

A New High-Flexion Design Total Knee Prosthesis: A Nine to Eleven-Year Follow-Up Study.



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Conflict of interest

Kim MS, MD. Ph.D.

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We have no financial conflict to disclose.

Introduction

- ◆ Does high-flexion TKA design improve postoperative flexion & functional outcome?
- ◆ High flexion TKA vs Standard TKA

1. *ROM*

- High flexion TKA > Standard TKA
- High flexion TKA = Standard TKA

Bin 2007, Gupta 2006, Huang 2005
Seon 2005, Kim 2005, McCalden 2009

2. *Early aseptic loosening*

- High flexion TKA > Standard TKA

Cho 2011, Han 2007

Purpose

During a 9-11 year follow-up

- (1) To evaluate the **postoperative ROM** of high-flexion concept TKA (LOSPA)
- (2) To evaluate the **clinical outcomes** of LOSPA prosthesis
- (3) To evaluate **stability including survival rate** of LOSPA prosthesis

Materials and Methods

◆ Preoperative & postoperative ROM

- ROM, Flexion contracture, Maximum flexion

◆ Preoperative & postoperative clinical outcomes

- WOMAC score (Pain, Stiffness, function)
 - Validated, 24-item disease-specific questionnaire

◆ Radiographic assessment

- Knee alignment, Femoral & tibial angle, Radiolucent line

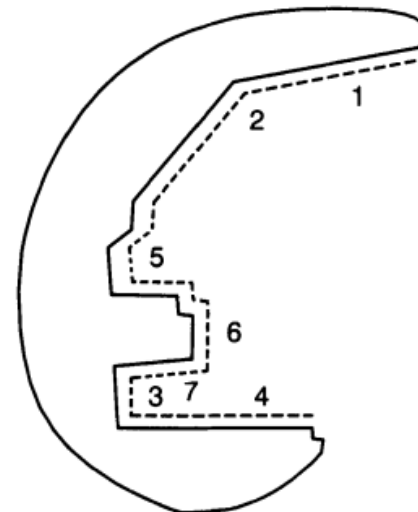
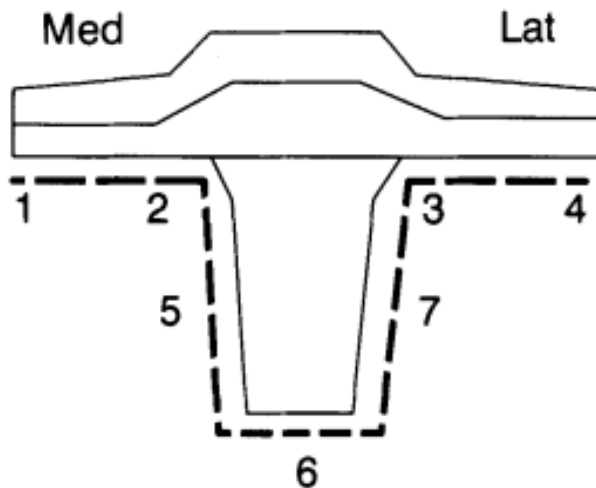
Materials and Methods

➤ Radiolucent line

- Loosening: ≥ 2 mm in width at the cement-bone or cement-prosthesis interface

Gonzalez 2004

- Presence and location of radiolucent lines



Ewald 1989

Results (ROM & Clinical outcome)

	Preoperative	Postoperative (Last f/u)	<i>p</i> value
ROM(°)	117.3 ± 12.4	126.5 ± 9.7	<0.001
Flexion contracture(°)	6.3 ± 6.2	0.3 ± 1.7	<0.001
Maximum flexion(°)	123.6 ± 10.8	126.8 ± 8.6	0.001

	Preoperative	Postoperative (Last f/u)	<i>p</i> value
WOMAC	56.3 ± 14.9	15.8 ± 14.1	<0.001
Pain	11.4 ± 3.4	1.5 ± 2.7	<0.001
Stiffness	3.7 ± 2.0	1.3 ± 1.5	<0.001
Function	41.0 ± 11.6	13.1 ± 11.4	<0.001

Results (Radiologic findings)

	Preoperative	Postoperative (Last f/u)	<i>p</i> value
Knee alignment			
HKA(°)	Varus 7.5 ± 5.2 (Varus 25.2 – valgus 7.0)	Varus 1.5 ± 2.6 (Varus 14.0 – valgus 9.0)	<0.001
FTA(°)	Varus 3.5 ± 5.4 (Varus 19.8 – valgus 12.3)	Valgus 5.2 ± 2.4 (Varus 4.7 – valgus 18.8)	<0.001

Femoral angle		Tibial angle	
Coronal(°)	Sagittal(°)	Coronal(°)	Sagittal(°)
96.3 ± 2.0 (85.8 – 107.3)	4.9 ± 3.1 (0 – 14.3)	89.1 ± 1.8 (81.6 – 97.8)	86.2 ± 2.1 (79.2 – 96.0)

Results(Radiolucent lines)

Radiolucent line

23 knees (4.6%)

Location

N

**Medial tibial condyle
(zone 1 & 2)**

10

**Anterior femoral condyle
(zone 1 & 2)**

12

**Posterior femoral condyle
(zone 3 & 4)**

5

Four knees with radiolucent lines in both the anterior & posterior femoral condyle



Results(Survival rates)

Aseptic loosening,
Recurvatum, Ankylosis

+Infection

+PE change

+Brisement

+periprosthetic fx

Aseptic loosening,
Recurvatum, Ankylosis

+ Infection

Aseptic loosening,
Recurvatum, Ankylosis

**Survival
rates (%)**

96.2 %

97.2 %

97.8 %

Conclusion

- ◆ *High-flexion concept LOSPA system*

- (1) Improved ROM & clinical outcomes

- (2) Good survival rate after long-term follow up

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