



## MEDICAL STAFF

### Pediatric Orthopedists

John S. Blanco, MD  
Shevaun M. Doyle, MD  
Daniel W. Green, MD  
Cathleen L. Raggio, MD  
Leon Root, MD  
David M. Scher, MD  
Ernest L. Sink, MD  
Roger F. Widmann, MD

### Pediatricians

H. Susan Cha, MD  
Lisa S. Ipp, MD  
Stephanie L. Perlman, MD

### Pediatric Rheumatologists

Alexa B. Adams, MD  
Thomas J.A. Lehman, MD  
Emma Jane MacDermott, MD

### Pediatric Anesthesiologists

Victor M. Zayas, MD  
Chris R. Edmonds, MD  
Andrew C. Lee, MD  
Kathryn (Kate) DelPizzo, MD

Hospital for Special Surgery is an affiliate of NewYork-Presbyterian Healthcare System and Weill Cornell Medical College.

For more information about HSS Pediatrics, visit <http://www.hss.edu>

The Pediatric Orthopedic Service provides coverage to the Phyllis & David Komansky Center for Children's Health at NewYork-Presbyterian Hospital.

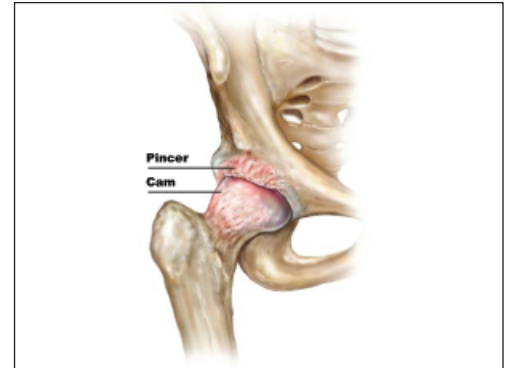
For more information about the Komansky Center, visit <http://www.cornellpediatrics.org>

## What is Hip Preservation?

By Ernest L. Sink, MD

Hip preservation is a relatively new concept in pediatric and young adult orthopedic surgery. The goal of hip preservation treatment is to delay or prevent the onset of end stage hip osteoarthritis. Strategies to halt the progression of hip osteoarthritis in young adults are important, as hip osteoarthritis can lead to significant discomfort and poor quality of life. In these individuals, a joint replacement is often the only solution. Although a hip replacement has an excellent outcome, there is concern for the longevity of the artificial joint, especially in the young and active patient. Therefore, it is optimal to avoid or postpone hip joint replacement surgery.

Bony abnormalities in either the femoral head or the acetabulum (hip socket) can result in hip pain and cartilage injury, which leads to osteoarthritis. These bony deformities are often the result of



childhood hip disorders such as developmental dysplasia, Legg-Calvé-Perthes disease, or slipped capital femoral epiphysis. A relatively new concept called femoroacetabular impingement describes abnormalities of the femoral head or acetabulum that cause hip pain and cartilage injury while the hip moves with sporting activities.

*(Continued on page 3)*

## Hip Pain in the Young Child

By Emma Jane MacDermott, MD

Pediatric rheumatologists often care for patients with complaints of hip pain. Hip pain may be difficult to treat and is an area which highlights the importance of collaboration between pediatric orthopedists and rheumatologists.

When hip pain presents in young children, the first priority lies in excluding infection which, if untreated, may damage the hip joint permanently. Toxic synovitis, or transient synovitis, is an inflammatory condition of the hip seen in young children following a viral infection that is treated with rest and nonsteroidal anti-inflammatories. Many times these patients are evaluated initially by an orthopedic surgeon and may undergo a hip joint aspiration to exclude infection. These children respond quickly to medication. Toxic synovitis should not recur; therefore, "recurrent" toxic synovitis should raise the suspicion for an underlying arthritic condition such as juvenile spondyloarthropathy. Work-up for recurrent hip



pain must be pursued vigilantly as Legg-Calvé-Perthes disease, tumor, occult trauma, slipped capital femoral epiphysis, congenital hip dislocation, and arthritic conditions may present with recurrent hip pain.

The hip joint is involved extremely rarely in children with pauci-articular (few joints affected, fewer than five joints at the six month mark) juvenile rheumatoid arthritis (also known as

*(Continued on page 2)*

# Groin Pain in the Adolescent Athlete

by Jaime Edelstein, MSPT, COMT, CSCS

It has been reported that groin injuries account for 5% to 9% of all injuries among high school athletes. However, a systematic review suggests that, historically, “groin” injuries have been defined poorly. As recently as five years ago, children or adolescents complaining of groin pain were advised to stretch, ice, and take a rest from the activity which aggravated the discomfort. When the pain did not diminish, they would either continue to participate in the activity and play through pain or their career in that sport would be at an end. Due to advances in diagnostic and clinical medicine, it has been discovered that the source of “groin” pain may not be a muscle strain, but could be possibly a tear of the labrum of the hip due to repetitive stress and micro-trauma, or secondary to a structural bony anomaly, creating hip impingement. This bony impingement which may occur from the acetabular or the femoral head side or a combination of the two is referred to as femoroacetabular impingement.

## How to Identify a Labral Tear

Children or adolescents who may have labral tears present with complaints of a sharp pain or catching at the front of the hip with walking, running, or pivoting. They often feel achy with prolonged sitting or standing. Their symptoms often limit their ability to perform their sport or activity. Clinical findings on examination may include pain with hip flexion, adduction, and internal rotation, or pain with pure flexion. An adductor or hip flexor strain or tear may be ruled out with resisted strength testing.

Another entity that may present and be confused with a labral tear is a sports hernia (athletic pubalgia). The differential diagnosis between an intra-articular hip pathology and athletic pubalgia may be a challenge and requires a meticulous clinical exam.

The Center for Hip Preservation at Hospital for Special Surgery specializes in the diagnosis and treatment of hip pain in a variety of patients, including the pediatric and adolescent population. Recently, improved understanding of hip abnormalities combined with advances in diagnostic imaging techniques and non-operative treatments, which include rehabilitation and minimally invasive surgical treatments, give many patients new hope for ameliorating chronic, misdiagnosed hip pain. Our hip specialists manage structural injury to the hip and get patients back to their chosen activities.

*Maffey L, Emery C. What are the risk factors for groin strain injury in sport? Sports Med 2007;37(10):881-894.*

# Hip Pain in the Young Child (Continued)

juvenile idiopathic arthritis). However, in children with juvenile spondyloarthropathies, the hip joint is involved commonly and hip pain may be the presenting complaint. Spondyloarthropathies commonly present with morning pain or stiffness in the hips, heels, or lower back. Spondyloarthropathies are most common in children over the age of 10 years. Although earlier presentations of spondyloarthropathy can be seen, younger children should be evaluated thoroughly with appropriate labwork and imaging studies. While patients with spondyloarthropathy may be HLA-B27 positive, many will be negative, and HLA-B27 negativity does not exclude this diagnosis.

The juvenile spondyloarthropathies are a group of diseases in which inflammation is present not only in the peripheral joints, but also in the insertion points of tendons into bone. Patients will complain of pain in the heels, feet, hips, and lower back. They may report a history of recurrent injuries or tendonitis and are often treated with repeated immobilization which may actually worsen their symptoms. These patients may develop peripheral as well as axial arthritis. There are typically two groups – teenagers (more often boys) with lower back pain and arthritis of the knees, and younger patients (more often girls) with what initially may resemble pauci-articular arthritis, but involve the small joints such as the fingers or toes (a pattern of arthritis called “dactylitis”). In dactylitis, the tendons around the toes or fingers become swollen, giving the appearance of a sausage, or so-called “sausage digit”.

Teenage boys with juvenile spondyloarthropathies are the most severely affected group. Those boys who are HLA-B27 positive with an elevated sedimentation rate are at the highest risk of progressive disease and may ultimately evolve to fulfill criteria for ankylosing spondylitis (AS). Some children affected by spondyloarthropathy are at risk for progression to AS. Not every child with a juvenile spondyloarthropathy has an identifiable underlying disease association, but many do. The spondyloarthropathies include psoriatic arthritis, arthritis associated with inflammatory bowel disease (or celiac disease), reactive arthritis, and Reiter’s syndrome. The nonspecific spondyloarthropathies are not associated with an underlying condition, though these may evolve over time, presenting even years after the onset of the arthritis.

Many children do well with management of their symptoms, including with non-steroidal anti-inflammatories, physical therapy, and the use of heel cups or custom-fitted orthotics. For children with laboratory abnormalities and persistent joint pain, there is concern for low-grade joint damage over time. These patients may require more aggressive medical treatment. We are fortunate to practice in an era when many excellent medical therapies are available.

Extra-articular complications of the spondyloarthropathies may include acute anterior uveitis. All spondyloarthropathy patients should be screened and followed by an ophthalmologist at diagnosis. Cardiac involvement, including aortitis with resulting aortic insufficiency, though rare in children, can be seen.

If you feel that you or a patient of yours with recurrent hip pain merits a rheumatologic evaluation, we will be happy to see you. Please contact the Division of Pediatric Rheumatology at Hospital for Special Surgery. We have a growing division and an active fellowship program and are always happy to see new patients.

# What is Hip Preservation? (Continued)

Theoretically, hip preservation begins in the newborn with the diagnosis and treatment of hip dysplasia. Hip dysplasia in a skeletally immature child can be managed with a variety of bony surgical procedures on the pelvis and acetabulum. In adolescents and young adults, novel surgical techniques have been developed to improve the bony abnormalities that can lead to hip osteoarthritis. Following are the latest surgical techniques in hip preservation:

- The periacetabular osteotomy is used for skeletally mature hip dysplasia. In this procedure, the acetabulum is reoriented after a series of bony cuts around the acetabulum. This surgery has great potential to prevent or delay hip osteoarthritis, particularly if it is performed prior to irreversible cartilage injury.
- Surgical dislocation of the hip allows complete visualization of the femoral head and acetabulum. This exposure is utilized in the treatment of various complex hip deformities. With this approach, there has evolved improved treatment of hip impingement, slipped capital femoral epiphysis, and painful Legg-Calvé-Perthes disease.
- Hip arthroscopy has advanced in the last few years. In carefully selected patients, arthroscopy has the potential to treat hip disorders in a minimally invasive fashion.

The Pediatric Orthopedic Service and the Center for Hip Preservation at Hospital for Special Surgery provide comprehensive care for all hip disorders, from newborns to young adults.



## The Connection Inspection... Hip for Kids at HSS: Treating Childhood Hip Disease

“My son Michael was 22 months old and walking, but suddenly he resorted to crawling again,” recalls Michael’s mom, Gina Tartaglia, MD, who is also a general practitioner. “As a healthcare professional and parent, I knew something was wrong.”

Legg-Calvé-Perthes disease is a condition associated with an inadequate blood supply to part of the hip joint, specifically the top of the femur bone called the femoral head. Without sufficient blood flow, the femoral head may become unstable, break easily, and heal poorly. Although Legg-Calvé-Perthes disease can affect children of nearly any age, it is diagnosed typically in boys, ages four through nine.

“It is not a common childhood disease, and it is one that often leads to severe osteoarthritis and related problems in adulthood,” explains Daniel W. Green, MD, FAAP, associate attending orthopedic surgeon at Hospital for Special Surgery.

### Care Through Collaboration

Starting at age two, Michael battled his hip disease with a regimen of thrice-weekly physical therapy sessions to help improve his mobility. Eventually he was able to run, jump, and participate in sports like tae kwon do. By age seven, however, Michael’s hip began to worsen.

“Upon our first visit to HSS, we knew we were placing our son in very capable hands,” says Dr. Tartaglia.

Michael’s declining condition was evaluated by Leon Root, MD, a pediatric orthopedic surgeon and former chief of pediatric orthopedics at HSS, who confirmed the original diagnosis of Legg-Calvé-Perthes disease. The diagnostic assessment included an arthrogram—a series of radiographic images of the joint following dye injection—which revealed evidence of a loose piece of bone, about the size of a piece of popcorn, floating inside his hip joint.

“He had a prominent limp, mild limb length discrepancy, and was in a great deal of pain,” says Dr. Root. “Once the loose body was discovered, surgery was recommended as the best course of action.”

Less invasive than traditional hip surgery, hip arthroscopy is an ambulatory procedure using small incisions. A camera, used to visualize the joint, is inserted into one incision, and surgical instruments are placed through the other incisions. Because the procedure is commonly performed in adult patients, the pediatric team enlisted the help of Bryan T. Kelly, MD, co-director of the Center for Hip Preservation and a specialist in hip arthroscopic surgery at HSS.

Working together, Drs. Green and Kelly performed the outpatient surgery on Michael’s hip. Michael then had physical therapy. One year later, Michael is a busy third grader who can keep the pace with his parents and two big sisters, friends, and members of his martial arts class. Although he requires a follow-up hip procedure, Michael says he will do what it takes to keep moving without pain.

“I was a nervous [about surgery] but I’m glad I did it,” says Michael. “I am a lot better and can do what I like to do without limping or feeling the hurt.”

### Expanding Hip Care for Children

As Michael’s case and countless others like it become more prevalent, physicians at HSS have recognized the need to provide highly specialized services for children with complex hip problems.

This year, HSS pediatrics welcomes Ernest L. Sink, MD, a renowned expert in adolescent hip preservation, who will collaborate with the Center for Hip Preservation to provide our youngest patients with help and hope for pain-free mobility.

“With the appointment of Dr. Sink,” explains Dr. Green, “the HSS Pediatric Orthopedic Service’s collaboration with the HSS Center for Hip Preservation will continue to grow. This team approach between the pediatric and adult services will result in unprecedented therapy and surgical intervention options for infants, children, and young adults with pediatric hip disorders.”

For more information about hip preservation and treatment for children, visit the HSS pediatric web site at [www.hss.edu/pediatrics](http://www.hss.edu/pediatrics).

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# Pediatric Connection®

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## HSS Launches First Stage of Lerner Children's Pavilion

HSS is unlike any other hospital – we are the only independent academic medical center in the world exclusively focused on providing orthopedic and rheumatology care for adults and children. Children and their families come from around the world to seek care from our pediatric team. Specialists among specialists, each team member is an expert at helping children with disorders and injuries involving their bones and joints.

Our extraordinary reputation attracts more young patients each year. Last year, our surgeons performed 2,500 orthopedic surgeries for children and adolescents. Each year, young patients make more than 22,000 non-surgical visits to our doctors and nearly 18,000 visits to our pediatric rehabilitation therapists.

To meet the increasing needs of our patients, we are proud to open the new Lerner Children's Pavilion in mid-2012, a child and family-centered hospital within a hospital. This fall, we will launch the first stage of the Pavilion – the 7,000 square foot CA Technologies Rehabilitation Center, made possible through a generous \$5 million gift from CA Technologies, an IT management software and solutions company. Therapists, parents, and children were consulted by the architects to design a beautiful, child-friendly space that will facilitate a positive rehabilitation experience for patients and their families.

Our pediatric rehabilitation therapists – physical, occupational, and speech – are crucial members of the team. They help children learn or relearn to move, with or without the aid of surgery. If surgery is needed, the therapists work with them comprehensively, both before and after surgery. The team also provides outpatient therapy to children in the community, often through the Early Intervention program.

Roger Widmann, MD, chief of Pediatric Orthopedic Surgery, says: “We couldn't achieve the outcomes that we get for our patients without the therapists. They are allies in helping children recover to their full potential.”

“With this new pediatric center, our therapists will have a facility that not only allows them to treat more children, but also expands their abilities to provide the best rehabilitation care anywhere,” says Leon Root, MD, medical director of Rehabilitation and former chief of Pediatric Orthopedics.



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**Editor** Shevaun M. Doyle, MD

**For inquiries, please call (877) HSS-1KID  
or e-mail: [Peds@hss.edu](mailto:Peds@hss.edu)**



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