

Bone cuts and rotational position

Confalonieri N., Manzotti A. (Italy)

KEY POINTS:

1 Aims of Bone cuts:

- *Correct mechanical axis*
- *Restoration joint line*
- *Equalizing flexion and extension gaps*
- *Balancing soft tissues*
- *Correct patella-femoral kinematics*

2 Techniques:

Measured Resection:

Basis:

- *Anatomical reconstruction of the femur*
- *Remove amount of bone as component thickness*
- *Rotation based on anatomical landmarks*

Advantages:

- ☒ *Maintaining joint line*
- ☒ *Minimize mid-flexion instability*
- ☒ *May be easier to be performed*

Gap balancing technique:

Basis:

- *Ligament balanced femoral resection*
- *Flexion/extension gap determining distal femoral resection*
- *Flexion gap determine femoral component rotation (irrespective of bone landmarks!!!)*

- *Parallelism to the epicondylar axis is not the objective ($\pm 6^\circ$)*

3 Aims of rotational positionment:

- *Avoid patellar maltracking (abnormal Q angle)*
- *To achieve a symmetric flexion-extension gap*
- *To achieve a more “normal” kinematics*
- *To minimize instability/wear/pain*

4 Techniques:

Femoral Rotation:

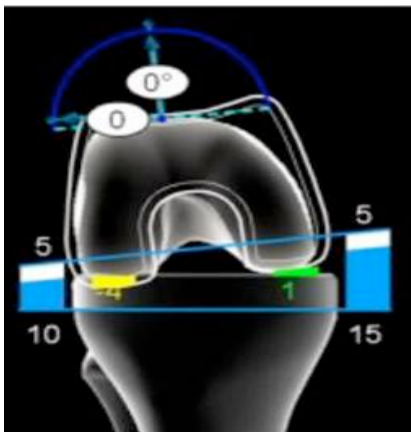
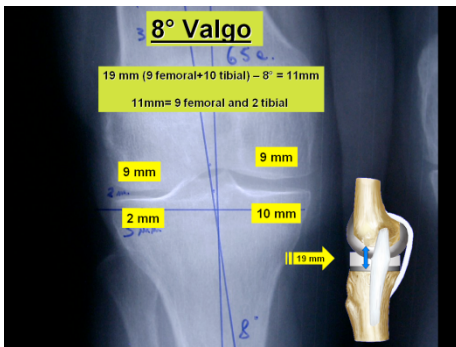
- Transepicondylar Axis*
- Posterior Condylar Line*
- Balanced Flexion Gap*
- Whiteside Line*
- Functional Flexion axes*

5 Ancillary Tools:

- *Conventional intra/extramedullary guide*
- *Patient Specific Instrumentation*

- *Computer assisted technique (unique tool to offer to the surgeon numbers without losing his control!!)*

Pearls:



Take home message:

- Correct the arthritis deformity by bone cuts*
- Remove the minimal bone stock*
- Restore the joint line*
- Balance the ligament with the same joint spaces and the prosthesis thickness*
- Do not accept passively any dogma in rotation (do not rotate the femur, check the piano sign...)*
- CAS tools (navigation, psi, robot, ecc.) are not a different technique but an ancillary tool for better informations iabout your procedure*

