

TABLE E-1

## Comparison of the patients with central stenosis and those with lateral stenosis

	Central stenosis	Lateral stenosis	
Subjects	47	15	
Age/years	65.3(SD:7.9)	56.5(SD:10.7)	*
Length of sickness/months	24.8(SD:31.1)	29.1(SD:35.2)	
Intermittent claudication/mile	0.20(SD:0.24)	0.19(SD:0.14)	
Narrowest area/mm <sup>2</sup>	68.9(SD:25.7)	158.5(SD:66.9)	*
ODI, preop	57.3(SD:13.8)	61.7(SD:11.4)	
ODI, postop	19.0(SD:17.5)	27.4(SD:22.1)	
ODI, improvement rate/%	65.6	58.0	
VAS, preop	7.1(SD:1.8)	6.9(SD:2.2)	
VAS, postop	2.0(SD:2.1)	3.2(SD:2.7)	
VAS, improvement rate/%	60.4	48.4	
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Preop Treadmill Test			
Results positive	43(91.5%)	15(100%)	
Completed test	21(44.7%)	4(26.7%)	
Time/min	13.4(m:15.6)	14.6(m:13.6)	
Distance/mile	0.49(m:0.49)	0.53(m:0.47)	
Preop Bicycle Test			
Results positive	19(40.4%)	8(53.3%)	
Completed test	32(68.1%)	11(73.3%)	
Time/min	8.8(m:10.0)	8.5(m:10.0)	
Distance/mile	2.3(m:2.5)	2.1(m:2.3)	
Postop Treadmill Test			
Results positive	3(6.4%)	3(20%)	
Completed test	37(78.7%)	11(73.3%)	
Time/min	17.4(m:20.0)	17.9(m:20.0)	
Distance/mile	0.65(m:0.78)	0.66(m:0.75)	
Postop Bicycle Test			
Results positive	5(10.7%)	4(26.7%)	
Completed test	39(83.0%)	12(80%)	
Time/min	9.2(m:10.0)	9.5(m:10.0)	
Distance/mile	2.4(m:2.5)	2.3(m:2.4)	

\*ODI = Oswestry Disability Index, VAS = visual analog scales, SD = standard deviation, m = median

\*Statistically significant ( $p < 0.05$ )

TABLE E-2

Comparison of the patients with severe stenosis at a single level (the narrowest cross-sectional area of the dural tube  $<70 \text{ mm}^2$ ) and those with moderate stenosis (area  $>70 \text{ mm}^2$ )

Central stenosis (n=47)	Severe( $<70\text{mm}^2$ )	Moderate( $>70\text{mm}^2$ )
Subjects	25	22
Age/years	66.6(SD:8.0)	63.9(SD:7.7)
Length of sickness/months	23.7(SD:23.3)	26.4(SD:40.5)
Intermittent claudication/mile	0.19(SD:0.30)	0.20(SD:0.18)
Narrowest area/ $\text{mm}^2$	49.0(SD:12.9)	91.5(SD:16.0)
ODI, preop	55.2(SD:15.4)	59.5(SD:11.8)
ODI, postop	13.8(SD:15.7)	25.1(SD:17.9)
ODI, improvement rate/%	70.1	60.4
VAS, preop	7.0(SD:1.6)	7.3(SD:2.0)
VAS, postop	2.0(SD:2.2)	2.0(SD:2.0)
VAS, improvement rate/%	64.4	56.0
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Preop Treadmill Test		
Results positive	23(92.0%)	20(90.9%)
Completed test	10(40%)	11(50%)
Total time/min	13.1(m:15.6)	13.8(m:17.3)
Distance/mile	0.47(m:0.49)	0.51(m:0.59)
Preop Bicycle Test		
Results positive	15(60%)	9(40.9%)
Completed test	16(64%)	16(72.7%)
Total time/min	8.4(m:10.0)	9.2(m:10.0)
Distance/mile	2.1(m:2.5)	2.4(m:2.5)
Postop Treadmill Test		
Results positive	3(12%)	0(0%)
Completed test	21(84.0%)	16(72.7%)
Total time/min	18.2(m:20.0)	16.6(m:20.0)
Distance/mile	0.67(m:0.79)	0.63(m:0.78)
Postop Bicycle Test		
Results positive	2(8%)	3(13.6%)
Completed test	20(80%)	19(86.4%)
Total time/min	9.4(m:10.0)	8.9(m:10.0)
Distance/mile	2.3(m:2.5)	2.4(m:2.5)

Note: See Table E1 for abbreviations

\*Statistically significant ( $p<0.05$ )

TABLE E-3

Comparison of the patients with multiple-level central stenosis (two or more levels with a cross-sectional area of <100 mm<sup>2</sup>) and the other patients with central stenosis (zero or one level with a cross-sectional area of <100 mm<sup>2</sup>)

Central Stenosis (n=47)	0** or 1 level	2 or more levels	
Subjects	35	12	
Age/years	63.8(SD:7.8)	69.8(SD:6.6)	*
Length of sickness/months	24.9(SD:33.5)	24.5(SD:26.5)	
Intermittent claudication/mile	0.24(SD:0.26)	0.06(SD:0.04)	*
Narrowest area/mm <sup>2</sup>	75.2(SD:25.6)	50.3(SD:15.3)	
ODI, preop	57.8(SD:13.7)	55.8(SD:14.5)	
ODI, postop	19.1(SD:18.9)	18.6(SD:14.1)	
ODI, improvement rate/%	65.9	64.9	
VAS, preop	7.1(SD:1.9)	7.2(SD:1.6)	
VAS, postop	1.9(SD:2.2)	2.3 (SD:1.8)	
VAS, improvement rate/%	60.7	59.5	
Preop Treadmill Test			
Results positive	32(91.4%)	11(91.7%)	
Completed test	19(54.3%)	2(16.7%)	*
Time/min	14.3(m:20.0)	10.7(m:9.8)	
Distance/mile	0.54(m:0.72)	0.35(m:0.23)	*
Preop Bicycle Test			
Results positive	14(40.0%)	3(25.0%)	
Completed test	25(71.4%)	7(58.3%)	
Time/min	8.8(m:10.0)	8.5(m:10.0)	
Distance/mile	2.4(m:2.5)	2.0(m:2.3)	
Postop Treadmill Test			
Results positive	2(5.7%)	1(8.3%)	
Completed test	29(82.9%)	8(66.7%)	
Time/min	18.1(m:20.0)	15.6(m:20.0)	
Distance/mile	0.69(m:0.79)	0.53(m:0.63)	*
Postop Bicycle Test			
Results positive	5(14.3%)	0(0%)	
Completed test	32(91.4%)	10(83.3%)	
Time/min	9.1(m:10.0)	9.2(m:10.0)	
Distance/mile	2.4(m:2.5)	2.3(m:2.5)	

Note: See Table E1 for abbreviations

\*Statistically significant (p<0.05)

\*\*6 patients with canal stenosis >100 mm<sup>2</sup>

TABLE E-4

Comparison of the patients with concomitant instrumentation and fusion at surgery and those with decompression alone

	Fusion(-)	Fusion (+)	
Subjects	16	46	
Age/years	66.2(SD:9.4)	62.1(SD:9.2)	
Length of sickness/months	21.7(SD:25.6)	27.7(SD:34.3)	
Intermittent claudication/mile	0.17(SD:0.26)	0.20(SD:0.21)	
Narrowest area/mm <sup>2</sup>	75.4(SD:29.7)	95.8(SD:60.8)	
ODI, preop	60.5(SD:13.8)	57.6(SD:13.2)	
ODI, postop	27.2(SD:17.9)	18.9(SD:19.0)	
ODI, improvement rate/%	48.9	69.0	*
VAS, preop	7.0(SD:1.5)	7.1(SD:2.0)	
VAS, postop	2.9(SD:2.5)	2.1(SD:2.2)	
VAS, improvement rate/%	50.2	60.0	
Preop Treadmill Test			
Results positive	14(87.5%)	44(95.7%)	
Completed test	7(43.8%)	18(39.1%)	
Time/min	14.0(m:17.8)	13.6(m:14.3)	
Distance/mile	0.52(m:0.66)	0.49(m:0.48)	
Preop Bicycle Test			
Results positive	10(62.5%)	15(32.6%)	
Completed test	14(87.5%)	29(63.0%)	
Time/min	9.1(m:10.0)	8.6(m:10.0)	
Distance/mile	2.3(m:2.4)	2.2(m:2.4)	
Postop Treadmill Test			
Results positive	2(12.5%)	4(8.7%)	
Completed test	12(75.0%)	36(78.3%)	
Time/min	16.9(m:20.0)	17.8(m:20.0)	
Distance/mile	0.63(m:0.78)	0.66(m:0.78)	
Postop Bicycle Test			
Results positive	1(7.2%)	8(17.4%)	
Completed test	15(93.8%)	36(78.3%)	
Time/min	9.8(m:10.0)	9.2(m:10.0)	
Distance/mile	2.4(m:2.5)	2.4(m:2.56)	

Note: See Table E1 for abbreviations

\*Statistically significant (p<0.05)

TABLE E-5

Comparison of the patients with degenerative spondylolisthesis, those with isthmic spondylolisthesis, those with degenerative scoliosis, and those with spondylotic stenosis

	D-SL	I-SL	D-Scoliosis	Spondylosis	
Subjects	33	7	9	13	
Age/years	66.4(SD:7.2)	48.1(SD:7.3)	67.0(SD:8.5)	60.5(SD:7.3)	*,#1
Length of sickness/months	26.4(SD:34.4)	23.0(SD:14.4)	43.3(SD:45.7)	15.5(SD:19.3)	
Intermittent claudication/mile	0.18(SD:0.25)	0.20(SD:0.11)	0.19(SD:0.22)	0.23(SD:0.19)	
Narrowest area/mm <sup>2</sup>	73.8(SD:37.7)	128.7(SD:37.3)	111.1(SD:82.7)	98.2(SD:65.7)	*,#2
ODI, preop	56.3(SD:13.7)	58.9(SD:10.2)	58.7(SD:10.0)	62.4(SD:15.9)	
ODI, postop	19.1(SD:19.3)	19.7(SD:19.8)	22.3(SD:23.9)	25.8(SD:23.9)	
ODI, improvement rate/%	67.3	69.0	61.4	54.6	
VAS, preop	7.1(SD:2.0)	6.9(SD:1.7)	6.7(SD:2.3)	7.4(SD:1.7)	
VAS, postop	2.0(SD:2.2)	2.6(SD:2.6)	2.3(SD:2.8)	2.8(SD:2.1)	
VAS, improvement rate/%	58.1	61.1	53.6	56.1	
Preop Treadmill Test					
Results positive	31(93.9%)	7(100%)	8(88.9%)	12(92.3%)	
Completed test	15(45.5%)	2(28.6%)	2(22.2%)	6(46.2%)	
Time/min	13.3(m:14.5)	14.8(m:13.3)	12.4(m:14.0)	15.0(m:18.6)	
Distance/mile	0.48(m:0.44)	0.54(m:0.47)	0.43(m:0.49)	0.57(m:0.72)	
Preop Bicycle Test					
Results positive	11(33.3%)	3(42.9%)	2(22.2%)	10(76.9%)	
Completed test	19(57.6%)	6(85.7%)	7(77.8%)	11(84.6%)	
Time/min	8.3(m:10.0)	9.4(m:10.0)	8.6(m:10.0)	9.5(m:10.0)	
Distance/mile	2.1(m:2.4)	2.3(m:2.4)	2.2(m:2.6)	2.3(m:2.5)	
Postop Treadmill Test					
Results positive	0(0%)	2(28.6%)	2(22.2%)	3(23.1%)	*,#3
Completed test	22(66.7%)	5(71.4%)	8(88.9%)	12(92.3%)	
Time/min	16.1(m:20.0)	19.0(m:20.0)	18.4(m:20.0)	19.9(m:20.0)	
Distance/mile	0.59(m:0.77)	0.74(m:0.79)	0.67(m:0.73)	0.76(m:0.79)	
Postop Bicycle Test					
Results positive	2(6.1%)	2(28.6%)	1(11.1%)	4(30.8%)	
Completed test	28(84.8%)	5(71.4%)	8(88.9%)	12(92.3%)	
Time/min	9.2(m:10.0)	9.7(m:10.0)	9.5(m:10.0)	9.7(m:10.0)	
Distance/mile	2.3(m:2.5)	2.5(m:2.6)	2.4(m:2.3)	2.4(m:2.5)	

Note: D = Degenerative; I = Isthmic; SL = Spondylolisthesis, See Table E1 for other abbreviations

\*Statistically significant ( $p<0.05$ )

#1: There was a significant difference between the patients with isthmic spondylolisthesis and the other groups.

#2: There was a significant difference between the patients with degenerative spondylolisthesis and those with isthmic spondylolisthesis.

#3: There was a significant difference between the patients with degenerative spondylolisthesis and those with isthmic spondylolisthesis or with spondylosis.

TABLE E-6

Comparison of the patients with previous surgeries and those without previous surgery

	Previous Surgery(-)	Previous Surgery (+)	
Subjects	53	9	
Age/years	63.6(SD:9.5)	60.8(SD:8.4)	
Length of sickness/months	22.8(SD:28.4)	45.0(SD:46.4)	
Intermittent claudication/mile	0.19(SD:0.05)	0.21(SD:0.04)	
Narrowest area/mm <sup>2</sup>	84.7(SD:44.3)	125.2(SD:93.3)	
ODI, preop	57.6(SD:13.5)	63.5(SD:11.1)	
ODI, postop	19.5(SD:18.9)	30.1(SD:16.9)	p=0.064
ODI, improvement rate/%	65.5	53.0	
VAS, preop	7.0(SD:1.8)	7.6(SD:2.2)	
VAS, postop	2.1(SD:2.2)	3.6(SD:2.1)	*
VAS, improvement rate/%	59.1	47.3	
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Preop Treadmill Test			
Results positive	49(92.5%)	9(100%)	
Completed test	24(45.3%)	1(11.1%)	
Time/min	14.3(m:17.0)	10.0(m:12.7)	*
Distance/mile	0.53(m:0.62)	0.32(m:0.32)	*
Preop Bicycle Test			
Results positive	21(39.6%)	4(44.4%)	
Completed test	40(76.9%)	3(33.3%)	
Time/min	9.0(m:10.0)	6.6(m:5.9)	*
Distance/mile	2.3(m:2.5)	1.5(m:1.5)	*
Postop Treadmill Test			
Results positive	4(7.5%)	2(22.2%)	
Completed test	41(77.4%)	7(77.8%)	
Time/min	17.6(m:20.0)	17.5(m:20.0)	
Distance/mile	0.66(m:0.78)	0.60(m:0.65)	
Postop Bicycle Test			
Results positive	7(13.2%)	2(22.2%)	
Completed test	47(88.7%)	7(77.8%)	
Time/min	9.2(m:10.0:)	9.4(m:10.0)	
Distance/mile	2.4(m:2.5)	2.4(m:2.3)	

Note: See Table E1 for abbreviations

\*Statistically significant (p<0.05)