Overview of Periacetabular Osteotomy (PAO) and What to Expect

What is PAO?

Periacetabular Osteotomy (PAO) is a specialized hip-preserving surgery designed to treat developmental hip dysplasia. Hip dysplasia occurs when the hip socket is too shallow to properly support the ball of the femur (thigh bone). This leads to pain, instability, and, if left untreated, can cause early onset arthritis. PAO aims to correct the alignment of the hip joint by repositioning the hip socket (acetabulum) to provide better coverage of the femoral head, improving the function of the joint and alleviating pain.

How is PAO different from hip replacement? Unlike a total hip replacement, PAO surgery focuses on preserving your natural hip joint rather than replacing it with artificial components. PAO reshapes and stabilizes your existing bones, making it an ideal option for younger patients with hip dysplasia who want to maintain their active lifestyle without the limitations of a prosthetic hip.

Who is PAO for?

PAO is most suitable for patients with minimal to moderate cartilage damage in their hip joint. It's recommended for:

- **Adolescents and young adults: PAO is often performed on younger patients who have hip dysplasia, but still have relatively healthy cartilage and want to avoid a total hip replacement.**

- **Minimal damage to articular cartilage: If the cartilage is mostly intact but the labrum (soft tissue) is damaged, PAO is often paired with hip arthroscopy to repair labral tears at the same time.**
- **Active individuals: Patients looking to preserve their ability to engage in physical activities, such as sports, are often good candidates for PAO.**

When PAO is not the best option:

- **Patients with severe cartilage damage or advanced arthritis may not benefit from PAO. In such cases, other treatments like hip arthroscopy or total hip replacement may be necessary.**

Before surgery, doctors may order an MRI (such as a dGEMRIC MRI) to assess the condition of the articular cartilage. This imaging helps determine whether the patient has a good prognosis for PAO.

Surgery Goals

The primary goals of PAO are to:

1. **Decrease Pain: PAO realigns the hip joint, reducing the pressure and friction that cause pain.**
2. **Maximize Hip Functionality: By correcting the mechanics of the joint, PAO helps restore function, allowing patients to resume daily activities and physical exercise without discomfort.**

While the surgery is highly effective, it's important to remember that no surgery is without risks. Your surgeon will discuss these risks with you before proceeding.

Surgery Process

During PAO surgery, several precise bone cuts (osteotomies) are made around the hip socket to allow the surgeon to reposition it into a more stable alignment. The procedure involves the following steps:

1. **Bone Cuts (Osteotomies): The surgeon makes cuts around the acetabulum (hip socket) to free it from the rest of the pelvis. These cuts allow the socket to be rotated into a better position, where it can cover more of the femoral head.**
2. **Repositioning the Hip Socket: Once the acetabulum is freed, the surgeon carefully repositions it to provide better coverage over the ball of the femur. This correction improves the joint's mechanics and distributes weight more evenly across the joint.**
3. **Stabilization with Screws: The newly positioned hip socket is then secured using specialized screws. These screws hold the bone in place while it heals and ensures that the new alignment is maintained.**

Surgery Duration
The surgery typically takes about 4-6 hours, but this may vary depending on the individual case and whether additional procedures, like labral repair, are needed.

Hospital Stay
After surgery, patients usually stay in the hospital for 3-5 days to ensure proper post-operative care and pain management.

Post-Surgery Recovery

Recovery from PAO surgery is gradual and requires careful management to ensure the hip heals properly. Here's what you can expect:

1. **Pain Management**
    - **Epidural or IV Pain Relief: In the first 24 hours after surgery, pain is managed through an epidural (a catheter placed near the spine to deliver**

continuous pain relief) or IV medications. After this period, patients transition to oral pain medications.

2. **Weight Bearing**
    - **Restricted Weight Bearing: For the first 6-8 weeks, weight-bearing is restricted to 1/6 of your body weight on the affected leg. This means that you will only be able to put a small amount of weight on your leg while using crutches, a walker, or a wheelchair for support.**
    - **After this initial period, your weight-bearing capacity will gradually increase as your bones heal, but you will need to follow your surgeon's specific instructions carefully.**
3. **Mobility Assistance**
    - **Crutches, Walker, or Wheelchair: Most patients will need to use mobility aids like crutches or a walker for up to 3 months after surgery. You will start physical therapy in the hospital to learn how to safely use these devices and navigate daily activities.**
4. **Activity Restrictions**
    - **For the first 6 weeks, patients are advised not to actively flex the hip joint (no bending or lifting the leg under its own power).**
    - **Bathing can resume about 2 days after surgery, with care to avoid getting the incision wet.**

Follow-Up Care

Regular follow-up visits with your surgeon are essential for monitoring your recovery and ensuring that your hip is healing properly. These visits typically include:

1. **X-Rays: X-rays are taken at each follow-up appointment to check the positioning of the bones and the stability of the screws.**
2. **Physical Therapy: Your physical therapy plan will evolve over time. Initially, therapy focuses on gentle range-of-motion exercises to prevent stiffness. As**

healing progresses, you will transition to strengthening exercises to regain function and stability in your hip.

3. **Return to Activity: After about 3 months, you will begin to wean off mobility aids like crutches. By 6-12 months, many patients can return to normal activities, including low-impact sports. However, high-impact activities like running may require more time and should be discussed with your surgeon.**

Long-Term Outcome

Research shows that 90% of patients have a well-functioning hip joint 10 years after undergoing PAO. Most patients can return to a full range of daily activities and even engage in sports, though heavy impact activities should be approached with caution.

Conclusion: What to Expect

PAO is a highly effective surgery for treating hip dysplasia and preserving the natural hip joint. While the recovery process takes time and patience, the long-term benefits include decreased pain and improved mobility. If you're considering PAO, it's important to have open, honest communication with your medical team and follow post-operative instructions carefully to achieve the best possible outcome.

For more information or to schedule a consultation, contact us at *HipPreservation.org*.