Oxford Microplasty Instrumentation

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Oxford Microplasty Instrumentation
Proven, safe and reproducible results
Topics

• Instrumentation
  – Set Overview

• Surgical Technique
  – Key Steps
    • Highlighting Key Instruments
    • Improvements vs Phase 3 technique
Instrumentation
Instrumentation Overview

**Phase 1**
1976 - 1988
- Problems with balancing due to femoral prep
- A lot of eyeballing

**Phase 2**
1988 - 1998
- Introduction of milling
- Improving reproducibility

**Phase 3**
1998 - 2011
- Improving milling technique
- Continued focus on reproducibility

**Microplasty**
2011 – Present...
- Focus on reproducibility
Instrumentation: Set Overview

**Tibia 1**

**Top Tray**
- Tibial Templates and Trials
- Nails, drill bits, puller

**Bottom Tray**
- Tibial Impactor, Inserter
- Tibial Groove Cutters
- Slap Hammer
- T-Handle
- Bearing Inserter/Extractor
Instrumentation: Set Overview

**Tibia 2**

**Top Tray**
- Tibial Resection
- IM Link
- IM Rod Pusher

**Bottom Tray**
- IM Rods
- Anterior Mill
- Impactor
- Spigots
- Toffee Hammer
- Drills
- Bone Collar Remover
- 5mm Awl
Instrumentation: Set Overview
Size Specific

Specific for Femoral Size
• Femoral Trials
• Bearing Trials
• Femoral Drill Guide
• Femoral Resection Guide
• Anti-Impingement Guide
• Feeler Gauges
• Mill
Overview of Size Specific Trays

- XSM
- SM
- MD
- LG
- XLG
Surgical steps
Design Goal: Simple, Easy, Accurate, Reproducible

No change in indications

Enhancement in tibial resection instruments

IM linked femoral preparation

Anti-impingement instrumentation

Trial bearing inserts by hand
### Indications/Contraindications

<table>
<thead>
<tr>
<th>Indications</th>
<th>Not Contraindication</th>
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<tbody>
<tr>
<td>• Antero-medial OA</td>
<td>• Patello-femoral Joint</td>
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<tr>
<td>• Intact ACL</td>
<td>• Obesity</td>
</tr>
<tr>
<td>• Full Thickness Lateral</td>
<td>• Age</td>
</tr>
<tr>
<td>• Correctable Varus</td>
<td>• Activity</td>
</tr>
<tr>
<td>• Fixed Flexion</td>
<td></td>
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<tr>
<td>Deformity (FFD) less than 15°</td>
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1 in 4 OA Knees!
Goals

• Minimize resection depth
• Maximize surface area
• Decrease re-cutting
  – Offers shims for recutting in +/- 2mm increments
• Appropriate slope
Tibial Preparation

- Tibial Slope
  - Parallel to tibial crest
  - 7 degrees

- New ankle positioning
  - Helps avoid overslope

- Pinned to tibia
  - Single nail suffices
Tibial Preparation

- Sizing spoon placed under posterior medial femoral condyle
- 1,2,3 mm spoons (1mm spoon is default)
- Ligament tension achieved
- Clamped to tibial guide with G-Clamp
Tibial Preparation

- Vertical cut important
- M/L position
  - Adjacent to ACL footprint
- Rotational position
  - ASIS/Flexion plane
- Depth
  - DON’T LIFT HAND
Tibial Preparation

- “Curly Whirly” inserted
  - Protect the MCL
- Flat cut
- Slotted guide available
- Shim option
  - Additional 2mm
Femoral Preparation

- IM rod cannulated
  - Flexion/extension
  - Varus / valgus
- Starting position critical
- Yellow pusher
- Mark central third
Femoral Preparation

- Femoral drill guide set
- Inserted and linked
- Position of link important
- Must be seated
- M/L position confirmed
Femoral Preparation

- “Flat arm” of link in IM hole
- Curved arm in femoral drill guide
- Foot of guide against tibial resection
  - In contact with femur
- Central third confirmed
- Correct hole, not femoral drill
  - Link out of way of drill hole
  - Places drill holes 10° flexed, and 7° valgus
Femoral Preparation

- New curved slotted posterior cutting guide
- Suitable for Oxford oscillating sawblade
- Allows blade to be flexed and for saw throw
- Goal: to prevent over/under resection
Femoral Preparation

- Milling
  - Curve off femur with 0 spigot
Gap Assessment

- Use single peg femoral trial to balance
- New tapered feeler gauges
- Less soft tissues interference
- Gaps determined
- Standard milling to balance
- 1,2,3 mm plastic feeler gauges
Anti-Impingement

- Decreases early and late complications
- Replaces traditional “Freehand technique”
- New instruments help guide bone removal
Anti-Impingement

- Anterior mill
- Size specific
- Similar to a calcar reamer
- Spring loaded plunger
- Extend the knee
- Care to watch tibia...
Final Trialing

- Insert tibial tray trial and single peg femoral trial
- Trial bearing inserted by hand
- Better “feel” of tension
- Assess tracking
- Check impingement
Trial Bearing Removal
Cementing the Components

• Cementing technique follows current Phase 3 Oxford Knee surgical technique

• Two staged
  1. Tibia
     • Small amount on tibia
     • Use tibial impactor
     • Compress at 45 deg with trial femur
  2. Femur
     • Cement into large hole
     • Concave surface of femoral component
     • Impact at 45 deg to the long axis
     • Compress at 45 deg with feeler gauge
Cementless

Differences vs Cemented
Keel Preparation

Use cementless tooth brush saw through tibial template

**Cemented**
Use cemented tibial groove cutter

**Cementless**
Option to use the cementless tibial groove cutter
Implant

- Use cementless tibial inserter
- Two insertion tabs on cementless tibia
- Bring in at an angle, and lightly tap home
Conclusion
Oxford Microplasty
Proven to deliver more accurate and reproducible results

- 219 Ph3 v 196 OXMP
- Concluded that OXMP delivered:
  - A more accurate alignment of the femoral implants
  - A more accurate alignment of the tibial implants
  - A more accurate resection, with a greater number of thinner 3mm and 4mm bearings

Oxford Microplasty
Proven to deliver more accurate and reproducible results
Support Materials

Currently available on myBiomet

- Cementless Microplasty surgical video
- Cemented Microplasty surgical video
- Printed and digital surgical technique for Cementless and Cemented Microplasty
- Cemented Microplasty surgical technique animation
- Phase 3 vs Microplasty instrumentation animation
Summary

- Oxford Microplasty Instruments enhance:
  - Tibial prep, resection depth (femoral size)
  - Femoral prep, component alignment precision
  - Impingement avoidance

- Oxford Microplasty Instruments are more accurate with less outliers than Phase 3 instrumentation
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