Minimally Invasive Posterior vs. Direct Anterior Approach to Hip Replacement

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|  | **Minimally Invasive Posterior Approach** | **Direct Anterior Approach** |
| Position of patient | On your side | On your back |
| Location & length of incision | • Just behind the hip, along the outer buttock area • 4–6 inches.  • Larger incisions may be needed for larger patients and those with previous surgery or abnormal anatomy | • Front of upper thigh • 4–6 inches • Larger incisions may be needed for larger patients and those with previous surgery or abnormal anatomy |
| Muscle preservation | • The gluteus maximus muscle is split and does not require repair as the whole tendon is not removed.  • The piriformis and superior gemeli muscles (2 of 4 external rotators of the hip) are detached and later reattached to bone and will heal over 4–6 weeks. | • Current advocates claim this approach is entirely muscle sparing, which is not exactly the case. Because of the higher risk of damage to a specific nerve in the thigh, the incision may be moved more to the side, forcing an incision through the muscle bellies of the tensor fascia latae and sartorius muscles, rather than in between.  • The piriformis muscle (1 of 4 muscles that allow for external rotation of the hip) is also cut to allow implantation of the new femoral implant. It cannot be reattached from this approach. |
| Risk of nerve damage | • No risk of injury to lateral femoral cutaneous nerve. • Very small risk to sciatic nerve from excessive retraction during surgery. Risk of injury is less than one percent. | • Higher risk of injury to lateral femoral cutaneous nerve which supplies sensation to the outer thigh. • Some risk to sciatic nerve from excessive retraction during surgery. |
| Risk of fracture | Low risk of fracture due to easier exposure. | • Higher risk of femur and ankle fracture due to more difficult exposure and positioning. • Risk increases in patients with osteoporosis. |
| Intraoperative visualization | • Exposure technique allows direct, full visualization of hip cup and femur.  • No intraoperative xrays needed. • Used predominantly by orthopedic surgeons as it is the simplest approach and provides the greatest patient safety. | • Technically challenging. • Impaired visualization due to working between muscle planes.  • Special surgical table utilized for manipulation of the leg during surgery. • Intraoperative xrays needed for implant positioning. • Patients should find someone very experienced in this type of approach — one who does more than 1–2 per month. |
| Risk of dislocation & hip precautions | • Low risk but may be as high as 9%. • Dislocations are posterior and can occur when bending further than 90° at the hip/waist.  • Risk is incredibly low by 2 months after surgery. | • Low risk.  • Dislocations are usually anterior and can occur with external rotation of the leg during any activity.  • Hip precautions usually not needed. |
| Good candidate | Majority of patients. | Patients who do not have significant hip deformities, flexion contractures or are not significantly overweight. |
| Length of surgery | 60–90 minutes | 2–3 hours |
| Hospital stay | 2–3 days | Same |
| Postoperative complications | Risk to normal structures, blood clots to legs or lungs, infection, death, anesthesia risks. | Same |
| Use of medical equipment | Walker, cane or crutch, depending on upper body strength and recovery time, weaning off as strength returns. | Same |
| Use of physical therapy | Generally not used outpatient | Same |
| Return to sedentary work | 2 weeks | 1–2 weeks |
| Return to physical work | 3 months | 1–3 months |
| Return to sports (light/vigorous) | 6 weeks/3 months | 1 month/3 months |