

# Outcome of mechanically aligned Navigation-assisted TKA

Eun-Kyoo Song, Prof., MD, PhD

Accurate alignment & Soft tissue balancing are of paramount importance  
for the longevity of TKA

## Navigation system

- Exact parameters of AP and ML alignment
- More precise intra-operative real-time control of the axes obtained by correction
- However, soft tissue balancing remains a challenge

## History

- Insertion of pedicle screws
- In, 1997, first case performed in TKA
- Now, various navigation systems are currently available

## Improvements

- Better alignment and restoration of mechanical axis
- Better positioning of component
- Better gap balance

## Benefits

- Improved implant survivorship
- Better functional outcomes
- Greater patients satisfaction



## Controversy

- Superior radiographic alignment
- Functional benefits are still questionable
- Malalignment by errors in navigation ; due to several factors
- However, Improvements in implant survivorship over long term study
- More affordable navigation systems are coming

## Current Outcomes of navigation

Authors	Journal (year)	Mechanical Axis/Outliers	Femoral component		Tibial component		Functional outcomes
			Coronal alignment	Sagittal alignment	Coronal alignment	Sagittal alignment	
Alcelik	J Arthroplasty (2016)	Navi	No difference	-	Navi	-	No difference (6 monstha)
Moskal	J knee surg (2014)	Navi	Navi	-	Navi	-	No difference
Thienpont	The knee (2013)	Navi	Navi	Navi	Navi	Navi	-
Cheng	KSSTA (2012)	Navi	Navi	Navi	Navi	Navi	No difference (6 monstha)
Fu	KSSTA (2012)	Navi	Navi	-	Navi	-	-
Hetaimish	J arthroplasty (2012)	Navi	Navi	Navi	Navi	Navi	-
Weber	KSSTA (2012)	Navi	Navi	Navi	Navi	Navi	-
Brin	Int Orth (2011)	Navi	Navi	-	Navi	-	-
Cheng	J surg Res (2011)	Navi	Navi	Navi	Navi	Navi	-
Mason	J arthroplasty (2007)	Navi	Navi	Navi	Navi	Navi	-

## Conclusions

The navigation system can provide

(compared with conventional technique)

- Good stability
- improved alignment accuracy
- Better results in stiffness of knee