# Unity Knee™

The evidence base

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Connected Orthopaedic Insight

# Unity Knee™

## Stability and satisfaction through joint line preservation

## Contents

# 1. ODEP rating and NJR data

## ODEP rating

The Orthopaedic Data Evaluation Panel (ODEP) in the UK assigns benchmark ratings to implants based on a simple and independently verified assessment of implant performance against clinical best practice guidelines. Each implant given an ODEP rating is assigned a number (15, 13, 10, 7, 5, or 3) according to the available follow-up and a letter (A or B) that indicates the strength of the data provided[1].
Unity Knee system currently holds three ODEP ratings confirming strong evidence at 3 years follow-up for the following combinations:

- Unity Knee CR with domed patella: ODEP 5A
- Unity Knee CR without patella: ODEP 3A
- Unity Knee PS with offset domed patella: ODEP 3A*

## NJR data

Unity Knee is the total knee replacement brand with the lowest reported cumulative revision rate of 1.17 (0.55-2.48) at 5 years as shown by the National Joint Registry's 17th Annual Report in the UK[2].

Latest ODEP ratings can be found at www.odep.org.uk

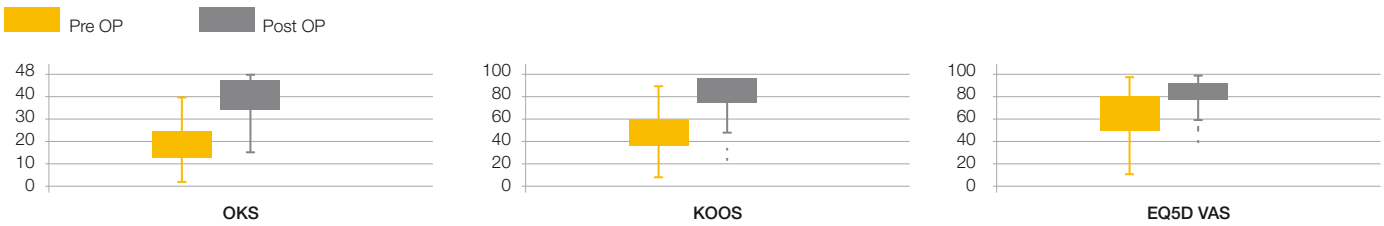
## 2. Excellent early outcome through Beyond Compliance

| | |
|---|---|
| **Title** | The first knee prosthesis to go through beyond compliance: A new standard for the safe introduction of orthopaedic implants. |
| **Authors** | Patel N G, Napier R J, Phillips J R A, Toms A D. |
| **Publication** | The Surgeon 2020 Dec; vol18(6): e27-e32[3]. |

**Methods** 100 patients were implanted with Unity Knee TKR under the Beyond Compliance programme and prospectively followed up to 2 years after the surgery.

**Results** PROMs results showed significant improvement at 2 years follow-up with 96% of the patients satisfied with their surgery.

**Conclusion** Early results suggest that Unity Knee is safe and effective.




Latest products participating in Beyond Compliance can be found at www.beyondcompliance.org.uk

## 3. Kinematics linked to patient satisfaction

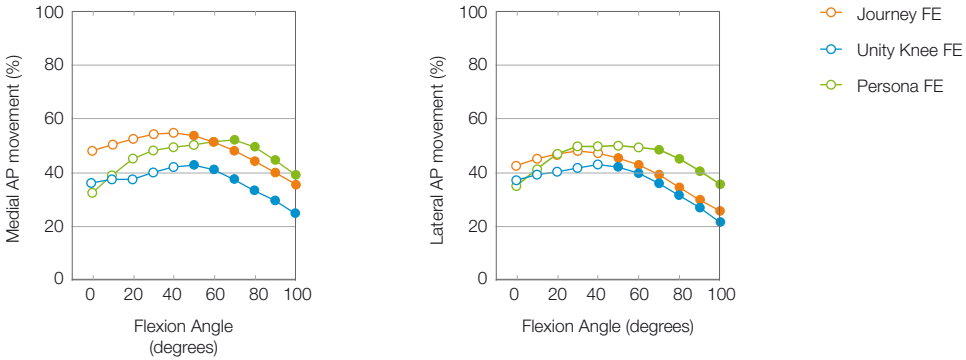
| | |
|---|---|
| **Title** | Knee kinematics determine patient satisfaction after TKA. |
| **Authors** | Stefaan Van Onsem. |
| **Publication** | The objective substrates of patient satisfaction after total knee arthroplasty, Chapter 3, 2018, Ghent University[4]. |

**Methods**

Kinematics of 30 total knees (Unity Knee, Journey II, and Persona) with up to 2yr follow-up were measured fluoroscopically during three different activities:

- Flexion-Extension (FE): non weight bearing from 0-120 degrees
- Squatting (SQ): weight bearing from 0-120 degrees
- Chair rise (CH): weight bearing from 0-90 degrees

Patient-reported outcome measures (PROMS) were gathered, segregated into two clusters (satisfied vs. unsatisfied) and correlated to the implant-specific kinematic profiles.




AP translation of medial and lateral compartments during open chain extension flexion movement.



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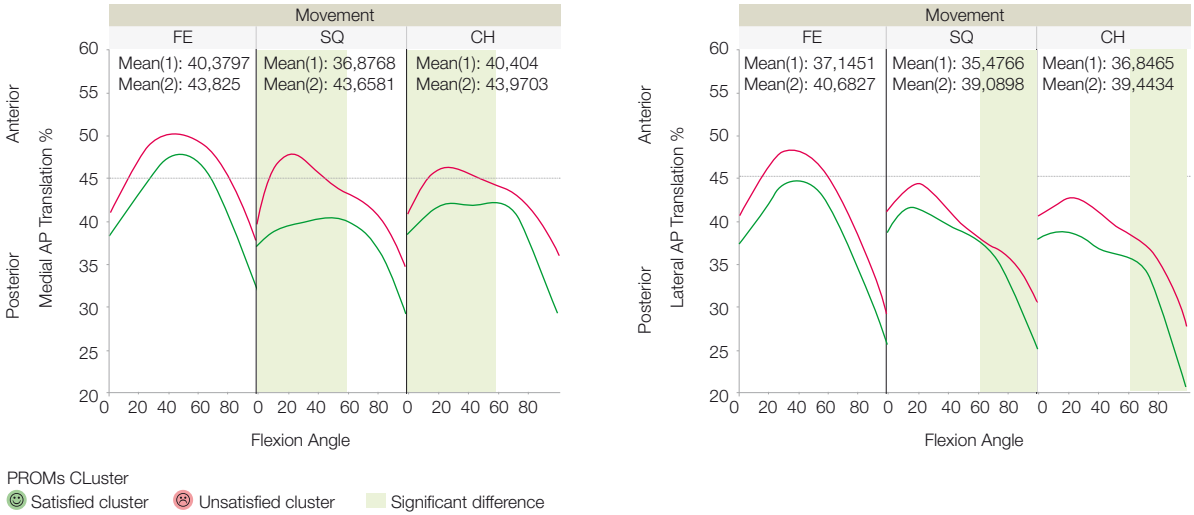
## Results

Significant differences were observed between the kinematic profiles of satisfied versus unsatisfied patients during the weight-bearing activities of squatting and chair rise. In general, a more posterior position throughout the range of motion was associated with satisfied patients. Medially, the satisfied patients were statistically more stable in early and mid-flexion. Laterally, the satisfied patients were statistically more posterior in deep flexion.




Although there were no statistically significant differences in patient satisfaction when comparing implant designs, all Unity Knee patients were within the satisfied cluster.

## Conclusion

Satisfied patients demonstrated statistically less paradoxical anterior movement in early flexion in the medial compartment, had a more stable medial compartment in mid-flexion, and exhibited greater posterior motion in deep flexion in the lateral compartment.

## 4. Significant improvements in functional outcomes

| | |
|---|---|
| **Title** | Comparison of Functional Outcomes of Total Knee Arthroplasty Using Two Different Single Radius Implants. |
| **Authors** | Pourmoghaddam A, Dettmer M, Malanka S, Kreuzer S. |
| **Publication** | Reconstructive Review, 2016 Mar, Vol 6 (1):43-48[5]. |

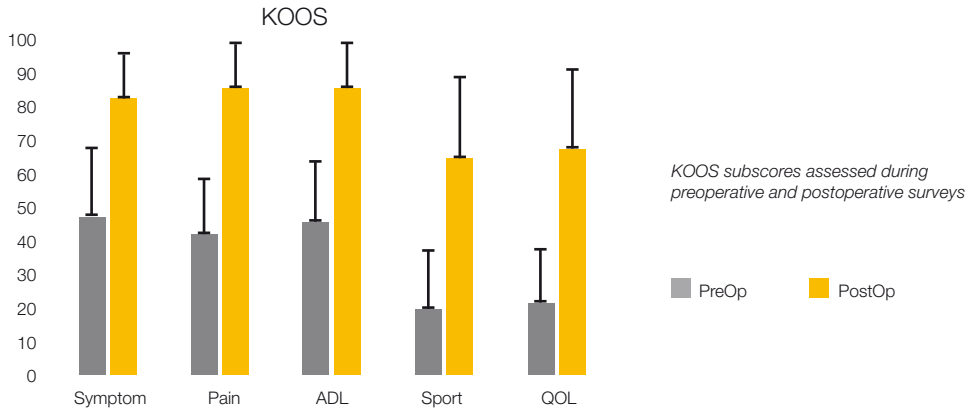
**Methods**

A retrospective review of preoperative and postoperative clinical outcomes measured by KOOS, of 78 patients who received a cemented Cruciate Retaining (CR) Unity Knee implant in a single surgeon series.

- Standard medial parapatella surgical approach.
- Distal femoral resection followed by proximal tibia.
- The proximal tibia slope and varus/valgus angle was adjusted to the natural tibial plateaus of the patients.
- The extension gap was then balanced by soft tissue releases.
- Femoral rotation was adjusted using the ligament balancer and femoral sizer with the knee in 90 degrees of flexion.
- Patella resurfaced with implant to re-establish preoperative thickness.

**Results**

Improvement in functional outcome was significant for all subscores and post-surgery subscores were significantly higher in all patients. Average follow-up range 361±228 days.




*KOOS subscores assessed during preoperative and postoperative surveys*

**Discussion**

Molt *et al*[6]. have reported the 1 year postoperative clinical outcomes measured by KOOS for patients who received a competitor single radius CR implant, Triathlon TKA. The scores in this study are comparable to those of patients who were treated with Triathlon CR in the earlier study by Molt *et al*.

**Conclusion**

This study reports the short term clinical outcome of a new single radius knee prosthetic design - Unity Knee. Patients in the study demonstrated excellent improvement in functional outcome indicating the short term success of this implant design.

## 5. Two years excellent follow up

**Title** Early Experience with a Modern Generation Knee System: Average 2 Years' Follow-up.
**Author** Paszicsnyek T.
**Publication** *Reconstructive Review*, 2015 Dec, Vol 5 (4):23-28[7].

**Methods** Retrospective/prospective study to analyse 2-year clinical and radiographic outcomes of patients in a consecutive single surgeon series who received a PS Unity Knee TKR. A total of 89 patients were assessed using the AKSS, OKS and radiographs. Mean follow-up was 1.95 years (range 1.1-2.9). Average age of 68 years (range 45-87) and average BMI 28.6 (range 19.8-45.5).

**Results**

**Correlation of Age and BMI on 2-Year AKSS scores**

| | Age | BMI |
|---|---|---|
| AKSS knee score | r = 0.1238 NS | r = -0.0434 NS |
| AKSS pain score | r = 0.2546<br>p = 0.0167<br>R2 = 0.0648 | r = -0.0697 NS |
| AKSS function | r = 0.1741 NS | r = -0.0327 NS |
| AKSS ROM | r = 0.0609 NS | r = -0.148 NS |
| OKS | r = 0.1098 NS | r = -0.1565 NS |
| | *Pearson correlation N=70 due to missing BMI | |

The analysis demonstrated a significant correlation between age and 2-year AKSS pain score; the results showed that older patients experienced less pain at 2-year follow-up than younger patients. Coefficient of determination demonstrated that 6% of the variation in the AKSS pain score is predicted by age. There was 1 revision due to infection at 1.1 year post-op and Kaplan-Meier survivorship was 98.9% at 2 years.

**Conclusion** All clinical and radiological results were excellent at 2 years postoperatively; the reported mean OKS was 46 out of maximum score of 48. Anteroposterior and mediolateral stability and flexion also demonstrated good results which may suggest optimised quadriceps function and posterior condylar offset balance.

**6. References:**


1. Latest ODEP ratings can be found at www.odep.org.uk.
2. NJR 17th Annual Report 2020, Table 3.K7 (a) KM estimates of cumulative revision (95% CI) by total knee replacement brands. Blue italics signify that fewer than 250 cases remained at risk at these time points.
3. Patel NG, Napier RJ, Phillips JRA, Toms AD. The first knee prosthesis to go through beyond compliance: A new standard for the safe introduction of orthopaedic implants. Surgeon. 2020 Dec;18(6):e27-e32. doi: 10.1016/j.surge.2020.06.005. Epub 2020 Jul 14. PMID: 32675025.
4. Van Onsem S, Knee Kinematics Determine Patient Satisfaction After TKA, The objective substrates of patient satisfaction after total knee arthroplasty, Chapter 3, 2018, Ghent University.
5. Pourmoghaddam A, Dettmer M, Malanka S, Kreuzer S. Comparison of Functional Outcomes of Total Knee Arthroplasty Using Two Different Single Radius Implants. Reconstructive Review. 2016 Mar, Vol 6 (1):43-48.
6. Molt M, Toksvig-Larsen S. (2014). Similar early migration when comparing CR and PS in Triathlon TKA: A prospective randomised RSA trial. The Knee. 2014 21(5): 949–954.
7. Paszicsnyek T. Early Experience with a Modern Generation Knee System: Average 2 Year's Follow-up. Reconstructive Review. 2015 Dec, Vol 5 (4):23-28.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