PATIENT GUIDE

Preparing For Your Surgery:

Periacetabular Osteotomy (PAO)

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Who is involved in your care?

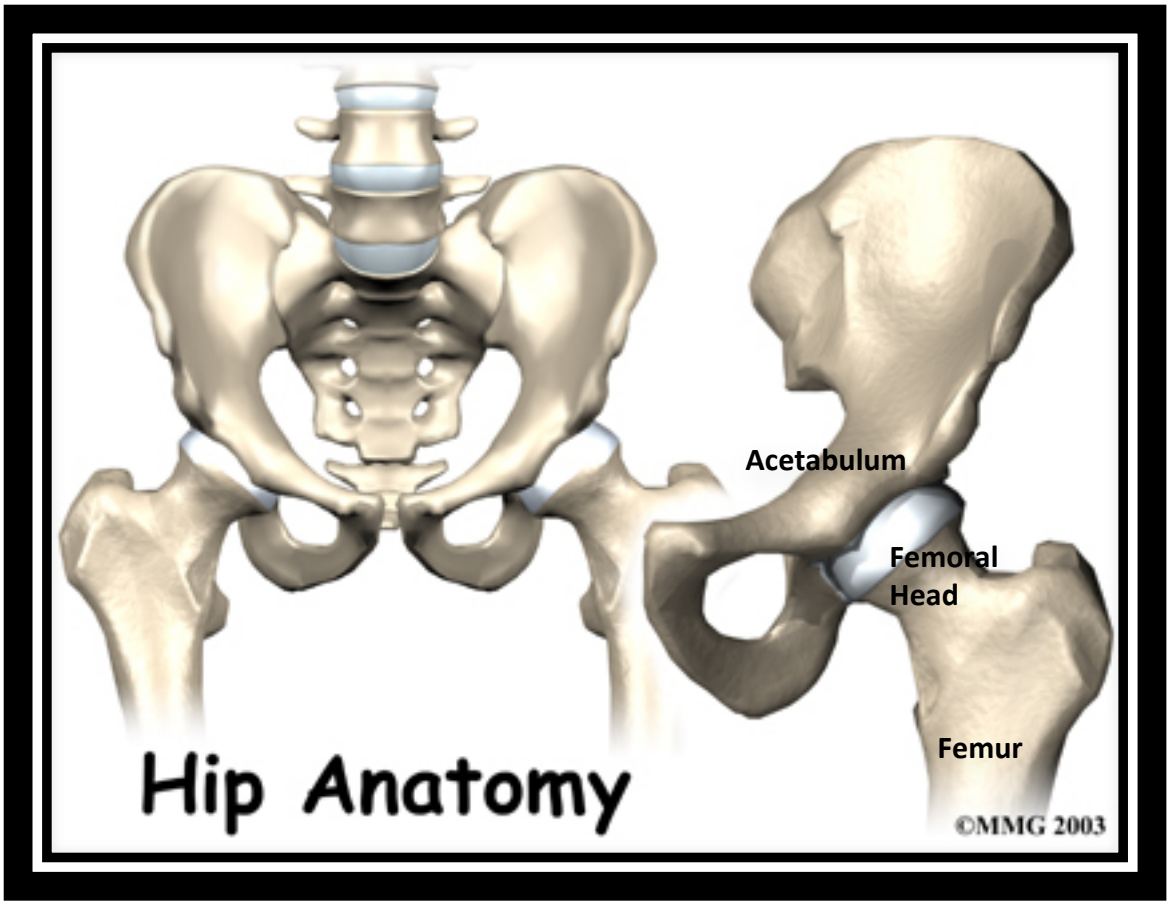
- Physical Therapists
- Occupational Therapists
- Operating Room Staff
- Nurses
- Radiologists
- Anesthesiologists
- Dr. LaReau and his team

Background information:
The Hip Joint

The hip is a ball-and-socket joint. The cup-shaped acetabulum articulates with the round femoral head. The surfaces of the acetabulum and femoral head have a rubbery layer of cartilage, referred to as articular cartilage. The joint is lubricated with synovial fluid, or joint fluid. The combination of articular cartilage and synovial fluid serves to reduce friction during movement of the hip joint. The acetabulum also has a layer of soft tissue or fibrous cartilage along its rim, known as the labrum. The labrum serves as a cushion and stabilizer of the joint. Damage to the hip joint can occur to both types of cartilage—the articular cartilage and the labrum.

Damage to the articular cartilage is considered arthritis. Arthritis usually presents with dull, aching pain. Arthritis may be autoimmune (such as rheumatoid arthritis) or may result from chronic mechanical stress, such as osteoarthritis. To prevent joint destruction from inflammatory conditions, patients may take medications. To prevent joint damage from osteoarthritis, the underlying mechanical defect often must be corrected.

Damage to the labrum can occur from trauma. Also, some developmental and anatomic conditions can predispose patients to labral injury. This can be due to femoral head or neck deformity, acetabular over-coverage (a deep socket) or acetabuluar under-coverage (a shallow socket). Acetabular under-coverage is also known as developmental hip dysplasia.



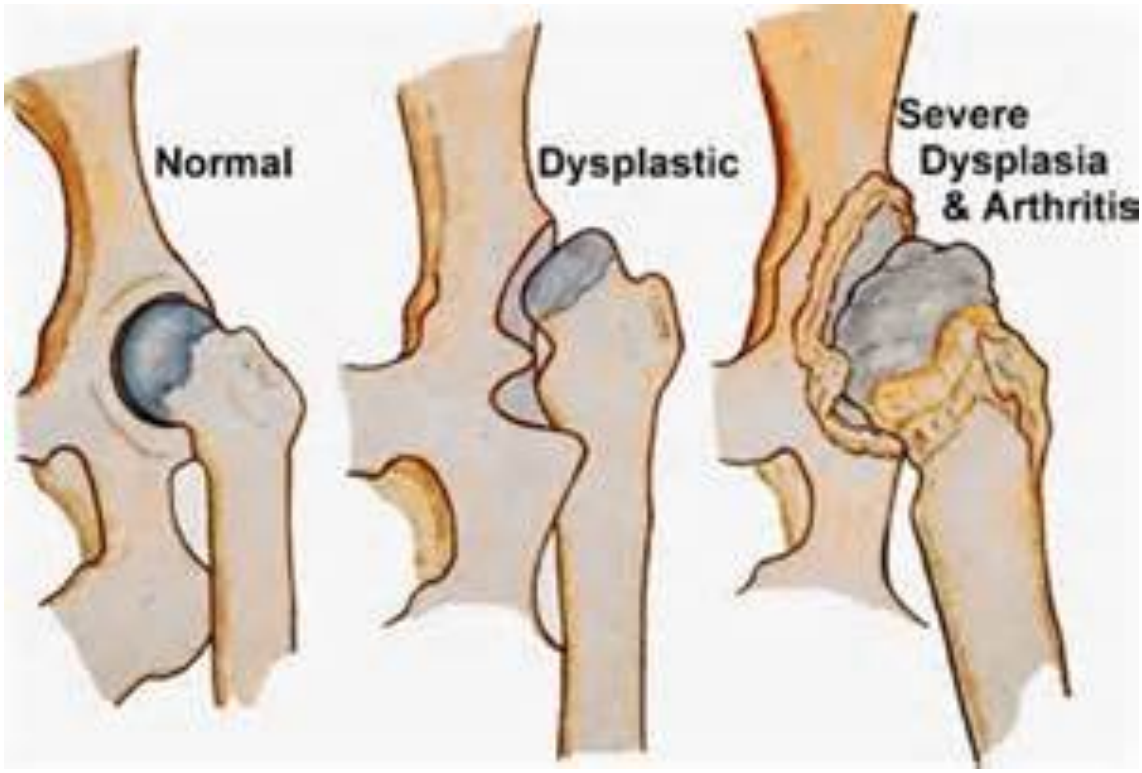
Diagnosis:
Hip Dysplasia

What is Developmental Hip Dysplasia?

Developmental hip dysplasia is a condition in which a patient is born with a hip socket that is too shallow to maintain adequate coverage of the femoral head. With reduced coverage of the femoral head, a smaller surface area of the acetabulum becomes the sole weight-bearing surface of the femur and lower extremity. This predisposes the patient to injury of the soft tissues and cartilage within the hip joint.

Secondary damage to the labrum or articular cartilage can cause pain and lead to degenerative changes (arthritis). Osteoarthritis is the thinning of articular cartilage, or the rubbery cartilage on the end surfaces of the bones. When this cartilage is worn out, joint movement can often cause severe pain.

Patients with severe hip dyplasia who do not undergo joint preservation surgery will frequently develop early onset secondary osteoarthritis during adulthood.



Dysplasia is a developmental condition
- Born with condition
- Injury or insult in utero or during early childhood
- Infection during in utero or during early child hood
- Position in the uterus

Risk Factors
- Females
- First-born
- Large birth weight
- Breech position
- Family history of DDH

Symptoms--What You May Be Experiencing
- Constant, achy pain
- Intermittent, catching or locking pain
- Groin pain
- Buttock Pain
- Difficult walking
- Instability
- Extreme flexibility

Physical Exam Findings
- Limp
- Difficulty standing on one leg
- Limb length discrepancy
- Pain with range of motion

Imaging Studies to diagnose the severity of dysplasia and intra-articular damage
- Xrays: assess bony abnormality
- MRI: assess cartilage damage and injury to the joint
- CT scan: provides a detailed picture of bone anatomy

TREATMENT OPTIONS

NON-SURGICAL OPTIONS

- Do nothing. Live with your hip the way it is. Avoid painful activities.
- Activity Modification & Restrictions
- Oral pain medications
    - Analgesics, anti-inflammatories, narcotics
- Physical Therapy
- Intra-articular injections
    - Steroid – cortisone
    - Experimental therapies

** Although useful as a part of surgical interventions, non-operative treatment options do not correct hip dysplasia. Conservative measures do not address the underlying mechanical and anatomical joint (articular) alignment and orientation**

SURGICAL OPTIONS

- *Arthroscopy*
    - Smaller incisions
    - Treat secondary problems within the hip joint, ex. a labral tear
    - Cannot correct articular misalignment and orientation
    - May be performed concurrently with PAO
- *Arthrotomy*
    - Capsule surrounding hip joint ois pened to address cartilage damage and femoral head pathology
    - Cannot correct articular misalignment and orientation
    - May be performed concurrently with PAO
- *Osteoplasty*
    - Realignment of femoral head and proximal (upper-end) of femur
    - May be performed concurrently and in addition to PAO
- *Hip Resurfacing*
    - Form of hip replacement
    - Femoral head and neck bone preserved
    - Cartilage of femoral head & acetabulum replaced with metal bearing surfaces
- *THA: Total Hip Arthroplasty*
    - Joint Replacement Surgery
    - Replacement of arthritic joint with artificial joint
    - Anterior vs Posterior approach surgery

PERIACETABULAR OSTEOTOMY (PAO) SPECIFICS

Procedure:	Periacetabular Osteotomy
Type of surgery:	Hip preserving
Anesthetic:	General Anesthesia,
Pain Management:	Epidural for 24 hours after surgery IV and Oral pain medications to start 1 hr prior to epidural being discontinued
Hospital Stay:	3-7 days
Dressing:	Sterile bandage Incision drain for 24 hours after surgery
Weight Bearing:	1/6 body weight (about 20lb) for 6-8 weeks Followed by gentle progression
Assisted Devices:	Walker or crutches for about 3 months
Activity Restrictions:	No active hip flexion of the operative hip joint x6 weeks
Bathing:	5 days postoperatively with incision well covered
Time off Work/School:	Approximately 6 weeks Labor-intensive job (walking, standing, etc.) – 3 months
Driving:	6-8 weeks ONLY when you stop taking narcotic pain medication

Goal of Surgery: Decrease Pain and Maximize Hip Functionality!

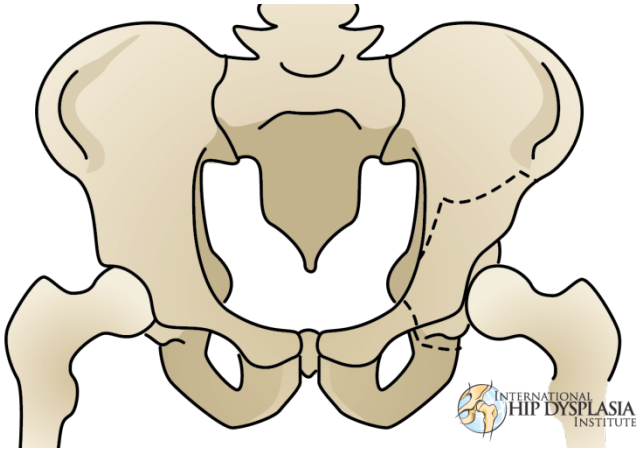
Risks and Complications

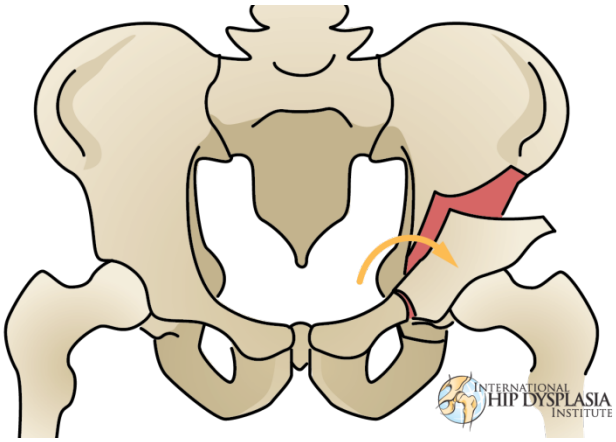
- Nonunion (failure of bone cuts to heal)
- Infection
- Bleeding
- Blood Clots
- Damage to nerves and muscles
- Numbness on the outside of the operative thigh and on incision
- Heterotopic Bone formation
- Failure of the hardware
- INCREASED or CONTINUED pain
- Fracture
- Instability
- Stiffness
- Scar
- Difference in Limb Lengths
- Discomfort from the implants
- Development of arthritis and cartilage damage in the future

PAO
Periacetabular Osteotomy

The periacetabular osteotomy was designed to treat developmental hip dysplasia. The procedure is designed to maintain the hip's original structures while altering alignment to preserve proper function. PAO corrects the major mechanical problems involved in a shallow hip socket (acetabulum), without introducing artificial components into a hip joint.

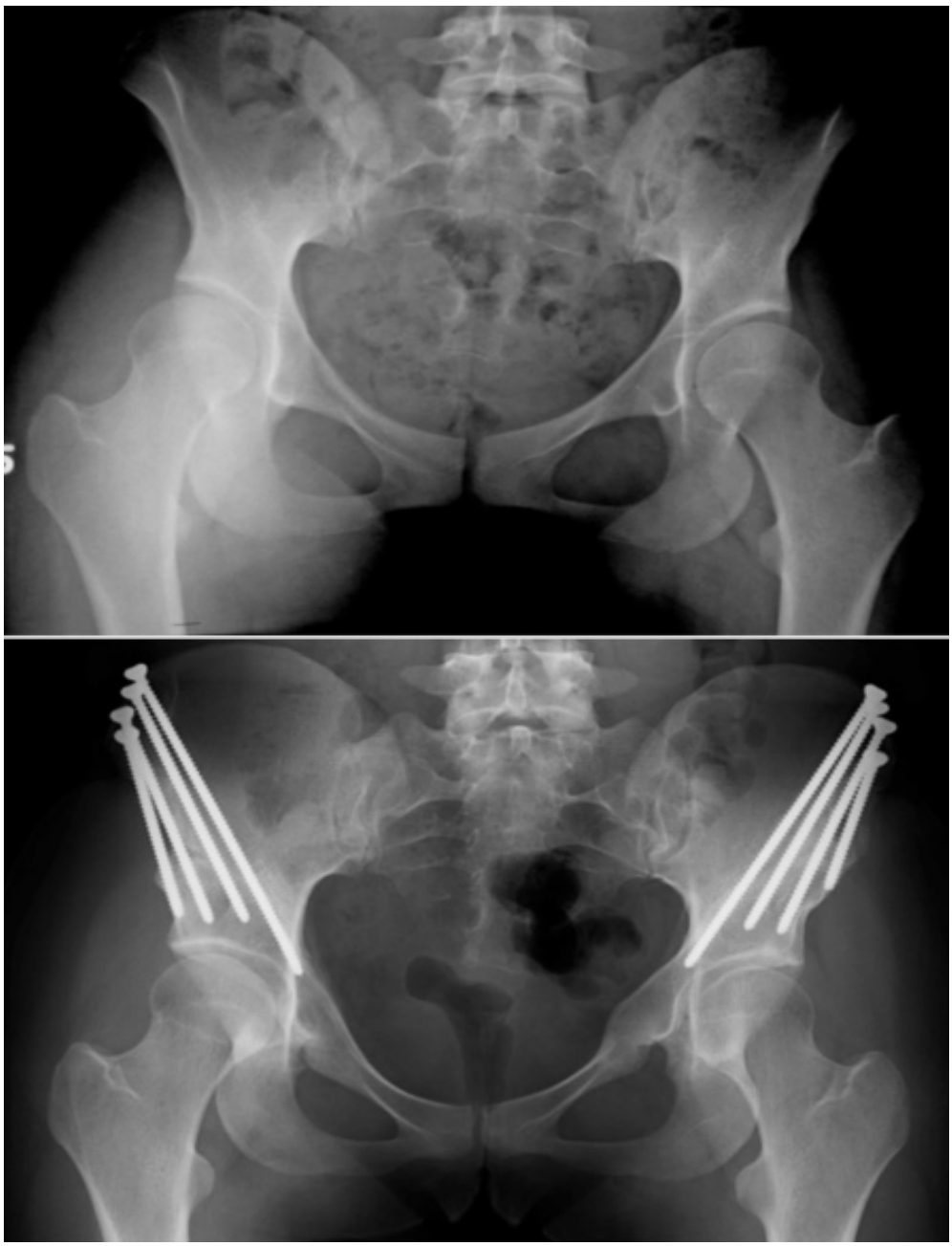
An ideal patient for a PAO has minimal or no damage to the intra-articular cartilage on the femoral head or acetabulum. A patient with damage to the labrum will likely remain a candidate to the surgery, assuming their articular cartilage is still substantially intact. The damage to the labrum may be addressed with hip arthroscopy at the time of PAO. A special test, called a dGEMRIC MRI will be ordered to estimate the damage to the articular cartilage prior to surgery to determine if the patient has good prognosis for a PAO. If the patient does not have enough articular cartilage, the patient is considered to be at a high failure rate for a PAO and may need to consider other treatment options, ranging from conservative treatments to hip arthroscopy, or even total hip replacement.





Surgery Step-by-Step

1) Ischial Osteotomy
2) Pubic Osteotomy
3) Supraacetabular & Retroacetabular Osteotomy
4) Fragment mobilization and Correction
5) Screw placement and Correction Stabilization



X-ray BEFORE and AFTER PAO

After a PAO has healed, and motion and strength have returned to a steady state, we encourage the highest level of "reasonable" activity the hip joint will allow.

Data states 10 years or more after undergoing a PAO, approximately 90% of patients have have a well-functioning hip joint.

In most cases, dislocation is not a risk after undergoing a PAO. Therefore there are no motion restrictions after this procedure, as there may be after a total hip replacement.

However, a corrected acetabulum is still at risk for injuries, including as intra-articular cartilage and soft tissue damage. This type of damage may require additional hip surgery in the future, possibly involving a total hip replacement. The risk of osteoarthritis may be reduced, but cannot be eliminated by a PAO.

Failure of a periacetabular osteotomy may include lack of improvement in pain, increase in hip stiffness and worsening range of motion, further debilitatation, or restricted lifestyle. In such cases, total joint replacement may be the solution.

We can hope that your operation will prove to be a success and improve your condition, however there are no guarantees in surgery. Our team will do everything in their power to make this operation and experience a success for you. We expect you to be as big of an advocate in your success as our team pushes to be for you and your hip!

It is important that patient, physicians and physicians assistants all communicate with each other honestly, openly, and clearly during the decision making progress in order to give the patient and operation its optimal outcome!

We encourage you to be an advocate in your care throughout your PAO experience!!!

PAO ANIMATION VIDEO*:*

http://www.hss.edu/animation-PAO-periacetabular-osteotomy.html

Video: courtesy of hss.edu/Ernest L. Sink MD

PAO: Making the decision for surgery	
Personal PROS	Personal CONS

PERIACETABULAR OSTEOTOMY AND YOU

Preparing for Surgery

- **Preoperative visits with Dr. LaReau**
    - Disclose ALL medical history
        - Medical Conditions
        - Surgeries
        - Birth and Pediatric History
            - Premature? Breech?
            - Hip Click? Hip Laxity?
            - Hip harness? Leg/Hip braces? Triple Diapers?
            - SCFE (Slipped Capital Femoral Epiphysis) or Perthe's Disease
            - Hip or Lower Extremity Trauma

    - Disclose ALL medications
        - Prescription medications
        - Vitamins
        - Herbal supplements
        - OTC medications
        - Birth Control
        - Steroid use
        - Pain Medication

    - Disclose ANY and ALL Allergies to medications OR metal or latex allergy
    - Disclose Social History: Do you use tobacco or alcohol?
    - Physical Examination
    - Imaging Studies: Xrays and MRIs
    - Other
        - FMLA papers
        - Educational Tutor forms
        - Handicap sticker application

- **Preoperative Clearance**
    - Primary Care Physician
    - Specialty Physician Clearance when necessary ex. cardiology, nephrology etc

- **Preoperative Testing**
    - Where?
        - Operative Hospital
        - Hospital Closer to home
        - Your primary physicians office

BEFORE YOUR SURGERY

- **Discontinue Birth Control ONE month prior to surgery**
  - Why? Because they can increased risk of blood clots
  - Oral contraceptives, Nuva ring, IUD, etc.

- **Discontinue Anti-inflammatories SEVEN days prior to surgery**
  - Why? Because they can increase the risk of bleeding during surgery
  - Advil, Aleve, Aspirin, Ibuprofen, Motrin, Naprosyn, Nuprin, Diclofenac, Mobic, Celebrex, Meloxicam

- **Discontinue/Limit Narcotics as soon as you can**
  - Why? Risk for difficult pain control following surgery
  - Dilaudid, Morphine, Norco, Percocet, Vicodin, Tylenol 3

- **Iron and Multivitamin Supplementation ONE week prior to surgery**

- **Lifestyle Modifications to aid in better healing/faster recovery**
  - Smoking Cessation
  - Alcohol Consumption Cessation
  - Weight loss
- **Donate 1 unit of autologous (self-donation) blood IF ABLE**
  - Used to give back to you during or after the surgery
  - Where to Donate:
    - Operative Hospital
    - American Red Cross
  - *Donor Restrictions*: hospital blood bank may be necessary
    - <80lbs
    - Certain Medical Conditions
    - Certain Medications

PREPARING FOR YOUR HOSPITAL STAY

- **Day Before Surgery**
  - No eating or drinking after midnight
    - Stick to small meals, Large meals may cause postoperative nausea
    - If you need to take any medication, take it only with a tiny sip of water
- **What to bring**
  - Underwear
  - Loose fitting athletic shorts
  - Tennis Shoes or Slip-on Sandals
  - Comb or Brush
  - Conditioner
- **Optional Items to Bring**
  - Your own Pillow or Blanket or Robe
  - Cell phone
  - Entertainment: Laptop, Ipad, Ipod, Movies, Books, Puzzle books

THE DAY OF SURGERY

- **Admission**
  - Hospital will notify you the evening prior to your surgery for arrival time
  - Nurse will check you Vitals up arrival
    - Temperature, Heart Rate, Respiratory Rate, Blood Pressure
  - Change into hospital gown
  - Transferred to Pre-operative holding area

- **Preop**
  - Assigned pre-operative nurse
  - Visited by Dr. LaReau
    - Surgical Marking of operative hip
  - Visited by Anesthesia
  - Visited by the Circulating Nurse (your nurse in the operating room)
  - IV insertion
  - Epidural insertion

- **Operating Room**
  - Oxygen and anesthesia delivery
  - Bladder catheter insertion – when you are asleep once the arthroscopy is complete
  - Radiolucent operating table for intra-operative xrays
  - Cell-saver technology: recycling & reinfusion of surgical blood loss
  - Estimated time on OR
    - 60-90 minutes of preparation before surgery begins
    - 60-90 minutes of arthroscopy, if indicated
    - 3-4 hours estimated time for PAO
    - 30 minutes of application of Sterile Dressing and Waking up

It May be 6-8 hours from the time you leave your family to the time you see them again

- **Recovery**
  - Waking up
  - Pain medication via epidural
  - Blood tests
  - Postoperative Xrays
  - "WIGGLE YOUR TOES!!!!"
- **Family**
  - Family can remain in the room with you during pre-op
  - Family will be transferred to the family waiting area during the procedure
    - If they need to leave the hospital, they may leave a cell phone number with the nurse liaison for intra-operative and postoperative updates
  - Family will be given intra-operative updates by a nurse liaison that communicates directly with the operating room
  - Family will be seen after the surgery by Dr. LaReau
  - Family will either be able to see the patient in recovery or once the patient has been transferred to the medical/surgical floor postoperatively

YOUR HOSPITAL COURSE

- **Pain Management**
  - Epidural
    - Continuous pain management through catheter near your spine
    - Removed 24 hours after surgery
      - Bed rest until epidural removed
  - IV pain medications
  - Oral pain medications
- **Other Medicines**
  - Postoperative anticoagulation – blood clot formation prevention
    - Injectable lovenox for two weeks after surgery
    - You will also have TED hose (compression stockings on) for two weeks to keep swelling down and prevent blood clots
  - Postoperative heterotopic bone formation prevention
    - Indomethacin or Celebrex for two weeks after surgery
- **Eating and Drinking**
  - Go slow! – It takes your intestines time to wake up after the stress of surgery
  - You'll likely begin with ice chips & progress to soft foods and then a regular diet
- **Showering**
  - Daily sponge bath
  - Possible shower with waterproof shower and nursing assistance
  - Dry shampoo (bring your own)
- **Bladder Catheter Removal**
  - Removed by your nurse on day after surgery after your epidural is discontinued
- **Surgical Site Drain Removal**
  - Purpose: collects blood from the surgical incision and prevents hematoma
  - Removal at bedside by nurse, Dr. LaReau or his assistant
- **Repositioning**
  - Your nurse will help you reposition in bed to make sure you do not put prolonged pressure on certain areas of your body
- **CPM Machine**
  - Machine that passively flexes and extends your operative lower extremity to prevent stiffness after you operation. Used for 2 hours, 2 times per day.
  - You will also use it at home for about 6 weeks
- **Weight Bearing**
  - <1/6 your body weight!!!!
- **Physical Therapy starts on the MORNING after your surgery**
  - Crutch Training
  - Isometric exercises: gentle ROM
    - Focus on buttock and thigh muscles
  - In and out of bed
  - Up to chair
  - Walk with assisted devices: crutches or walker
    - You will be given assisted devices or equipment from the hospital to take home with you upon discharge. PT & Social Work will accommodate this.

- Stairs

- **Social Work**
  - Set up home health care
  - Set up home PT
  - Set up rehab, if necessary
- **Visitors**
  - Be sure to ask about you operative hospitals visitor policies prior to surgery

GOING HOME

- **Criteria**
  - Sit comfortably
  - Walk appropriately with crutches
  - Perform stairs
  - Use restroom comfortably (must have a bowel movement prior to DC)
  - Pain control with oral medications
  - Tolerating a regular diet
- **Prescriptions**
  - Pain Control
    - Take oral medication as needed
    - Do not exceed prescribed dosing
  - Anti-inflammatory: prevent heterotopic bone formation
    - Oral
    - 2 weeks
  - Anti-coagulation: prevent blood clot formation
    - Injectable (you will be trained prior to leaving the hospital)
    - 2 weeks
- **Transportation**
  - You may travel by car or plane.
  - Travel Tid-bits
    - Long Car Rides
      - Blood clot prevention: Take breaks and get out of the car and move around frequently
      - Hip protection: you may not flex your hip above 90*. Plan ahead.
    - Plane Rides
      - Blood Clot prevention: Move your feet and calf muscles frequently

AT HOME RECOVERY

- **Set up**
  - Bedroom and Bathroom on same floor if able – reduces the need stair climbing
  - Clear house of obstacles prior to surgery
  - May be helpful to position your bed in which your non-operative hip is the first side you place on the bed, so that you can use your non-operative leg to assist your operative leg into the bed

- **Caring for your incision**
  - **Mepilex (brown) dressing to be changed every 5-7 days**
  - **Daily incision and skin checks**
  - **Steri (white) strips on your incision will stay on until they fall off on their own**
  - **Arthroscopy sutures will be taken out on your first post operative visit**
  - **What to look for:**
    - Redness
    - Swelling
    - Drainage
    - Opening of the incision
    - Fever >101*F
    - Bleeding

- **Home Physical Therapy**
  - PT at home may begin immediately or approximately 2 weeks after your surgery. Sometimes, the body merely needs to recover from surgery. We will have you proceed with activities of a daily living during this time, learning how to get in-and-out of bed, shower and simply get around with your new hip.
  - Home physical therapy will come and see you 2-4 times per week during your home therapy course, progressing with your strength, ROM and activities as tolerated, and appropriately allowing the bone cuts and muscled to heal.
  - You will be released from home PT to out patient PT when the therapist, Dr. LaReau and you all feel confident you are ready for the next step.
  - *** YOU WILL BE GIVEN A PHYSICAL THERAPY PROTOCOL THAT SHOULD BE FOLLOWED THROUGHOUT YOUR REHABILITATION TIME***
  -
- **Visiting Nurse**
  - A visiting nurse will periodically stop in to monitor your incision, vital signs, and medical progression after your surgery. They will report any issues with Dr. LaReau's team.

FOLLOW UP

- **Follow up visit #1: 2-3 weeks after surgery**
  - Wound check & possible suture removal if needed
  - Postop xrays
  - *You might be able to see a local physician close to your home for your first post operative visit if you live far away from our office
- **Follow up visit #2: 6-7 weeks after surgery**
  - Incision check
  - Xray check
  - Discuss activity/PT progression
- **Follow up visit #3:**
  - PT/activity progression
  - Xray Check

- **6 Month Check**
    - Discuss Screw Removal

SURGERY SUCCESS

- **Your Contribution**
    - Participating in follow up care
    - Being compliant with weight bearing progressions
    - Taking care of your incision
    - Being compliant to progression with Physical Therapy
    - Medication compliance
    - Avoiding pounding activities – distance running and jogging
        - Patients can often do these things without pain, however we do not know the long-term impact of these activities

We encourage you to be an advocate in your care throughout your PAO experience!!!

Frequently Asked Questions

Q: Why is there blood loss?

A: All patients lose some blood during surgery due to rich blood supply to the bones and soft tissues within and around the hip joint. Interventions such as previous autologous blood donation and intra-operative cell-saver technology are both used to give the patient back their own blood. However, there is a chance the patient may need additional blood transfusions from the hospital blood bank. Optimal blood levels will aide in the patient's postoperative healing and recovery.

Q: Why must I discontinue birth control prior to surgery? And when?

A: Birth control has hormones that increase a patient's risk for developing blood clots. You must discontinue your birth control 1 month prior to you operation and remain off of the medication for one month after your operation.

Q: Why must I discontinue anti-inflammatories? And when?

A: Anti-inflammatories can increase your risk of bleeding and increase surgical blood loss. You must discontinue anti-inflammatories at least seven days prior to your operation

Q: Why must I discontinue narcotic pain medication? And when?

A: Discontinuing narcotic pain medication is necessary to achieve appropriate pain management in you postoperative and rehabilitation phase. The body's dependence on these medications can increase your tolerance of these medications, making postoperative pain control more difficult. You must discontinue narcotics and heavy pain medication 7 days prior to your surgery. It is a good idea to begin weaning yourself from this pain medication slowly ahead of this time. You can take Tylenol for preoperative pain relief.

Q: What can I take for pain prior to my surgery?

A: Tylenol is ok to take all the way up to surgery time

Q: How long will I be in the hospital?

A: Approximate stay in the hospital after a PAO is 3-7 days.

Q: What type of physical therapy will I need?

A: You will be visited by a home physical therapist. Your PT will consist of ROM, stretching and isometric exercises per Dr. LaReau's protocol that will be provided to you. Your therapist will progress only after clearance from Dr LaReau's team, which requires serial x-rays to address the progression of your healing. You will learn daily functional skills and how to walk with assisted devices.

Q: Can I do isometric exercises?

A: Some isometric exercises are acceptable. Physical therapists in the hospital will go over permitted exercises with you prior to discharge. Do NOT advance you exercises until you have spoken with or seen Dr. LaReau at your first post-op visit. If you are seen locally, you should be in close contact with Dr. LaReau's Team so they can provide you and your physical therapist direction. At approximately 4-6 weeks after surgery pool exercises are permitted. Do NOT begin these until you have been cleared by someone on Dr. LaReau's Team.

Q: How will I get home from the hospital?

A: You may travel home by car. If you are traveling long distance, we encourage stopping frequently and getting out of the car to reduce risk of blood clot formation. Plan ahead for pain control and positioning in traveling. You may not flex your hip past 90*.

Q: What should I do to prepare at home?

A: Before you leave for surgery, try to eliminate obstacles in the home. Try to have a bathroom on the same floor as the bedroom you will be staying in. A hospital bed is not necessary, you should be able to go up and down stairs prior to discharge. Some patients like to position their bed in which their non-operative hip is the first side they place on the bed, so that they can use their non-operative leg to assist their operative leg into the bed.

Q: If I am from out of town, can I use an orthopaedic surgeon near my home to take care of my post-operative follow up?

A: You may see your local Orthopaedic surgeon for you initial postoperative visit and wound check. For your second visit, we prefer you see Dr. LaReau. At each visit follow-up x-rays will be taken to assess your progress and advance you rehabilitation.

Q: Will I be in a cast?

A: No, you will only have a surgical dressing over you incision.

Q: What will my scar look like?

A: Your scar will be approximately 15cm along the front aspect of you hip and thigh, beginning at the top of you pelvis bone. There is an area prone to skin breakdown where the abdomen meets the groin. This area should receive special care to remain dry. Your sutures will either be dissolvable or need to be taken out in 2-3 weeks. Steri-strips will fall off on their own. Scar healing and minimizing will be improved if SPF is used at all time the scar is exposed to sunlight. Vitamin E twice daily and massage with lotion over the scar are helpful in reducing the scar appearance, but should only be used after the incision is completely sealed.

Q: When can I drive?

A: 6-8 weeks after surgery--once you have discontinued taking narcotic pain medication and have appropriate strength. Begin practicing driving in an empty parking lot. Make sure you are confident you could react appropriately in an emergency prior to beginning driving on busy roads.

Q: When can I lie on my operative side?

A: Approximately 3 weeks after surgery or when comfortable. Use a pillow between your knees. Do not sleep on your stomach for at least 4 weeks.

Q: How long will I be out of school/work?

A: Office and sedentary labor: expect 4-6 weeks.
Work involving standing, walking, kneeling, climbing: minimum of 4 months.

Q: How long will I be out of sports?

A: At least 6 months, however this is sport dependent. This time may be longer for certain activities.

Q: Will my children have this problem?

A: There is evidence to suggest a hereditary component involved in hip dysplasia. We recommend that your children be screened for developmental hip dysplasia.

Q: Will I be able to give birth naturally?

A: There is no evidence that PAO surgery disturbs the birth canal and a women's ability to deliver naturally. Therefore, c-sections are not considered mandatory. If there are no other indications for c-section, a PAO patient should be able to deliver naturally.

Q: Will I set off metal detectors at the airport?

A: The hardware used in PAO surgeries usually does not set off airport metal detectors. However, we can give you an implant record card in case of questioning.

Q: Will I get my screws out?

A: We recommend removal of the screws for multiple reasons: 1) Pain and discomfort improvement 2) ability to obtain MRI's if needed in the future 3) Less complicated future hip surgeries, if necessary.
This procedure is a short, outpatient procedure. We recommend this at 6 months - 1 year after your initial operation.

Q: <u>What activities should I avoid after a PAO</u>?

A: Pounding activities, such as distance running and jogging are not encouraged. Patients in the past have participated in activities such as marathons without a problem, however we do not know the long-term effects of activities similar to this.

Glossary

Abduction: movement of limb or body part away from the midline of the body

Acetabulum: the cup-shaped hip socket

Adduction: movement of limb or body part toward the midline of the body

Anticoaglation: medical intervention to prevent blood clot formation

Arthrotomy: surgical procedure involving opening of the joint capsule

Articular Cartilage: connective tissue on bony surfaces, serving to reduce friction in a joint.

- Found on the inner surface of the acetabulum and femoral head

Avascular Necrosis: disease caused by temporary or permanent loss of blood supply to the bones, leading to bone necrosis, causing bony collapse or death.

Cartilage: flexible connective tissue found between bones and rubbery covering over the ends of bones, which make up a joint. Allow smooth joint mobility; provide support and cushion to the skeletal structure.

Catheter: thin flexible tube places in a space within the body for fluid extraction (urine) or medicine introduction (epidural)

Developmental Dysplasia: condition in which the hip socket is shallow, lacking stability of the hip joint

Dysplasia: abnormal development of tissue; alteration of size, shape or organization of cells or tissues

Epidural: catheter introduced into the back, near the spinal cord to provide introduction of pain medication to pain sensing nerves within the spinal column

FAI (Femoral Acetabular Impingement): condition of excessive friction in the hip joint due to the ball (femoral head) and socket (acetabulum) articulating abnormally, which can cause damage to the hip joint. The damage can occur to the articular cartilage (smooth white surface of the ball or socket) or the labral cartilage (soft tissue bumper of the socket

Femur: Thigh bone. Largest bone in the body. Direct articulation in the hip joint. The Head of the femur serves as the ball or the hip joint

Fibrous Cartilage: connective tissue which lines the rim of the acetabulum; prevents bone-to-bone contact; stabilizes and cushions joint

Heterotopic bone formation: Natural osseous (boney) reaction when bones experience trauma; causes an increase in bone production, but may form bone in areas no associated with healing, or away from the original trauma or bone cuts

Impingement: condition where femoral head does not have full range of motion within the acetabulum; caused by excessive amount of bone around the head (over-coverage) or the socket angled more backwards (retroversion). Can cause pain and secondary intraarticular damage – labral tears and cartilage damage

Labrum: horse-shoe shaped fibrous cartilage on the rim of the acetabulum; serves to stabilize the top of the femur in the hip joint; also seals off fluid that lubricates cartilage within the hip socket and joint

MRI (Magnetic Resonance Imaging): radiology technique, using magnetism, radio waves and a computer to take pictures of the body

Osteoarthritis: type of arthritis caused by degeneration, inflammation, breakdown and eventual loss of cartilage in joints

Osteolysis: destruction of bone caused by disease, infection, or loss of blood supply

Osteotomy: surgical procedure which involves cutting through bone or removal of part or all of the bone

PAO (Periacetabular Osteotomy): surgical procedure involving bone cuts surrounding the hip socket (acetabulum), in order to mobilize and reposition the orientation of the pelvis and hip joint and its articulation with the femoral head

Pavlik Harness: a type of brace used on infants to improve position of femoral head within the acetabulum

Perthe's Disease: condition in which the bone of the femoral head dies due to temporary loss of blood supply; most commonly seen in males 4-8 years of age

Physical Therapy (PT): physical rehabilitation t help patients regain function in injured or weak muscles, joints, limbs; focuses on improving gross motor function; used by patients postoperatively to resume normal daily activities and return to full function. Involves crutch training, walking, stair and exercises specific to recovery from your operation.

Physician Assistant: a licensed mid-level practitioner who works closely with your surgeon, before, during and after the surgery to provide patient care

PCA (Patient Controlled Analgesia): method of pain management in which patient controls amount of pain medication they receive via a pain button causing a release of medication through an IV

ROM (Range of Motion): ability and measurement of how a joint moves in space

Sclerosis: hardening of tissue, often occurs in late stages of arthritis

Slipped Capital Femoral Epiphysis (SCFE): condition in which the growing end (growth plate) of the femur slips off from the rest of the bone; seen most commonly in males 11-16 years of age

Synovial Fluid: slippery fluid which serves to lubricate the joint and nourish cartilage

Total Joint Replacement: surgical procedure in which and arthritic joint is replaced with a new and artificial joint

CONTACT

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3815 Highland Avenue
Downers Grove, IL 60515
PHONE: 630.275.5900
WEBSITE: http://advocatehealth.com/gsam/

Blood Donation

- Good Samaritan Hospital
- American Red Cross

If there are ever any urgent or emergent questions of concerns regarding your medical condition including:

- Fever >100.6*
- Uncontrollable pain
- Drainage of incision
- Opening of incision
- Redness of incision
- Notable calf tenderness

Please contact HOASC and Dr. LaReau's Team or Go to the nearest Emergency Room!!!

Questions for Dr. LaReau

Question	Answer

PHYSICAL THERAPY GUIDELINES PERIACETABULAR OSTEOTOMY

With special thanks to
Jaime Stewart, PT—Children's Hospital Boston

- PRE OPERATIVELY: Patients will be seen pre-operatively for a physical therapy evaluation to include strength and range of motion. Patients will also be measured for axillary crutches and instructed on the use of crutches with 1/6 body weight through the operative leg. Patients receive education on the role of PT post-operatively, and are advised to obtain a shower chair if able. A rental wheelchair with elevated leg rests is ordered while the patient is inpatient. 3-in-1 commode can also be ordered while inpatient. (To be used both as a shower chair and as a raised toilet seat.)

- POST OPERATIVE Guidelines:
  - **POD #1**: evaluation of strength and ROM, begin AAROM of the involved hip within the restrictions indicated by the orthopedic surgeon. (ROM is usually flexion 30-80, abd/adduction 10/10, IR/ER 10/10.) ROM restrictions are not absolute contraindications. Although the patient should try to stay within the stated precautions, he/she can sit at 90 degrees, and won't "ruin" the surgery by moving hip outside of specified ROM. Active exercises also include quad sets, glut sets, and ankle pumps. Patient's ability to participate with therapy will vary depending on epidural and pain. Parent or caregiver is instructed on how to assist with the exercises. PT will see patient 1X per day for ROM until ready for OOB.
  - Once epidural is d/c'd (**usually POD #1**), initiate OOB to cardiac chair, 1/6 body weight. Strength should be reassessed before OOB to ensure that effects from epidural are no longer present. Transfer bed to chair only on first day OOB. Patients typically complain of pain and of dizziness.
  - Gait is begun usually on **POD 1** once the epidural is out and patient is able to tolerate ambulation. You will begin ambulating with an appropriate assistive device (1/6 BW). Pt "clears" PT when he/she is safe and independent with mobility.

  - Not all patients require home physical therapy.

  - Patients will utilize crutches for an average of 3 months. They should not wean unless cleared by MD.

  - Avoid hip flexion beyond 90 degrees until first post-op visit (**4-6 weeks),** no antigravity exercises should be started until about 2 months post-op or until cleared by MD. This includes straight leg raises or any exercise which potentially uses a long lever arm at the hip. The below exercises are based on the typical progression; however patients will differ from case to case.

- **POST OP VISIT 4-6weeks**: Patient usually given gravity-eliminated exercises (heel slides, isometric abd/adduction, supine abd/adduction, bridges, LAQ) Patient can begin prone-lying to increase hip extension. (try lying over a pillow first).
    - **Pool**: If patient has access to a pool, he/she can begin walking in chest-deep water (1/6 BW) or waist deep water (50% BW). Standing ROM exercises, side-stepping
    - **Bike**: Pt can begin riding stationary bike, with seat elevated and without resistance.

- **POST OP VISIT 8-10 weeks:**
    - anti-gravity exercises to include standing hip flexion, abd/add, extension. Resistance with theraband if appropriate. Education re: weaning to one crutch if appropriate.

- **POST OP VISIT 12-14wks**:
    - progressive resisted exercises, depending on patient strength. Sidelying hip abduction, adduction.

- Local patients will be reassessed in hip clinic. There will be an ongoing assessment with recommendations to progress the program at the discretion of the surgeon.
- Patients that are not local are encouraged to contact the physical therapy department if questions arise.

- **WOUND CARE POST OPERATIVELY**: Patients typically will be discharged with a dressing (brown Mepalex dressing) which can be left on for 5-7 days if dry. You will typically obtain at least one of those dressing to change at home after leaving the hospital. Underneath the dressing are steri strips which aid in healing of the incision, therefore, those should be left on until they fall off on their own. You may shower on post operative day 5-7 but cover the incision and pat dry following the shower. Do not apply any lotion etc. on the incision, keep it as dry as possible and do not scrub the incision area.

- **HARDWARE REMOVAL 6 months**: Patients will typically have the hardware removed at approximately 6 months post-op. Typically hardware removal is done as a day surgery procedure. Crutches are recommended for the first few days, and activities can resume 3-4 weeks after the screws are removed.

**** Keep in mind that these are only guidelines, and each patient should be evaluated as an individual. If there are questions regarding orders, the attending physician should be contacted****

Please do not hesitate to contact our office with any questions.