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# Mid To Long-Term Results Of Medial Unicompartmental Knee Arthroplasty : Mobile Versus Fixed-Bearing

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# Faculty Disclosure Information

- Nothing to disclosure



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# Introduction

- Medial unicompartmental knee arthroplasty (UKA) is a popular treatment option for isolated medial compartment osteoarthritis of the knee joint
  - 95% 10-year survivorship and 90% 20-year survivorship



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# Introduction

- Mobile vs fixed bearing UKA
  - Mobile > fixed : ROM
  - Mobile < fixed : survivorship
  - Mobile = fixed
  - Different failure mode, period
    - Mobile : early, bearing dislocation
    - Fixed : later, polyethylene wear, aseptic loosening



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# Introduction

- Purpose: to evaluate mid to long term follow up results of medial UKA patient along regarding bearing modality (fixed bearing, mobile bearing)



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# Materials and methods

- Retrospective comparative study
- 2008-06-01 ~ 2015-07-31 Medial UKA cases (n=156)
- At a single institution, minimum 5-year f/u
- Exclusion
  - ACL reconstruction combined (n=4)
  - F/U < 5 years (n=71)
- Total 81 cases
  - Fixed (n=45)
    - Before 2012.10 : Zimmer Miller Galante (n=20)
    - After 2012.10 : Zimmer High Flex Knee system (n=25)
  - Mobile (n=36)
    - Zimmer Oxford Partial knee



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# Materials and methods

- Baseline patient characteristics: sex, age, height, weight, BMI
- Follow up: latest OPD f/u – clinical outcomes, radiologic outcomes
- Clinical outcomes: ROM, WOMAC score
- Radiologic outcomes: HKA, OA progression(K-L, lateral compartment and PFJ)
- Survival (failure): TKA conversion (+ PE change)



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# Results

Table 1. The demographic data

|                           | Total (n=81) | Fixed (n=45) | Mobile (n=36) | p-value |
|---------------------------|--------------|--------------|---------------|---------|
| Age (years)               | 57.2 ± 6.4   | 57.5 ± 6.6   | 56.8 ± 6.2    | 0.596   |
| Follow up period (months) | 127.0 ± 28.6 | 121.6 ± 27.0 | 133.9 ± 29.5  | 0.056   |
| Height (cm)               | 158.2 ± 8.3  | 158.0 ± 8.3  | 158.5 ± 8.5   | 0.770   |
| Weight (kg)               | 66.1 ± 10.4  | 65.8 ± 9.7   | 66.5 ± 11.3   | 0.753   |
| BMI (kg/m²)               | 26.3 ± 3.1   | 26.3 ± 3.1   | 26.4 ± 3.1    | 0.945   |
| Sex (M/F)                 | 17 / 64      | 7 / 38       | 10 / 26       | 0.286   |
| Side (L/R)                | 46 / 35      | 28 / 17      | 18 / 18       | 0.380   |





# Results

Table 2. Clinical outcomes in the two groups

|                                | Total (n=77) | Fixed (n=44) | Mobile (n=33) | p-value |
|--------------------------------|--------------|--------------|---------------|---------|
| ROM (°) (preoperative)         | 145.5 ± 18.3 | 144.4 ± 22.2 | 146.8 ± 11.2  | 0.540   |
| ROM (°) (postoperative)        | 144.6 ± 13.6 | 143.4 ± 14.7 | 146.1 ± 12.0  | 0.386   |
| ROM (°) (delta)                | -0.9 ± 23.4  | -1.0 ± 27.6  | -0.8 ± 16.6   | 0.958   |
| WOMAC score<br>(postoperative) | 28.2 ± 20.8  | 27.6 ± 21.8  | 28.9 ± 19.7   | 0.791   |

# Results

Table 3. Radiologic outcomes in the two groups

|                                                    | Total (n=77) | Fixed (n=44) | Mobile (n=33) | p-value |
|----------------------------------------------------|--------------|--------------|---------------|---------|
| Contralateral K-L grade<br>(Pre.) grade (0/1/2)    | 8/52/17      | 5/31/8       | 3/21/9        | 0.628   |
| Contralateral K-L grade<br>(Post.) grade (1/2/3/4) | 25/47/4/1    | 14/27/3/0    | 11/20/1/1     | 0.600   |
| Contralateral K-L grade<br>(delta) grade (0/1/2)   | 32/41/4      | 16/26/2      | 16/15/2       | 0.495   |
| PFJ K-L grade<br>(Pre.) grade (0/1/2)              | 7/46/24      | 5/29/10      | 2/17/14       | 0.167   |
| PFJ K-L grade<br>(Post.) grade (1/2/3/4)           | 1/34/38/4    | 0/23/18/3    | 1/11/20/1     | 0.182   |
| PFJ K-L grade<br>(delta) grade (0/1/2)             | 50/26/1      | 26/17/1      | 24/9/0        | 0.366   |
| HKA (°) (Pre.)                                     | 173.1 ± 4.3  | 173.0 ± 4.6  | 173.2 ± 4.0   | 0.795   |
| HKA (°) (Post.)                                    | 174.6 ± 4.9  | 174.1 ± 5.1  | 175.1 ± 4.6   | 0.378   |
| HKA (°) (delta)                                    | 1.5 ± 3.8    | 1.2 ± 3.9    | 1.9 ± 3.9     | 0.417   |



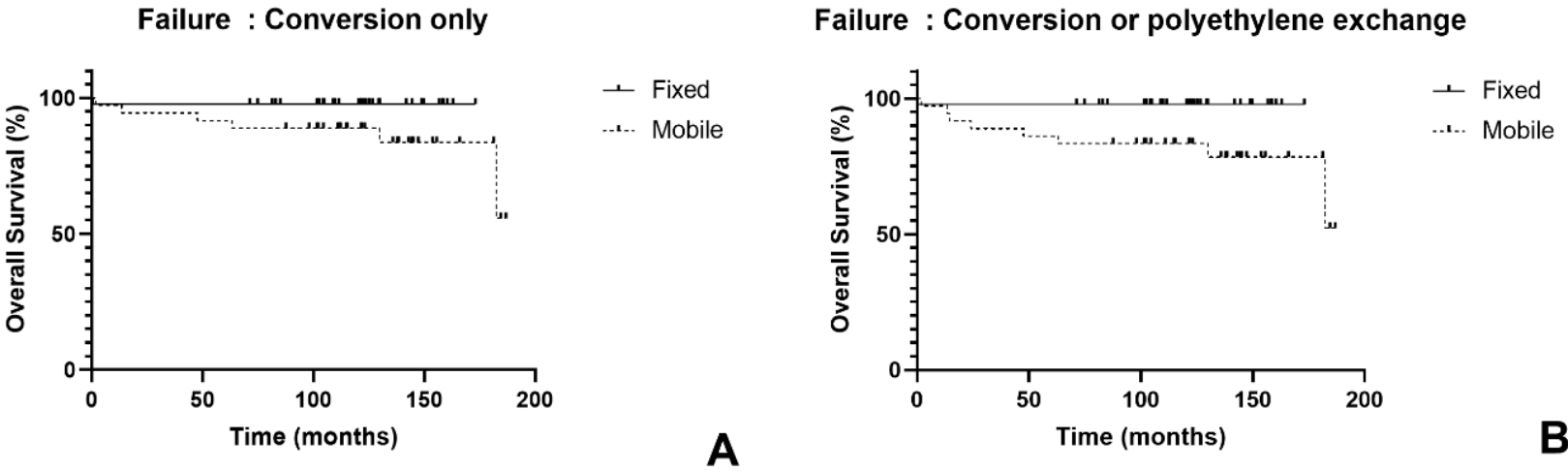


# Results

Table 4. Failures in the two groups

|                                         | Total (n=81) | Fixed (n=45) | Mobile (n=36) | p-value |
|-----------------------------------------|--------------|--------------|---------------|---------|
| Failure (TKA conversion)                | 7 (8.6%)     | 1 (2.2%)     | 6 (16.7%)     | 0.041   |
| Failure (TKA conversion or PE exchange) | 9 (11.1%)    | 1 (2.2%)     | 8 (22.2%)     | 0.009   |

Figure. Overall survivorship of mobile-bearing and fixed-bearing unicompartmental arthroplasty



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# Conclusion

- When observing the mid to long-term results, there were no significant differences in WOMAC score, ROM, or radiological outcomes between mobile and fixed-bearing UKA.
- However, in terms of failure and survivorship, fixed-bearing UKA showed better results than mobile-bearing UKA.



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