



ANTERIOR vs. POSTERIOR MINIMALLY INVASIVE SURGICAL APPROACHES FOR TOTAL HIP REPLACEMENT

	ANTERIOR	POSTERIOR
1. Origins of Modern Incision	Many generations old. Historically known as the “Smith-Pete” approach.	Many generations old. Historically known as the “Southern Approach”.
2. Incision Length	8 – 10 cm long depending on difficulty of case	Same
3. Blood loss – risk of transfusion	Greater	Less
4. Preservation – protection of hip muscles during surgery	<p>The claim that the Anterior Approach is completely muscle sparing is false. Classically it exposes the joint by splitting through the interval between Tensor and Sartorius muscles. To lessen the high risk of Lateral Femoral Cutaneous nerve damage, most surgeons have moved the incision laterally and split through the middle of the fibers of the Tensor muscle. The top external rotator muscle (Piriformis) attaches at the proper insertion site for the femoral component and must be cut to properly insert and position the component. The Piriformis cannot be repaired from this approach.</p> <p>Net effect: equal of posterior approach at muscle preservation.</p>	<p>Gluteus maximus muscle is split (not cut) along their fibers thus preserving and protecting them (no repair is necessary). The top two of the 4 small external rotators (Piriformis and Superior Gemeli muscles) are divided and later repaired with no impact on overall hip strength.</p> <p>Net effect: equal of anterior approach at muscle preservation.</p>
5. Risk of nerve damage	<p>Greater. The Lateral Femoral Cutaneous nerve supplying sensation to the thigh is at significant risk to permanent damage. The femoral nerve innervating the Quadriceps muscle is also at some risk. And I have reviewed one case as a 2nd opinion that appeared to have a temporary Sciatic nerve injury due to vigorous operative retraction.</p>	<p>Rare. In experienced surgeon’s hands, risk is near zero.</p>

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6. Risk of fracture of femur	Greater. Due to difficulties of exposure, risk of femoral fracture significantly higher with the Anterior Approach due to need to lever on the bone to gain exposure. Risks higher still in patients with osteoporosis.	Minimal. Exposure of the femur is easier necessitating less vigorous retraction.
7. Risk of Improper Implant Positioning	Higher. Intraoperative x-rays required. The femur is especially difficult to expose, and the same factors that can lead to fracture can lead to improper implant positioning affecting both short and long term functioning of the hip.	Lower.
8. Hip Dislocation Risk	Risk is very low. Dislocations, when they do occur, are anterior and very disabling in daily living since they occur when the patient externally rotates the leg while standing, walking or participating in recreational activities.	Risk is very low. Dislocations when they do occur are posterior and can be avoided by not sitting on low seats (thus since easily avoidable are not as disabling).
9. Hip Dislocation Risk: Impact of Modern Hip Implants	Modern “large head” hip implants very stable making dislocations much less likely than in the past and much less of an issue in pre op decision making.	Modern “large head” hip implants very stable making dislocations much less likely than in the past and much less of an issue in pre op decision making. (Note: Since its clinical introduction in 2003, I have had no Large Head hip implants dislocate).
10. Need for Postop “Hip Precautions”	No specific precautions needed.	Same
11. “Position of Risk” for dislocation	Standing with leg externally rotated.	Sitting in very low chair with hip hyper flexed and internally rotated and crossed one leg over the other.
12. Postop Weight Bearing Status	Full	Same
13. Time in Hospital	2 nights (3 for older patients). One night stay is possible for motivated patients with proper support at home.	Same
14. Time on Walker – Crutches	Patient may wean off as tolerated. Younger fit motivated patients will be off walker after a few days.	Same

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15. Need for Physical Therapy	Minimal	Same
16. Time till Driving	In part a question of liability and in part depending on “left vs. right” hip. Usually in a few weeks, but ultimate answer is whenever a patient feels he/ she can safely handle a car.	Same
17. Special Surgical Equipment Required	Most experienced surgeons in large joint replacement centers in the U.S. using the Anterior Approach are doing so without the use of any special equipment. Inexperienced surgeons initially require use of an expensive special operative table to aid in femoral exposure, but with greater operative experience most have subsequently have determined this to be unnecessary.	None required.
18. Time till return to work	1 – 2 weeks to sedentary job / 1 – 3 months heavy job (motivation issues important)	Same
19. Time till return to sports	3 -4 weeks light recreational (golf) / 6 – 12 weeks vigorous sports (tennis, snow skiing)	Same

Personal Note: During my fellowship training in joint replacement surgery at the New England Baptist Hospital in Boston, the anterior “Smith-Peterson” hip approach was still popular in part due to the fact that Dr. Smith-Peterson had been a legendary New England surgeon in the pioneering days of early orthopedics. As a result I received considerable training in its use. It was around this time that the anterior approach lost favor with most joint replacement surgeons. The reasons for the demise of the anterior approach were many, and most are outlined above. In summary, though, it was generally felt that risks and complications of the anterior approach outweighed any advantages. It has been clearly shown that there is no difference in recovery time between the two approaches. And with the advent of “large head” hip replacement systems, the single possible advantage of a lowered risk of hip dislocation has effectively been eliminated. As with many things, what is old becomes new as we constantly strive to both reinvent and improve tried and true procedures. Sometimes this leads to better methods of treating patients. And sometimes these “new” recycled methods work no better the second or third time around. What is really new in our modern medical world is the hype and marketing in the lay press of all things new before scientific proof of success is available.

My word of advice to patients remains this: Stay focused on the important issue – the long term results. Pick your surgeon based on reputation, experience, and your feelings of trust and personal connection. Though it is important to discuss new procedures and technology, in the end let the surgeon in whom you place your trust pick what is best for you. All that is new is not necessarily better, and this is especially true of ideas that have that may have had a past history of problems or failures.

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