

Physical Therapist's Guide to Hip Impingement (Femoroacetabular Impingement)

Hip impingement involves a change in the shape of the surface of the hip joint that predisposes it to damage, resulting in stiffness and pain. Hip impingement is a process that may precede hip osteoarthritis. It most often occurs in young, active people. A recent study found that 87% of teens and adults with hip pain showed evidence of hip impingement on diagnostic images taken of their hip joints. To treat hip impingement, physical therapists prescribe stretches and strengthening exercises to better balance the muscles around the hip to protect it, and use manual therapies to help restore range of motion and increase comfort.

What is Hip Impingement?

There are 2 types of hip impingement; they may occur alone or together.

Pincer-Type Impingement

- In pincer-type impingement, the hip socket (acetabulum), which is usually angled forward, may be angled toward the back, or protruding bone may be present on the pelvis side of the hip joint making the socket a deeper recess that covers more of the ball or head of the femur bone.
- The overgrown bone or incorrect angle of the socket causes the labrum, a rim of connective tissue around the edge of the hip socket, to be pinched. Over time, this extra pressure to the labrum when flexing (moving the leg forward) leads to wear and tear that can cause inflammation and could result in a tear. If this condition persists, eventually the cartilage that lines the hip joint can become worn and form holes.
- This condition affects men and women equally; symptoms often begin early, appearing at any time between 15 to 50 years of age.

Cam-Type Impingement

- In cam-type impingement, the shape of the bone around the head of the femur—the ball at the top of the bone in the thigh—is misshapen. It can vary from the normal round ball shape, or have overgrown bone formed at the top and front. The nickname “pistol grip” deformity is given to the appearance of the bony overgrowth on x-rays.
- The overgrown or misshapen bone contacts the cartilage that lines the hip socket, and can cause it to peel away from the bone in the socket. The labrum can become worn, frayed, or torn as well.
- This condition affects men to women at a ratio of 3 to 1; symptoms often manifest during the teen years and 20s.

Signs and Symptoms

Hip impingement may cause you to experience:

- Stiffness or deep aching pain in the front or side of the hip or front of the upper thigh while resting.
- Sharp, stabbing pain when standing up from a chair, squatting, rising from a squat, running, "cutting," jumping, twisting, pivoting, or making lateral motions.
- Hip pain described in a specific location by making a "C" with the thumb and hand and placing it on the fold at the front and side of the hip, known as the "C-sign."
- Pain that most often starts gradually, but can also remain after another injury resolves.
- Pain that increases with prolonged sitting or forward leaning.
- Feeling less flexible at the hips, including a decreased ability to turn your thigh inward on the painful side.

How Is It Diagnosed?

Your physical therapist will evaluate the range of motion (movement) of the hip and surrounding joints, and test the strength of the muscles in that area. Your therapist will feel the hip joint and surrounding muscles to evaluate their condition. The examination will include observing how you move, standing from a sitting position, walking, running, or squatting, as appropriate. Your physical therapist may perform special tests to help determine whether the hip is the source of your symptoms. For instance, the therapist may gently roll your leg in and out (the "log roll" test), or bend your hip up and in while turning the lower leg out to the side (the "FADDIR" test) to assess your condition.

If further diagnosis is needed, your doctor may order diagnostic tests to help identify any joint changes, including x-rays, magnetic resonance imaging (MRI), or diagnostic injections. Hip impingement can occur at the same time as low back, buttock, or pelvic pain, or from conditions such as bursitis or groin strain. The final diagnosis of hip impingement may take some time, especially when other conditions are present.

How Can a Physical Therapist Help?

Without Surgery

When an active person develops hip pain, but does not have severe symptoms or joint damage, the recommended treatment is physical therapy. The following interventions can help decrease pain, improve movement, and avoid the progression of hip impingement and the need for surgery:

- Improving the strength of your hips and trunk. Strengthening of the hips and trunk can reduce abnormal forces on the already injured joint and help with strategies to compensate.
- Improving hip muscle flexibility and joint mobility. Stretching tight muscles can reduce abnormal forces that cause pain with motion. Joint mobilization may help ease pain from the hip joint; however, these treatments do not always help range of motion, especially if the shape of the bone at the hip joint has changed.
- Improving tolerance of daily activities. Your physical therapist can consider your job and recreational activities and offer advice regarding maintaining postures that are healthier for your hip and activity modification. Often this involves limiting the amount of bending at the hip to avoid further hip damage.

Following Surgery

Surgery for hip impingement is performed with arthroscopy. This is a minimally invasive type of surgery, where the surgeon makes small incisions in the skin and inserts pencil-sized instruments into the joint to repair damage. The surgeon may perform 1 or several techniques during your procedure as needed. The surgeon may remove or reshape the bone on the pelvis or femur side of the joint, and repair or remove the damaged labrum or cartilage of the hip joint.

Postsurgical physical therapy varies based on the procedure performed. It may include:

- Ensuring your safety as you heal. Your physical therapist may recommend that you limit the amount of weight you put on the operated leg if there was a repair of the labrum. You may wear a brace to help limit the amount of bending at the hip. You might also use crutches to avoid overloading the leg if the bone on the femur was reshaped.
- Improving your range of motion, strength, and balance. Your physical therapist will guide you through safe range-of-motion, strengthening, and balance activities to improve your movement as quickly as possible while allowing the surgical site to heal properly.
- Instructions on returning to an active lifestyle. Most people return to normal daily activities about 3 months after surgery, and to high-level activities and sports 4 to 6 months after surgery. Your physical therapist will recommend a gradual return to activity based on your condition—research shows that 60% to 90% of athletes return to their previous playing ability depending on the surgical procedure performed and the sport.

Can this Injury or Condition be Prevented?

Currently there are no recommendations to prevent hip impingement. Despite a major increase in research to learn more about hip impingement, there is a great deal that is unknown. For instance, many active young people whose x-rays show hips as being abnormal do not have pain despite continuing to live active lives and participate in sports.

However, there is evidence that physical therapy interventions along with anti-inflammatory drugs can decrease pain, slow joint damage, and improve function. This is particularly important in those with mild hip impingement, those who are attempting to avoid surgery, and those who are not candidates for surgery.

Real Life Experiences

Lindsay is an active high school senior who plays shortstop for her school's softball team. Over the last several months, she has had progressively worsening pain on the front and side of her left hip. It started as an occasional sharp pain when she fielded ground balls at practice, and it eventually developed into aching and stiffness of the hip while resting. Lindsay occasionally develops hip pain while sitting in class or at the movies. In the past couple of weeks, she has found it hard to lean forward to tie her shoes. Her mom has been worrying about her pain and takes Lindsay to her physical therapist.

At the evaluation, the physical therapist finds that Lindsay has weakness around her hip and trunk muscles, decreased hip mobility, pain when flexing the hip, pain returning to a standing position after squatting, and decreased balance when standing on her affected leg. Her physical therapist diagnoses mild hip impingement in her left hip. Lindsay sees her physical therapist 1-2 times a week for the next 6 weeks.

Her treatments focus on developing a home program for strengthening her hips and trunk, and the therapist uses manual therapy for the hip to improve her comfort and allow her to perform more activities. The therapist works with Lindsay to change how she moves when standing from a seated position, and also to modify how she moves when playing the infield in softball. Lindsay also spends less time in the positions that bother her hip in the weight room and on the practice field, following recommendations from her physical therapist. After 3 weeks, the majority of her pain has subsided, and by 6 weeks, she is playing in games pain-free.

Lindsay meets her goal of finishing her senior year with the softball team. However, she is considering other ways to stay active after she graduates that don't involve bending forward as much.

This story was based on a real-life case. Your case may be different. Your physical therapist will tailor a treatment program to your specific case.

What Kind of Physical Therapist Do I Need?

All physical therapists are prepared through education and experience to treat patients who have hip impingement. You may want to consider:

- A physical therapist who is experienced in treating people with musculoskeletal problems. Some physical therapists have a practice with a sports or orthopaedic focus.
- A physical therapist who is a board-certified clinical specialist or who completed a residency or fellowship in sports or orthopaedic physical therapy. This therapist has advanced knowledge, experience, and skills that may apply to your condition.

You can find physical therapists who have these and other credentials by using [Find a PT](#), the online tool built by the American Physical Therapy Association [www.APTA.org] to help you search for physical therapists with specific clinical expertise in your geographic area.

General tips when you're looking for a physical therapist (or any other health care provider):

- Get recommendations from family and friends or from other health care providers.
- When you contact a physical therapy clinic for an appointment, ask about the physical therapists' experience in helping people with hip impingement.
- During your first visit with the physical therapist, be prepared to describe your symptoms in as much detail as possible, and say what makes your symptoms worse.

Further Reading

The American Physical Therapy Association (APTA) believes that consumers should have access to information that could help them make health care decisions and also prepare them for their visit with their health care provider.

The following articles provide some of the best scientific evidence related to physical therapy treatment of problems related to hip impingement. The articles report recent research and give an overview of the standards of practice for treatment both in the United States and internationally. The article titles are linked either to a PubMed* abstract of the article or to free full text, so that you can read it or print out a copy to bring with you to your health care provider.

Byrd JW. Femoroacetabular impingement in athletes, part I: cause and assessment. *Sports Health*. 2010;2:321-333. [Free Article.](#)

Byrd JW. Femoroacetabular impingement in athletes, part II: treatment and outcomes. *Sports Health*. 2010;2:403-409. [Free Article.](#)

Enseki KR, Martin RL, Draovitch P, et al. The hip joint: arthroscopic procedures and postoperative rehabilitation. *J Orthop Sports Phys Ther*. 2006;36:516-525. [Article Summary in PubMed.](#)

*PubMed is a free online resource developed by the National Center for Biotechnology Information (NCBI). PubMed contains millions of citations to biomedical literature, including citations in the National Library of Medicine's MEDLINE database.

Acknowledgement: Jennifer Miller, PT, MPT, SCS

© 2013 American Physical Therapy Association. All rights reserved.