

Supplementary data

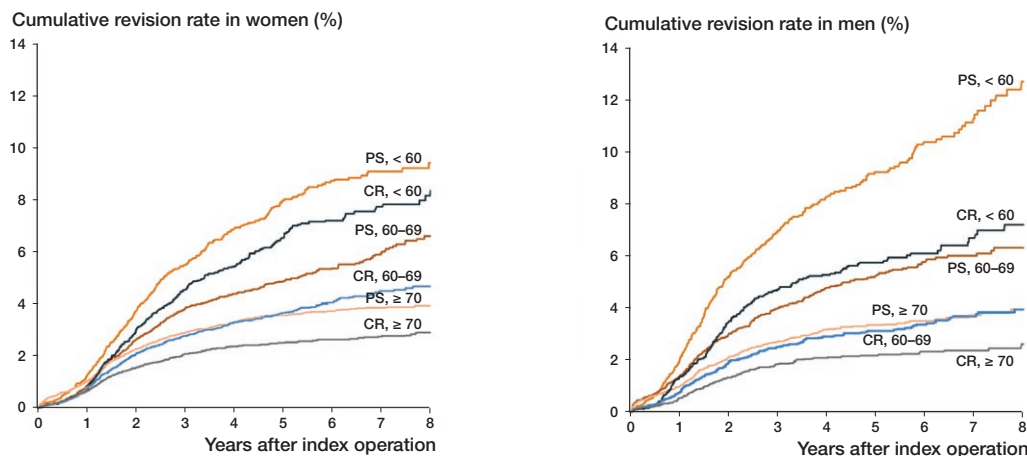


Figure 2. Cumulative revision rates of cemented cruciate retaining or posterior stabilized fixed bearing total knee arthroplasties for osteoarthritis by type of knee system per age category, stratified for sex, in the Netherlands in 2007–2016 (n = 133,841). CR: cruciate retaining TKA system; PS: posterior stabilized TKA system.

Table 4. Cumulative 8-year revision rates of cemented fixed bearing total knee arthroplasties for osteoarthritis with cruciate retaining (CR) or posterior stabilized (PS) knee system, stratified for sex, age, and ASA score, in the Netherlands in 2007–2016 (n = 133,841)

Sex, age ASA-score	CR TKA system		PS TKA system	
	n	8-year revision rate (%) (CI)	n	8-year revision rate (%) (CI)
Male, < 60 years				
ASA I	1,561	7.2 (5.6–9.2) ^a	1,753	12.1 (9.8–15.0) ^a
ASA II	2,105	7.8 (6.0–10.3) ^a	2,605	14.4 (11.4–18.1) ^a
ASA III–IV	236	6.1 (3.3–11.3)	347	13.0 (7.7–22.2)
Total	4,015	7.2 (6.1–8.5) ^a	4,842	12.7 (11.1–14.5) ^a
Male, 60–69 years				
ASA I	1,975	2.7 (2.0–3.7) ^a	2,161	5.6 (4.4–7.2) ^a
ASA II	5,127	4.3 (3.5–5.2) ^a	6,408	6.5 (5.6–7.7) ^a
ASA III–IV	890	4.9 (3.3–7.5)	1,057	7.6 (5.5–10.6)
Total	8,193	4.0 (3.4–4.7) ^a	9,835	6.3 (5.6–7.1) ^a
Male, ≥ 70 years				
ASA I	1,091	3.4 (2.0–5.6)	1,310	5.5 (4.1–7.5)
ASA II	5,766	2.3 (1.9–2.9)	6,765	3.4 (2.8–4.2)
ASA III–IV	1,546	2.2 (1.5–3.4)	2,034	4.0 (2.9–5.5)
Total	8,621	2.6 (2.2–3.2) ^a	10,365	4.0 (3.4–4.6) ^a
Female, < 60 years				
ASA I	1,717	8.3 (6.7–10.4)	2,124	8.7 (7.1–10.7)
ASA II	3,444	7.5 (6.3–8.9)	4,579	9.6 (8.3–11.0)
ASA III–IV	533	8.9 (4.4–18.1)	728	11.9 (8.7–16.4)
Total	5,876	8.2 (7.2–9.3)	7,648	9.4 (8.5–10.5)
Female, 60–69 years				
ASA I	2,690	5.7 (4.6–7.2)	3,070	5.4 (4.2–7.0)
ASA II	9,030	4.0 (3.5–4.7) ^a	11,011	7.2 (6.2–8.3) ^a
ASA III–IV	1,410	5.9 (4.3–8.1)	1,916	7.9 (6.0–10.5)
Total	13,499	4.7 (4.2–5.3)	16,400	6.6 (6.0–7.3)
Female, ≥ 70 years				
ASA I	2,259	2.0 (1.4–2.8) ^a	2,524	4.4 (3.5–5.6) ^a
ASA II	14,016	3.0 (2.7–3.5) ^a	16,562	4.0 (3.6–4.5) ^a
ASA III–IV	3,280	3.1 (2.4–4.0)	4,120	3.8 (3.0–4.7)
Total	20,187	2.9 (2.6–3.3) ^a	23,984	4.0 (3.6–4.3) ^a

TKA: total knee arthroplasty.

^a p < 0.05 for PS compared with CR TKAs.

Table 5. Cumulative minor and major 8-year revision rates of cemented fixed bearing total knee arthroplasties for osteoarthritis by type of TKA system, stratified for sex and age, in the Netherlands in 2007–2016 (n = 133,841)

Type of revision, sex Age, years	CR TKA system		PS TKA system	
	n	8-year revision rate (%) (CI)	n	8-year revision rate (%) (CI)
Minor (only insert and/or patella exchange ^a)				
Male				
< 60	4,015	1.8 (1.4–2.5) ^b	4,842	3.7 (3.0–4.7) ^b
60–69	8,193	1.1 (0.8–1.5)	9,835	1.8 (1.4–2.2)
≥ 70	8,624	0.7 (0.4–1.2)	10,365	1.3 (1.0–1.7)
Total	20,844	1.1 (0.9–1.3) ^b	25,061	2.0 (1.7–2.3) ^b
Female				
< 60	5,876	1.2 (0.9–1.6) ^b	7,648	2.7 (2.1–3.4) ^b
60–69	13,499	0.8 (0.6–1.1)	16,400	1.2 (0.9–1.5)
≥ 70	20,187	0.4 (0.3–0.6) ^b	23,984	0.8 (0.7–1.0) ^b
Total	39,596	0.7 (0.6–0.8) ^b	48,064	1.3 (1.1–1.4) ^b
Major (including femur or tibia)				
Male				
< 60	4,015	4.2 (3.3–5.3) ^b	4,842	7.0 (5.6–8.7) ^b
60–69	8,193	2.0 (1.6–2.5) ^b	9,835	3.3 (2.7–3.9) ^b
≥ 70	8,624	1.1 (0.9–1.5)	10,365	1.5 (1.2–2.0)
Total	20,844	2.1 (1.8–2.4) ^b	25,061	3.4 (3.0–3.8) ^b
Female				
< 60	5,876	5.2 (4.4–6.2)	7,648	4.7 (4.0–5.5)
60–69	13,499	2.6 (2.2–3.1) ^b	16,400	3.8 (3.3–4.4) ^b
≥ 70	20,187	1.7 (1.5–2.0)	23,984	2.0 (1.8–2.3)
Total	39,596	2.5 (2.3–2.7) ^b	48,064	3.0 (2.8–3.3) ^b

^a Excluding patella addition.

^b p < 0.05 for PS compared with CR TKAs.

Table 6. Reasons for minor or major revisions of cruciate retaining and posterior stabilized cemented fixed bearing TKA systems for osteoarthritis in the Netherlands in 2007–2016

Reason for revision	Minor revision ^a (n = 1,046)		Major revision ^b (n = 2,149)		Any revision ^c (n = 4,377)	
	CR (n = 333) n (%)	PS (n = 713) n (%)	CR (n = 911) n (%)	PS (n = 1,238) n (%)	CR (n = 1,718) n (%)	PS (n = 2,659) n (%)
Patellar pain	102 (30.6)	18 (26.2)	84 (9.2)	145 (11.7)	549 (32.0)	842 (31.7)
Instability	138 (41.4)	263 (36.9)	327 (35.9)	284 (22.9) ^{g, h}	477 (27.8)	567 (21.3) ^{g, h}
Loosening tibial component	0 (0.0)	3 (0.4)	242 (26.6)	505 (40.8) ^{g, h}	243 (14.1)	513 (19.3) ^{g, h}
Infection	67 (20.1)	207 (29.0) ^f	161 (17.7)	252 (20.4)	244 (14.2)	499 (18.8) ^{g, h}
Malalignment	6 (1.8)	11 (1.5)	254 (27.9)	371 (30.0)	265 (15.4)	387 (14.6)
Loosening femoral component	1 (0.3)	1 (0.1)	78 (8.6)	117 (9.5)	80 (4.7)	119 (4.5)
Arthrofibrosis	20 (6.0)	30 (4.2)	32 (3.5)	55 (4.4)	61 (3.6)	93 (3.5)
Revision after removal	0 (0.0)	1 (0.1)	48 (5.3)	97 (7.8) ^e	48 (2.8)	98 (3.7)
Patellar dislocation	10 (3.0)	15 (2.1)	37 (4.1)	30 (2.4) ^e	74 (4.3)	71 (2.7) ^e
Wear of inlay	18 (5.4)	33 (4.6)	18 (2.0)	25 (2.0)	37 (2.2)	61 (2.3)
Periprosthetic fracture	0 (0.0)	6 (0.8)	21 (2.3)	69 (5.6) ^f	21 (1.2)	75 (2.8) ^f
Loosening patellar component	10 (3.0)	14 (2.0)	6 (0.7)	9 (0.7)	20 (1.2)	31 (1.2)
Other reason for revision	53 (15.6)	118 (15.3)	112 (12.3)	122 (9.9) ^d	219 (12.7)	315 (11.8)

^a Only insert and/or patella exchange (excluding patella addition).

^b Revision of at least femur or tibia.

^c Any type of revision, including patella addition (CR n = 402; PS n = 555). A patellar component was placed during the primary procedure of 17.7% (n = 10,668) of cruciate retaining TKAs and of 28.5% (n = 20,831) of posterior stabilized TKAs.

^d p = 0.03

^e p = 0.01

^f p = 0.001

^g p < 0.001

^h Categories differ significantly for PS compared with CR TKAs after applying a Bonferroni correction (p = 0.05/39=0.001).