Failure Rates of Lateral Unicondylar Knee Arthroplasty
Return to Sports without Restrictions Including Skiing
Average 10-Year Follow-Up

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Unicompartment OA

- Lateral OA Less Common Than Medial Osteoarthritis
  - 30% Medial Only
  - 10% Lateral Only

- Risk Factors For Lateral OA
  - Valgus Alignment
    - Faster Deterioration
  - Rotational Malalignment
    - External Tibial Torsion
  - ACL Deficiency
    - Altered Knee Biomechanics
  - Meniscectomy-Lateral
    - Partial vs. Repair

Unicondylar Knee Replacement

- Goals
  - Pain Free Joint For Sports?
  - Unicondylar Knee

Introduction

Lateral UKA & Return to Sport
Unicondylar Knee Replacement
Advantages Over TKA

- Preserves Bone Stock
  - PF/Medial Compartment
- Reduced Blood Loss
  - Mean 350ml
    ✓ Avoid Blood Transfusion
- Improved Avg Range of Motion
  - Mean 127°
- Near Normal Kinematics\(^2\)
- Decreased Cost
  - 10-30% Less Than TKA\(^1\)
    ✓ Decrease OR & Anesthesia Time
  - Reduced Inpatient Stay\(^1-3\)
    ✓ Mean LOS 2.2 Days
      • 4.5 Days For TKR
    ✓ Outpatient or 23 Hours
      • Long Acting Anesthetics
    ✓ Average Recovery Room Time
      • 121 Minutes


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Lateral Unicondylar Knee Arthroplasty

- Long Term Outcomes
  - Return to Preoperative Sport Levels
- Impact on Survivorship
  - Differences Between Moderate and Vigorous Sports
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Methods

Cohort

- Level IV Cross-Sectional Study
  - Consecutive Series-59 Knees

- Lateral UKAs (1999-2015)
  - Single Surgeon (KDP)
  - Same Day Arthroscopy
    - Medial Compartment
    - Patellofemoral Compartment
    - Loose Bodies
    - Medial Meniscus Tears
    - Plica
  - Lateral Parapatellar Incision

- Independent Physical Exam
  - Pre- and Post-Operatively
    - Range of Motion (ROM)
    - Strength Testing
    - Gait Analysis
  - Minimum 2 Year Follow Up
    - Range 2-13 Years
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Methods
Surgical Technique-Lateral Parapatellar Incision

- Lateral Parapatellar Incision-Fixed Bearing
- Distal Femur
  - Finish Cut Free Hand
  - Femoral Cutting Jig
    - Expose 2mm Superiorly
    - Place as Close to Notch
  - Place in Slight IR on Distal Medial Femoral Condyle
- Tibial Exposure
  - Place Jig Flush
    - Use Angel Wing
      - Minimal Resection
  - Size Tibial Baseplate
    - Ensure Complete Coverage
- Placing Components
  - Cement Tibia
    - Place a Sponge Posteriorly
    - Replace Z Retractors Carefully
      - Do Not Re-Introduce Cement
  - Cement the Femur
    - Beware of Hyperflexion
      - Displaces the Tibial Component
  - Snap in the Real Spacer
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Methods
Plain Radiographic Knee Series

- **Preop**
  - AP View
  - Rosenberg View
    - PA View
    - 45° Flexion
  - 3-Foot Standing Film
    - Mechanical Axis
    - Huang 2004

- **Postop - Investigate**
  - Any Disease Progression
  - Medial Compartment
  - Signs of Loosening
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Methods

Questionnaires

- **Lysholm**
  - Evaluates Knee Function/Stability
  - <65 Poor; >90 Excellent

- **HSS**
  - Evaluates Knee Pain/ROM
  - <60 Poor; >85 Excellent

- **Tegner**
  - Sporting Activities
  - Evaluates Specific Patient Activities
  - 0 Disability/Sick Leave
  - 10 Elite Level Sports

- **ACSM Guidelines**
  - Moderate Sports
    - Walking, Yoga, Dancing, Singles Tennis, Softball
  - Vigorous Sports
    - Running, Basketball, Soccer, Circuit Training

- **Statistical Analysis**
  - Analysis of Variance
    - Differences Sports Group
    - Postoperative Assessment
      - p<0.05

59 Lateral UKAs

- 54 Patients
  - 19 Male; 35 Female

- Average BMI
  - 26.54 ± 4.72
    - Range - 18.1- 40.5

- Average Age
  - 66 ± 12 Years
    - Range - 40-87 Years

- Mean Follow-Up
  - 9 ± 3 Years
    - Range - 2-13 Years

- Lost to F/U
  - 2 Patients
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Results

Functional Outcomes

- No Significant Differences
  - Between Sporting Groups
    - HSS p=0.337
    - Lysholm p=0.679
    - Range of Motion p=0.228
      - Extension
        - Pre - 2°
        - Post - 0.3°
      - Flexion
        - Pre - 123°
        - Post - 130°
        - Only 1 Patient Had <118°

- 100% Return to Pre-Op Sports

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Results

Clinical Outcomes

- **Mechanical Axis**
  - Pre - 6° Valgus
  - Post - 1.4° Valgus

- **No Evidence of:**
  - Loosening
  - Osteolysis
  - Polyethylene Wear
  - Full Thickness OA Progression
    - Medial Compartment

- **Conversion to TKA**
  - N=2 (3%) (Total Uni Knees=59)
    - Time of Conversion - Unknown
      - 1-Good Results at 3 Years
        - Phone F/U at 6 Years
          - Lost to F/U
      - 1-Unwilling to Return
        - Lost to F/U
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Conclusions

Lateral UKA

- **Excellent Outcomes**
  - 97% Survivorship (2-13 Years)
  - High Functional Scores
  - Restoration of ROM

- **100% Return to Sports**
  - Vigorous and Moderate Sports
    - Tennis, Skiing, Cycling, Basketball

- **No Significant Differences**
  - Between Sporting Groups

- **No Prosthesis Loosening**

- **No OA Progression**
  - Opposite Compartment
    - Avg 9 Year Follow Up

- **Patient Selection Is Key**
  - Prediction of Success