

Annual Report 2025

Australian Spine Registry

Data Supplement

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1. Degenerative Cervical Myelopathy cohort data

Data for the degenerative cervical myelopathy cohort low, moderate and high NDI analysis.

p-values were calculated using Fisher's exact and Kruskal-Wallis tests for categorical variables and continuous variables respectively.

	Low pre-operative NDI (0 to <15)	Moderate pre-operative NDI (15 to <25)	High pre-operative NDI (25 to 50)	p-value
n	32	22	21	
Pre-operative NDI score				
mean (SD)	7.3 (4.1)	19.1 (2.9)	29.9 (5.2)	
median (IQR)	6.5 (4.5, 11.0)	19.0 (17.0, 22.0)	28.0 (27.0, 31.0)	N/A
12-month post-operative NDI score				
mean (SD)	5.0 (5.3)	13.8 (8.6)	18.9 (9.0)	
median (IQR)	4.0 (0.0, 7.0)	14.0 (7.0, 19.0)	19.0 (14.0, 23.0)	<0.001
NDI score change				
mean (SD)	-2.3 (6.9)	-5.3 (8.3)	-11.1 (7.9)	
median (IQR)	-3.0 (-7.0, 0.5)	-4.5 (-14.0, 0.0)	-10.0 (-16.0, -6.0)	0.002
Improved (NDI decreased by at least 17.3% or 8.65 out of 50)				0.002
Yes	6 (18.8%)	8 (36.4%)	14 (66.7%)	
No	26 (81.2%)	14 (63.6%)	7 (33.3%)	
Age				
mean (SD)	62.9 (12.3)	64.2 (12.4)	63.0 (13.9)	
median (IQR)	64.0 (56.0, 71.0)	66.5 (60.0, 69.0)	65.0 (50.0, 74.0)	0.88
Sex				0.16
Male	22 (68.8%)	10 (45.5%)	10 (47.6%)	
Female	10 (31.2%)	12 (54.5%)	11 (52.4%)	

	Low pre-operative NDI (0 to <15)	Moderate pre-operative NDI (15 to <25)	High pre-operative NDI (25 to 50)	p-value
n	32	22	21	
Comorbidities reported				0.28
Yes	14 (43.8%)	14 (63.6%)	13 (61.9%)	
No	18 (56.2%)	8 (36.4%)	8 (38.1%)	
Number of Comorbidities reported				0.31
0	18 (56.2%)	8 (36.4%)	8 (38.1%)	
1	8 (25.0%)	5 (22.7%)	5 (23.8%)	
2	4 (12.5%)	6 (27.3%)	5 (23.8%)	
3	2 (6.2%)	1 (4.5%)	0 (0.0%)	
4	0 (0.0%)	2 (9.1%)	1 (4.8%)	
5+	0 (0.0%)	0 (0.0%)	2 (9.5%)	
ASA Classification				0.44
1	8 (25.0%)	1 (4.5%)	4 (19.0%)	
2	9 (28.1%)	9 (40.9%)	5 (23.8%)	
3	7 (21.9%)	7 (31.8%)	8 (38.1%)	
4	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Not stated	8 (25.0%)	5 (22.7%)	4 (19.0%)	

2. Discectomy cohort data

Data for the discectomy cohort low, moderate and high ODI analysis.

p-values were calculated using Fisher's exact and Kruskal-Wallis tests for categorical variables and continuous variables respectively.

	Low pre-operative ODI (0 to <30)	Moderate pre-operative ODI (30 to <61)	High pre-operative ODI (61 to 100)	p-value
n	78	251	93	
Pre-operative ODI score				
mean (SD)	21.1 (6.3)	45.8 (8.7)	71.8 (8.7)	
median (IQR)	22.0 (18.0, 26.0)	46.0 (40.0, 54.0)	70.0 (66.0, 78.0)	N/A
12-month post-operative ODI score				
mean (SD)	8.4 (10.4)	13.2 (14.1)	16.8 (19.6)	
median (IQR)	4.0 (0.0, 12.0)	8.0 (2.0, 18.0)	10.0 (2.0, 22.0)	0.005
ODI score change				
mean (SD)	-12.7 (11.1)	-32.7 (15.6)	-55.0 (21.5)	
median (IQR)	-14.0 (-20.0, -8.0)	-34.0 (-42.0, -26.0)	-60.0 (-70.0, -46.0)	<0.001
Improved (ODI decreased by at least 12.8)				<0.001
Yes	45 (57.7%)	224 (89.2%)	87 (93.5%)	
No	33 (42.3%)	27 (10.8%)	6 (6.5%)	
Age				
mean (SD)	48.8 (15.8)	51.6 (16.2)	49.1 (15.3)	
median (IQR)	46.0 (36.0, 62.0)	51.0 (39.0, 66.0)	46.0 (36.0, 61.0)	0.19
Sex				0.009
Male	59 (75.6%)	150 (59.8%)	50 (53.8%)	
Female	19 (24.4%)	101 (40.2%)	43 (46.2%)	

	Low pre-operative ODI (0 to <30)	Moderate pre-operative ODI (30 to <61)	High pre-operative ODI (61 to 100)	p-value
n	78	251	93	
Comorbidities reported				0.16
Yes	22 (28.2%)	54 (21.5%)	15 (16.1%)	
No	56 (71.8%)	197 (78.5%)	78 (83.9%)	
Number of Comorbidities reported				0.70
0	56 (71.8%)	197 (78.5%)	78 (83.9%)	
1	13 (16.7%)	31 (12.4%)	8 (8.6%)	
2	7 (9.0%)	13 (5.2%)	6 (6.5%)	
3	1 (1.3%)	6 (2.4%)	1 (1.1%)	
4	0 (0.0%)	2 (0.8%)	0 (0.0%)	
5+	1 (1.3%)	2 (0.8%)	0 (0.0%)	
ASA Classification				0.26
1	28 (35.9%)	58 (23.1%)	28 (30.1%)	
2	18 (23.1%)	88 (35.1%)	24 (25.8%)	
3	7 (9.0%)	19 (7.6%)	10 (10.8%)	
4	0 (0.0%)	1 (0.4%)	0 (0.0%)	
Not stated	25 (32.1%)	85 (33.9%)	31 (33.3%)	
Glassman score for symptoms				0.024
Back pain dominant, acute	0 (0.0%)	2 (0.8%)	0 (0.0%)	
Leg pain dominant, acute	10 (12.8%)	47 (18.7%)	33 (35.5%)	
Back pain = Leg pain, acute	1 (1.3%)	4 (1.6%)	3 (3.2%)	
Back pain dominant, chronic	1 (1.3%)	3 (1.2%)	1 (1.1%)	
Leg pain dominant, chronic	52 (66.7%)	129 (51.4%)	35 (37.6%)	
Back pain = Leg pain, chronic	0 (0.0%)	4 (1.6%)	1 (1.1%)	
Neurogenic claudication	1 (1.3%)	0 (0.0%)	1 (1.1%)	
Cauda equina syndrome	0 (0.0%)	1 (0.4%)	1 (1.1%)	
Not stated	13 (16.7%)	61 (24.3%)	18 (19.4%)	

3. L4-L5 Spondylolisthesis cohort data

Data for the L4-L5 Spondylolisthesis cohort low, moderate and high ODI analysis.

p-values were calculated using Fisher's exact and Kruskal-Wallis tests for categorical variables and continuous variables respectively.

	Low pre-operative ODI (0 to <30)	Moderate pre-operative ODI (30 to <61)	High pre-operative ODI (61 to 100)	p-value
n	61	129	23	
Pre-operative ODI score				
mean (SD)	19.6 (7.2)	43.7 (8.7)	68.7 (9.3)	
median (IQR)	20.0 (16.0, 24.0)	44.0 (36.0, 51.0)	66.0 (62.0, 72.0)	N/A
12-month post-operative ODI score				
mean (SD)	8.1 (8.1)	19.7 (17.4)	27.5 (22.8)	
median (IQR)	6.0 (2.0, 12.0)	13.0 (6.0, 32.0)	18.0 (8.0, 50.0)	<0.001
ODI score change				
mean (SD)	-11.5 (10.0)	-24.1 (16.2)	-41.3 (24.6)	
median (IQR)	-14.0 (-20.0, -4.0)	-27.0 (-36.0, -12.0)	-48.0 (-58.0, -15.0)	<0.001
Improved (ODI decreased by at least 12.8)				0.003
Yes	31 (50.8%)	96 (74.4%)	18 (78.3%)	
No	30 (49.2%)	33 (25.6%)	5 (21.7%)	
Age				
mean (SD)	69.4 (8.6)	68.3 (12.3)	74.4 (9.5)	
median (IQR)	70.0 (65.0, 76.0)	70.0 (64.0, 76.0)	74.0 (67.0, 83.0)	0.078
Sex				0.002
Male	34 (55.7%)	37 (28.7%)	9 (39.1%)	
Female	27 (44.3%)	92 (71.3%)	14 (60.9%)	

	Low pre-operative ODI (0 to <30)	Moderate pre-operative ODI (30 to <61)	High pre-operative ODI (61 to 100)	p-value
n	61	129	23	
Comorbidities reported				0.047
Yes	37 (60.7%)	79 (61.2%)	20 (87.0%)	
No	24 (39.3%)	50 (38.8%)	3 (13.0%)	
Number of Comorbidities reported				0.17
0	24 (39.3%)	50 (38.8%)	3 (13.0%)	
1	18 (29.5%)	32 (24.8%)	7 (30.4%)	
2	10 (16.4%)	28 (21.7%)	7 (30.4%)	
3	4 (6.6%)	12 (9.3%)	4 (17.4%)	
4	3 (4.9%)	2 (1.6%)	2 (8.7%)	
5+	2 (3.3%)	5 (3.9%)	0 (0.0%)	
ASA Classification				0.29
1	7 (11.5%)	7 (5.4%)	0 (0.0%)	
2	26 (42.6%)	48 (37.2%)	8 (34.8%)	
3	15 (24.6%)	31 (24.0%)	10 (43.5%)	
4	0 (0.0%)	2 (1.6%)	0 (0.0%)	
Not stated	13 (21.3%)	41 (31.8%)	5 (21.7%)	
Glassman score for symptoms				0.56
Back pain dominant, acute	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Leg pain dominant, acute	2 (3.3%)	6 (4.7%)	2 (8.7%)	
Back pain = Leg pain, acute	0 (0.0%)	0 (0.0%)	0 (0.0%)	
Back pain dominant, chronic	0 (0.0%)	5 (3.9%)	1 (4.3%)	
Leg pain dominant, chronic	27 (44.3%)	45 (34.9%)	5 (21.7%)	
Back pain = Leg pain, chronic	6 (9.8%)	19 (14.7%)	4 (17.4%)	
Neurogenic claudication	18 (29.5%)	29 (22.5%)	6 (26.1%)	
Cauda equina syndrome	0 (0.0%)	2 (1.6%)	1 (4.3%)	
Not stated	8 (13.1%)	23 (17.8%)	4 (17.4%)	

4. Linear Mixed-Effects Model Results per SRS-22 Domains for the Moderate-Severe Pain Subgroup pASR cohort

	n	Estimated mean SRS-22 score (out of 5)	95% Confidence Intervals	p-value
Pain (n=5 questions)				
Pre-op (intercept)	37	2.76	(2.58, 2.95)	< 2e-16 ***
6-Weeks	18	0.43	(0.13, 0.72)	0.008 **
6-Months	18	1.04	(0.75, 1.34)	3.88e-09 ***
12-Months	16	1.36	(1.05, 1.68)	2.84e-12 ***
24-Months	7	1.33	(0.89, 1.77)	1.23e-07 ***
Function (n=5 questions)				
Pre-op (intercept)	37	3.73	(3.52, 3.93)	< 2e-16 ***
6-Weeks	18	-0.67	(-0.99, -0.38)	4.53e-05 ***
6-Months	18	-0.01	(-0.32, 0.29)	0.92
12-Months	16	0.39	(0.07, 0.71)	0.02 *
24-Months	7	0.39	(-0.06, 0.84)	0.10
Self-Image (n=5 questions)				
Pre-op (intercept)	37	2.78	(2.58, 2.98)	< 2e-16 ***
6-Weeks	18	1.14	(0.79, 1.48)	1.43e-08 ***
6-Months	18	1.14	(0.79, 1.48)	1.51e-08 ***
12-Months	16	1.36	(1.00, 1.73)	2.09e-10 ***
24-Months	7	1.31	(0.81, 1.81)	2.01e-06 ***
Mental Health (n=5 questions)				
Pre-op (intercept)	37	3.28	(3.07, 3.49)	< 2e-16 ***
6-Weeks	18	0.28	(-0.021, 0.57)	0.08
6-Months	18	0.33	(0.04, 0.63)	0.04 *
12-Months	16	0.54	(0.23, 0.86)	0.001 **
24-Months	7	0.63	(0.18, 1.07)	0.008 **
Satisfaction with Management (n=2 questions)				
Pre-op (intercept)	37	3.46	(3.15, 3.77)	< 2e-16 ***
6-Weeks	18	1.04	(0.53, 1.55)	0.0002 **
6-Months	18	0.70	(0.20, 1.21)	0.01 **
12-Months	16	0.76	(0.22, 1.30)	0.008 **
24-Months	7	1.00	(0.26, 1.75)	0.01 *

Note: Estimated means at 6-Weeks, 6-Months, 1-Year, and 2-Years post-operative differences compared to the pre-operative value of that domain. Significance is denoted as (*p<0.05), **(p<0.01), ***p<0.001).

5. Linear Mixed-Effects Model Results per SRS-22 Domains for the None-Mild Pain Subgroup pASR cohort

	n	Estimated mean SRS-22 score (out of 5)	95% Confidence Intervals	p-value
Pain (n=5 questions)				
Pre-op (intercept)	29	4.05	(3.86, 4.24)	<2e-16 ***
6-Weeks	16	-0.15	(-0.46, 0.15)	0.34
6-Months	17	0.21	(-0.08, 0.51)	0.17
12-Months	15	0.37	(0.06, 0.68)	0.03 *
24-Months	6	0.33	(-0.12, 0.77)	0.17
Function (n=5 questions)				
Pre-op (intercept)	29	4.26	(4.07, 4.45)	< 2e-16 ***
6-Weeks	16	-0.66	(-0.91, -0.40)	7.09e-06 ***
6-Months	17	-0.25	(-0.50, 0.00)	0.05
12-Months	15	0.11	(-0.15, 0.37)	0.41
24-Months	6	-0.16	(-0.54, 0.23)	0.43
Self-Image (n=5 questions)				
Pre-op (intercept)	29	2.98	(2.73, 3.22)	< 2e-16 ***
6-Weeks	16	1.02	(0.73, 1.32)	5.43e-09 ***
6-Months	17	0.97	(0.70, 1.30)	9.34e-09 ***
12-Months	15	1.15	(0.86, 1.44)	3.81e-10 ***
24-Months	6	0.97	(0.54, 1.39)	6.15e-05 ***
Mental Health (n=5 questions)				
Pre-op (intercept)	29	3.64	(3.39, 3.88)	< 2e-16 ***
6-Weeks	16	0.23	(0.00, 0.47)	0.07
6-Months	17	0.33	(0.10, 0.57)	0.009 **
12-Months	15	0.43	(0.18, 0.67)	0.002 **
24-Months	6	0.54	(0.17, 0.91)	0.007 **
Satisfaction with Management (n=2 questions)				
Pre-op (intercept)	29	3.78	(3.50, 4.05)	< 2e-16 ***
6-Weeks	16	0.50	(0.12, 0.88)	0.01 *
6-Months	17	0.76	(0.39, 1.12)	0.0002 ***
12-Months	15	0.68	(0.30, 1.07)	0.001 **
24-Months	6	0.93	(0.36, 1.49)	0.002 **

Note: Estimated means at 6-Weeks, 6-Months, 1-Year, and 2-Years post-operative differences compared to the pre-operative value of that domain. Significance is denoted as (*p<0.05), **(p<0.01), ***p<0.001).