

# Mid to Long Term Survivorship of Unicompartmental Knee Arthroplasty

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**INTRODUCTION:** There has been a recent surge of interest in UKA due to its purported advantages over TKA such as preserved bone stock, retained cruciate driven kinematics, earlier recovery and improved functional outcomes. However, the reported revision rate is classically higher when compared to TKAs. Despite previously higher revision rates, UKAs performed under the right conditions may have survivorship comparable to that of primary TKAs. The primary goal of this large, single-surgeon study is to evaluate mid to long-term implant survivorship following UKA. Additionally, we performed an ancillary, in-depth review of the UKA implant failures by assessing the type of implant used and indication for revision.

**METHODS:** This is a non-controlled, retrospective cohort study. Data was collected from a prospectively maintained, single institution database. All patients over 18 years of age undergoing primary UKA between 01/01/2001 and 12/31/2016 were included. All surgeries were performed by a single, fellowship trained surgeon. The primary outcome analyzed was implant survivorship at final follow up.

## RESULTS:

There were a total of 363 UKAs. 62 were staged bilateral with a single simultaneous bilateral procedure. 8 patients were excluded due to unrelated deaths during the study period. Mean age was 61.97 (38.32-92.58). Average follow up for these patients was 10.62 years (4.18-20.61). A variety of implant designs were used during this time period, but the vast majority of the UKAs performed were done using the ZUK Unicondylar Knee (255/363). 18 revision procedures were performed. 17 were revised to a TKA and there was a single isolated tibial component revision for an overall average revision rate of 5.1%. The primary cause of revision of the patients in this study was aseptic loosening (7/18; 39%) followed by progression of degenerative changes in both the tibiofemoral joint and along the medial patellar facet (7/18; 39%)

**DISCUSSION AND CONCLUSION:** UKA is an attractive treatment option in select patients with isolated, unicompartmental OA. This large, single surgeon study demonstrates that, in the hands of an experienced surgeon, UKA is a viable treatment option with low revision rates comparable to those catalogued for TKA in current registries.

Implant Used	Revisions to TKA	Total Revisions	Mean Time to Revision	Avg. Followup	% Survival
ZUK Unicompartmental Knee	20	1	3.64 years	3.54 years	88
Medial Patellar UKA	0	0	<0.0001 years	24.44 years	88
Biomec UKA	0	0	n/a	4.79 years	100
Medial Patellar UKA	0	0	n/a	4.77 years	100
Medial Patellar UKA	0	0	n/a	4.62 years	100
Biomec UKA	0	0	n/a	4.64 years	100
Smith & Nephew Unicompartmental UKA	1	0	n/a	16.66 years	100
Medi UKA	0	0	n/a	17.00 years	100

Figure 1. Table demonstrating the various implants used during the study period with the number of revision surgeries performed, mean time to revision, average follow-up, and percent survival rates.

Condition Necessitating Revision Procedure	
Aseptic Loosening	7
Progression of Tibiofemoral Osteoarthritis	5
Medial Patellar Facet Degeneration	2
Infection	2
Pain	1
Polyethylene Wear	1

Figure 2. Figure demonstrating the various clinical conditions necessitating revision surgery

Patients Requiring Revision Procedure		
Sex	Age at Initial Surgery	Time to Revision (yrs)
M	80.54	1.67
M	76.16	0.33
M	82.14	1.92
M	63.49	7.75
F	42.09	4.17
F	59.33	4.17
M	57.25	0.5
F	55.58	5.54
F	72.99	3.8
F	69.47	2.33
M	49.38	0.65
F	47.51	5.27
M	71.88	5.45
F	54.09	0.58
M	48.08	0.67
F	71.48	0.77
F	54.37	6.39
M	50.88	1.75

Figure 3. Figure demonstrates that the average age of those patients requiring a revision procedure was 61.5 years with an equal distribution of males and females. Time to revision procedure for each patient is also shown.