

Purpose: Over the years, attempts have been made to make surgical approaches to the knee joints less invasive and provide wide exposure to the intra-articular structures. While minimally invasive approaches to total knee arthroplasty (TKA) have demonstrated short-term advantages, no technique has shown clear long-term superiority. Adequate exposure of the joint with minimal soft-tissue disruption remains a key challenge in optimizing surgical outcomes.

Methods: We present the cadaveric demonstration of the Sagittal Patellar Osteotomy (SPO) approach, which employs a standard midline skin incision followed by a longitudinal midline split of the quadriceps and patellar tendons, connected through a sagittal osteotomy of the patella. The created lateral and medial extensor mechanisms are then retracted laterally and medially, respectively. This configuration provides direct access to the joint while preserving critical vascular and soft-tissue structures.

Results: The SPO approach offers several potential advantages, including improved visualization of the joint, reduced soft-tissue dissection, and preservation of the medial and lateral patellar arterial anastomotic rings and the patellar fat pad blood supply, potentially decreasing the risk of patellar osteonecrosis and extensor mechanism complications. It also greatly reduces the likelihood of iatrogenic neurovascular complications that could be associated with other widely used surgical approaches for TKA.

Conclusions: The SPO approach represents a practical technique for TKA while allowing for improved exposure and soft tissue preservation. Further clinical evaluation/studies are necessary to assess its safety, reproducibility, and long-term benefits/complications.