



Australian
Orthopaedic
Association
National
Joint
Replacement
Registry

Automated Industry Report 7197

Depuy Synthes Australia

Attune PS/Attune Total Knee

Report Generated: 14 July 2022

Data Period: 1 September 1999 - 12 July 2022

This report has been prepared by the Australian Orthopaedic Association National Joint Replacement Registry (AOANJRR). The report provides information on the usage and outcomes of the Attune PS/Attune combination compared to all other total knee replacements, based on data collected by the AOANJRR.

Disclaimer

The AOANJRR has taken every care to ensure that the data supplied are accurate but does not warrant that the data are error free and does not accept any liability for errors or omissions in the data.

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Catalogue Numbers of Attune Tibial Components and Attune PS Femoral Components included in this analysis

Model	Catalogue Range	Range Description	No. of Primary Procedures
Tibial			
Attune	150611001 - 150611010	Rotating Tibial Baseplate Porocoat	182
Femoral			
Attune PS	150411102 - 150411210	PS Femoral Component Porocoat	136
Attune PS	150411123 - 150411226	PS Narrow Femoral Component Porocoat	46

The AOANJRR also reports these catalogue numbers as Attune Tibial Components and Attune PS Femoral Components. These are not included in the analysis.

Model	Catalogue Range	Range Description
Tibial		
Attune	150600001 - 150600010	Fixed Tibial Baseplate
Attune	150610001 - 150610010	Rotating Tibial Baseplate
Attune	150640002 - 150640010	Attune FB Cemented Revision Tibial Base
Attune	150660002 - 150660010	Revision Tibial Base Rotating Platform
Attune	150670001 - 150670010	Tibial Base Fixed Bearing Cemented w S+ technology
Attune	150680001 - 150680010	Tibial Baseplate Rotating Platform
Femoral		
Attune PS	150410101 - 150410210	PS Femoral Component
Attune PS	150410123 - 150410226	PS Narrow Femoral Component

Table 1: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Tibial Catalogue Number Range (All Diagnoses)

Tibial Range	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
150611001 - 150611010	2	182	279	0.72 (0.09, 2.59)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 2: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Femoral Catalogue Number Range (All Diagnoses)

Femoral Range	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
150411102 - 150411210	2	136	210	0.95 (0.12, 3.44)
150411123 - 150411226	0	46	70	0.00 (0.00, 5.29)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 3: Implant Usage of Attune PS/Attune in Primary Total Knee Replacement (All Diagnoses)

	N
Implant Usage	
Date First Used	30 September 2019
Date Last Used	24 May 2022
N Procedures	182
N Patients	169
N Hospitals Implanting	13
N Surgeons Implanting*	9
Outcome	
N Revised	2
N Deceased**	0

*15 Attune PS/Attune procedures have unknown surgeon

**'N Deceased' does not include patient deaths that occurred after the Attune PS/Attune implant was revised

Table 4: Follow Up Years of Attune PS/Attune in Primary Total Knee Replacement (All Diagnoses)

Model	N	Minimum	Maximum	Median	Mean	Std Dev
Attune PS/Attune	182	0.13	2.78	1.58	1.54	0.75
TOTAL	182	0.13	2.78	1.58	1.54	0.75

Table 5: Age and Gender of Attune PS/Attune Primary Total Knee Replacement (All Diagnoses)

Gender	Number	Percent	Minimum	Maximum	Median	Mean	Std Dev
Male	78	42.9%	45	89	67	66.8	9.6
Female	104	57.1%	47	89	70	69.3	8.9
TOTAL	182	100.0%	45	89	69	68.3	9.2

Table 6: Primary Total Knee Replacement by Model and Age (All Diagnoses)

Age	Attune PS/Attune		Other Total Knee	
	N	Col%	N	Col%
<55	12	6.6	57237	6.7
55-64	50	27.5	223949	26.4
65-74	72	39.6	337040	39.7
≥75	48	26.4	229777	27.1
TOTAL	182	100.0	848003	100.0

Table 7: Primary Total Knee Replacement by Model and Gender (All Diagnoses)

Gender	Attune PS/Attune		Other Total Knee	
	N	Col%	N	Col%
Male	78	42.9	372941	44.0
Female	104	57.1	475062	56.0
TOTAL	182	100.0	848003	100.0

Table 8: Primary Total Knee Replacement by Model and ASA Grade (All Diagnoses)

ASA Grade	Attune PS/Attune		Other Total Knee	
	N	Col%	N	Col%
1	7	3.8	27182	5.7
2	95	52.2	261190	54.4
3	80	44.0	186498	38.9
4	.	.	5159	1.1
5	.	.	15	0.0
TOTAL	182	100.0	480044	100.0

Table 9: Primary Total Knee Replacement by Model and BMI (All Diagnoses)

BMI	Attune PS/Attune		Other Total Knee	
	N	Col%	N	Col%
Underweight (<18.50)	1	0.6	773	0.2
Normal (18.50-24.99)	19	10.6	40587	10.5
Pre Obese (25.00-29.99)	59	32.8	120347	31.2
Obese Class 1 (30.00-34.99)	47	26.1	118858	30.8
Obese Class 2 (35.00-39.99)	32	17.8	65158	16.9
Obese Class 3 (\geq 40.00)	22	12.2	39557	10.3
TOTAL	180	100.0	385280	100.0

Note: The AOANJRR commenced collection of BMI data in 2015. 2 Attune PS/Attune procedures with no BMI recorded are excluded from this table

Table 10: Primary Total Knee Replacement by Model and Primary Diagnosis

Primary Diagnosis	Attune PS/Attune		Other Total Knee	
	N	Col%	N	Col%
Osteoarthritis	180	98.9	829204	97.8
Rheumatoid Arthritis	2	1.1	9963	1.2
Other Inflammatory Arthritis	.	.	4285	0.5
Osteonecrosis	.	.	2565	0.3
Tumour	.	.	1020	0.1
Fracture	.	.	709	0.1
Chondrocalcinosis	.	.	15	0.0
Osteochondritis Dissecans	.	.	2	0.0
Other	.	.	240	0.0
TOTAL	182	100.0	848003	100.0

Table 11: Revision Rates of Primary Total Knee Replacement by Model (All Diagnoses)

Model	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Attune PS/Attune	2	182	279	0.72 (0.09, 2.59)
Other Total Knee	34509	848003	6233826	0.55 (0.55, 0.56)
TOTAL	34511	848185	6234106	0.55 (0.55, 0.56)

Table 12: Yearly Cumulative Percent Revision of Primary Total Knee Replacement by Model (All Diagnoses)

CPR	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	
Attune PS/Attune	0.6 (0.1, 3.9)	1.3 (0.3, 5.3)					
Other Total Knee	1.0 (1.0, 1.0)	1.9 (1.9, 2.0)	2.5 (2.5, 2.6)	3.0 (2.9, 3.0)	3.3 (3.3, 3.4)	3.7 (3.6, 3.7)	
CPR	7 Yrs	8 Yrs	9 Yrs	10 Yrs	11 Yrs	12 Yrs	13 Yrs
Attune PS/Attune							
Other Total Knee	4.0 (3.9, 4.0)	4.3 (4.3, 4.4)	4.6 (4.6, 4.7)	5.0 (4.9, 5.0)	5.3 (5.2, 5.4)	5.7 (5.6, 5.7)	6.0 (6.0, 6.1)
CPR	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs	19 Yrs	20 Yrs
Attune PS/Attune							
Other Total Knee	6.4 (6.3, 6.5)	6.8 (6.7, 6.9)	7.2 (7.1, 7.3)	7.7 (7.5, 7.8)	8.0 (7.9, 8.1)	8.3 (8.2, 8.4)	8.6 (8.4, 8.7)

Table 13: Number at Risk for Primary Total Knee Replacement by Model (All Diagnoses)

Number at Risk	0 Yr	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	6 Yrs	7 Yrs	8 Yrs	9 Yrs	
Attune PS/Attune	182	137	56	0	0	0	0	0	0	0	
Other Total Knee	848003	789487	713414	650504	583644	518607	455891	396239	341391	290411	
Number at Risk	10 Yrs	11 Yrs	12 Yrs	13 Yrs	14 Yrs	15 Yrs	16 Yrs	17 Yrs	18 Yrs	19 Yrs	20 Yrs
Attune PS/Attune	0	0	0	0	0	0	0	0	0	0	0
Other Total Knee	243855	201261	163004	130196	102051	77576	57345	40756	27212	16657	8432

TABLE 14

Reasons for Revision

This is reported in two ways: a percentage of primaries 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 primaries. 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 14: Revision Diagnosis of Primary Total Knee Replacement by Model (All Diagnoses) (Follow-up Limited to 2.8 Years)

Revision Diagnosis	Attune PS/Attune			Other Total Knee		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Infection				5850	0.7	30.9
Loosening				3825	0.5	20.2
Instability				1725	0.2	9.1
Patellofemoral Pain				1629	0.2	8.6
Pain	1	0.5	50.0	1506	0.2	8.0
Patella Erosion				894	0.1	4.7
Arthrofibrosis				893	0.1	4.7
Fracture	1	0.5	50.0	550	0.1	2.9
Malalignment				462	0.1	2.4
Incorrect Sizing				262	0.0	1.4
Patella Maltracking				168	0.0	0.9
Bearing Dislocation				158	0.0	0.8
Metal Related Pathology				128	0.0	0.7
Lysis				121	0.0	0.6
Wear Tibial Insert				99	0.0	0.5
Prosthesis Dislocation				72	0.0	0.4
Synovitis				64	0.0	0.3
Implant Breakage Tibial Insert				61	0.0	0.3
Implant Breakage Patella				58	0.0	0.3
Osteonecrosis				41	0.0	0.2
Implant Breakage Femoral				26	0.0	0.1
Implant Breakage Tibial				26	0.0	0.1
Tumour				17	0.0	0.1
Heterotopic Bone				7	0.0	0.0
Wear Patella				5	0.0	0.0
Wear Tibial				3	0.0	0.0
Incorrect Side				2	0.0	0.0
Patella Dislocation				1	0.0	0.0
Progression Of Disease				1	0.0	0.0
Wear Femoral				1	0.0	0.0
Other				286	0.0	1.5
N Revision	2	1.1	100.0	18941	2.2	100.0
N Primary	182			848003		

Note: This table is restricted to revisions within 2.8 years for all groups to allow a time-matched comparison of revisions.

TABLE 15

Type of 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 type of revision as a percentage of the total number of primary procedures. This percentage can be used to approximate the risk of having that type of revision. Differing percentages between groups, with the same distribution of follow up time, may identify problems of concern.

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

Table 15: Type of Revision of Primary Total Knee Replacement by Model (All Diagnoses) (Follow-up Limited to 2.8 Years)

Type of Revision	Attune PS/Attune			Other Total Knee		
	Number	% Primaries Revised	% Revisions	Number	% Primaries Revised	% Revisions
Insert Only				5887	0.7	31.1
TKR (Tibial/Femoral)	2	1.1	100.0	3800	0.4	20.1
Patella Only				3627	0.4	19.1
Tibial Component				1690	0.2	8.9
Insert/Patella				1372	0.2	7.2
Femoral Component				1249	0.1	6.6
Cement Spacer				1107	0.1	5.8
Removal of Prostheses				127	0.0	0.7
Minor Components				48	0.0	0.3
Reinsertion of Components				12	0.0	0.1
Total Femoral				12	0.0	0.1
Cement Only				10	0.0	0.1
N Revision	2	1.1	100.0	18941	2.2	100.0
N Primary	182			848003		

Note: This table is restricted to revisions within 2.8 years for all groups to allow a time-matched comparison of revisions.

Table 16: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Fixation (All Diagnoses)

Fixation	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Cementless	2	181	278	0.72 (0.09, 2.60)
Hybrid (Tibial Cemented)	0	1	1	0.00 (0.00, 268.4)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 17: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Polyethylene Type (All Diagnoses)

Polyethylene Type	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
XLPE + Antioxidant	2	182	279	0.72 (0.09, 2.59)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 18: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Bearing Mobility (All Diagnoses)

Bearing Mobility	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Rotating	2	182	279	0.72 (0.09, 2.59)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 19: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Stability (All Diagnoses)

Stability	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Posterior Stabilised	2	182	279	0.72 (0.09, 2.59)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 20: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Patella Usage (All Diagnoses)

Patella Usage	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Patella Used	2	163	265	0.75 (0.09, 2.73)
No Patella	0	19	14	0.00 (0.00, 25.79)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 21: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Computer Navigation (All Diagnoses)

Computer Navigation	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
Computer Navigated	0	52	75	0.00 (0.00, 4.92)
Non-Navigated	2	130	204	0.98 (0.12, 3.53)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 22: Number of Revisions of Attune PS/Attune Primary Total Knee Replacement by Year of Implant (All Diagnoses)

Year of Implant	Number Revised	Total Number
2019	0	17
2020	2	79
2021	0	68
2022	0	18
TOTAL	2	182

Table 23: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Tibial Catalogue Number (All Diagnoses)

Tibial Catalogue Number	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
150611001	0	1	1	0.00 (0.00, 638.6)
150611002	0	2	1	0.00 (0.00, 246.8)
150611003	0	20	32	0.00 (0.00, 11.70)
150611004	0	32	50	0.00 (0.00, 7.37)
150611005	1	44	71	1.42 (0.04, 7.89)
150611006	0	26	42	0.00 (0.00, 8.78)
150611007	0	30	42	0.00 (0.00, 8.79)
150611008	1	19	30	3.29 (0.08, 18.34)
150611009	0	8	11	0.00 (0.00, 34.33)
TOTAL	2	182	279	0.72 (0.09, 2.59)

Table 24: Revision Rates of Attune PS/Attune Primary Total Knee Replacement by Femoral Catalogue Number (All Diagnoses)

Femoral Catalogue Number	N Revised	N Total	Obs. Years	Revisions/100 Obs. Yrs (95% CI)
150411102	0	1	1	0.00 (0.00, 638.6)
150411103	0	3	6	0.00 (0.00, 63.08)
150411104	0	8	13	0.00 (0.00, 28.64)
150411105	0	15	24	0.00 (0.00, 15.41)
150411106	0	12	13	0.00 (0.00, 28.50)
150411107	0	16	29	0.00 (0.00, 12.66)
150411108	0	5	7	0.00 (0.00, 51.17)
150411109	0	4	6	0.00 (0.00, 66.01)
150411123	0	1	3	0.00 (0.00, 139.6)
150411124	0	3	2	0.00 (0.00, 179.6)
150411125	0	10	14	0.00 (0.00, 25.52)
150411126	0	8	12	0.00 (0.00, 30.77)
150411203	0	5	6	0.00 (0.00, 61.81)
150411204	0	12	16	0.00 (0.00, 22.40)
150411205	1	15	24	4.13 (0.10, 23.02)
150411206	0	12	21	0.00 (0.00, 17.36)
150411207	0	14	21	0.00 (0.00, 17.75)
150411208	1	10	16	6.29 (0.16, 35.04)
150411209	0	4	7	0.00 (0.00, 52.55)
150411223	0	2	3	0.00 (0.00, 110.8)
150411224	0	8	14	0.00 (0.00, 26.79)
150411225	0	5	8	0.00 (0.00, 43.97)
150411226	0	9	13	0.00 (0.00, 28.25)
TOTAL	2	182	279	0.72 (0.09, 2.59)

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