, leading to degeneration.

At first, the discomfort might be noticed only when bending or when putting pressure on the hip joint. This commonly occurs, for example, when walking up and down stairs. Eventually, the pain can become nearly constant. In time, the pain may affect the individual’s ability to enjoy a full and active life. A measure of relief may come through medication and walking aids, but sometimes these remedies are short-lived. For long-term treatment, the solution may be total hip replacement. Hip replacement surgery is becoming more and more common as the population of the world begins to age. Hip replacement is also being

## ***A total hip replacement will provide complete or nearly complete pain relief in 90 to 95 percent of patients.***

done in younger patients in their 40s & 50s with good results.

The hip joint is composed of two parts: the ball and the socket. During surgery, the two parts are removed and replaced with artificial surfaces. The artificial ball is usually made of metal or ceramic, while the socket is composed of metal and plastic. The option to have hip replacement is completely up to the individual. It is not a "life or death" matter. The orthopaedic surgeon may have recommendations, based on such factors as the patient's medical history, weight, health status, and hip condition. After considering non-operative options, some decide that the benefits of total hip replacement far outweigh the risks and complications.

True, the very idea of hip surgery may seem daunting. But new developments over the past few decades are changing the face of hip replacement surgery for the better. For example, a procedure known as "minimally invasive total hip replacement" now allows surgery

to be performed more easily. It uses the same implants that are employed in traditional surgery, but one major difference is in the incision. Whereas traditional hip surgery requires a 12-inch cut, the incision made with the minimally invasive technique is much smaller. Not only does this result in a smaller scar, but also it means less trauma to the muscles surrounding the hip area. The patient can gain mobility and thus begin exercising the legs much sooner. Overall, the muscle-sparing technique decreases some of the complications of traditional surgery. It also speeds up recovery and helps the patient return to normal activities sooner. Physical therapy (PT) for approximately 8-12 weeks and ongoing home exercise are recommended for the best outcome. PT will focus on exercises and activities to improve range of motion, strength, flexibility, balance and gait. During the initial post-operative phase of PT, the patient will use assistive devices such as a walker. As they progress with their exercises, the patient will be transitioned to a

cane and then to walking on their own once the therapist and physician feel it is safe and appropriate. As the patient progresses in PT, he/she will have less difficulty with getting dressed, getting in/out of bed and negotiating stairs. The overall goal is to have the patient return to all normal activities of daily living. Greg Petcash, PT, from Tri-State Physical Therapy says, "Attending therapy appointments consistently is important, but compliance with a home exercise program is vital to a quick and successful recovery and a good long-term outcome".

There are some risks with hip replacement surgery including thrombophlebitis (when blood clots in the large veins of the leg), infection, dislocation (when the ball comes out of the socket, usually soon after surgery), and a loosening of the joint where the metal meets the bone. Patients are usually given blood thinners and antibiotics to reduce the risk of these complications.

How does an artificial hip hold up over time? The major long-term problems are loosening or wear, however, hip replacements done today can last for decades. Some factors that can affect wear and loosening include your weight and level of activity. Of course, there can always be a second surgery. But generally the results of a second operation are not as good as the first and the risks of complications can be higher.

When total hip replacement is recommended, the outcome can be positive. A total hip replacement will provide complete or nearly complete pain relief in 90 to 95 percent of patients. It will allow patients to carry out many normal activities of daily living. The artificial hip may allow you to return to active sports or heavy labor under your physicians' instructions. Most patients with stiff hips before surgery will regain near-normal motion, and nearly all have improved motion and less pain.



# Don't Shoulder the Burden of Rotator Cuff Injuries

By: John J. Christoforetti, M.D.

The American Academy of Orthopaedic Surgeons (AAOS) advises anyone suffering from persistent shoulder pain to consult a physician for early diagnosis of a potential rotator cuff injury, which can help prevent further injury and dysfunction.



## About the Physician

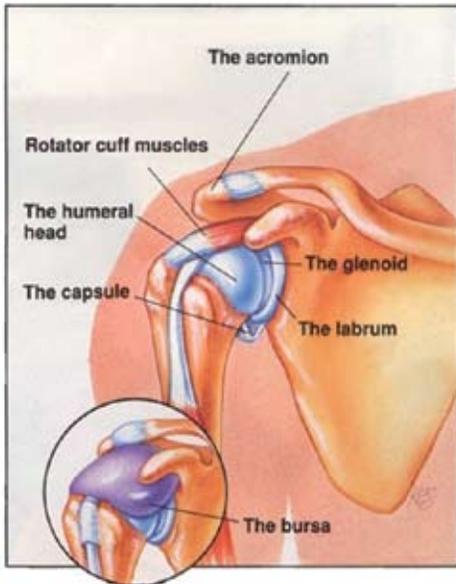
*Dr. John Christoforetti completed advanced fellowship training in Sports Medicine at Steadman-Hawkins Clinic of the Carolinas and specializes in arthroscopic surgery of the shoulder, knee and hip. Dr. Christoforetti has cared for many amateur and professional athletes and serves as the team physician for Peters Township School District.*

Whether a little league pitcher, a middle-aged fitness enthusiast or even a professional football player, athletes of all ages are susceptible to shoulder injuries. The treatment of rotator cuff problems addresses the needs of the youthful athlete all the way through the active senior. The American Academy of Orthopaedic Surgeons (AAOS) advises anyone suffering from persistent shoulder pain to consult a physician for early diagnosis of a potential rotator cuff injury, which can help prevent further injury and dysfunction.

Rotator cuff problems alone accounted for more than 4.4 million physician visits last year. The rotator cuff is comprised of four independent muscles that work collectively to stabilize the ball and socket joint of the shoulder. A tear of the rotator cuff may result suddenly

from a single traumatic event or develop gradually due to repetitive overhead activities. Some of the signs of a rotator cuff tear include: pain when lifting the arm or lowering the arm from a fully raised position; weakness when lifting or rotating the arm; or severe night time shoulder pain sometimes described as a "toothache in the shoulder." Athletes who engage in repetitive overhead arm movements, such as throwing, are highly susceptible to overuse-related rotator cuff problems, as are physically active older athletes who may also experience degenerative changes in the shoulder.

MR imaging and arthrogram studies may indicate the presence and severity of a rotator cuff tear. Surgical repair may be recommended if there is a complete tear of the cuff, as studies have shown that full tears tend not



### AAOS OFFERS THE FOLLOWING TIPS TO HELP PREVENT ROTATOR CUFF INJURIES:

- Always take time to warm up and stretch before and after play. Research studies have shown that cold muscles are more prone to injury. Warm up with jumping jacks, jogging or jumping rope for three to five minutes. After warming up, slowly stretch, holding each stretch for at least 30 seconds.
- Do not play through pain. If pain persists, consult an orthopaedic surgeon for proper diagnosis and treatment.
- Take rest breaks and replenish fluids during and after any activity.

For baseball pitchers, football quarterbacks or others who often use their rotator cuff during sports activities, adding a strengthening program to an existing core conditioning program is essential to reduce the risk of potential injury. It is critically important to concentrate on strengthening the muscles attached to the scapula (shoulder blade).

A rotator cuff-specific regimen requires extremely targeted exercises,

ones that you do not typically do at the gym including stretching, core training, shoulder strengthening exercises using rubber tubing and free weight resistance. Rotator cuff injuries may also stem from improper body mechanics. A physical therapist is a specialized professional who will evaluate the mechanical variables that influence the rotator cuff. According to Physical Therapist from Tri-State Physical Therapy, Debra Hanselman, PT, "there are numerous joints and muscles that link the arm, shoulder blade, rib cage and torso. Individual muscles should be corrected for flexibility and strength deficits to reduce stress on the rotator cuff. Groups of muscles that integrate for functional movement such as reaching, lifting or throwing should be corrected to improve timing, sequencing and coordination". Generally, the rotator cuff is protected by conditioning the muscles on the back of the shoulder and avoiding excessive strengthening of the chest and front shoulder muscles. This can lead to rounding of the posture and irritation of the rotator cuff. Correction of muscle imbalances throughout the shoulder girdle with increased stability of the core will help with pain relief, injury prevention and performance improvement of the shoulder.

to heal, but rather enlarge with time. Chronic injury to the rotator cuff can lead to further development of arthritis and subsequent pain and disability of the shoulder. Advancement in surgical techniques allow specially trained surgeons to utilize arthroscopic techniques to repair rotator cuff tears. The surgeon utilizes specialized instruments and a small camera to perform a rotator cuff repair. This new technique is showing promising results equal or superior to previous techniques that utilized a larger incision.

***Advancement in surgical techniques allow specially trained surgeons to utilize arthroscopic techniques to repair rotator cuff tears.***

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# Minimally Invasive Surgery for Common Hand Problems

By Steven E. Kann, M.D.



## About the Physician

*Dr. Steven Kann 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.*

**H**and sensation and movement are essential to almost every task performed throughout the day, including eating, dressing, writing, typing, driving, and working. Although often taken for granted, the hand can be considered just as important to functioning as eyesight.

Motion of joints, gliding of tendons, and contraction of muscles are all part of hand performance. When injury takes place, care is given to the various tissues to encourage healing and facilitate a full functional recovery of the hand. Millions of people suffer from impairments of the hand, including arthritis and inflammation that can create a socioeconomic and

a psychological burden. To provide relief for these patients, hand surgery has become a medical specialty that is crucial in returning patients to their functional potential.

The focus on the hand as a specialized field of study began in the era of World War II. Before that time, one physician would be needed to treat broken bones, another to repair damaged nerves, and still another for skin reconstruction. It was soon realized that one specialist for the entire hand in all of its functions would be beneficial. Thus, the hand surgeon was born.

Many hand surgeons are orthopaedic surgeons with additional train-

## Millions of people suffer from impairments of the hand, including arthritis and inflammation that can create a socioeconomic and a psychological burden.

ing to care for problems of the hand, wrist, and forearm. Much of their time is spent outside the operating room, treating these problems without surgery. A number of problems, including cuts, wrist pain, sports injuries, tennis elbow, burns, ganglion cysts, tumors, arthritis, congenital deformities, and Carpal Tunnel Syndrome, are now routinely treated by hand surgeons.

**“Trigger Finger.”** One form of chronic tendonitis, called “trigger finger,” is a common problem seen by hand specialists. Tendons that bend the fingers and thumb pass through the opening of a snug “tunnel”. When the tunnel becomes too snug or when the tendon becomes too thick due to inflammation, the tendon becomes

stuck at the opening of the tunnel. A popping sound or sensation may result when the tendon finally gives way. In severe cases, the finger may remain stuck in a bent position.

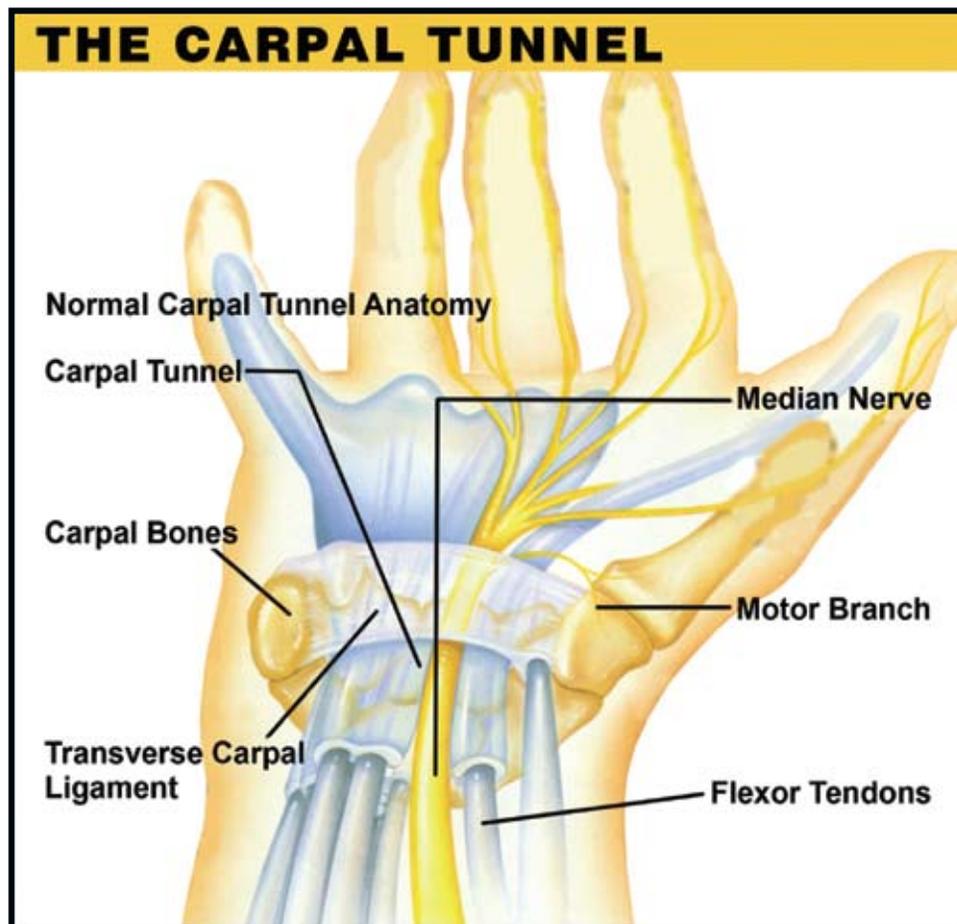
**“Carpal Tunnel Syndrome” (CTS).** CTS is another common problem that is often treated by a hand surgeon. CTS occurs when there is compression of the Median Nerve at the wrist. The symptoms of CTS include numbness and tingling of the hands and fingers and can be caused by acute trauma, repetitive trauma or certain medical conditions.

**“de Quervain’s Tenosynovitis”.** de Quervain’s is a problem that causes pain at the bottom of your thumb and

the side of your wrist and occurs when the tendon that moves your thumb becomes swollen. This condition can develop over time due to “over use” or can occur following a single traumatic event, such as striking your thumb on a hard surface.

No X-rays are needed for diagnosis of any of the above conditions. A hand specialist can detect trigger finger simply by interviewing the patient and examining the hand. For CTS, the hand surgeon can complete a few simple tests during the exam or he/she can order an NCV-EMG (Nerve Conduction Velocity-Electromyography). This is a test that measures the electrical activity of the muscles and nerves. de Quervain’s can be diagnosed by performing the Finkelstein test. The patient is told to make a fist with their thumb inside and then bend their wrist outward. If the patient feels pain, the diagnosis is most likely de Quervain’s. Non-steroidal anti-inflammatory medication, such as Celebrex, can be used to treat all of these diagnoses. In some cases of CTS and de Quervain’s, a custom splint may be all that is needed. The physician may also administer a cortisone injection for cases of de Quervain’s. If the problem is severe or if symptomatic improvement is only temporary, outpatient surgery may be recommended.

The decision for surgery is a personal one, as these diagnoses are neither life-threatening nor dangerous. The goal of surgery in cases of trigger finger and CTS is to widen the opening of the tunnel so that the tendon or nerve will not be blocked or obstructed. As a hand surgeon, I would perform a mini-incision technique where a small incision is made in the patient’s palm, after which the tunnel is opened with a special instrument. Surgery for de Quervain’s involves releasing the tight covering of the tendon. Surgery for all of these conditions is done on an



out-patient basis. Following surgery, patients usually notice improvement in their symptoms immediately, although it may be several weeks before recovery is complete. Occasionally, if post-operative swelling and pain is severe, the physician may order a course of occupational therapy with a Certified Hand Therapist (CHT). A CHT is an occupational therapist with advanced training who specializes in treatment of the hand and upper extremity. According to David Lecce, OTR/L, CHT of Tri-State Physical Therapy, "It is important to work with a therapist who specializes in treatment of the hand and upper extremity. CHTs work in conjunction with the hand surgeon to customize the treatment plan. Communication is the key to successful outcomes". Most treatment plans will focus on edema control and mobility to expedite return to function.

Diabetes is often an underlying factor in hand pain. For example, trigger finger and CTS, discussed earlier, are more common in diabetic patients. In addition, a side effect of diabetes is a peripheral neuropathy, which results in tingling of all fingers. It can be difficult to distinguish this condition from CTS, but the telltale factor is one of distribution and can be further distinguished by a nerve study. Peripheral neuropathy often involves both hands and both feet, starting at the ends of the fingers or toes and moving toward the center of the body.

**Dupuytren's Contracture.** Another hand problem that frequently requires surgery is Dupuytren's contracture, which most often affects the fourth and fifth fingers. Not to be confused with trigger finger (which also results in bent fingers), Dupuytren's contraction is a disease of the palmar fascia that causes the fibrous bands of the hands—the layer of flesh just under the skin of the palm—to thicken and shorten. Lumps or dimples in the skin



of the palm may result. A small nodule develops into a cord-like band, preventing the hand from straightening and giving it a claw-like appearance. Although it usually has its onset in adulthood, it is transmitted as a genetic condition.

It is best to seek help for Dupuytren's contracture before the condition deteriorates to the point that the fingers are bent into a fist. In cases where flexion deformities are present,

surgery will usually be recommended for Dupuytren's contracture. The goal of the surgeon is the excision of the fascia to restore the straightening of the hand.

The field of hand surgery continues to provide renewed hope to millions. State-of-the-art care is helping many who suffer from disease or injury of the hand, helping them to experience something they may have thought impossible—a life without pain.

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