



**ANTERIOR vs. POSTERIOR APPROACH for HIP REPLACEMENT:
HYPE vs. FACT**

Introduction: Total hip arthroplasty has become one of the outstanding surgical success stories of the last four decades. Of all joints replaced, the hip is arguably the most successful. Subjectively it feels the most “normal”, has the quickest recovery, and with the advent of new metal on metal bearing surfaces is the most durable. However, with the never ending quest to further improve upon this already successful procedure, recent attention has been directed towards the surgical approach and its relationship to speed of recovery and avoidance of complications. Unfortunately much of this attention has been via the lay press, marketing and hype rather than through basic scientific study. Several “studies” that have examined this issue have been biased and/or scientifically flawed. Thus, at this point it is difficult to objectively determine how the surgical approach options affect the final results of hip arthroplasty.

Surgical Approach Options: There are three surgical hip approaches for total hip arthroplasty that have gained recent notoriety. These are:

1. Anterior
2. Two incision (a combination of the anterior and posterior approaches).
3. Posterior

Anterior Approach: The modern anterior approach is a modification of the several generation old Smith-Peterson incision. Classically it splits the muscle interval between the sartorius and tensor muscles in the front of the hip. Because of risk of nerve damage, many modern surgeons actually have moved the incision slightly lateral and split through the middle of the tensor muscle fibers.

The purported advantages of the anterior approach are:

1. Avoidance of “cutting through muscles” thus making it a more minimally invasive approach. The theory then follows that this leads to a shorter recovery time. (As noted above, many surgeons utilizing the anterior approach for safety reasons actually now do split through the middle of the tensor muscle).
2. Lower dislocation rate due to the preservation of the posterior structures. Thus the standard “hip precautions” of avoidance of the hyper flexed, internally rotated, adducted hip position can be ignored.
3. Ease in exposure of the acetabulum (socket).

Disadvantages of the anterior approach include:

1. High incidence of injury to the lateral femoral cutaneous nerve that provides sensation to the outside of the thigh.
2. Increased risk of complications on the femoral side due to difficulty in exposure. These include component mal-position and fracture. This has led to research in femoral stem design modification to what are as yet unproven designs that may have a higher failure rate.

Two Incision Approach: The two incision approach has been advocated by a few surgeons as the most minimally invasive hip approach. The acetabulum is approached

through the anterior tensor-sartorius interval. The femur is approached through a posterior gluteal splitting incision. Recent reports indicate that the complication rate with this approach is excessive and it is currently falling out of favor with most hip surgeons.

Advantages:

1. Reported by some to be the most minimally invasive approach leading to a shorter rehab.

Disadvantages:

1. Felt by many to be the most technically challenging approach.
2. Most independent surgeons have reported an excessive complication rate with this approach and it is widely being abandoned.

Posterior Approach: The minimally invasive posterior approach is a modification of the historical gluteus splitting approach of many names. It involves splitting (not cutting) through the gluteal (buttock) muscle. There are four small external rotator muscles the top two of which (the piriformis and superior gemilis muscles) are divided then later repaired. Note that the piriformis by necessity is also divided and left unrepaired with the anterior approach as it inserts at the site of femoral implant insertion.

Advantages:

1. As with the Anterior Approach, it is a muscle splitting not cutting approach. It is felt by many to be the simplest and easiest approach providing for the greatest safety margin for the patient.
2. The speed of recovery is equal to the anterior approach.
3. Exposure of both the socket and femur is straight forward.
4. Due to ease of exposure, there is minimal risk of femoral fracture or implant mal-position.
5. There is less risk of neurologic damage.
6. Any component system, any bearing surface and any type of fixation (cementless or cemented) can be used.
7. With use of modern "large head" implants, dislocations now rarely occur.

Disadvantages:

1. The sole disadvantage has been the historically higher postoperative hip dislocation rate. This risk has been negated by the use of the new technology "large head" implant systems which have nearly eliminated hip dislocation as a postoperative complication (note: as of this writing I have had no dislocations using this hip system over the last several hundred hip replacements).