# Loss of alignment

```
With Posterior Instrumented Fusion: 348
Posterior Instrumental Fusion is Iliac: 134
Differences smaller than 10^{\circ} in 6W-2Y Lordosis (top of L1-S1): 112
Without complications (PJK, PJF, DJK, DJF) ever after surgery: 81
Demographics
Age
Age - mean
All
[1] 61.95
Gender
Gender - table
All
variable
Female Male
    68
         13
Gender - proportion
All
variable
   Female
                Male
0.8395062 0.1604938
Prior Spine Surgery
Prior Spine Surgery - table
All
variable
No Yes
Prior Spine Surgery - proportion
variable
       No
0.5679012 0.4320988
Height (cm)_First Visit
Height (cm)_First Visit - mean
```

Initial Patients: 372

All

```
[1] 161.79
```

Congenital

0.03703704

Degenerative

0.4444444

Weight (kgs)\_First Visit Weight (kgs)\_First Visit - mean All [1] 66.33 BMI\_First Visit BMI\_First Visit - mean All [1] 25.23 ASA classification ASA classification - table All variable 1 2 3 15 56 10 ASA classification - proportion All variable 1 2 0.1851852 0.6913580 0.1234568 Tobacco use\_First Visit Tobacco use\_First Visit - table All variable Current Ex Non-User 19 18 44 Tobacco use\_First Visit - proportion All variable Current Ex Non-User 0.2345679 0.2222222 0.5432099 ESSG Diagnosis ESSG Diagnosis - table All variable Congenital Degenerative Failed-back Idiopathic Neuromuscular 9 26 3 Post-traumatic Syndromic 3  ${\tt ESSG\ Diagnosis\ -\ proportion}$ All variable

Idiopathic Neuromuscular

0.03703704

0.32098765

Failed-back

0.11111111

Post-traumatic Syndromic 0.03703704 0.01234568

# Radiology

Static Major curve Cobb angle Static Major curve Cobb angle - mean All
[1] 41.11

6W. Static Major curve Cobb angle 6W. Static Major curve Cobb angle - mean All

[1] 24.07

6M. Static Major curve Cobb angle 6M. Static Major curve Cobb angle - mean All

[1] 22.32

1Y. Static Major curve Cobb angle 1Y. Static Major curve Cobb angle - mean All

[1] 20.23

2Y. Static Major curve Cobb angle - mean All [1] 19.08

5Y. Static Major curve Cobb angle5Y. Static Major curve Cobb angle - mean

All [1] 24.77

Static Major curve Cobb angle tests Preop vs 6w p-value 6.31094e-07

Preop vs 2y p-value 2.242062e-10

Preop vs 5y p-value 2.120188e-05

6w vs 2y p-value 0.07119017

2y vs 5y p-value 0.08058034 6w vs 5y p-value 0.8326101 Coronal Balance (C7PL to CSVL) Coronal Balance (C7PL to CSVL) - mean All [1] 30.49 6W. Coronal Balance (C7PL to CSVL) 6W. Coronal Balance (C7PL to CSVL) - mean All [1] 20.18 6M. Coronal Balance (C7PL to CSVL) 6M. Coronal Balance (C7PL to CSVL) - mean [1] 21.22 1Y. Coronal Balance (C7PL to CSVL) 1Y. Coronal Balance (C7PL to CSVL) - mean All [1] 21.86 2Y. Coronal Balance (C7PL to CSVL) 2Y. Coronal Balance (C7PL to CSVL) - mean All [1] 21.04 5Y. Coronal Balance (C7PL to CSVL) 5Y. Coronal Balance (C7PL to CSVL) - mean All [1] 30.43 Coronal Balance (C7PL to CSVL) tests Preop vs 6w p-value 0.003176821 Preop vs 2y p-value 0.01212645 Preop vs 5y p-value

0.9894757

6w vs 2y p-value

#### 0.7563485

2y vs 5y p-value 0.02813677

6w vs 5y p-value 0.01164552

Sagittal Balance - mean All [1] 74.48

- 6W. Sagittal Balance
- 6W. Sagittal Balance mean

All

- [1] 23.73
- 6M. Sagittal Balance
- 6M. Sagittal Balance mean

All

- [1] 18.73
- 1Y. Sagittal Balance
- 1Y. Sagittal Balance mean

All

- [1] 23.48
- 2Y. Sagittal Balance
- 2Y. Sagittal Balance mean

All

- [1] 33.43
- 5Y. Sagittal Balance
- 5Y. Sagittal Balance mean

All

[1] 34.87

Sagittal Balance tests Preop vs 6w p-value 9.051812e-10

Preop vs 2y p-value 4.357273e-06

Preop vs 5y p-value 0.0005922464

6w vs 2y p-value 0.1251642

2y vs 5y p-value 0.8886877

6w vs 5y p-value 0.2422507

Sagittal T2-T5 Sagittal T2-T5 - mean All [1] 9.56

6W. Sagittal T2-T5

6W. Sagittal T2-T5 - mean

All

[1] 14.2

6M. Sagittal T2-T5

6M. Sagittal T2-T5 - mean

All

[1] 12.59

1Y. Sagittal T2-T5

1Y. Sagittal T2-T5 - mean

All

[1] 11.79

2Y. Sagittal T2-T5

2Y. Sagittal T2-T5 - mean

All

[1] 11.76

5Y. Sagittal T2-T5

5Y. Sagittal T2-T5 - mean

All

[1] 13.96

Sagittal T2-T5 tests Preop vs 6w p-value 0.0008314383

Preop vs 2y p-value 0.08875798

Preop vs 5y p-value 0.01067862

6w vs 2y p-value 0.08199945

2y vs 5y p-value 0.2005279

6w vs 5y p-value 0.8896984

Sagittal T5-T12 Sagittal T5-T12 - mean All [1] 28.69

6W. Sagittal T5-T12

6W. Sagittal T5-T12 - mean

All

[1] 33.79

6M. Sagittal T5-T12

6M. Sagittal T5-T12 - mean

All

[1] 37.11

1Y. Sagittal T5-T12

1Y. Sagittal T5-T12 - mean

All

[1] 36.32

2Y. Sagittal T5-T12

2Y. Sagittal T5-T12 - mean

All

[1] 37.65

5Y. Sagittal T5-T12

5Y. Sagittal T5-T12 - mean

All

[1] 40.9

Sagittal T5-T12 tests Preop vs 6w p-value 0.061763

Preop vs 2y p-value 0.001660279

Preop vs 5y p-value

### 0.000611522

6w vs 2y p-value 0.1153285

2y vs 5y p-value 0.315819

6w vs 5y p-value 0.02694557

Sagittal T2-T12 Sagittal T2-T12 - mean All [1] 34.42

6W. Sagittal T2-T12

6W. Sagittal T2-T12 - mean

A 1 1

[1] 43.61

6M. Sagittal T2-T12

6M. Sagittal T2-T12 - mean

All

[1] 47.05

1Y. Sagittal T2-T12

1Y. Sagittal T2-T12 - mean

All

[1] 44.26

2Y. Sagittal T2-T12

2Y. Sagittal T2-T12 - mean

All

[1] 44.45

5Y. Sagittal T2-T12

5Y. Sagittal T2-T12 - mean

All

[1] 49.3

Sagittal T2-T12 tests Preop vs 6w p-value 0.0008399962

Preop vs 2y p-value 0.0004577813

```
Preop vs 5y p-value
2.044699e-05
6w vs 2y p-value
0.7399216
2y vs 5y p-value
0.1279878
6w vs 5y p-value
0.06756269
Lordosis (top of L1-S1)
Lordosis (top of L1-S1) - mean
All
[1] -33.86
6W. Lordosis (top of L1-S1)
6W. Lordosis (top of L1-S1) - mean
All
[1] -52.86
6M. Lordosis (top of L1-S1)
6M. Lordosis (top of L1-S1) - mean
All
[1] -52.16
1Y. Lordosis (top of L1-S1)
1Y. Lordosis (top of L1-S1) - mean
All
[1] -50.01
2Y. Lordosis (top of L1-S1)
2Y. Lordosis (top of L1-S1) - mean
All
[1] -50.41
5Y. Lordosis (top of L1-S1)
5Y. Lordosis (top of L1-S1) - mean
[1] -50.11
Lordosis (top of L1-S1) tests
Preop vs 6w p-value
1.484827e-12
Preop vs 2y p-value
```

5.532406e-10

Preop vs 5y p-value 1.643226e-08

6w vs 2y p-value 0.244915

2y vs 5y p-value 0.8950094

6w vs 5y p-value 0.2349949

Pelvic Incidence Pelvic Incidence - mean All

[1] 56.03

6W. Pelvic Incidence

6W. Pelvic Incidence - mean

All

[1] 56.26

6M. Pelvic Incidence

6M. Pelvic Incidence - mean

All

[1] 56.23

1Y. Pelvic Incidence

1Y. Pelvic Incidence - mean

All

[1] 55.33

2Y. Pelvic Incidence

2Y. Pelvic Incidence - mean

All

[1] 55.05

5Y. Pelvic Incidence

5Y. Pelvic Incidence - mean

All

[1] 55.02

Pelvic Incidence tests Preop vs 6w p-value 0.9109157

Preop vs 2y p-value

### 0.6417229

Preop vs 5y p-value 0.6804205

6w vs 2y p-value 0.5631833

2y vs 5y p-value 0.9886598

6w vs 5y p-value 0.6117949

Pelvic Tilt
Pelvic Tilt - mean
All
[1] 26.38

6W. Pelvic Tilt

6W. Pelvic Tilt - mean

All

[1] 18.95

6M. Pelvic Tilt

6M. Pelvic Tilt - mean

All

[1] 21.33

1Y. Pelvic Tilt

1Y. Pelvic Tilt - mean

All

[1] 21.98

2Y. Pelvic Tilt

2Y. Pelvic Tilt - mean

All

[1] 21.25

5Y. Pelvic Tilt

5Y. Pelvic Tilt - mean

All

[1] 22.63

Pelvic Tilt tests Preop vs 6w p-value 2.001288e-06 Preop vs 2y p-value 0.0005977822

Preop vs 5y p-value 0.05087652

6w vs 2y p-value 0.1030907

2y vs 5y p-value 0.450312

6w vs 5y p-value 0.05004852

Sacral Slope - mean All [1] 29.61

6W. Sacral Slope

6W. Sacral Slope - mean

All

[1] 37.41

6M. Sacral Slope

6M. Sacral Slope - mean

All

[1] 34.89

1Y. Sacral Slope

1Y. Sacral Slope - mean

All

[1] 33.33

2Y. Sacral Slope

2Y. Sacral Slope - mean

All

[1] 34.17

5Y. Sacral Slope

5Y. Sacral Slope - mean

All

[1] 32.39

Sacral Slope tests Preop vs 6w p-value 2.983184e-06 Preop vs 2y p-value 0.004452547

Preop vs 5y p-value 0.09424787

6w vs 2y p-value 0.04495864

2y vs 5y p-value 0.2775048

6w vs 5y p-value 0.003215771

RLL

RLL - mean

All

[1] -29.88

6W. RLL

6W. RLL - mean

All

[1] -10.97

6M. RLL

6M. RLL - mean

All

[1] -11.7

1Y. RLL

1Y. RLL - mean

All

[1] -13.29

2Y. RLL

2Y. RLL - mean

All

[1] -12.57

5Y. RLL

5Y. RLL - mean

All

[1] -13.01

RLL tests

Preop vs 6w p-value

### 4.155988e-14

Preop vs 2y p-value 2.838507e-12

Preop vs 5y p-value 3.095063e-09

6w vs 2y p-value 0.389803

2y vs 5y p-value 0.8456667

6w vs 5y p-value 0.3688521

Global Tilt Global Tilt - mean All [1] 34.93

6W. Global Tilt

6W. Global Tilt - mean

All

[1] 20

6M. Global Tilt

6M. Global Tilt - mean

All

[1] 21.79

1Y. Global Tilt

1Y. Global Tilt - mean

All

[1] 23.01

2Y. Global Tilt

2Y. Global Tilt - mean

All

[1] 24.3

5Y. Global Tilt

5Y. Global Tilt - mean

All

[1] 25.92

Global Tilt tests

Preop vs 6w p-value 2.371706e-10

Preop vs 2y p-value 6.767724e-06

Preop vs 5y p-value 0.00457506

6w vs 2y p-value 0.02163461

2y vs 5y p-value 0.5738265

6w vs 5y p-value 0.03827441

T1 Sagittal Tilt
T1 Sagittal Tilt - mean
All
[1] 0.46

6W. T1 Sagittal Tilt 6W. T1 Sagittal Tilt - mean All [1] -3.69

[1] 0.00

6M. T1 Sagittal Tilt 6M. T1 Sagittal Tilt - mean All

[1] -4.08

1Y. T1 Sagittal Tilt 1Y. T1 Sagittal Tilt - mean All [1] -4.25

2Y. T1 Sagittal Tilt 2Y. T1 Sagittal Tilt - mean All

[1] -3.28

5Y. T1 Sagittal Tilt 5Y. T1 Sagittal Tilt - mean All [1] -2.23 T1 Sagittal Tilt tests Preop vs 6w p-value 6.338175e-06

Preop vs 2y p-value 0.0001030406

Preop vs 5y p-value 0.04808163

6w vs 2y p-value 0.5302802

2y vs 5y p-value 0.3894347

6w vs 5y p-value 0.2158948

Thoracolumbar L2-T10
Thoracolumbar L2-T10 - mean
All
[1] 7.01

- 6W. Thoracolumbar L2-T10
- 6W. Thoracolumbar L2-T10 mean

All

- [1] 6.81
- 6M. Thoracolumbar L2-T10
- 6M. Thoracolumbar L2-T10 mean

All

- [1] 6.46
- 1Y. Thoracolumbar L2-T10
- 1Y. Thoracolumbar L2-T10 mean

All

- [1] 5.71
- 2Y. Thoracolumbar L2-T10
- 2Y. Thoracolumbar L2-T10 mean

All

- [1] 5.46
- 5Y. Thoracolumbar L2-T10
- 5Y. Thoracolumbar L2-T10 mean

All

[1] 4.26

Thoracolumbar L2-T10 tests Preop vs 6w p-value 0.9411499

Preop vs 2y p-value 0.5682189

Preop vs 5y p-value 0.3577141

6w vs 2y p-value 0.4761832

2y vs 5y p-value 0.6170826

6w vs 5y p-value 0.2625643

RSA

RSA - mean

All

[1] 23.03

6W. RSA

6W. RSA - mean

All

[1] 7.89

6M. RSA

6M. RSA - mean

All

[1] 9.79

1Y. RSA

1Y. RSA - mean

All

[1] 11.4

2Y. RSA

2Y. RSA - mean

All

[1] 12.66

5Y. RSA

5Y. RSA - mean

All

[1] 14.51

RSA tests Preop vs 6w p-value 7.955734e-14

Preop vs 2y p-value 1.463142e-07

Preop vs 5y p-value 0.0008939204

6w vs 2y p-value 0.0008648407

2y vs 5y p-value 0.4042442

6w vs 5y p-value 0.003151743

RPV

RPV - mean

All

[1] -12.45

6W. RPV

6W. RPV - mean

All

[1] -4.78

6M. RPV

6M. RPV - mean

All

[1] -7.28

1Y. RPV

1Y. RPV - mean

All

[1] -8.31

2Y. RPV

2Y. RPV - mean

All

[1] -7.31

5Y. RPV

5Y. RPV - mean

All

# [1] -9.07

RPV tests Preop vs 6w p-value 1.184489e-09

Preop vs 2y p-value 1.051291e-05

Preop vs 5y p-value 0.01314651

6w vs 2y p-value 0.02426164

2y vs 5y p-value 0.1678561

6w vs 5y p-value 0.001632441

# Quality of Life

ODI - Score (%)

ODI - Score (%) - mean

All

[1] 44.87

6M. ODI - Score (%)

6M. ODI - Score (%) - mean

All

[1] 29.81

1Y. ODI - Score (%)

1Y. ODI - Score (%) - mean

All

[1] 29.14

2Y. ODI - Score (%)

2Y. ODI - Score (%) - mean

All

[1] 31.11

5Y. ODI - Score (%)

5Y. ODI - Score (%) - mean

All

[1] 35.22

```
ODI - Score (%) tests
Preop vs 6m p-value
3.99411e-07
Preop vs 2y p-value
4.82795e-05
Preop vs 5y p-value
0.009285463
2y vs 5y p-value
0.3088295
6w vs 5y p-value
1.79238e-19
SRS22 - Function / Activity
SRS22 - Function / Activity - mean
All
[1] 2.76
6M. SRS22 - Function / Activity
6M. SRS22 - Function / Activity - mean
All
[1] 3.1
1Y. SRS22 - Function / Activity
1Y. SRS22 - Function / Activity - mean
All
[1] 3.2
2Y. SRS22 - Function / Activity
2Y. SRS22 - Function / Activity - mean
All
[1] 3.33
5Y. SRS22 - Function / Activity
5Y. SRS22 - Function / Activity - mean
All
[1] 3.2
SRS22 - Function / Activity tests
Preop vs 6m p-value
0.00301166
Preop vs 2y p-value
```

1.760764e-05

Preop vs 5y p-value 0.003540498 2y vs 5y p-value 0.4359908

6w vs 5y p-value 8.808013e-15

SRS22 - Pain SRS22 - Pain - mean All [1] 2.31

6M. SRS22 - Pain 6M. SRS22 - Pain - mean All

[1] 3.45

1Y. SRS22 - Pain 1Y. SRS22 - Pain - mean All

[1] 3.6

2Y. SRS22 - Pain 2Y. SRS22 - Pain - mean All

[1] 3.41

5Y. SRS22 - Pain 5Y. SRS22 - Pain - mean All [1] 3.19

SRS22 - Pain tests Preop vs 6m p-value 3.834384e-14

Preop vs 2y p-value 3.735844e-10

Preop vs 5y p-value 1.448376e-06 2y vs 5y p-value 0.2801261

6w vs 5y p-value 9.722945e-15

```
SRS22 - Self image / Appearance
SRS22 - Self image / Appearance - mean
All
[1] 2.05
6M. SRS22 - Self image / Appearance
6M. SRS22 - Self image / Appearance - mean
All
[1] 3.47
1Y. SRS22 - Self image / Appearance
1Y. SRS22 - Self image / Appearance - mean
All
[1] 3.5
2Y. SRS22 - Self image / Appearance
2Y. SRS22 - Self image / Appearance - mean
[1] 3.39
5Y. SRS22 - Self image / Appearance
5Y. SRS22 - Self image / Appearance - mean
All
[1] 3.24
SRS22 - Self image / Appearance tests
Preop vs 6m p-value
2.11428e-23
Preop vs 2y p-value
3.901873e-19
Preop vs 5y p-value
3.402989e-12
2y vs 5y p-value
0.3721003
6w vs 5y p-value
7.163053e-15
SRS22 - Mental health
SRS22 - Mental health - mean
All
[1] 2.98
```

6M. SRS22 - Mental health

22

```
6M. SRS22 - Mental health - mean
All
[1] 3.52
1Y. SRS22 - Mental health
1Y. SRS22 - Mental health - mean
All
[1] 3.62
2Y. SRS22 - Mental health
2Y. SRS22 - Mental health - mean
All
[1] 3.49
5Y. SRS22 - Mental health
5Y. SRS22 - Mental health - mean
All
[1] 3.39
SRS22 - Mental health tests
Preop vs 6m p-value
0.0002260148
Preop vs 2y p-value
0.001005481
Preop vs 5y p-value
0.01681987
2y vs 5y p-value
0.6059316
6w vs 5y p-value
```

3.1581e-15

SRS22 - SRS Subtotal score SRS22 - SRS Subtotal score - mean All

[1] 2.53

6M. SRS22 - SRS Subtotal score 6M. SRS22 - SRS Subtotal score - mean All [1] 3.39

1Y. SRS22 - SRS Subtotal score 1Y. SRS22 - SRS Subtotal score - mean All

```
[1] 3.49
```

2Y. SRS22 - SRS Subtotal score

2Y. SRS22 - SRS Subtotal score - mean

All

[1] 3.4

5Y. SRS22 - SRS Subtotal score

5Y. SRS22 - SRS Subtotal score - mean

All

[1] 3.26

SRS22 - SRS Subtotal score tests Preop vs 6m p-value 7.998537e-15

Preop vs 2y p-value 9.640517e-12

Preop vs 5y p-value 6.500786e-07 2y vs 5y p-value 0.3514938

6w vs 5y p-value 6.450725e-15

SF36 - PCS

SF36 - PCS - mean

All

[1] 33.28

6M. SF36 - PCS

6M. SF36 - PCS - mean

All

[1] 39.02

1Y. SF36 - PCS

1Y. SF36 - PCS - mean

All

[1] 39.62

2Y. SF36 - PCS

2Y. SF36 - PCS - mean

All

[1] 40.2

5Y. SF36 - PCS 5Y. SF36 - PCS - mean All [1] 38.31

SF36 - PCS tests Preop vs 6m p-value 3.995957e-05

Preop vs 2y p-value 3.997679e-06

Preop vs 5y p-value 0.003418257 2y vs 5y p-value 0.3081968

6w vs 5y p-value 3.470473e-45

SF36 - MCS SF36 - MCS - mean All [1] 41.44

6M. SF36 - MCS 6M. SF36 - MCS - mean All

[1] 46.86

1Y. SF36 - MCS 1Y. SF36 - MCS - mean All

[1] 47.09

2Y. SF36 - MCS 2Y. SF36 - MCS - mean All [1] 45.92

5Y. SF36 - MCS 5Y. SF36 - MCS - mean All

[1] 44.34

SF36 - MCS tests

Preop vs 6m p-value 0.009002054 Preop vs 2y p-value 0.03025966 Preop vs 5y p-value 0.1982306 2y vs 5y p-value 0.4773596 6w vs 5y p-value 1.216433e-42 Surgery Total Operative Blood Loss st1+st2+st3Total Operative Blood Loss st1+st2+st3 - mean [1] 1981.61 Total surgical time st1+st2+st3 Total surgical time st1+st2+st3 - mean All [1] 316.64 Number of Posterior Instrumented Levels Number of Posterior Instrumented Levels - mean All [1] 10.46 Pelvic fixation Pelvic fixation - table All variable Yes Pelvic fixation - proportion All variable Yes 1 Surgical Approach

Surgical Approach - table All variable

Anterior-Posterior

Posterior

```
72
          Posterior-Anterior Posterior-Posterior-Anterior
Surgical Approach - proportion
All
variable
          Anterior-Posterior
                                                Posterior
                  0.01234568
                                               0.8888889
          Posterior-Anterior Posterior-Posterior-Anterior
                  0.08641975
                                               0.01234568
Number of Interbody Fusions
Number of Interbody Fusions - mean
All
[1] 1.14
Decompression
Decompression - table
All
variable
No Yes
59 22
Decompression - proportion
All
variable
0.7283951 0.2716049
Interbody Fusion
Interbody Fusion - table
All
variable
No Yes
33 48
Interbody Fusion - proportion
All
variable
      No
                Yes
0.4074074 0.5925926
Osteotomy
Osteotomy - table
All
variable
No Yes
35 46
Osteotomy - proportion
All
variable
```

Yes

No

#### 0.4320988 0.5679012

```
3C0
3CO - table
All
variable
No Yes
57 24
3CO - proportion
All
variable
      No
                Yes
0.7037037 0.2962963
Complications
Number of reinterventions: 41
   Complication Impact N
1: Minor Complication 75
2: Major Complication 54
3:
         Adverse Event 1
          Category of the complication N
              Mechanical complications 57
1:
2:
                   Other complications 30
                            Iatrogenic 16
3:
                                  Pain 5
4:
5: Peripheral neurologic complications 15
              Infectious complications 7
Category of Complication for Major Complications
          Category of the complication N
1:
                   Other complications 9
2:
              Mechanical complications 29
3:
              Infectious complications 7
                            Iatrogenic 3
4:
5: Peripheral neurologic complications 2
6:
                                  Pain 4
```

# Number of patients in Complications

Number of patients with reinterventions: 22

```
Complication Impact patients_complications
1: Minor Complication 43
2: Major Complication 28
3: Adverse Event 1
```

	Cate	egory of th	e complication	patients_complications
1:		Mechanical	complications	37
2:		Other	complications	18
3:			Iatrogenic	13
4:			Pain	5
5:	Peripheral	neurologio	complications	14
6:		Infectious	complications	6

# Category of Complication for Major Complications

patients_complications	e complication	Category of the	
7	complications	Other	1:
15	complications	Mechanical	2:
6	complications	Infectious	3:
3	Iatrogenic		4:
2	complications	Peripheral neurologic	5:
4	Pain	_	6: