Genesis II Oxinium PS (cemented)/Genesis II (cementless) Total Knee Investigation

Note: This analysis compares the Genesis II Oxinium PS (ctd)/Genesis II (cless) 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-2026.

Note: Procedures using prostheses with no recorded use in 2025 are excluded from the comparator.

TABLE 1

Revision Rate of Primary Total Knee Replacement

The revision rate of the Genesis II Oxinium PS (ctd)/Genesis II (cless) 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)
Genesis II Oxinium PS (ctd)/Genesis II (cless)	17	56	601	2.83 (1.65, 4.53)
Other Total Knee	27267	791374	5145321	0.53 (0.52, 0.54)
TOTAL	**27284**	**791430**	**5145922**	**0.53 (0.52, 0.54)**

Note: Prostheses no longer used in 2025 are excluded from the comparator.

TABLE 2

Yearly Cumulative Percent Revision of Primary Total Knee Replacement

The yearly cumulative percent revision of the Genesis II Oxinium PS (ctd)/Genesis II (cless) 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
Genesis II Oxinium PS (ctd)/Genesis II (cless)	19.6 (11.4, 32.7)	25.0 (15.6, 38.5)	26.8 (17.1, 40.4)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)
Other Total Knee	1.0 (1.0, 1.0)	1.8 (1.8, 1.8)	2.4 (2.3, 2.4)	2.8 (2.7, 2.8)	3.1 (3.0, 3.1)	3.4 (3.4, 3.5)

CPR	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs
Genesis II Oxinium PS (ctd)/Genesis II (cless)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)
Other Total Knee	3.7 (3.7, 3.8)	4.0 (4.0, 4.1)	4.3 (4.3, 4.4)	4.6 (4.6, 4.7)	4.9 (4.9, 5.0)	5.3 (5.2, 5.3)

CPR	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs
Genesis II Oxinium PS (ctd)/Genesis II (cless)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)	30.4 (20.1, 44.2)		
Other Total Knee	5.6 (5.5, 5.7)	5.9 (5.8, 6.0)	6.3 (6.2, 6.4)	6.7 (6.6, 6.9)	7.2 (7.0, 7.3)	7.5 (7.4, 7.7)

CPR	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs	24 Yrs	25 Yrs
Genesis II Oxinium PS (ctd)/Genesis II (cless)							
Other Total Knee	7.8 (7.7, 8.0)	8.1 (7.9, 8.3)	8.5 (8.2, 8.7)	8.7 (8.4, 9.0)	8.8 (8.6, 9.2)	9.1 (8.7, 9.5)	9.5 (8.8, 10.2)

Note: Prostheses no longer used in 2025 are excluded from the comparator.

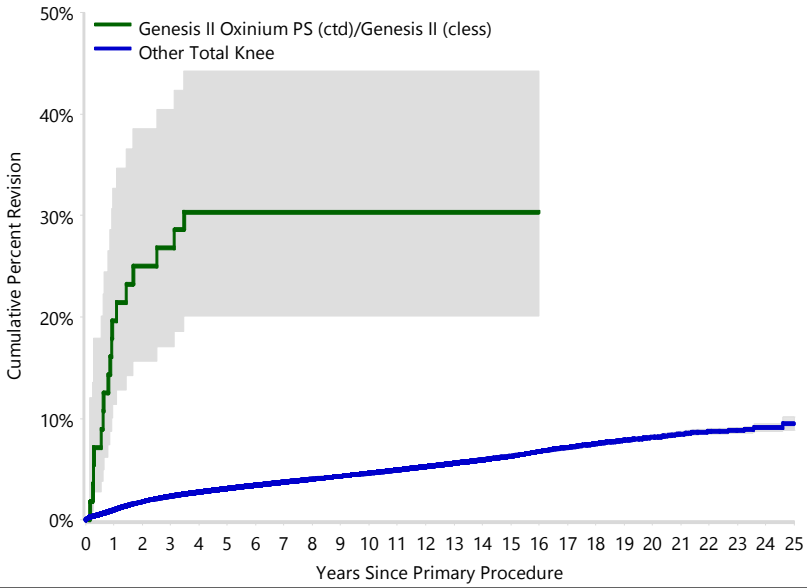
FIGURE 1

Yearly Cumulative Percent Revision of Primary Total Knee Replacement

The yearly cumulative percent revision of the Genesis II Oxinium PS (ctd)/Genesis II (cless) 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



HR - adjusted for age and sex

Genesis II Oxinium PS (ctd)/Genesis II (cless) vs Other Total Knee

0 - 1Yr: HR=17.39 (95% CI 9.62, 31.41), p<0.001

1Yr - 1.5Yr: HR=8.39 (95% CI 2.10, 33.56), p=0.002

1.5Yr - 3Yr: HR=4.25 (95% CI 1.06, 16.98), p=0.040

3Yr+: HR=1.09 (95% CI 0.27, 4.35), p=0.904

Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs
Genesis II Oxinium PS (ctd)/Genesis II (cless)	56	45	42	41	39	38	37	37
Other Total Knee	791374	708654	628232	550794	487505	424830	369808	315962

Number at Risk	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs
Genesis II Oxinium PS (ctd)/Genesis II (cless)	36	36	34	34	34	34	34	31	13
Other Total Knee	266780	222284	182620	146946	117167	92153	70346	52495	38338

Number at Risk	17 Yrs	18 Yrs	19 Yrs	20 Yrs	21 Yrs	22 Yrs	23 Yrs	24 Yrs	25 Yrs
Genesis II Oxinium PS (ctd)/Genesis II (cless)	6	3	0	0	0	0	0	0	0
Other Total Knee	27622	19431	13616	9427	6164	3657	2096	972	244

Note: Prostheses no longer used in 2025 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

	Genesis II Oxinium PS (ctd)/Genesis II (cless)		Other Total Knee	
Primary Diagnosis	Number	Percent	Number	Percent
Osteoarthritis	17	100.0	26375	96.7
Rheumatoid Arthritis			330	1.2
Tumour			199	0.7
Other Inflammatory Arthritis			177	0.6
Osteonecrosis			104	0.4
Fracture			55	0.2
Other			26	0.1
Chondrocalcinosis			1	0.0
TOTAL	**17**	**100.0**	**27267**	**100.0**

Note: Prostheses no longer used in 2025 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 18.3 Years)

	Genesis II Oxinium PS (ctd)/Genesis II (cless)			Other Total Knee		
Revision Diagnosis	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection				7874	1.0	29.0
Loosening	13	23.2	76.5	5718	0.7	21.1
Instability	2	3.6	11.8	2864	0.4	10.6
Patella Erosion				2017	0.3	7.4
Pain				1862	0.2	6.9
Patellofemoral Pain				1554	0.2	5.7
Arthrofibrosis				1181	0.1	4.4
Fracture	1	1.8	5.9	1123	0.1	4.1
Malalignment				511	0.1	1.9
Wear Tibial Insert				367	0.0	1.4
Lysis	1	1.8	5.9	284	0.0	1.0
Implant Breakage Tibial Insert				250	0.0	0.9
Incorrect Sizing				218	0.0	0.8
Patella Maltracking				192	0.0	0.7
Bearing Dislocation				150	0.0	0.6
Implant Breakage Patella				147	0.0	0.5
Metal Related Pathology				114	0.0	0.4
Prosthesis Dislocation				78	0.0	0.3
Synovitis				64	0.0	0.2
Wear Patella				52	0.0	0.2
Osteonecrosis				51	0.0	0.2
Implant Breakage Femoral				47	0.0	0.2
Implant Breakage Tibial				39	0.0	0.1
Tumour				36	0.0	0.1
Heterotopic Bone				16	0.0	0.1
Progression Of Disease				8	0.0	0.0
Wear Tibial				6	0.0	0.0
Patella Dislocation				3	0.0	0.0
Incorrect Side				1	0.0	0.0
Wear Femoral				1	0.0	0.0
Other				313	0.0	1.2
N Revision	**17**	**30.4**	**100.0**	**27141**	**3.4**	**100.0**
N Primary	**56**			**791374**		

Note: This table is restricted to revisions within 18.3 years for all groups to allow a time-matched comparison of revisions.
Note: Prostheses no longer used in 2025 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 Genesis II Oxinium PS (ctd)/Genesis II (class) 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

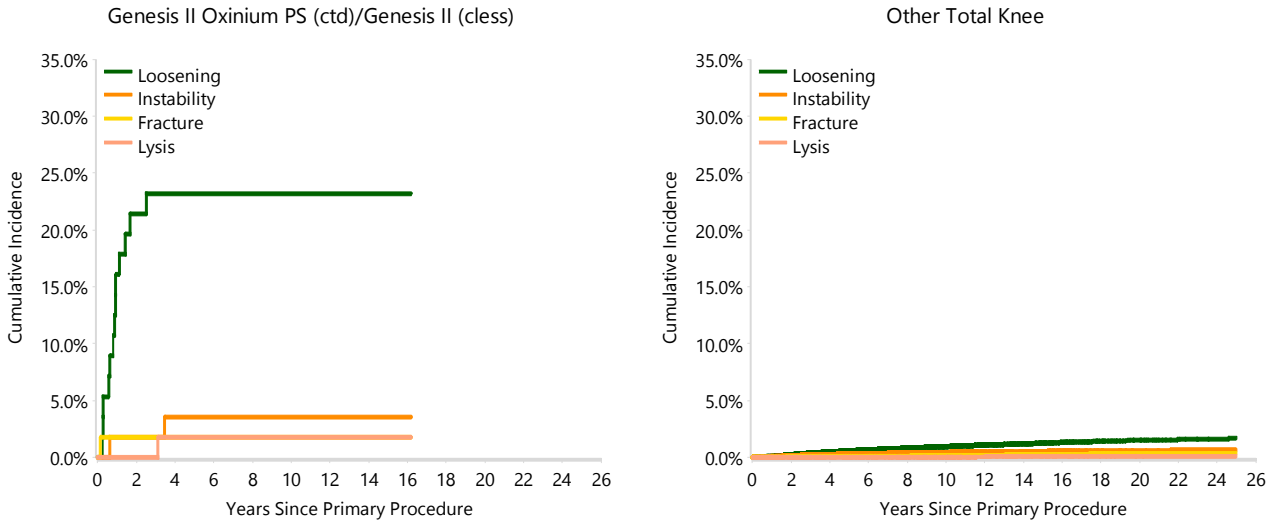


TABLE 5

Type of Revision Performed for Primary Total Knee Replacement

This analysis identifies the components used in the revision of the Genesis II Oxinium PS (ctd)/Genesis II (cless) 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 Genesis II Oxinium PS (ctd)/Genesis II (cless) total knee combination compared to all other total knee prostheses.

Table 5: Primary Total Knee Replacement - Type of Revision (Follow-up Limited to 18.3 Years)

	Genesis II Oxinium PS (ctd)/Genesis II (cless)		Other Total Knee	
Type of Revision	Number	Percent	Number	Percent
TKR (Tibial/Femoral)	2	11.8	6616	24.4
Tibial Component	13	76.5	1894	7.0
Femoral Component			1313	4.8
Cement Spacer			1136	4.2
Removal of Prostheses			133	0.5
Total Femoral			22	0.1
Reinsertion of Components			8	0.0
N Major	**15**	**88.2**	**11122**	**41.0**
Insert Only	1	5.9	8553	31.5
Patella Only			4488	16.5
Insert/Patella	1	5.9	2901	10.7
Minor Components			66	0.2
Cement Only			11	0.0
N Minor	**2**	**11.8**	**16019**	**59.0**
TOTAL	**17**	**100.0**	**27141**	**100.0**

Note: This table is restricted to revisions within 18.3 years for all groups to allow a time-matched comparison of revisions.
Note: Prostheses no longer used in 2025 are excluded from the comparator.

TABLE 6

Revision Rates of Genesis II Oxinium PS (ctd)/Genesis II (cless) 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 Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Fixation

Fixation	N Revised	N Total
Cemented	0	1
Hybrid (Tibial Cementless)	17	55
TOTAL	**17**	**56**

TABLE 7

Revision Rates of Genesis II Oxinium PS (ctd)/Genesis II (cless) 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 Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Bearing Surface

Bearing Surface	N Revised	N Total
Non XLPE	17	55
XLPE	0	1
TOTAL	**17**	**56**

TABLE 8

Revision Rates of Genesis II Oxinium PS (ctd)/Genesis II (cless) 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 Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Bearing Mobility

Bearing Mobility	N Revised	N Total
Fixed	17	56
TOTAL	**17**	**56**

TABLE 9

Revision Rates of Genesis II Oxinium PS (ctd)/Genesis II (cless) 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 Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Stability

Stability	N Revised	N Total
Posterior Stabilised	17	56
TOTAL	**17**	**56**

TABLE 10

Revision Rates of Primary Total Knee Replacement by State

This enables a state by state variation to be identified for the Genesis II Oxinium PS (ctd)/Genesis II (class) total knee combination and provides the comparative data for each of the states for all other total knee prostheses.

The purpose of this analysis is to determine if the higher than anticipated rate of revision has widespread distribution between states. If there is widespread distribution then the reason for the higher than anticipated rate of revision is unlikely to be surgeon specific. If the prosthesis has been used in only a small number of states it is not possible to distinguish if the higher than anticipated rate of revision is related to the prosthesis, surgeon, technique or patient.

Table 10: Revised Number of Primary Total Knee Replacement by State

Component	State	N Revised	N Total
Genesis II Oxinium PS (ctd)/Genesis II (class)	QLD	1	3
	WA	15	45
	ACT/NT	1	8
Other Total Knee	NSW	7550	259497
	VIC	6020	163565
	QLD	5788	167241
	WA	3585	92796
	SA	3220	73114
	TAS	475	15075
	ACT/NT	629	20086
TOTAL		**27284**	**791430**

Note: Prostheses no longer used in 2025 are excluded from the comparator.

TABLE 11

Number of Revisions of Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Year of Implant

This analysis details the number of prostheses reported each year to the Registry for the Genesis II Oxinium PS (ctd)/Genesis II (cless) 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 2025 has a maximum of one year to be revised, whereas a primary procedure performed in 2023 has a maximum of three years to be revised.

Table 11: Number of Revisions of Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Year of Implant

Year of Implant	Number Revised	Total Number
2007	0	4
2008	1	4
2009	4	11
2010	12	35
2011	0	1
2012	0	1
TOTAL	**17**	**56**

TABLE 12

Revision Rates of Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Catalogue Number Range

Many prostheses have a number of catalogue ranges. The catalogue range is specific to particular design features; more than one catalogue range usually indicates a minor difference in design in a particular Genesis II Oxinium PS (ctd)/Genesis II (cless) prosthesis.

This analysis has been undertaken to determine if the revision rate varies according to the catalogue number range.

Model	Catalogue Range	Catalogue Description	Cement	Material	Coating	Fixation
Femoral						
Genesis II Oxinium PS	71421012-71421118	NONPOROUS PS OXINIUM FEMORAL COMPONENT	YES			
Genesis II Oxinium PS	71930008-71930010	NONPOROUS PS OXINIUM FEMORAL COMPONENT	YES			
Tibial						
Genesis II	71422062-71422090	POROUS HA TIBIAL BASEPLATE	NO	METAL	HA COATED	BEADED
Genesis II	71930310-71930323	POROUS HA TIBIAL BASEPLATE	NO		HA COATED	BEADED

Table 12: Revised Number of Genesis II Oxinium PS (ctd)/Genesis II (cless) Primary Total Knee Replacement by Catalogue Number Range

Femoral Range	Tibial Range	N Revised	N Total
71421012-71421118	71422062-71422090	1	9
	71930310-71930323	15	45
71930008-71930010	71422062-71422090	1	2
TOTAL		**17**	**56**