## Femoral Pin Guide Placement

Microblock should be in neutral position before mounting to femur.

Dial the F/E and V/V screws until the adjustable portion and the rigid frame are parallel.

Aim a headless pin through the center of the distal femur toward the femoral head. For assistance, use Femoral Drill Guide.

For an average length femur, resection angles are affected by 1 degree if the pin misses the knee center by 8mm. Angulation of pin does not affect accuracy of measurement but may cause mechanical issues.
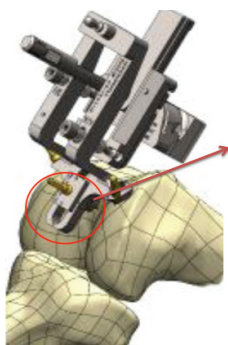
As the offset of the Microblock increases, the chance of impingement of the femoral cutting block on the anterior femur decreases.
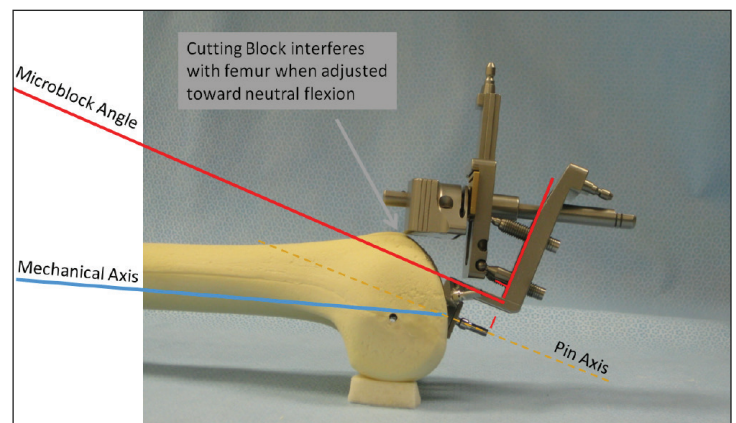
If impingement occurs, minimal anterior resection should create enough clearance to avoid repositioning Microblock.
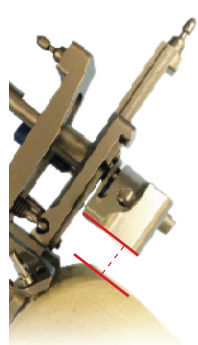
To avoid impingement, check that ~10mm of clearance (1-2 finger breadths) exists between anterior cortex and the femoral cutting block.

Distal Guide contacts condyles before desired depth is reached

Pin Axis
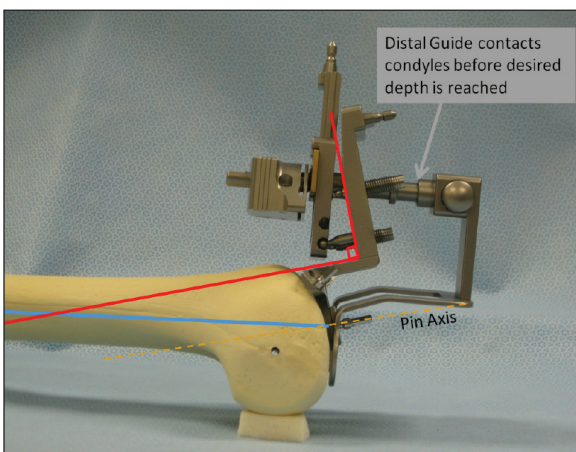
Caution: Excessive extension of the initial pin (angulation toward posterior cortex) may result in interference of the distal guide on the femoral condyles when adjusting toward desired depth of resection.

Cutting Block interferes with femur when adjusted toward neutral flexion

Microblock Angle

Mechanical Axis

Pin Axis

Caution: Excessive flexion of the initial pin (angulation toward anterior cortex) may lead to interference of the femoral cutting block on the anterior cortex when adjusting toward desired flexion.
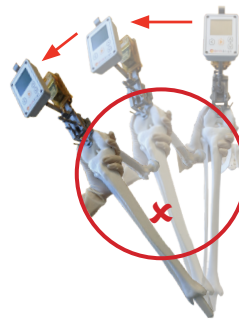
Femoral Registration Maneuver

The most reproducible maneuver is a short, swift abduction of the hip joint followed by a short, swift flexion of the hip joint. After these are both completed in quick succession, return to the starting position.

For better control, place one hand just below the back of the operative knee and place the other hand under the patient's heel.

Small, quick motion

Tip: Microblock must be rigidly fixed to the femur.

Tip: Large, exaggerated Femur maneuver and pelvis instability leads to hip center registration error.

Large, slow motion

Software Errors: Femoral Registration Maneuver

Inconsistent Hip Point

- Place heel down gently
- Stabilize pelvis
- Check fixation of jig

Repeat

During hip point registration, software conducts a check for consistency of data throughout the maneuver. Inconsistent data triggers a rejection of registration. This can be caused by movement of pelvis, inadequate fixation of Microblock to femur or excessive deceleration when heel is repositioned at end of maneuver. Repeat maneuver, ensuring the following:

- Use three headed pins provided to mount the Microblock to femur.
- At end of hip point maneuver, place heel down gently.
- Stabilize pelvis during maneuver and ensure femur has full range of motion.
- Remove any retractors from wound prior to maneuver.
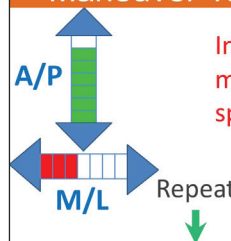
Return to Home

Return knee to start position at end of maneuver

Repeat

Knee was not returned to starting position at the end of maneuver. Repeat maneuver, returning knee to within ± 2 cm and ± 5° rotation of starting position prior.

Maneuver Too Slow

A/P — Increase maneuver speed

M/L — Repeat

Hip point registration maneuver performed too slowly in either, or both anterior/posterior (A/P) or medial-lateral (M/L) planes. Repeat maneuver at higher speed sufficient to obtain green color bars for both A/P and M/L speeds.

Maneuver Too Long

Finish maneuver faster

Repeat

Hip point registration maneuver not finished prior to end of navigation unit beeping stream. Press center button to repeat maneuver, finishing maneuver and returning knee to starting position prior to end of unit beeping stream to obtain green color bars for both A/P and M/L speeds.

Hold Knee Steady

Hold knee still until green signal displayed

Repeat

Hold knee steady before beginning maneuver.

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