COMPARISON BETWEEN THE MINI-POSTERIOR AND ANTERIOR HIP SURGICAL APPROACHES

The motivation for promoting the anterior hip approach has been born out of the desire to speed recovery, decrease pain, accelerate discharge from the hospital, and eliminate certain complications. The initial claim to superior outcomes with the anterior approach was based on comparing it to the traditional old-style posterolateral incision. Today's mini-posterior incision offers a safe and more straightforward access to the hip joint with equally rapid recovery and minimal discomfort. Simplicity guarantees safety and accuracy. A significant contributor to improved outcomes and earlier hospital discharges has been an enhancement of our postoperative pain management protocols and better education and preparation of our patients, not the incision. Scientific research has failed to demonstrate a significant advantage of one approach versus the other. What it is becoming clear is that what matters is the surgeon's experience and choice of implant. None of these surgical approaches is new. They have been used by multiple generations of orthopedic surgeons in the past. What is new is the aggressive marketing we are observing today that carry the potential risk to disseminate misinformation to the public.

– *Gonzalo Valdivia, M.D.*

	ANTERIOR	POSTERIOR
ORIGIN OF INCISION	This is a well stablished approach. It is also called the Smith-Peterson approach	Another well-established approach. Also known as the Kocher-Langenbeck approach.
LENGTH OF INCISION	4-5 inches long (8 – 10 cm) depending on difficulty of case	Same.
RISK OF MUSCLE INJURY AND DAMAGE	Difficulty in exposure of the femur translates in forceful tissue retraction that may inflict crushing damage to muscle. To avoid injury to the cutaneous femoral nerve the fibers of the tensor muscle are often split. The attachment of the quadriceps muscle to the pelvis is partially detached. The proper insertion site for the femoral implant is where a short rotator attaches (piriformis), this must be cut to properly insert and position the component. Finally, in difficult cases, to properly deliver the femur for exposure, the posterior capsule and the remaining short rotators are often released and cannot be repaired from this approach.	Gluteus maximus muscle is split (not cut) along their tougher fibers thus preserving and protecting them (no repair is necessary). The small external rotators (Piriformis and Superior Gemeli muscles) are divided and later repaired with no impact on overall hip strength.
RISK OF HIP DISLOCATION	MINIMAL. Dislocations, when they do occur, are anterior and can be very disabling. They usually occur when the patient turns the leg outward while standing, walking or participating in recreational activities.	MINIMAL. Dislocations when they do occur are posterior. With proper implant placement and soft-tissue repairs, the risk of dislocation has been brought down to below 1%

NEED FOR TEMPORARY ACTIVITY RESTRICTIONS	MINIMAL	MINIMAL Temporary minimal restrictions are in place primarily **to allow the implants to integrate properly into the bone**. This process takes about 6-8 weeks. Vigorous early activity may interfere with proper biologic fixation of your implants and it is not advisable.
NEED FOR PERMANENT RESTRICTIONS	NONE	NONE
POST SURGERY WEIGHT BEARING	FULL	FULL
TIME IN HOSPITAL	1-2 nights in the hospital. Some motivated and medically fit patients are going home immediately after surgery.	1-2 nights in the hospital. Although some patients could go home immediately after surgery thanks to better pain control techniques, the effect of anesthesia, and bone marrow migration in the circulation is sometimes only fully appreciated several hours following surgery. Therefore, careful selection and monitoring of patients going home the same day is advisable.
RISK OF NEEDING BLOOD TRANSFUSION	GREATER	MINIMAL
CAN BE USED WITH ANY BODY TYPE	NO. It is very difficult to expose the femur in very muscular, short and overweight patients. It sometimes requires additional incisions to complete the surgery.	YES. Because it is more straightforward in its approach to the femur, the posterior approach can be safely used in most body types.
RISK OF NERVE DAMAGE	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.	RARE. In experienced surgeon's hands, risk is near zero.
RISK OF FRACTURE	GREATER. This approach requires forceful levering on the bone to gain exposure increasing the risk of femoral fracture. Risk is higher in patients with osteoporosis.	MINIMAL Exposure of the femur is easier necessitating less vigorous retraction.
RISK OF IMPLANT MALPOSITIONING	May have higher risk of femoral component malpositioning due to difficulty in exposure. Intraoperative x-rays required. Improper implant positioning may affect both short and long-term functioning of the hip.	Slight higher risk of socket implant malpositioning.
CAN THIS APPROACH BE SAFELY EXTENDED TO ADDRESS AN UNEXPECTED SURGICAL PROBLEM?	NO Several studies have shown that extending the exposure distally to allow the surgeon to repair a femur fracture carries a significant risk of denervation of the quadriceps muscle.	YES This incision can be safely extended proximally and distally to address complex pelvic and femoral problems, such as fractures, while exploiting natural inter-nervous body planes.

CAN ANY FEMORAL STEM BE USED TO GUARANTEE THE MOST DURABLE HIP JOINT RECONSTRUCTION?	NO On occasion, a cemented femoral stem is most appropriate, such as in cases of weak bone. Exposing the femur well enough to properly cement a stem is very difficult with the anterior approach. Also, some stems are being modified to facilitate their insertion. We don't have long-term data on how well they will perform.	YES The posterior approach allows your surgeon to choose a femoral stem that best meets your needs. These include cemented stems and the very successful tapered cementless types. A much more secure way to create a stable, durable patient-based construct.
RISK OF EARLY FEMORAL COMPONENT FAILURE	HIGHER Recent reviews of revision hip surgeries due to femoral component loosening indicated that the anterior approach was a significant risk factor.	MINIMAL
USE OF WALKING AIDS	Patients will wean off as tolerated anywhere between 1 to 6 weeks	Same
TIME UNTIL DRIVING	When agility has returned, and strong pain medicine is no longer needed. Anytime between 2 to 6 weeks.	Same
NEED FOR SPECIALIZED SURGICAL EQUIPMENT	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. Some surgeons require use of an expensive special operative table to aid in femoral exposure. This requires increased personnel in the surgical suite potentially increasing the chances of infection.	None required.
RETURN TO WORK TIME	1 – 2 weeks to sedentary work 1 – 3 months for heavy labor	Same
RETURN TO SPORTS TIME	3 -4 weeks for light recreational sports (golf) 6 – 12 weeks for vigorous sports (tennis, snow skiing)	Same