

Loss of alignment

With Posterior Instrumented Fusion: 348

Posterior Instrumental Fusion is Iliac: 134

Differences smaller than 10° in 6W-2Y Lordosis (top of L1-S1): 112

Without complications (PJK, PJF, DJK, DJF) ever after surgery: 81

RPV comparisons

| | mean 2 | sd 2 | mean 0 | sd 0 | p_val | outcome |
|----|-----------|-----------|-----------|-----------|-----------|------------------------|
| 1: | 7.512857 | 12.024166 | 7.630435 | 11.461452 | 0.9596828 | 5Y-6W Sagittal T2-T12 |
| 2: | 10.112857 | 3.803409 | 8.201905 | 7.718209 | 0.9455688 | 5Y-6W Global Tilt |
| 3: | -2.747500 | 5.957331 | -6.101739 | 5.105089 | 0.9302166 | 5Y-6W RPV |
| 4: | 9.417143 | 3.303411 | 8.016190 | 7.523738 | 0.9435119 | 5Y-6W RSA |
| 5: | 3.576250 | 6.271245 | 6.229130 | 5.502671 | 0.9287710 | 5Y-6W Pelvic Tilt |
| 6: | 50.412857 | 43.063206 | 9.813636 | 40.286937 | 0.9886925 | 5Y-6W Sagittal Balance |

RSA comparisons

| | mean 1 | sd 1 | mean 0 | sd 0 | p_val | outcome |
|----|--------|-----------|-----------|-----------|-----------|------------------------|
| 1: | 9.830 | 8.341391 | 7.748696 | 12.214308 | 0.8553930 | 5Y-6W Sagittal T2-T12 |
| 2: | 7.715 | 8.612876 | 8.840417 | 6.822261 | 0.8052271 | 5Y-6W Global Tilt |
| 3: | -3.260 | 8.817071 | -5.712500 | 4.580605 | 0.7517955 | 5Y-6W RPV |
| 4: | 6.745 | 8.643080 | 8.636667 | 6.499279 | 0.7980104 | 5Y-6W RSA |
| 5: | 4.090 | 9.384832 | 5.885000 | 4.782381 | 0.7469564 | 5Y-6W Pelvic Tilt |
| 6: | 13.240 | 55.959304 | 20.101818 | 36.584225 | 0.9592843 | 5Y-6W Sagittal Balance |

Increment = Future - Baseline

Estability Increment Quality of Life

ODI - Score (%)

Change vs Base Time point 6M. ODI - Score (%)

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -0.8281 | 0.8724 | 218.0624 | -0.9493 | 0.3435 |
| time_point | 0.9524 | 0.7129 | 63.1908 | 1.3360 | 0.1863 |

SRS22 - SRS Subtotal score

Change vs Base Time point 6M. SRS22 - SRS Subtotal score

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 0.0321 | 0.0315 | 247.2705 | 1.0205 | 0.3085 |
| time_point | -0.0380 | 0.0279 | 78.8110 | -1.3616 | 0.1772 |

SF36 - PCS

Change vs Base Time point 6M. SF36 - PCS

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 0.6664 | 0.4476 | 228.7368 | 1.4890 | 0.1379 |
| time_point | -0.0134 | 0.3390 | 75.3789 | -0.0396 | 0.9685 |

SF36 - MCS

Change vs Base Time point 6M. SF36 - MCS

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -0.0662 | 0.6715 | 229.1698 | -0.0987 | 0.9215 |
| time_point | -0.7816 | 0.4766 | 78.6170 | -1.6397 | 0.1051 |

Estability Increment Radiology

Global Tilt

Change vs Base Time point 6W. Global Tilt

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 0.9980 | 0.3110 | 282.0510 | 3.2090 | 0.0015 |
| time_point | 1.6067 | 0.2532 | 92.7594 | 6.3454 | 0.0000 |

Basic Demographics

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -0.1339 | 1.8736 | 325.5684 | -0.0715 | 0.9431 |
| Age | 0.0098 | 0.0293 | 325.8828 | 0.3352 | 0.7377 |
| SiteBOR Op | 0.9814 | 0.6769 | 325.8371 | 1.4499 | 0.1480 |
| SiteIST Op | -0.2829 | 1.2376 | 325.2430 | -0.2286 | 0.8193 |
| SiteMAD Op | -0.5777 | 1.1300 | 325.4954 | -0.5112 | 0.6095 |
| SiteZUR Op | -1.0351 | 2.6150 | 325.3727 | -0.3958 | 0.6925 |
| time_point | 1.6145 | 0.2539 | 90.2718 | 6.3586 | 0.0000 |

Factors

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -0.1627 | 2.3738 | 320.9941 | -0.0685 | 0.9454 |
| Age | 0.0183 | 0.0308 | 320.9814 | 0.5940 | 0.5530 |
| SiteBOR Op | 0.1351 | 0.7399 | 319.8600 | 0.1825 | 0.8553 |
| SiteIST Op | -0.5548 | 1.2751 | 319.7205 | -0.4351 | 0.6638 |
| SiteMAD Op | -1.4907 | 1.2106 | 319.4830 | -1.2314 | 0.2191 |
| SiteZUR Op | -1.9694 | 2.6489 | 320.9868 | -0.7435 | 0.4577 |

| | | | | | |
|--------------------------------|---------|--------|----------|---------|--------|
| 'Prior Spine Surgery'Yes | -0.8916 | 0.6682 | 320.7217 | -1.3343 | 0.1831 |
| 'Osteoporosis / osteopenia'Yes | -0.5979 | 0.7398 | 320.8287 | -0.8083 | 0.4195 |
| essg_categoryidiopathic | 1.3568 | 0.7439 | 320.8747 | 1.8240 | 0.0691 |
| essg_categoryothers | -1.4982 | 1.0601 | 320.3096 | -1.4133 | 0.1585 |
| Non_instrumented_segments | 0.0309 | 0.0927 | 320.8754 | 0.3331 | 0.7393 |
| time_point | 1.6271 | 0.2469 | 88.4580 | 6.5912 | 0.0000 |

RSA

Change vs Base Time point 6W. RSA

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 0.5155 | 0.3260 | 282.3868 | 1.5811 | 0.115 |
| time_point | 1.5868 | 0.2659 | 93.2905 | 5.9687 | 0.000 |

Basic Demographics

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -0.4269 | 1.9492 | 325.2776 | -0.2190 | 0.8268 |
| Age | -0.0027 | 0.0305 | 325.7054 | -0.0872 | 0.9306 |
| SiteBOR Op | 1.8481 | 0.7044 | 325.9533 | 2.6235 | 0.0091 |
| SiteIST Op | 0.2905 | 1.2882 | 325.4816 | 0.2255 | 0.8217 |
| SiteMAD Op | -0.2792 | 1.1761 | 325.7593 | -0.2374 | 0.8125 |
| SiteZUR Op | 0.0025 | 2.7203 | 324.8795 | 0.0009 | 0.9993 |
| time_point | 1.5996 | 0.2670 | 89.8282 | 5.9917 | 0.0000 |

Factors

| | Estimate | Std. Error | df | t value | Pr(> t) |
|--------------------------------|----------|------------|----------|---------|----------|
| (Intercept) | -1.4366 | 2.4593 | 320.9763 | -0.5841 | 0.5595 |
| Age | 0.0085 | 0.0319 | 320.9900 | 0.2660 | 0.7904 |
| SiteBOR Op | 0.9285 | 0.7669 | 320.2385 | 1.2108 | 0.2269 |
| SiteIST Op | 0.4748 | 1.3216 | 320.0535 | 0.3593 | 0.7196 |
| SiteMAD Op | -1.2950 | 1.2548 | 320.0052 | -1.0320 | 0.3028 |
| SiteZUR Op | -1.5311 | 2.7442 | 320.8197 | -0.5580 | 0.5773 |
| 'Prior Spine Surgery'Yes | -1.5519 | 0.6924 | 320.8942 | -2.2412 | 0.0257 |
| 'Osteoporosis / osteopenia'Yes | -0.8615 | 0.7665 | 320.9407 | -1.1239 | 0.2619 |
| essg_categoryidiopathic | 1.5608 | 0.7707 | 320.9872 | 2.0250 | 0.0437 |
| essg_categoryothers | -1.5506 | 1.0986 | 320.5624 | -1.4114 | 0.1591 |
| Non_instrumented_segments | 0.1593 | 0.0960 | 320.9864 | 1.6590 | 0.0981 |
| time_point | 1.6029 | 0.2586 | 87.4949 | 6.1986 | 0.0000 |

Sagittal Balance

Change vs Base Time point 6W. Sagittal Balance

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -5.1939 | 2.1965 | 260.7439 | -2.3646 | 0.0188 |
| time_point | 4.4136 | 1.7839 | 80.3165 | 2.4741 | 0.0155 |

Basic Demographics

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 19.2748 | 13.3410 | 305.4774 | 1.4448 | 0.1495 |
| Age | -0.2943 | 0.2115 | 305.9184 | -1.3914 | 0.1651 |
| SiteBOR Op | -7.0408 | 4.7925 | 305.7405 | -1.4691 | 0.1428 |
| SiteIST Op | -18.1127 | 9.8044 | 305.7929 | -1.8474 | 0.0657 |

| | | | | | |
|------------|---------|---------|----------|---------|--------|
| SiteMAD Op | -4.9263 | 7.9800 | 305.8671 | -0.6173 | 0.5375 |
| SiteZUR Op | 0.7357 | 26.6502 | 246.0267 | 0.0276 | 0.9780 |
| time_point | 4.3861 | 1.7803 | 76.3523 | 2.4637 | 0.0160 |

Factors

| | Estimate | Std. Error | df | t value | Pr(> t) |
|--------------------------------|----------|------------|----------|---------|----------|
| (Intercept) | 21.2464 | 16.4390 | 300.4903 | 1.2924 | 0.1972 |
| Age | -0.3556 | 0.2150 | 300.1643 | -1.6544 | 0.0991 |
| SiteBOR Op | -11.9904 | 4.8643 | 298.2400 | -2.4650 | 0.0143 |
| SiteIST Op | -8.3751 | 9.9170 | 300.2372 | -0.8445 | 0.3991 |
| SiteMAD Op | -12.8168 | 8.0865 | 299.0635 | -1.5850 | 0.1140 |
| SiteZUR Op | -5.3677 | 26.2941 | 245.8662 | -0.2041 | 0.8384 |
| 'Prior Spine Surgery'Yes | -17.0344 | 4.5318 | 299.6241 | -3.7589 | 0.0002 |
| 'Osteoporosis / osteopenia'Yes | 16.6376 | 5.0079 | 300.3414 | 3.3223 | 0.0010 |
| essg_categoryidiopathic | 6.3078 | 4.9284 | 299.8657 | 1.2799 | 0.2016 |
| essg_categoryothers | 8.0776 | 7.4182 | 297.7899 | 1.0889 | 0.2771 |
| Non_instrumented_segments | 0.7549 | 0.6290 | 299.9425 | 1.2001 | 0.2310 |
| time_point | 4.2192 | 1.6302 | 77.9286 | 2.5881 | 0.0115 |

Sagittal T2-T12

Change vs Base Time point 6W. Sagittal T2-T12

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 0.3579 | 0.4325 | 275.2722 | 0.8275 | 0.4087 |
| time_point | 1.2204 | 0.4309 | 70.8497 | 2.8323 | 0.0060 |

Basic Demographics

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -7.9120 | 2.5902 | 329.1006 | -3.0546 | 0.0024 |
| Age | 0.1084 | 0.0413 | 331.1181 | 2.6227 | 0.0091 |
| SiteBOR Op | 1.9159 | 0.9642 | 334.5983 | 1.9871 | 0.0477 |
| SiteIST Op | -0.6846 | 1.9538 | 336.0972 | -0.3504 | 0.7263 |
| SiteMAD Op | 3.3491 | 1.5231 | 333.6648 | 2.1989 | 0.0286 |
| SiteZUR Op | 3.7374 | 3.9588 | 277.7662 | 0.9441 | 0.3460 |
| time_point | 1.2603 | 0.4029 | 70.6894 | 3.1282 | 0.0026 |

Factors

| | Estimate | Std. Error | df | t value | Pr(> t) |
|--------------------------------|----------|------------|----------|---------|----------|
| (Intercept) | -3.8517 | 3.2935 | 324.5955 | -1.1695 | 0.2431 |
| Age | 0.0947 | 0.0435 | 325.2709 | 2.1736 | 0.0305 |
| SiteBOR Op | 1.8666 | 1.0299 | 329.7310 | 1.8124 | 0.0708 |
| SiteIST Op | -1.6762 | 2.0182 | 330.8631 | -0.8305 | 0.4068 |
| SiteMAD Op | 2.5952 | 1.6232 | 328.6492 | 1.5988 | 0.1108 |
| SiteZUR Op | 4.5129 | 3.9918 | 275.3578 | 1.1305 | 0.2592 |
| 'Prior Spine Surgery'Yes | -0.2073 | 0.9371 | 327.9077 | -0.2212 | 0.8251 |
| 'Osteoporosis / osteopenia'Yes | -0.1342 | 1.0667 | 329.5674 | -0.1258 | 0.9000 |
| essg_categoryidiopathic | -0.4493 | 1.0591 | 325.7336 | -0.4242 | 0.6717 |
| essg_categoryothers | 1.2876 | 1.5294 | 330.7857 | 0.8419 | 0.4004 |
| Non_instrumented_segments | -0.3553 | 0.1341 | 326.3760 | -2.6500 | 0.0084 |
| time_point | 1.2994 | 0.4021 | 68.4547 | 3.2318 | 0.0019 |

Pelvic Tilt

Change vs Base Time point 6W. Pelvic Tilt

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | 0.8583 | 0.2856 | 293.2015 | 3.0054 | 0.0029 |
| time_point | 0.7938 | 0.2371 | 82.5537 | 3.3481 | 0.0012 |

Basic Demographics

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -1.2250 | 1.6942 | 349.1280 | -0.7231 | 0.4701 |
| Age | 0.0286 | 0.0270 | 349.7621 | 1.0617 | 0.2891 |
| SiteBOR Op | 0.5004 | 0.6302 | 349.8995 | 0.7941 | 0.4277 |
| SiteIST Op | -0.3544 | 1.1622 | 349.0433 | -0.3049 | 0.7606 |
| SiteMAD Op | 0.6063 | 0.9988 | 349.9467 | 0.6070 | 0.5442 |
| SiteZUR Op | -2.6595 | 2.1198 | 347.3660 | -1.2546 | 0.2105 |
| time_point | 0.7948 | 0.2370 | 80.7454 | 3.3531 | 0.0012 |

Factors

| | Estimate | Std. Error | df | t value | Pr(> t) |
|--------------------------------|----------|------------|----------|---------|----------|
| (Intercept) | -0.9041 | 2.1167 | 344.9548 | -0.4271 | 0.6696 |
| Age | 0.0401 | 0.0281 | 344.9949 | 1.4269 | 0.1545 |
| SiteBOR Op | 0.2459 | 0.6667 | 344.2775 | 0.3688 | 0.7125 |
| SiteIST Op | -1.3943 | 1.1847 | 343.6245 | -1.1769 | 0.2400 |
| SiteMAD Op | 0.3456 | 1.0562 | 344.4648 | 0.3272 | 0.7437 |
| SiteZUR Op | -2.2185 | 2.1418 | 344.0598 | -1.0358 | 0.3010 |
| 'Prior Spine Surgery'Yes | 1.0498 | 0.6096 | 344.8705 | 1.7221 | 0.0859 |
| 'Osteoporosis / osteopenia'Yes | -0.7327 | 0.6940 | 344.8541 | -1.0558 | 0.2918 |
| essg_categoryidiopathic | 0.7168 | 0.6866 | 344.9675 | 1.0440 | 0.2972 |
| essg_categoryothers | -1.7423 | 0.9950 | 344.3420 | -1.7511 | 0.0808 |
| Non_instrumented_segments | -0.1425 | 0.0864 | 344.9479 | -1.6491 | 0.1000 |
| time_point | 0.8172 | 0.2294 | 81.0820 | 3.5631 | 0.0006 |

RPV

Change vs Base Time point 6W. RPV

Time evolution

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|----------|----------|
| (Intercept) | -8.1957 | 0.6161 | 289.7096 | -13.3032 | 0 |
| time_point | -3.0254 | 0.4834 | 78.8434 | -6.2584 | 0 |

Basic Demographics

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -1.1448 | 3.5959 | 349.8435 | -0.3184 | 0.7504 |
| Age | -0.0915 | 0.0572 | 349.2140 | -1.5999 | 0.1105 |
| SiteBOR Op | -2.3168 | 1.3347 | 347.4864 | -1.7359 | 0.0835 |
| SiteIST Op | -0.3030 | 2.4592 | 345.9609 | -0.1232 | 0.9020 |
| SiteMAD Op | 0.7446 | 2.1155 | 347.2001 | 0.3520 | 0.7251 |
| SiteZUR Op | -0.3079 | 4.5029 | 349.9827 | -0.0684 | 0.9455 |
| time_point | -3.0156 | 0.4744 | 80.8537 | -6.3564 | 0.0000 |

Factors

| | Estimate | Std. Error | df | t value | Pr(> t) |
|-------------|----------|------------|----------|---------|----------|
| (Intercept) | -4.1338 | 4.5393 | 343.7123 | -0.9107 | 0.3631 |
| Age | -0.0557 | 0.0602 | 343.3614 | -0.9249 | 0.3557 |
| SiteBOR Op | -2.0333 | 1.4275 | 340.9244 | -1.4244 | 0.1552 |

| | | | | | |
|--------------------------------|---------|--------|----------|---------|--------|
| SiteIST Op | -0.7239 | 2.5357 | 340.5072 | -0.2855 | 0.7755 |
| SiteMAD Op | 1.5984 | 2.2616 | 340.7228 | 0.7068 | 0.4802 |
| SiteZUR Op | 1.0386 | 4.5976 | 344.4619 | 0.2259 | 0.8214 |
| 'Prior Spine Surgery'Yes | 1.6172 | 1.3062 | 342.6353 | 1.2381 | 0.2165 |
| 'Osteoporosis / osteopenia'Yes | -2.0518 | 1.4873 | 343.2066 | -1.3795 | 0.1686 |
| essg_categoryidiopathic | 1.9937 | 1.4714 | 342.5603 | 1.3550 | 0.1763 |
| essg_categoryothers | 2.0224 | 2.1308 | 341.8313 | 0.9491 | 0.3432 |
| Non_instrumented_segments | -0.0709 | 0.1851 | 342.5408 | -0.3829 | 0.7020 |
| time_point | -2.9840 | 0.4663 | 81.9042 | -6.3999 | 0.0000 |