UT SOUTHWESTERN

ORTHOPAEDIC MEDICINE

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UT SOUTHWESTERN MEDICAL CENTER
UNIVERSITY HOSPITALS & CLINICS

What's Inside?

Managing Shoulder Dislocations

By William J. Robertson, MD
Assistant Professor, Orthopaedic Surgery, UT Southwestern Medical Center

The inherent instability of the shoulder predisposes it to dislocation. The relatively unconstrained relationship between the humeral head and the glenoid fossa allows us to achieve a high degree of shoulder motion – but also subjects the shoulder to an increased risk of injury, such as dislocation.

It is well known that the shoulder is stabilized by the surrounding soft tissue structures, including the joint capsule, glenoid labrum, and rotator cuff muscles. The labrum is a rim of thick cartilage that encircles the perimeter of the glenoid much like a gasket. The labrum not only deepens the socket, it also acts as an attachment sight for the joint capsule and long head of the biceps tendon superiorly. It plays an important role in maintaining the stability of the shoulder joint.

Shoulder dislocations typically occur as a result of a single traumatic event. However, shoulder laxity and multidirectional instability can result from repetitive motion and underlying soft tissue conditions. Traumatic dislocations typically occur when an excessive force is applied to the upper extremity, usually with the shoulder abducted 90 degrees and externally rotated, such as when throwing a football. With the dislocation, the glenoid, glenoid labrum, joint capsule, and rotator cuff are injured. Without proper healing or repair, these injured tissues will allow recurrent dislocations to occur. This is particularly true when a portion of the glenoid itself is fractured at the time of the dislocation.

In most cases following a dislocation, the shoulder is reduced (put back into the socket). It is immobilized in a sling or a shoulder immobilizer for a few days to a week.

To avoid shoulder stiffness, early range of motion exercises are begun, including pendulum, wall walking, and cane exercises. A physical therapist-directed exercise program is initiated to further increase shoulder motion and eventually muscle strengthening.

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Receive CME Credit for Fingers to Toes

Learn groundbreaking information about the diagnosis and treatment of musculoskeletal injuries and conditions, during the UT Southwestern Department of Orthopaedic Surgery's continuing medical education (CME) course – *Fingers to Toes.*

When is it?

April 30 to May 1, 2010

Where is it being held?

UT Southwestern Medical Center
T. Boone Pickens Biomedical Bldg.
Dallas, Texas

To register for *Fingers to Toes*:

email cmeregistrations@utsouthwestern.edu or call 214-648-3138.

> See more information inside about *Fingers and Toes.*

Orthopaedic Continuing Medical Education Course

The *Fingers to Toes* CME course will be held Friday and Saturday, April 30 to May 1, 2010. Information will be provided to help:

- Evaluate, diagnose, and treat patients with common sprains, strains, and fractures
- Order and interpret plain radiographs of common injuries
- Evaluate children with hip and knee conditions and refer when indicated
- Understand the pertinent anatomy of the upper and lower extremities in relation to common injuries
- Immobilize injured upper and lower extremities as initial treatment for common musculoskeletal injuries
- Understand common spinal disorders and responsible treatment plans

The course is designed for orthopaedic surgeons, primary care physicians (family practice, general internal medicine, and pediatrics), ED physicians, orthopaedic surgeons, and physicians assistants.

CME credit is offered for this course. For more information or to register, email *cmeregistrations@utsouthwestern.edu*, or call 214-648-3138.

For more information or to register for the *Fingers to Toes* CME Course: email cmeregistrations@utsouthwestern.edu or call 214-648-3138.

Who is leading this course?

Course Director
Joseph Borrelli, Jr., MD
Chair, Orthopaedic Surgery
UT Southwestern Medical Center

UT Southwestern Faculty
Kevin Gill, MD
Vice Chair, Orthopaedic Surgery
Michael Bolesta, MD
Associate Professor, Spine Surgery
Troy Caron, DO
Assistant Professor, Spine Surgery
Lawson Copley, MD, MBA
Assistant Professor, Pediatric Orthopaedics
Robert J. Dimeff, MD
Professor, Sports Medicine
William J. Robertson, MD
Assistant Professor, Sports Medicine
Frank Gottschalk, MD
Professor, Joint Reconstruction
Michael Huo, MD
Professor, Joint Reconstruction
Kimberly Mezera, MD
Associate Professor, Hand Surgery
Dina Rahhal, MD
Assistant Professor, Hand Surgery
Amy Phelan, MD
Associate Professor, Physical Medicine and Rehabilitation
George Tye Liu, DPM
Assistant Professor, Foot and Ankle Surgery
Michael VanPelt, DPM
Assistant Professor, Foot and Ankle Surgery
Naim Maalouf, MD
Assistant Professor, Internal Medicine

Figure 1A
AP shoulder x-ray showing anterior and inferior dislocation of the left shoulder.

Figure 1B
Axillary x-ray of the left shoulder showing the anterior dislocation of the humeral head and the bony defect involving the anterior glenoid.

Figure 2A
AP shoulder x-ray showing the reduced left shoulder with the surgically reconstructed glenoid.

Figure 2B
Axillary x-ray of the left shoulder showing the anatomic positioning of the humeral and the screws used to fix the bone fragment to the anterior glenoid.

Managing Shoulder Dislocations (continued from page 1)

Typically, it can take a few weeks to months until a patient can perform his/her routine activities of daily living. It may be several months before heavy lifting or contact sports can be resumed.

In certain cases, most commonly in the younger patient (<50 years old), the shoulder may continue to dislocate despite appropriate nonoperative management. To avoid further damage, surgical correction is necessary. The younger a person is when the initial dislocation occurs, the greater their risk for re-dislocation. For example, a 20-year-old with a traumatic shoulder dislocation has an 80 percent chance of re-dislocating their shoulder. Therefore, for young contact athletes and patients with recurrent shoulder dislocations, or even following a single traumatic dislocation, surgery is the best course of management.

During the surgical management of a shoulder dislocation, the torn rotator cuff, labrum, and capsular tissue are repaired typically by attaching them back to the glenoid. This repair is performed using suture anchors that are drilled into the bone. These procedures can often be performed arthroscopically or in combination with a relatively small incision (minimally invasive).

"Patients treated surgically for recurrent shoulder instability can expect a 95 percent success rate with regard to restoration of motion and full activity, without limitations," says William J. Robertson, MD, UT Southwestern Medical Center.

In certain cases, more complex procedures are required to restore shoulder stability. UT Southwestern Orthopaedic Surgery recently treated a 32-year-old man who had undergone two prior shoulder operations at another facility for a recurrent shoulder dislocations. A few months after his second surgery, he dislocated his shoulder again while lifting a box. He presented to the UT Southwestern University Hospital emergency room, where he was found to have an unstable shoulder.

Despite considerable effort, the humeral head would not stay reduced within the glenoid. Radiographic assessment revealed a large piece of bone fractured from the rim of his glenoid, resulting in an insufficient platform on which the humeral head could sit. When this degree of bony damage is present, soft tissue repair alone is unable to restore stability to the shoulder joint.

The Bristow-Latarjet procedure, introduced in 1958, was designed to address patients with recurrent shoulder dislocation that results from insufficiency of the anterior glenoid. The procedure includes the transfer of a piece of bone generally from the coracoid process, with the muscles attached to the anterior aspect of the glenoid. Generally, this fragment is fixed with a screw or two to restore the concavity of the glenoid and to provide increased shoulder stability.

A 20-year-old with a traumatic shoulder dislocation has an 80 percent chance of re-dislocating the shoulder.

"Unfortunately, this patient had already undergone this procedure at the outside hospital. So, the coracoid was not available to help in the repair. In an effort to achieve stability, we harvested a piece of bone from the patient's iliac crest and transferred it to the front of the glenoid," says Dr. Robertson.

The piece was contoured to conform to the shape of the anterior glenoid and was securely fixed with two screws. The anatomy of the socket was restored, re-establishing the normal relationship between the humeral head and glenoid and restoring the stability of the shoulder. After thorough rehabilitation, the patient has returned to his usual activities of daily living and has had no subsequent dislocations.

UT Southwestern Launches Sports Medicine Program

UT Southwestern's Department of Orthopaedic Surgery now has a Sports Medicine Program to treat the full spectrum of patients — from amateur to professional athletes. The group is highly experienced in providing outstanding options to diagnose and treat injuries and conditions affecting runners, swimmers, tennis players, basketball players, throwers, cyclists, and other athletes. The newest members of the team are ***Robert J. Dimeff, MD***, and ***William J. Robertson, MD***.

Robert Dimeff, MD

Highlights of Experience, including Sports Medicine

- Experienced in patient care, education and research, including serving as Director of Primary Care Sports Medicine and Vice Chairman, Department of Family Practice, The Cleveland Clinic
- Physician for the Cleveland Cavaliers (NBA), Cleveland Browns (NFL), Cleveland Barons (AHL), Cleveland State University, and many other professional, semi-pro, and high school sports organizations
- Immediate Past President, American Medical Society for Sports Medicine
- Top Men's Sports Specialist, *Men's Health* Magazine
- America's Top Doctors for Sports Medicine, Castle Connolly Medical LTD

Internship, Residency, and Fellowship

- St. Thomas Hospital Medical Center, Transitional Program (1985-1986)
- Rush Presbyterian – St. Luke's Medical Center, Family Practice (1986-1989)
- The Cleveland Clinic, Primary Care Sports Medicine (1989-1990)

Board Certifications

American Board of Family Medicine, Family Practice
American Board of Family Medicine, certificate of added qualifications in Sports Medicine

Education

Northeastern Ohio Universities College of Medicine
Kent State University; Bachelor of Science in Integrated Life Sciences

William J. Robertson, MD

Highlights of Experience, including Sports Medicine

- Physician for Grand Prairie AirHogs (baseball), Dallas Defenders (football), Dallas Diamonds (football)
- Assistant Team Physician – New England Patriots (NFL), Boston Red Sox (MLB), Boston Bruins (NHL), Suffolk College, and Curry College
- Assistant Team Physician – Fire Department of New York Football team
- Medical Staff Coordinator for Shea Stadium (New York City)
- Four-Year Varsity Letter Winner – Brown University football
- All-Ivy League football selection to the Epson Ivy Bowl, Osaka, Japan

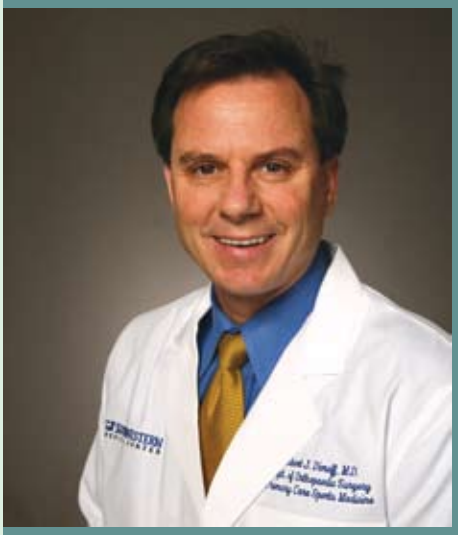
Internship, Residency, and Fellowship

- New York Presbyterian Hospital (Cornell)
- Hospital for Special Surgery (New York, NY) – Repeatedly ranked #1 nationally for orthopaedics by *US News & World Report*
- Traveling Fellowship at the Balgrist and Schuthess Clinics (Zurich, Switzerland)
- Harvard/MGH Sports Medicine and Shoulder Reconstruction Fellowship – Assistant in Orthopaedic Surgery

Education

Brown University; Bachelor of Arts in Health Care Management
State University of New York Downstate Medical Center (valedictorian)

Meet Our Sports Medicine Specialists



Robert J. Dimeff, MD
Director of Primary Care,
Sports Medicine Professor,
UT Southwestern Medical Center,
Department of Orthopaedic Surgery,
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New Research Provides Hope to Preventing, Post-traumatic Osteoarthritis

By Joseph Borrelli, Jr., MD
Professor and Chair, Orthopaedic Surgery, UT Southwestern Medical Center

Cartilage is the tissue that covers the end of bones, allowing them to glide over one another and help absorb shock. When it deteriorates, the bones rub together causing aching pains, stiffness, limited motion of the joint, as well as swelling and tenderness – or osteoarthritis.

UT Southwestern Medical Center researchers studying what happens to cartilage after a traumatic joint injury have made a surprising discovery. Despite cartilage loss, critical cells within the cartilage are still alive six months after injury. This provides hope that they can be reactivated to repair damaged cartilage and prevent the development of post-traumatic osteoarthritis.

"We know that cartilage often goes on to deteriorate after injury. We thought that this was a result not only of the impact, but from the cartilage cells being killed as well. But we found that the cells, to a certain extent, are still alive. They're either stunned or resting, and are not metabolically active," explained the study's lead author, Joseph Borrelli Jr., MD, professor and Chair of Orthopaedic Surgery at UT Southwestern. "This finding gives us hope that we can do something to wake them up, stimulate them, and turn them back on. If successful, we would be able to produce the things necessary to salvage the cartilage."

The risk of developing post-traumatic osteoarthritis after a joint injury ranges from 20 to 50 percent. Previous studies have indicated post-traumatic osteoarthritis may affect as many as 6 million Americans, or about 12 percent of all osteoarthritis sufferers, resulting in a cost of up to $3 billion in direct medical costs, not including lost wages.

This latest paper, appearing in a recent issue of the *Journal of Orthopaedic Research*, is part of ongoing studies using animal models to identify what causes post-traumatic arthritis. Dr. Borrelli, an orthopaedic trauma surgeon, has been researching the cause and effect of this specialized type of arthritis for more than a decade.

"We're getting to the core of the cause as to why these joints go on to develop arthritis after injury," says Dr. Borrelli. "We've approached this problem by looking at the cells, which are responsible for maintaining the cartilage, as well as the cartilage itself and the underlying bone. We've found some pretty interesting things with regards to each."

After an injury, researchers found that cartilage over time suffers an almost complete loss of proteoglycan, the molecules responsible for the critical shock-absorbing characteristics of the cartilage. Cartilage is like a fabric, and the initial impact from the trauma physically crushes the mesh-like infrastructure and causes a disruption of the cell activity.

"As a result of the injury, these cells seem to go into this quiet phase where they don't produce any new components," Dr. Borrelli says.

"But they're alive – for at least some time after the injury – and that's going to be our window of opportunity to awaken these cells and potentially save the cartilage."

The good news is that there are some compounds that are commercially available now that can be used to wake up these cells.

The discovery is an important one for those who suffer a traumatic injury such as a car crash, fall, skiing accident, or sports-related injury from running, playing football, volleyball or other high-impact sports. They are typically younger, meaning arthritic pain can last decades during the most productive years of their lives. Patients who generally suffer such injuries are younger and the development of arthritis can last decades including the most productive years of their lives.

"So theoretically, you could have a patient with an ankle, knee or hip fracture and put the joints back together again surgically. Then, administering something to the joint, maybe systemically, could wake up these cells responsible for healing the cartilage," says Dr. Borrelli.

In addition, researchers studied the way the cells eventually die after an injury. They determined they die either from the initial impact or from mechanisms that tell the cells to kill themselves, a process called apoptosis. The good news, regarding apoptosis, is that compounds already exist that can also stop this process.

"So we have the chemicals to stimulate cell growth and we have the chemicals to inhibit apoptosis," Dr. Borrelli notes. "We now need to develop the means to administer these compounds in an effort to prevent the development of post-traumatic osteoarthritis after joint injury."

Testing some of the compounds to see whether they work will be the next step, he said.

A typical x-ray of an ankle fracture that after undergoing treatment develops post-traumatic osteoarthritis–A) repaired after surgery, B) normal cartilage seen through a microscope, C) cartilage injured which has undergone osteoarthritis.

Caring for Musculoskeletal Injuries, Conditions, and Diseases

Fractures. Back pain. ACL tears. Knee replacement.

The UT Southwestern Orthopaedic Medicine practice offers help and relief from the simplest to the most complex bone and muscle problems.

"We diagnose and treat a wide range of conditions, including foot and ankle problems and hand and shoulder issues. We perform hip and knee joint replacements and treat a wide variety of sports related injuries and rheumatoid arthritis, as well as osteoarthritis, to name just a few areas," says Joseph Borrelli, Jr., MD, Chair of Orthopaedic Surgery at UT Southwestern. "It's our goal to help people recover their mobility as quickly and completely as possible."

A Multidisciplinary Approach

Whatever the problem, patients benefit from Orthopaedic Medicine's multidisciplinary approach that brings together a team of leading physicians, surgeons, and rehabilitation professionals. These physicians make sure patients have access to the newest technology in diagnosis, treatment, and rehabilitation to assure a positive outcome.

"We have the most advanced imaging technologies available, including magnetic resonance imaging (MRI) equipment," says Dr. Borrelli. "The combination of medical experts and leading-edge technology gives patients the best options to recover high levels of function and their independence."

Covering Every Area of Orthopaedics

Orthopaedic Medicine provides a broad range of care. This includes sports medicine; spine; foot and ankle; hand and upper extremity, microvascular surgery of the hands and feet; hip and knee replacement and reconstruction; orthopaedic trauma/fractures and post-traumatic reconstruction, and general orthopaedic surgery.

"For most of the situations we treat, surgery is not our initial approach," says Dr. Borrelli. "If surgery is necessary, we use the most advanced techniques available to help patients. Our surgeons are experts in innovation, including minimally invasive techniques, which often mean quicker recovery."

Whether you need joint replacement surgery, an evaluation for a sports-related injury, want a second opinion for back pain, have arthritis, or any number of other conditions, the Orthopaedic Medicine team can accurately diagnose your problem and prescribe the best treatment for you.

To Refer a Patient

For Orthopedic Medicine,
call 214-645-3300.

For the Spine Center,
call 214-645-3360.

Also, visit utsouthwestern.org

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