

Navigation vs PSI vs Robotics: which way is it going?

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Optimal restoration of mechanical axis

: One of the key factors for a successful TKA

<Navigation or Robot assisted TKA>

Advantages of Navigation

- Restore neutral mechanical alignment
- Better functional outcomes
- No need to use intramedullary jigs
- : Decreased blood loss
- : Reduced risk of thromboembolism



Disadvantages of Navigation

- Longer Operation Time
 - : Computer processing, pin & tracker placement, registration
- Cost
 - : Startup costs, training, software, maintenance and upgrade
- Error in navigation system - several factors
 - : The abilities of the computer and tracking system to place trackers
 - : Dirty reflectors or camera -> Malfunction
 - : Cement thickness

Advantages of ROBODOC

- Accurate Preoperative Planning
- Optimal Implant Size and Position Selection by Virtual Surgery
- Highly Precise Intra-operative cutting
- Easier soft tissue balancing
- Excellent Postoperative alignment
- Possible better clinical results in longer term

Disadvantages of ROBODOC

- Longer Operation Time
: Planning, Registration, Milling
- Heat generated during milling
- Difficult to modify the surgical plan intraoperatively
- Learning curve
- Expensive cost & Quite large size

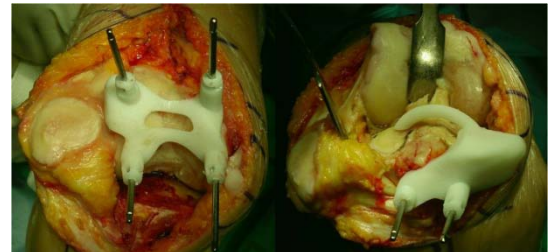


<Patient Specific Instrument>

Computer & Custom designed instrument

Instrument is designed for patient's own knee anatomy

Back in its natural pre-disease alignment



Advantages of PSI

- Surgeon gets a precise preoperative surgical plan
: Intra-operative accuracy
- Operating room requires fewer instruments
: Saving in sterilization and storage
: Simple surgery
: Low hospital cost

- Decreased surgical time
: Less set-up, fewer surgical steps, no IM violation

Disadvantages of PSI

- Higher cost
: CT/MRI scans & guide manufacturing
- Delayed surgical date
- Not suitable for all case
- Hazard of radiation
- Learning curve ??