

A Lateral Subvastus Approach to Total Knee Arthroplasty: A Novel Approach

Vuong B Nguyen¹, Eden Crowsey²

¹Orthopedic Surgery, ²Research, Optimotion Orthopaedics

Background

Most techniques for total knee arthroplasty (TKA) are limited to approaches that involve parapatellar arthrotomies, which compromise the quadriceps tendon. Anterior approaches for TKA are associated with challenges in functional recovery because of the midline incision restricting flexion and weakening the quadriceps. According to Kornuijt et al, mean flexion at 8 weeks postoperatively is only 110°. Current approaches to TKA are associated with limited options to ameliorate acute functioning, increasing the need for assistance and care postoperatively. These reasons may influence the limited number of surgical procedures performed in an outpatient setting. Kornuijt et al also determined the mean hospital length of stay after TKA was more than 3 days and acknowledged the increased risks associated with longer inpatient stays. According to Meneghini et al, only 5% of TKA procedures as of 2018 were performed in an outpatient setting. A lateral subvastus approach to TKA addresses these limitations by sparing the quadriceps, improving acute functioning, and increasing candidacy for outpatient TKA.

Purpose

This video demonstrates the lateral subvastus approach to TKA and presents clinical results on surgical setting, functional outcomes, complications, and patient satisfaction.

Methods

The lateral subvastus approach shown in this video is performed on a cadaver model leg to demonstrate the biomechanics and technique unique to this approach. The video presents a retrospective analysis on 110 primary TKA procedures for osteoarthritis performed via the lateral subvastus approach, with 1-year follow-up.

Results

Proper implant implementation was achieved, with appropriate tracking and alignment. Of the 110 TKA procedures performed, 92% were performed at an outpatient facility. The complication rate was 4.5% (deep vein thrombosis developed in four patients, and stiffness developed in one patient). 116° of flexion was achieved by 6 weeks, 121° of flexion was achieved by 1 year, and only 5.4% of patients reported being dissatisfied with their knee replacement at 1-year follow-up.

Conclusion

A lateral subvastus approach spares the quadriceps tendon, improves acute flexion, improves patient satisfaction, and increases accessibility to performing outpatient TKA.