Mutars/Mutars Total Knee Investigation

Note: This analysis compares the Mutars/Mutars femoral/tibial combination with all other total knee prostheses.

This combination has been identified as having a significantly higher rate of revision. For a detailed explanation of the process used by the Registry that results in identification of prostheses that have a higher than anticipated rate of revision please refer to the Prostheses with Higher than Anticipated Rates of Revision chapter of the most recent AOANJRR Annual Report, https://aoanjrr.sahmri.com/annual-reports-2025.

Note: Procedures using prostheses with no recorded use in 2024 are excluded from the comparator.

TABLE 1

Revision Rate of Primary Total Knee Replacement

The revision rate of the Mutars/Mutars total knee combination is compared to all other total knee prostheses.

Table 1: Revision Rates of Primary Total Knee Replacement

Component	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Mutars/Mutars	82	482	1400	5.86 (4.66, 7.27)
Other Total Knee	24625	720579	4534139	0.54 (0.54, 0.55)
TOTAL	**24707**	**721061**	**4535539**	**0.54 (0.54, 0.55)**

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 2

Yearly Cumulative Percent Revision of Primary Total Knee Replacement

The yearly cumulative percent revision of the Mutars/Mutars total knee combination is compared to all other total knee prostheses.

Table 2: Yearly Cumulative Percent Revision (95% CI) of Primary Total Knee Replacement

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs
Mutars/Mutars	7.7 (5.6, 10.6)	12.7 (9.8, 16.4)	17.0 (13.5, 21.4)	20.2 (16.1, 25.2)	22.9 (18.3, 28.5)	25.2 (19.9, 31.6)		
Other Total Knee	1.0 (1.0, 1.0)	1.8 (1.8, 1.8)	2.4 (2.4, 2.4)	2.8 (2.8, 2.8)	3.1 (3.1, 3.2)	3.5 (3.4, 3.5)	3.8 (3.7, 3.8)	4.1 (4.0, 4.1)

CPR	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs
Mutars/Mutars								
Other Total Knee	4.4 (4.3, 4.5)	4.7 (4.7, 4.8)	5.0 (5.0, 5.1)	5.4 (5.3, 5.4)	5.7 (5.6, 5.8)	6.0 (5.9, 6.1)	6.4 (6.3, 6.5)	6.8 (6.7, 7.0)

CPR	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs
Mutars/Mutars							
Other Total Knee	7.2 (7.1, 7.4)	7.6 (7.4, 7.8)	7.9 (7.7, 8.0)	8.1 (7.9, 8.3)	8.3 (8.1, 8.6)	8.5 (8.2, 8.8)	8.6 (8.3, 8.9)

Note: Prostheses no longer used in 2024 are excluded from the comparator.

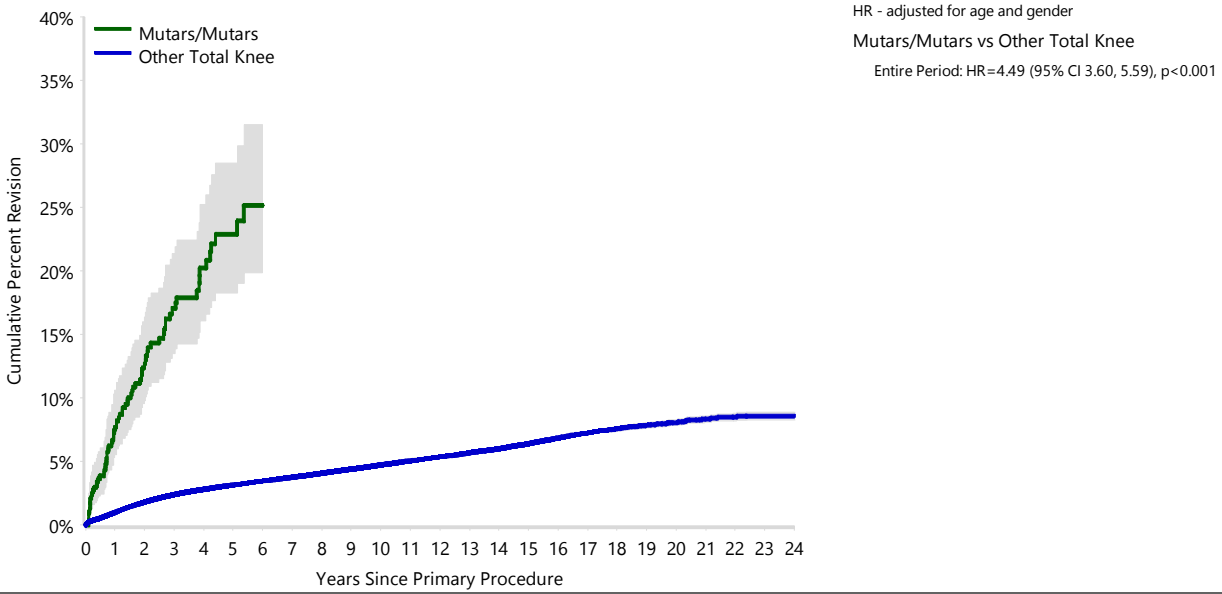
FIGURE 1

Yearly Cumulative Percent Revision of Primary Total Knee Replacement

The yearly cumulative percent revision of the Mutars/Mutars total knee combination is compared to all other total knee prostheses. In addition, hazard ratios are reported.

Hazard ratios are reported for specific time periods during which the hazard ratio is constant. This is done to enable more specific and valid comparisons of the risk of revision over time. The pattern of variation in risk has important implications with respect to the underlying reasons for any difference.

Figure 1: Cumulative Percent Revision of Primary Total Knee Replacement



Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs
Mutars/Mutars	482	370	277	197	131	84	44	30	16	10	4	2
Other Total Knee	720579	640358	561758	497995	435194	380130	326231	276450	231461	191164	154578	123866

Number at Risk	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs
Mutars/Mutars	0	0	0	0	0	0	0	0	0	0	0	0
Other Total Knee	97988	75221	56549	41508	30003	21223	14967	10421	6807	4051	2359	1090

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 3

Primary Diagnosis for Revised Primary Total Knee Replacement

This table identifies the diagnosis of the primary procedure which was subsequently revised. This information is provided as there is a variation on outcome depending on the primary diagnosis. It is therefore important when considering the reasons for a higher than anticipated rate of revision that there is identification of the primary diagnosis. This information should be compared to the primary diagnosis for the revisions of all other total knee prostheses.

Table 3: Primary Diagnosis for Revised Primary Total Knee Replacement

	Mutars/Mutars		Other Total Knee	
Primary Diagnosis	Number	Percent	Number	Percent
Osteoarthritis	27	32.9	23863	96.9
Rheumatoid Arthritis	1	1.2	300	1.2
Other Inflammatory Arthritis	2	2.4	156	0.6
Tumour	40	48.8	152	0.6
Osteonecrosis	1	1.2	89	0.4
Fracture	11	13.4	39	0.2
Other			25	0.1
Chondrocalcinosis			1	0.0
TOTAL	**82**	**100.0**	**24625**	**100.0**

Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 4

Reasons for Revision

This is reported in two ways: a percentage of primary procedures revised and as a percentage of all revision procedures.

% Primaries Revised: This shows the proportional contribution of each revision diagnosis as a percentage of the total number of primary procedures. This percentage can be used to approximate the risk of being revised for that diagnosis. Differing percentages between groups, with the same distribution of follow up time, may identify problems of concern.

% Revisions: The number of revisions for each diagnosis is expressed as a percentage of the total number of revisions. This shows the distribution of reasons for revision within a group but cannot be used as a comparison between groups.

Table 4: Primary Total Knee Replacement - Reason for Revision (Follow-up Limited to 11.8 Years)

	Mutars/Mutars			Other Total Knee		
Revision Diagnosis	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection	26	5.4	31.7	6879	1.0	29.4
Loosening	21	4.4	25.6	4936	0.7	21.1
Instability	2	0.4	2.4	2449	0.3	10.5
Pain	4	0.8	4.9	1683	0.2	7.2
Patella Erosion	2	0.4	2.4	1657	0.2	7.1
Patellofemoral Pain				1426	0.2	6.1
Arthrofibrosis	1	0.2	1.2	1037	0.1	4.4
Fracture	8	1.7	9.8	909	0.1	3.9
Malalignment				483	0.1	2.1
Wear Tibial Insert				238	0.0	1.0
Lysis				222	0.0	0.9
Incorrect Sizing	1	0.2	1.2	208	0.0	0.9
Patella Maltracking				174	0.0	0.7
Implant Breakage Tibial Insert				152	0.0	0.6
Bearing Dislocation				137	0.0	0.6
Implant Breakage Patella				128	0.0	0.5
Metal Related Pathology	6	1.2	7.3	88	0.0	0.4
Prosthesis Dislocation				68	0.0	0.3
Synovitis				58	0.0	0.2
Osteonecrosis				46	0.0	0.2
Wear Patella				35	0.0	0.1
Implant Breakage Tibial				34	0.0	0.1
Implant Breakage Femoral	7	1.5	8.5	27	0.0	0.1
Tumour	3	0.6	3.7	25	0.0	0.1
Heterotopic Bone				12	0.0	0.1
Progression Of Disease				7	0.0	0.0
Wear Tibial				5	0.0	0.0
Incorrect Side				1	0.0	0.0
Patella Dislocation				1	0.0	0.0
Wear Femoral				1	0.0	0.0
Other	1	0.2	1.2	290	0.0	1.2
N Revision	**82**	**17.0**	**100.0**	**23416**	**3.2**	**100.0**
N Primary	**482**			**720579**		

Note: This table is restricted to revisions within 11.8 years for all groups to allow a time-matched comparison of revisions.
Note: Prostheses no longer used in 2024 are excluded from the comparator.

FIGURE 2

Cumulative Incidence Revision Diagnosis of Primary Total Knee Replacement

This figure details the cumulative incidence of the most common reasons for revision. The five most common reasons for revision are included as long as each of these reasons account for more than 10 procedures or at least 5% of all revisions for the Mutars/Mutars total knee combination. A comparative graph is provided of the cumulative incidence for the same reasons for revisions for all other total knee prostheses.

Figure 2: Cumulative Incidence Revision Diagnosis for Primary Total Knee Replacement

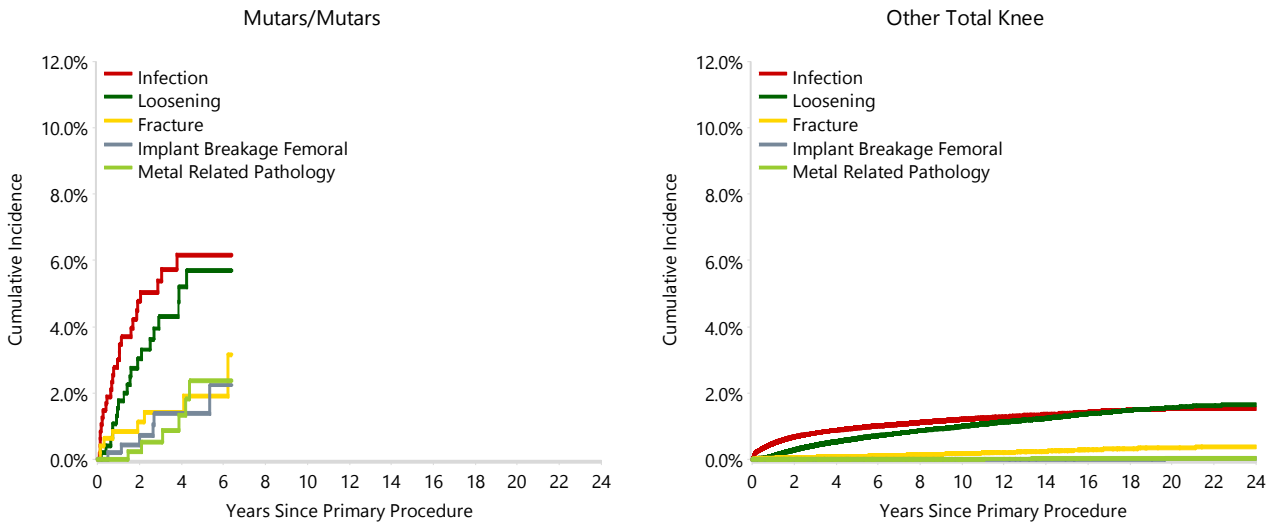


TABLE 5

Type of Revision Performed for Primary Total Knee Replacement

This analysis identifies the components used in the revision of the Mutars/Mutars total knee combination and compares it to the components used in the revision of all other total knee prostheses.

The reason this analysis is undertaken is to identify whether there is one or more components which are being replaced that differ from the components replaced for revisions of all other total knee prostheses i.e. is there a difference in the type of revision undertaken for the Mutars/Mutars total knee combination compared to all other total knee prostheses.

Table 5: Primary Total Knee Replacement - Type of Revision (Follow-up Limited to 11.8 Years)

	Mutars/Mutars		Other Total Knee	
Type of Revision	Number	Percent	Number	Percent
TKR (Tibial/Femoral)	13	15.9	5459	23.3
Tibial Component	5	6.1	1765	7.5
Femoral Component	33	40.2	1129	4.8
Cement Spacer	3	3.7	1046	4.5
Removal of Prostheses			121	0.5
Total Femoral	5	6.1	15	0.1
Reinsertion of Components			7	0.0
N Major	**59**	**72.0**	**9542**	**40.7**
Insert Only	13	15.9	7432	31.7
Patella Only	5	6.1	4020	17.2
Insert/Patella	4	4.9	2353	10.0
Minor Components	1	1.2	61	0.3
Cement Only			8	0.0
N Minor	**23**	**28.0**	**13874**	**59.3**
TOTAL	**82**	**100.0**	**23416**	**100.0**

Note: This table is restricted to revisions within 11.8 years for all groups to allow a time-matched comparison of revisions.
Note: Prostheses no longer used in 2024 are excluded from the comparator.

TABLE 6

Revision Rates of Mutars/Mutars Primary Total Knee Replacement by Fixation

This analysis is provided as some prostheses have more than one fixation option. Additionally there are prostheses where an alternative to the recommended approach to fixation was used e.g. a cementless prosthesis that has been cemented or vice-versa.

Table 6: Revised Number of Mutars/Mutars Primary Total Knee Replacement by Fixation

Fixation	N Revised	N Total
Cemented	69	425
Cementless	0	5
Hybrid (Tibial Cemented)	13	45
Hybrid (Tibial Cementless)	0	7
TOTAL	**82**	**482**

TABLE 7

Revision Rates of Mutars/Mutars Primary Total Knee Replacement by Bearing Surface

This analysis is provided as some prostheses are combined with a variety of bearing surfaces. All bearing surfaces used with this combination are listed.

Table 7: Revised Number of Mutars/Mutars Primary Total Knee Replacement by Bearing Surface

Bearing Surface	N Revised	N Total
Non XLPE	81	480
Unknown	1	2
TOTAL	**82**	**482**

TABLE 8

Revision Rates of Mutars/Mutars Primary Total Knee Replacement by Bearing Mobility

This analysis is provided as some prostheses are combined with a variety of bearing mobilities. All bearing mobilities used with this combination are listed.

Table 8: Revised Number of Mutars/Mutars Primary Total Knee Replacement by Bearing Mobility

Bearing Mobility	N Revised	N Total
Fixed	15	56
Rotating	66	424
Unknown	1	2
TOTAL	**82**	**482**

TABLE 9

Revision Rates of Mutars/Mutars Primary Total Knee Replacement by Stability

This analysis is provided as some prostheses are combined with a variety of stabilities. All stabilities used with this combination are listed.

Table 9: Revised Number of Mutars/Mutars Primary Total Knee Replacement by Stability

Stability	N Revised	N Total
Hinged	66	424
Minimally Stabilised	15	56
Unknown	1	2
TOTAL	**82**	**482**

TABLE 10

Number of Revisions of Mutars/Mutars Primary Total Knee Replacement by Year of Implant

This analysis details the number of prostheses reported each year to the Registry for the Mutars/Mutars total knee combination. It also provides the subsequent number of revisions of the primaries reported in that year.

Primary procedures performed in later years have had less follow up time therefore the number revised is expected to be less than the number revised in earlier years. For example, a primary procedure performed in 2024 has a maximum of one year to be revised, whereas a primary procedure performed in 2022 has a maximum of three years to be revised.

Table 10: Number of Revisions of Mutars/Mutars Primary Total Knee Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2012	0	2
2013	3	12
2014	1	8
2015	8	15
2016	4	14
2017	6	26
2018	13	32
2019	12	63
2020	6	56
2021	6	62
2022	11	71
2023	9	75
2024	3	46
TOTAL	**82**	**482**