

Periacetabular Osteotomy (PAO)

Hip dysplasia is a condition in which the hip socket is shallow or malformed and doesn't fully cover the head, or ball, of the femur or thigh bone. This can make the hip joint less stable. Left untreated, hip dysplasia can cause damage to the tissues that line the inside of the joint, causing pain, limiting hip function, and potentially leading to an early onset of hip arthritis.

A **periacetabular osteotomy (PAO)** is a hip preservation surgery to correct the anatomy of your hip joint and help you return to normal activities. During surgery, Dr. Joel Wells will make an incision across the front of your hip and reposition the socket by making four cuts in the pelvis. X-rays are taken during the surgery to help determine the best way to reposition your hip socket. Three to five screws are used to secure your hip socket into its new position. Once the bone heals, the screws can be removed during a simple, out-patient procedure.

Dr. Wells and his team provide patients with comprehensive, proactive, and evidence-based hip care. They are dedicated to ensuring the quality and safety of your surgery. PAO surgery has been shown to improve hip function, decrease hip pain, and may stop the damage occurring inside of the joint that can lead to hip arthritis. This may delay, or even prevent, the need for an early total joint replacement.



Risk Identification

- **Smoking:** tobacco use increases the risk of infection and impairs healing and recovery. All patients who smoke must stop six weeks prior to and following surgery.
- **Obesity:** a patient who is obese is at risk for serious complications both during and after surgery. The goal BMI is under 30 prior to surgery. This has been shown to significantly decrease the risk of wound complications and infection. All patients with BMI's over 30 should make their best effort to lose weight prior to undergoing surgery. We encourage patients to enroll in a nutrition counseling and diet plan, such as the ones available here at UT Southwestern.
- **Venous thromboembolic disease (VTE):** VTE includes pulmonary embolism (PE) and deep vein thrombosis (DVT). After any major surgery, a PE or DVT is a possibility and can result in long-term complications. Patients who have had a previous VTE, on hormone replacement therapy, or have a family history of VTE's are at increased risk. We have a tailored and protocolled approach to decreased risks.
- **Alcohol Dependence:** Alcohol can inhibit healing, interact with medications, and impair your judgement. Screening patients at risk for withdrawal or at high risk for complications is necessary. It is vital that you let us know if you have ever withdrawn from alcohol or consume alcoholic beverages daily.
- **Narcotic Dependence:** Patients who are on narcotics preoperatively may require more pain meds postoperatively, which could have significant side effects. All patients are required to come off narcotic medications prior to surgery to prevent complications postoperatively.

Dr. Wells and his team at UT Southwestern want to provide you with the best personalized and comprehensive hip care, while minimizing complications and maximizing outcomes.

Pre-operative Exercises

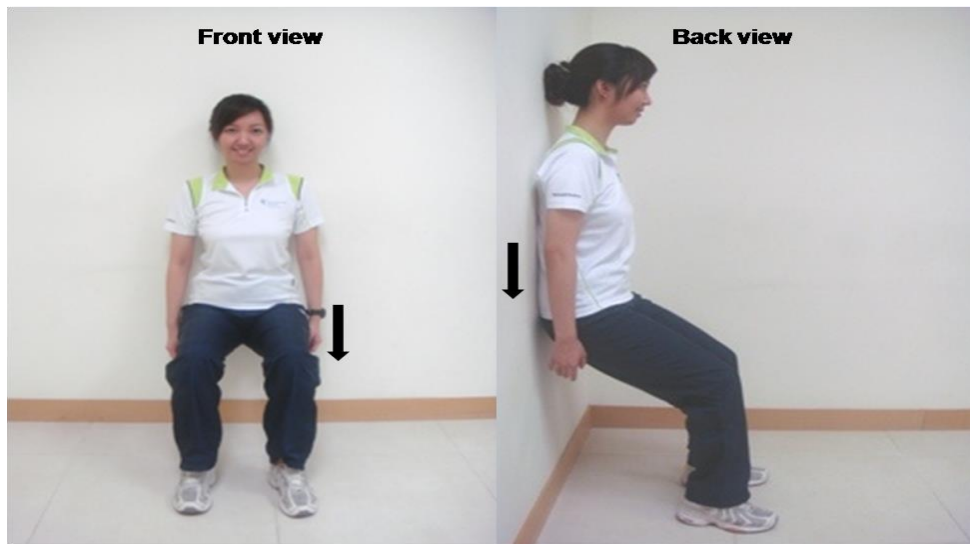
Maximizing your results, while minimizing your recovery

- If you are currently performing an exercise program, continue doing so!
- If you are not currently performing an exercise program, you may incorporate exercises as directed in the handouts in this binder. Twice per week is ideal!
- If you start the exercises and they are too painful, stop doing them.

Mini Wall Squat

Instructions: Perform 3 sets of 10 repetitions, 2x a day.

- Lean on wall, feet approximately 12 inches from wall, shoulder distance apart.
- Bend knees to 45 degrees.
- Hold for 5 seconds.
- Return to starting position.



Standing Ankle Plantar flexion and dorsiflexion (Toe-Heel Ups)

Instructions: Perform 3 sets of 10 repetitions, 2x a day.

- Hold counter or table for support with feet flat on the floor
- Rise up on toes
- Hold 5 seconds
- Rock back on heels, lifting toes up and hold for 5 seconds
- Return to starting position



Quad Set

Instructions: Perform 3 sets of 10 repetitions, 2x a day.

- Tighten your top thigh muscle as you attempt to press the back of your knee downward towards the table.
- Hold 5 seconds, then release.



Supine Knee Extension

Instructions: Perform 3 sets of 10 repetitions, 2x a day.

- Lie on back, with involved leg bent to 45 degrees, supported with a pillow, as shown.
- Straighten leg at knee & hold x 5 seconds.
- Return to start position.



Hip Abduction

Instructions: Perform 3 sets of 10 repetitions, 2x a day.

- Lay down on your unaffected side with your knees bent at right angle
- Lift your knee while keeping your feet together
- Hold it for 5 seconds and return to starting position



Seated Knee Extension

Instructions: Perform 3 sets of 10 repetitions, 2x a day.

- Sit against a wall, chair, or on firm surface with the knee bent
- Keep a proper curve in low back, as shown
- Raise foot upward, while straightening the knee, hold x 5 seconds
- Repeat with other leg.
- Do not allow low back to lose the curve. It is common to experience shaking in the leg.



Physical therapy in the hospital

All patients will receive physical therapy (PT) and occupational therapy (OT) before being discharged from the hospital.

PT sessions will consist of getting in and out of bed, standing, walking with crutches or a walker, going up and down the stairs, and getting in and out of a car. OT sessions will help you learn to resume your activities of daily living, such as bathing and getting dressed. Friends and family are encouraged to attend therapy sessions with you.

It is common to stay two nights in the hospital after a PAO. You will leave the hospital with crutches or a walker, which you will need for the first six to eight weeks after surgery.

Most patients will be allowed to put 20 pounds of pressure through their leg when walking and will use a *foot flat* weight bearing pattern. This means that you can put your surgery side foot flat on the floor during walking, but it is mostly for balance.

Physical therapy after the hospital

In home physical therapy

A physical therapist will come to your house several times a week for the first six weeks postoperatively. Please contact the office if therapy does not start on time, as this is vital to your recovery!

Outpatient physical therapy

Outpatient physical therapy will start six weeks postoperatively. This is where you will begin gaining strength.

Most patients go to outpatient physical therapy two to three times a week for eight weeks, but in some cases it could be longer. Your therapist and surgeon will assess your needs.

Select an outpatient facility that is convenient for you, takes your insurance, and has a therapist who is familiar with PAO surgery or other complex hip disorders. Patients may want to work with a physical therapist they have worked with previously. If you need a recommendation, we can provide you with a list of facilities.

Goals: 10-12 Weeks Postoperatively

- Walking with a good gait and minimal limp
- Improve hip stability and build up your dynamic hip stabilizers
- Resume sport specific training

Hip Precautions

Recovery from a PAO is a gradual process and takes time. Early bone healing may take more than four months, while full bone healing can continue for over a year. During the healing process, you will continue to improve as your bone continues to heal. Your physical therapist will discuss your hip precautions and help guide you in your gradual phase training.

Bruising and swelling

It is normal to have bruising and swelling initially at the surgical site, and for this to continue to increase over the first two weeks after your surgery.

Some patients do not swell until several days after surgery. Remember that your body is healing from the surgery and some swelling is normal. The more activities and physical therapy you perform, the more swelling you may experience.

Bruising may travel up as high as your groin area and will eventually move down to your knees and toes. Expect swelling in your entire leg, including your foot. This should improve in 14-21 days.

You may also feel a tightness and pulling sensation in the back of your thigh, which is also normal and will subside over time.

Decrease bruising and swelling using the **RICE** method

REST

We want you to be up and moving in moderation. We recommend you rest for the first 5-7 days after surgery. Don't overdo it! Increased activity means increased swelling. By decreasing the swelling early, you will recover more quickly. We recommend small bouts of activity throughout the day. Get up and walk around the house a little bit every few hours when you are awake. Limit your excursions to less than 30 minutes each time.

ICE

Ice as much as possible the first week to two weeks. Ice is a great anti-inflammatory and helps minimize swelling.

COMPRESS

Compression stockings provide compression and help minimize swelling as much as you can. It is best to wear these for at least 5 days after surgery.

ELEVATE

Elevating your leg will help reduce swelling. To reduce significant amounts of swelling elevate your leg 4-5 times a day for 30-40 minutes each time. Do this by lying flat with your ankle above your knee and your knee above your heart - toes above nose!

Frequently asked questions

What if my leg swells after surgery?

It is very common to experience swelling after surgery. Sometimes, you will not swell until several days after your surgery. Remember that your body is healing from the surgery and some swelling is normal. The more activities and physical therapy you perform, the more swelling you may experience.

We do want you to remain active and participate in therapy. However, when sitting and resting, you can decrease the swelling by elevating your surgical leg and using ice. It is important to elevate your leg, with your knee above the level of your heart, 4-5 times a day for 15-30 minutes each time to help reduce swelling. Your toes should be above your nose!

If you have swelling for several days that is accompanied by redness and heat or coolness in your surgical leg, or if the swelling does not resolve after elevating, you should contact Dr. Wells or a member of his team.

Will I have bruising after surgery?

Yes, you will have some degree of bruising after surgery, but everyone is different. Some will only experience redness around the incision, others will have bruising down the entire leg. Both are considered normal and will resolve over 14-21 days.

What should I expect my activity level to be?

Every patient is different. Every day you should be increasing your activity level but let your pain level and swelling be your guide. You will make a large percentage of your recovery in the first ten weeks, and the remaining will come within the next year.

At some point, most patients overdo it with activities and therefore take a few steps back in their recovery. You may have increased swelling or discomfort when this happens.

What if I am having problems sleeping?

Make sure that your pain is well controlled throughout the day. During the day, be careful about taking naps. Try to plan your activities as near to normal as possible. Natural sleep aids are better, such as melatonin. If you continue to have issues, please call our office to discuss.

How much weight can I put through my leg after surgery?

You will be considered 20 pounds foot flat weight bearing for the first 6-8 weeks on average. Meaning, you can only put 20 pounds of pressure on your operative foot, but you are allowed to rest your foot flat on the floor. Your physical therapist will instruct you on how to use your walker or crutches in order to perform this properly.

When can I shower and bathe?

Most patients can shower the day after surgery, this depends on the type of wound closure used during surgery. No matter what, to ensure the incision heals properly, we do not want you to submerge yourself into a bathtub or get into a swimming pool until the incision has completely healed, which takes roughly six weeks.

What about using a hot tub or whirlpool?

Because of the heat and bacteria in the water, we do not want you to use a hot tub or whirlpool for six weeks.

How long do I have to wear the compression boots (Vena Pros)?

Compression boots are used during the early weeks after surgery to decrease the risk of blood clots in patients older than 25. You should wear them as often as possible for the first three weeks postoperatively on both legs.

What positions can I sleep in?

You may sleep in any position in which you can get comfortable. Please keep a pillow in between your legs at all times when sleeping. For the first six weeks, it is best not to sleep on the incision. This allows for better healing.

When can I restart the medications I was told to stop prior to surgery?

Usually as soon as you are discharged from the hospital but check with the office if there are any medication questions.

Now that I am no longer requiring narcotic pain medication, what can I take if I should experience discomfort?

You may take Tylenol, Extra-Strength Tylenol or NSAIDs such as Motrin, Aleve, or Advil. During the first ten days you will be on Naprosyn which is a NSAID. During this time, do not take extra Motrin, Aleve, or Advil. Most patients are off narcotic pain medications by 4-6 weeks.

What should I do if I think my hip is infected?

Some bruising and swelling after surgery is normal and expected. In addition, you may notice a small amount of yellowish or pinkish drainage. You should contact the office if you have a large amount of drainage that has saturated through your clothing or the drainage is yellowish or cloudy.

When do patients start becoming more active after surgery?

Increased activity usually begins three to four months after surgery. It takes time for your body to fully heal and for you to strengthen your hip. If you begin too soon, injury is likely to

occur. The goal is to follow the stepwise protocol with a physical therapist and be released to full activities by four months. Most patients report progress and recovery up to a year after surgery.

Can I help my recovery by doing anything prior to surgery?

Staying strong and doing exercises can help your recovery, as can keeping your weight down. Dr. Wells recommends nutritional supplementation with protein preoperatively. Increased protein intake, such as consuming whey protein shakes, can help aid in healing. Also, taking a multivitamin with iron, calcium, vitamin D, vitamin C and zinc can aid in tissue and bone healing.

When can I drive after surgery?

Three things must be accomplished to make sure that you are safe to drive.

1. You must be off all narcotic pain medications.
2. You must be off all assistive devices.
3. You must be cleared by your therapist.

What are the most common complications after a periacetabular osteotomy (PAO)?

A PAO is a large and complex surgery. Although it is thought to be a safe and predictable surgery, complications can and do occur. The most common complications are:

- **Non-union:** This occurs when the bone cut doesn't heal. This they may require bone grafting and another surgery to correct.
- **Heterotopic ossification:** this occurs when new bone or too much bone develops around the hip. This can cause stiffness in the hip. Patients are required to take Naproxen for 10 days after surgery to prevent extra bone formation.
- **Nerve damage:** Sometimes nerves get stretched, moved, or cut during surgery. The most common never issue after a PAO is the skin nerve to the side of your thigh. Most patients experience numbness on the side of their thigh after surgery.
- **Fracture:** although a PAO requires fracturing of the pelvic bone, sometimes the fractures can extend to other areas. When this occurs, you might require a few extra weeks on crutches or a surgical repair.
- **Continued pain:** Although the PAO is a phenomenal surgery, some patients still have some pain or discomfort in their hip after surgery. One of the goals of surgery is to slow or prevent the development of arthritis, some patients still develop it and may require a total hip replacement at a later point.

When should I call the office?

You are welcome to call the office at any time during your recovery. Be sure to call if any of the following occur:

- Fever above 101.5 consistently
- Increased drainage or swelling
- Pain not controlled by pain medication
- Confusion or disorientation
- Swelling in the foot or calf that is accompanied by coolness or decreased sensation or numbness in foot

Notes:

Important names/phone numbers:
