Pelvis UT vs Pelvis LT stability

- Upper Thoracic (UT): T1-T9-Pelvis
- Lower Thoracic (LT): T10-T12- Iliac

Selection criteria

```r
data_ %<>% .['Posterior Instrumented Fusion' == 'Yes']

data_[, 'Posterior Instrumented Fusion: Upper / Lower Levels'] %>%
  sapply(. %>% strsplit('-') %>% .[[1]] %>% .[2]) ->
  post_intr_fusion

data_ %<>% .[post_intr_fusion == 'Iliac']

data_[, 'Posterior Instrumented Fusion: Upper / Lower Levels'] %>%
  sapply(. %>% strsplit('-') %>% .[[1]] %>% .[1]) ->
  post_intr_fusion

UT <- paste("T", 1:9, sep="")
LT <- paste("T", 10:12, sep="")

data_[post_intr_fusion %chin% UT, thoracic_type := 'UT']
data_[post_intr_fusion %chin% LT, thoracic_type := 'LT']

data_ %<>% .[!is.na(get(treatment_))]
```

Patients: 116

Increment = Future - Baseline

Estability Increment Quality of Life

```
### ODI - Score (%)
Base Time point 6M. ODI - Score (%)

Time evolution
               Estimate Std. Error       df t value Pr(>|t|)
(Intercept)     -0.2092     0.9079 461.5814 -0.2305   0.8178
time_point       0.8225     0.5644 130.6531  1.4574   0.1474
thoracic_typeUT -1.8039     1.3020 507.7897 -1.3854   0.1665


### SRS22 - SRS Subtotal score
Base Time point 6M. SRS22 - SRS Subtotal score
```

```
Time evolution
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       0.0325    0.0331 481.2647  0.9821   0.3266
time_point       -0.0213    0.0212 140.0926 -1.0021   0.3180
thoracic_typeUT  -0.0004    0.0477 523.8636 -0.0079   0.9937
```

SF36 - PCS
Base Time point 6M. SF36 - PCS

```
Time evolution
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       0.4358    0.4639 457.6403  0.9396   0.3479
time_point       -0.0853    0.2634 132.3872 -0.3236   0.7467
thoracic_typeUT   1.2141    0.6624 497.6648  1.8328   0.0674
```

SF36 - MCS
Base Time point 6M. SF36 - MCS

```
Time evolution
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)      -0.0974    0.6822 459.0352 -0.1428   0.8865
time_point       -0.4355    0.3780 132.5122 -1.1523   0.2513
thoracic_typeUT  -1.0706    0.9701 496.4951 -1.1036   0.2703
```

Estability Increment Radiology

Static Major curve Cobb angle
Base Time point 6W. Static Major curve Cobb angle

```
Time evolution
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)      -0.5279    0.3847 539.2106 -1.3723   0.1705
time_point        0.1142    0.2129 129.1355  0.5365   0.5926
thoracic_typeUT  -0.5352    0.5303 550.3025 -1.0094   0.3132
```

```
Preop & Inc preop variable: Static Major curve Cobb angle
Basic Demographics
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       2.3871    1.7362 549.6028  1.3749   0.1697
Age              -0.0475    0.0266 546.9519 -1.7880   0.0743
SiteBOR Op       -0.1434    0.6451 545.4990 -0.2223   0.8242
SiteIST Op        2.1877    1.6842 525.7901  1.2989   0.1945
SiteMAD Op        1.1281    0.9381 540.5953  1.2026   0.2297
SiteZUR Op        1.5805    1.9379 542.4457  0.8156   0.4151
time_point        0.1154    0.2101 129.6032  0.5495   0.5836
thoracic_typeUT  -0.5819    0.5507 543.2952 -1.0567   0.2911
```

Factors

```
                                  Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                         3.2488     2.8390 536.8461  1.1444   0.2530
Age                                -0.0467     0.0316 537.8854 -1.4796   0.1396
SiteBOR Op                          0.6109     0.8331 531.2127  0.7333   0.4637
SiteIST Op                          1.3659     1.7054 513.8472  0.8010   0.4235
SiteMAD Op                          1.2584     0.9861 526.9712  1.2762   0.2024
SiteZUR Op                          1.1543     1.9321 530.5434  0.5974   0.5505
'Prior Spine Surgery'Yes            1.2968     0.6609 533.3553  1.9622   0.0503
'Osteoporosis / osteopenia'Yes     -0.8741     0.6050 531.8971 -1.4447   0.1491
essg_categoryidiopathic            -0.3357     0.7139 532.6568 -0.4703   0.6383
essg_categoryothers                 1.2101     1.1000 539.0205  1.1000   0.2718
Non_instrumented_segments          -0.1517     0.1352 531.0750 -1.1224   0.2622
inc_preop                          -0.1223     0.0309 533.0213 -3.9540   0.0001
preop                              -0.0621     0.0232 539.1497 -2.6789   0.0076
time_point                          0.1188     0.2042 130.2045  0.5820   0.5616
thoracic_typeUT                    -1.3505     0.9075 529.5082 -1.4882   0.1373
```

Coronal Balance (C7PL to CSVL)
Base Time point 6W. Coronal Balance (C7PL to CSVL)

Time evolution
```
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       0.2142     0.8335 497.8892  0.2570   0.7973
time_point        0.0904     0.6218 119.6091  0.1454   0.8847
thoracic_typeUT  -0.4115     1.2079 535.7449 -0.3407   0.7335
```

Preop & Inc preop variable: Coronal Balance (C7PL to CSVL)
Basic Demographics
```
                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       6.5972     3.9494 531.0462  1.6704   0.0954
Age              -0.0971     0.0601 531.5422 -1.6152   0.1069
SiteBOR Op       -0.3582     1.4875 532.5274 -0.2408   0.8098
SiteIST Op       -2.8238     3.2647 532.4031 -0.8650   0.3875
SiteMAD Op       -3.6054     2.3953 535.0085 -1.5052   0.1329
SiteZUR Op        7.1800     3.8339 512.0605  1.8728   0.0617
time_point        0.1134     0.6185 118.4750  0.1834   0.8548
thoracic_typeUT   0.3453     1.2696 532.0898  0.2720   0.7857
```

Factors
```
                                  Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                         5.2695     5.1767 530.3213  1.0179   0.3092
Age                                 0.0165     0.0671 529.4248  0.2463   0.8055
SiteBOR Op                         -1.4955     1.5261 530.5594 -0.9800   0.3276
SiteIST Op                         -5.9756     3.2919 530.6515 -1.8152   0.0701
SiteMAD Op                         -2.8142     2.4509 531.9750 -1.1482   0.2514
SiteZUR Op                          3.6322     3.8202 515.8735  0.9508   0.3422
'Prior Spine Surgery'Yes            0.8655     1.3196 527.8258  0.6559   0.5122
'Osteoporosis / osteopenia'Yes      3.1414     1.3535 531.4168  2.3210   0.0207
essg_categoryidiopathic             4.1281     1.5990 529.6595  2.5817   0.0101
essg_categoryothers                 1.3813     2.1737 532.0591  0.6354   0.5254
Non_instrumented_segments          -0.3374     0.3094 528.7944 -1.0904   0.2760
inc_preop                          -0.2198     0.0410 530.9499 -5.3592   0.0000
preop                              -0.1958     0.0432 531.7177 -4.5368   0.0000
```

```
time_point                        0.1586    0.5596 116.7808  0.2835   0.7773
thoracic_typeUT                  -2.5528    1.9746 530.5251 -1.2928   0.1966
```

Sagittal Balance
Base Time point 6W. Sagittal Balance

Time evolution
```
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)        2.1592    2.0683 490.6527  1.0439   0.2970
time_point         7.0754    1.4655 112.4101  4.8278   0.0000
thoracic_typeUT   -4.5057    2.9949 527.4535 -1.5045   0.1331
```

Preop & Inc preop variable: Sagittal Balance
Basic Demographics
```
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)      -15.2213    9.7619 523.6989 -1.5593   0.1195
Age                0.2986    0.1515 524.5659  1.9717   0.0492
SiteBOR Op        -1.8075    3.6441 524.5067 -0.4960   0.6201
SiteIST Op       -26.5903    8.7849 526.9749 -3.0268   0.0026
SiteMAD Op        15.6735    5.3296 525.0508  2.9408   0.0034
SiteZUR Op       -28.7081    9.7990 523.3970 -2.9297   0.0035
time_point         7.0779    1.3972 111.3435  5.0658   0.0000
thoracic_typeUT   -7.1547    3.0453 524.1452 -2.3494   0.0192
```

Factors
```
                               Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                    -19.1344    11.9978 519.4454 -1.5948   0.1114
Age                              0.2093     0.1631 518.8698  1.2830   0.2001
SiteBOR Op                      -3.8051     3.6785 519.8265 -1.0344   0.3014
SiteIST Op                     -21.1601     8.7096 519.5630 -2.4295   0.0155
SiteMAD Op                      17.3803     5.4542 519.9365  3.1866   0.0015
SiteZUR Op                     -15.6992     9.7698 517.3538 -1.6069   0.1087
'Prior Spine Surgery'Yes       -10.1008     3.1733 519.5990 -3.1831   0.0015
'Osteoporosis / osteopenia'Yes   7.9522     3.2546 519.9703  2.4434   0.0149
essg_categoryidiopathic          5.1034     3.7533 519.2819  1.3597   0.1745
essg_categoryothers              6.7646     5.2332 519.8692  1.2926   0.1967
Non_instrumented_segments        0.6840     0.7256 518.3967  0.9427   0.3463
inc_preop                       -0.2839     0.0490 519.2699 -5.7961   0.0000
preop                           -0.1422     0.0424 518.7190 -3.3558   0.0008
time_point                       7.1440     1.2801 109.4970  5.5809   0.0000
thoracic_typeUT                 -6.5655     4.6186 519.6423 -1.4215   0.1558
```

Sagittal T2-T5
Base Time point 6W. Sagittal T2-T5

Time evolution
```
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       -0.9338    0.4871 480.9196 -1.9169   0.0558
time_point         0.9277    0.3353 119.6503  2.7667   0.0066
thoracic_typeUT    1.4270    0.6866 510.5432  2.0784   0.0382
```

Preop & Inc preop variable: Sagittal T2-T5

Basic Demographics

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-5.0918	2.3786	504.9881	-2.1407	0.0328
Age	0.0672	0.0365	505.7746	1.8420	0.0661
SiteBOR Op	-0.7594	0.8672	506.3279	-0.8757	0.3816
SiteIST Op	-3.5630	2.3458	505.7605	-1.5189	0.1294
SiteMAD Op	-0.5256	1.1789	506.1693	-0.4458	0.6559
SiteZUR Op	5.0823	2.1353	502.2152	2.3802	0.0177
time_point	0.9461	0.3304	120.3708	2.8637	0.0049
thoracic_typeUT	1.9203	0.7195	506.1624	2.6690	0.0079

Factors

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	9.6670	3.0163	500.8616	3.2049	0.0014
Age	0.0385	0.0374	500.8394	1.0289	0.3040
SiteBOR Op	-0.1484	0.8543	500.9973	-0.1737	0.8621
SiteIST Op	-3.9995	2.2988	498.1257	-1.7398	0.0825
SiteMAD Op	-0.1765	1.1776	500.9190	-0.1499	0.8809
SiteZUR Op	4.4367	2.0465	499.1495	2.1680	0.0306
'Prior Spine Surgery'Yes	1.7188	0.7391	500.9771	2.3256	0.0204
'Osteoporosis / osteopenia'Yes	0.1866	0.7326	500.8706	0.2546	0.7991
essg_categoryidiopathic	-1.8994	0.8343	500.9611	-2.2765	0.0232
essg_categoryothers	-1.7957	1.2492	500.8184	-1.4375	0.1512
Non_instrumented_segments	-1.1235	0.1668	500.8917	-6.7368	0.0000
inc_preop	-0.3317	0.0509	500.9462	-6.5108	0.0000
preop	-0.1747	0.0475	500.9998	-3.6801	0.0003
time_point	0.9439	0.2903	125.5246	3.2513	0.0015
thoracic_typeUT	-2.4932	1.0915	500.9059	-2.2843	0.0228

Sagittal T5-T12
Base Time point 6W. Sagittal T5-T12

Time evolution

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	1.1220	0.4613	526.8322	2.4320	0.0153
time_point	1.6082	0.3339	131.4754	4.8160	0.0000
thoracic_typeUT	-0.1510	0.6632	562.6629	-0.2277	0.8200

Preop & Inc preop variable: Sagittal T5-T12
Basic Demographics

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-1.0088	2.2014	559.9341	-0.4583	0.6469
Age	0.0093	0.0339	560.6252	0.2746	0.7837
SiteBOR Op	2.5894	0.8304	561.2215	3.1183	0.0019
SiteIST Op	2.2533	2.0175	561.5297	1.1169	0.2645
SiteMAD Op	3.6030	1.1762	561.0624	3.0632	0.0023
SiteZUR Op	-4.9563	2.2634	550.1725	-2.1898	0.0290
time_point	1.5953	0.3178	128.2265	5.0202	0.0000
thoracic_typeUT	-1.0419	0.6851	560.6258	-1.5209	0.1289

Factors

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-0.7976	2.9927	554.4479	-0.2665	0.7899

```
Age                                0.0131    0.0362 553.5773  0.3616   0.7178
SiteBOR Op                         2.1664    0.8542 555.1249  2.5360   0.0115
SiteIST Op                        -0.4222    2.0830 555.0866 -0.2027   0.8394
SiteMAD Op                         1.2936    1.2702 554.5319  1.0184   0.3089
SiteZUR Op                        -2.3933    2.2516 545.1856 -1.0630   0.2883
'Prior Spine Surgery'Yes          -1.1697    0.7758 555.3447 -1.5077   0.1322
'Osteoporosis / osteopenia'Yes    -0.6631    0.7589 555.6816 -0.8738   0.3826
essg_categoryidiopathic           -0.2735    0.8056 553.5152 -0.3395   0.7344
essg_categoryothers               0.3130     1.2211 556.6266  0.2563   0.7978
Non_instrumented_segments         0.5802     0.1847 552.2288  3.1415   0.0018
inc_preop                        -0.1907     0.0334 554.2795 -5.7110   0.0000
preop                            -0.1131     0.0280 555.1311 -4.0416   0.0001
time_point                        1.6145     0.3044 127.3309  5.3031   0.0000
thoracic_typeUT                   1.3804     1.0848 554.7100  1.2725   0.2037
```

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

Time evolution
```
              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)     1.1755     0.5076 525.1022  2.3156   0.0210
time_point      1.6491     0.3621 125.2819  4.5542   0.0000
thoracic_typeUT 1.0715     0.7200 559.9049  1.4883   0.1372
```

Preop & Inc preop variable: Sagittal T2-T12
Basic Demographics
```
              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)     -5.7231    2.4406 557.3005 -2.3449   0.0194
Age              0.0868    0.0379 558.0701  2.2881   0.0225
SiteBOR Op       1.9997    0.9079 558.1162  2.2026   0.0280
SiteIST Op      -2.0025    2.1522 560.8558 -0.9304   0.3525
SiteMAD Op       3.1759    1.2719 557.9684  2.4970   0.0128
SiteZUR Op       1.5286    2.3301 553.3422  0.6560   0.5121
time_point       1.6670    0.3483 127.3526  4.7868   0.0000
thoracic_typeUT  0.6193    0.7537 557.8143  0.8216   0.4117
```

Factors
```
                                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                       4.7338    3.4144 550.8879  1.3864   0.1662
Age                               0.0680    0.0409 550.4812  1.6615   0.0972
SiteBOR Op                        2.4712    0.9495 551.5904  2.6027   0.0095
SiteIST Op                       -4.3372    2.2691 553.9662 -1.9115   0.0565
SiteMAD Op                        2.3719    1.3867 551.7952  1.7105   0.0877
SiteZUR Op                        2.4044    2.3285 547.6470  1.0326   0.3023
'Prior Spine Surgery'Yes          0.4769    0.8559 552.0720  0.5572   0.5776
'Osteoporosis / osteopenia'Yes   -0.4544    0.8120 552.8763 -0.5596   0.5760
essg_categoryidiopathic          -2.3165    0.8896 550.1513 -2.6040   0.0095
essg_categoryothers              -1.1151    1.3012 553.4955 -0.8570   0.3918
Non_instrumented_segments        -0.5064    0.1972 548.5927 -2.5675   0.0105
inc_preop                        -0.1319    0.0386 550.9319 -3.4200   0.0007
preop                            -0.0703    0.0290 550.9926 -2.4231   0.0157
time_point                        1.6715    0.3367 124.6123  4.9648   0.0000
thoracic_typeUT                  -1.5528    1.1945 551.4507 -1.2999   0.1942
```

Lordosis (top of L1-S1)
Base Time point 6W. Lordosis (top of L1-S1)

Time evolution

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	0.5829	0.3651	547.7473	1.5967	0.1109
time_point	0.8736	0.2675	134.7807	3.2661	0.0014
thoracic_typeUT	0.9022	0.5317	586.3681	1.6970	0.0902

Preop & Inc preop variable: Lordosis (top of L1-S1)
Basic Demographics

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-0.3326	1.7590	581.6308	-0.1891	0.8501
Age	0.0155	0.0270	582.2314	0.5746	0.5658
SiteBOR Op	0.0654	0.6632	582.7770	0.0986	0.9215
SiteIST Op	-1.6377	1.4773	586.7514	-1.1086	0.2681
SiteMAD Op	0.0440	0.9713	582.7852	0.0453	0.9639
SiteZUR Op	-1.2070	1.6521	575.2715	-0.7306	0.4653
time_point	0.8738	0.2668	134.9540	3.2746	0.0013
thoracic_typeUT	0.8349	0.5615	582.3413	1.4869	0.1376

Factors

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-5.7221	2.4498	578.5452	-2.3358	0.0198
Age	0.0324	0.0293	578.0419	1.1044	0.2699
SiteBOR Op	-0.2531	0.7087	579.2749	-0.3571	0.7211
SiteIST Op	-0.5396	1.4899	580.9928	-0.3622	0.7173
SiteMAD Op	0.3005	1.0246	580.0289	0.2933	0.7694
SiteZUR Op	-0.3631	1.6948	576.2676	-0.2143	0.8304
'Prior Spine Surgery'Yes	-0.8687	0.5867	578.9638	-1.4806	0.1393
'Osteoporosis / osteopenia'Yes	1.0906	0.6073	580.3417	1.7958	0.0730
essg_categoryidiopathic	1.2925	0.6918	579.0947	1.8683	0.0622
essg_categoryothers	-0.1274	0.9783	580.7368	-0.1302	0.8965
Non_instrumented_segments	-0.1789	0.1341	577.4678	-1.3347	0.1825
inc_preop	-0.1280	0.0258	580.1160	-4.9578	0.0000
preop	-0.0991	0.0212	580.3591	-4.6721	0.0000
time_point	0.8854	0.2460	134.2101	3.5994	0.0004
thoracic_typeUT	-0.7720	0.8886	579.7315	-0.8688	0.3853

Pelvic Incidence
Base Time point 6W. Pelvic Incidence

Time evolution

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	0.2057	0.1636	560.6140	1.2578	0.2090
time_point	0.0895	0.0994	142.7529	0.9001	0.3696
thoracic_typeUT	-0.3700	0.2324	587.6377	-1.5920	0.1119

Preop & Inc preop variable: Pelvic Incidence
Basic Demographics

	Estimate	Std. Error	df	t value	Pr(>|t|)

```
(Intercept)       0.0856    0.7617 583.8336  0.1123   0.9106
Age               0.0034    0.0117 583.5126  0.2890   0.7727
SiteBOR Op       -0.0852    0.2881 583.1392 -0.2956   0.7676
SiteIST Op        1.0117    0.6230 578.4574  1.6241   0.1049
SiteMAD Op       -0.0054    0.4199 582.2719 -0.0129   0.9897
SiteZUR Op       -1.9118    0.7169 583.9040 -2.6666   0.0079
time_point        0.0854    0.0997 133.5992  0.8567   0.3932
thoracic_typeUT  -0.4438    0.2441 582.9999 -1.8183   0.0695


Factors
                                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                        0.3272     0.9812 565.7087  0.3335   0.7389
Age                                0.0042     0.0129 566.1354  0.3249   0.7453
SiteBOR Op                        -0.0382     0.2967 562.4897 -0.1289   0.8975
SiteIST Op                         1.0175     0.6218 558.3058  1.6365   0.1023
SiteMAD Op                         0.8073     0.4811 559.3679  1.6780   0.0939
SiteZUR Op                        -1.4159     0.7123 560.4282 -1.9879   0.0473
'Prior Spine Surgery'Yes          -0.4678     0.2536 562.8183 -1.8450   0.0656
'Osteoporosis / osteopenia'Yes     0.1427     0.2679 561.0963  0.5324   0.5947
essg_categoryidiopathic           -0.1032     0.2913 560.0589 -0.3543   0.7233
essg_categoryothers               -0.0154     0.4239 566.4318 -0.0364   0.9710
Non_instrumented_segments          0.0821     0.0586 562.2390  1.4013   0.1617
inc_preop                         -0.1966     0.0365 550.5766 -5.3891   0.0000
preop                             -0.0172     0.0092 561.2367 -1.8566   0.0639
time_point                         0.0892     0.0891 132.8425  1.0017   0.3183
thoracic_typeUT                   -0.0583     0.3837 560.4774 -0.1521   0.8792



### Pelvic Tilt
Base Time point 6W. Pelvic Tilt

Time evolution
               Estimate Std. Error       df t value Pr(>|t|)
(Intercept)      1.1950    0.3108 551.2089  3.8454   0.0001
time_point       1.0697    0.2056 135.9544  5.2031   0.0000
thoracic_typeUT  1.0116    0.4465 587.4035  2.2656   0.0238

Preop & Inc preop variable: Pelvic Tilt
Basic Demographics
               Estimate Std. Error       df t value Pr(>|t|)
(Intercept)      2.2023    1.4538 582.5517  1.5148   0.1304
Age             -0.0225    0.0223 582.8015 -1.0077   0.3140
SiteBOR Op       1.3104    0.5514 582.9318  2.3767   0.0178
SiteIST Op      -0.6697    1.1920 580.8728 -0.5619   0.5744
SiteMAD Op      -0.0375    0.8029 582.9998 -0.0467   0.9628
SiteZUR Op      -3.0221    1.3681 581.6245 -2.2090   0.0276
time_point       1.0731    0.1994 135.2821  5.3825   0.0000
thoracic_typeUT  0.5853    0.4667 582.9473  1.2542   0.2103


Factors
               Estimate Std. Error       df t value Pr(>|t|)
(Intercept)     -0.4972    1.7875 573.2456 -0.2782   0.7810
Age              0.0143    0.0243 574.2973  0.5866   0.5577
SiteBOR Op       0.4857    0.5605 571.7696  0.8666   0.3865
```

```
SiteIST Op                         0.3051   1.1403 566.8294  0.2675   0.7892
SiteMAD Op                         1.7683   0.8091 569.6583  2.1855   0.0293
SiteZUR Op                         0.0815   1.3248 572.7227  0.0615   0.9510
'Prior Spine Surgery'Yes          -0.1918   0.4690 572.2035 -0.4089   0.6828
'Osteoporosis / osteopenia'Yes    -0.2179   0.4781 570.6029 -0.4557   0.6488
essg_categoryidiopathic            0.2412   0.5346 571.3738  0.4511   0.6521
essg_categoryothers               -0.5241   0.7695 572.4892 -0.6811   0.4961
Non_instrumented_segments          0.0585   0.1080 573.0337  0.5419   0.5881
inc_preop                         -0.2824   0.0303 573.7227 -9.3116   0.0000
preop                             -0.0700   0.0293 573.5947 -2.3896   0.0172
time_point                         1.0804   0.1702 142.3027  6.3464   0.0000
thoracic_typeUT                    0.1068   0.6970 570.8641  0.1532   0.8783
```

Sacral Slope
Base Time point 6W. Sacral Slope

Time evolution

```
              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)    -0.9498    0.3250 554.1576 -2.9223   0.0036
time_point     -0.9895    0.2108 137.0998 -4.6943   0.0000
thoracic_typeUT -1.5310   0.4656 588.8921 -3.2881   0.0011
```

Preop & Inc preop variable: Sacral Slope
Basic Demographics

```
              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)    -2.3547    1.5166 583.7643 -1.5526   0.1211
Age             0.0314    0.0232 583.9356  1.3528   0.1766
SiteBOR Op     -1.5551    0.5740 583.9972 -2.7095   0.0069
SiteIST Op      1.7374    1.2426 581.4488  1.3982   0.1626
SiteMAD Op     -0.0243    0.8367 583.9573 -0.0291   0.9768
SiteZUR Op      0.9333    1.4271 583.1426  0.6540   0.5134
time_point     -0.9970    0.2064 137.7873 -4.8297   0.0000
thoracic_typeUT -1.1464   0.4862 583.9997 -2.3579   0.0187
```

Factors

```
                               Estimate Std. Error       df  t value Pr(>|t|)
(Intercept)                      3.2070    1.8935 569.3395   1.6937   0.0909
Age                              0.0124    0.0237 569.1286   0.5222   0.6018
SiteBOR Op                      -0.5932    0.5707 566.6758  -1.0395   0.2990
SiteIST Op                       0.8579    1.1621 561.9205   0.7382   0.4607
SiteMAD Op                      -0.4884    0.8080 561.5276  -0.6045   0.5458
SiteZUR Op                      -1.3784    1.3314 565.4072  -1.0353   0.3010
'Prior Spine Surgery'Yes        -0.2973    0.4771 565.6865  -0.6231   0.5335
'Osteoporosis / osteopenia'Yes   0.3970    0.4883 565.1375   0.8130   0.4166
essg_categoryidiopathic         -0.1885    0.5469 564.1063  -0.3447   0.7305
essg_categoryothers              1.0731    0.7938 569.0834   1.3519   0.1769
Non_instrumented_segments        0.0446    0.1097 566.8336   0.4065   0.6846
inc_preop                       -0.3127    0.0284 569.6202 -11.0206   0.0000
preop                           -0.0980    0.0217 562.7953  -4.5165   0.0000
time_point                      -1.0001    0.1672 145.4740  -5.9819   0.0000
thoracic_typeUT                 -0.1269    0.7134 564.4318  -0.1779   0.8588
```

RLL
Base Time point 6W. RLL

Time evolution

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-0.7355	0.3557	543.9332	-2.0678	0.0391
time_point	-0.9458	0.2605	133.7536	-3.6301	0.0004
thoracic_typeUT	-0.6447	0.5157	581.4036	-1.2501	0.2118

Preop & Inc preop variable: RLL
Basic Demographics

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	0.4230	1.6984	576.3303	0.2491	0.8034
Age	-0.0196	0.0260	576.9428	-0.7530	0.4518
SiteBOR Op	-0.0664	0.6433	577.6287	-0.1032	0.9178
SiteIST Op	0.8140	1.4265	581.6222	0.5706	0.5685
SiteMAD Op	-0.1765	0.9380	577.4681	-0.1882	0.8508
SiteZUR Op	2.3998	1.5948	569.7782	1.5048	0.1329
time_point	-0.9431	0.2601	133.1615	-3.6253	0.0004
thoracic_typeUT	-0.5049	0.5453	577.2565	-0.9259	0.3549

Factors

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	1.2398	2.1474	573.6463	0.5773	0.5639
Age	-0.0575	0.0288	572.2394	-1.9965	0.0464
SiteBOR Op	0.0654	0.6906	574.2287	0.0946	0.9246
SiteIST Op	-0.6629	1.4544	575.9913	-0.4558	0.6487
SiteMAD Op	-0.7437	1.0191	575.0203	-0.7298	0.4658
SiteZUR Op	1.6032	1.6520	571.1423	0.9705	0.3322
'Prior Spine Surgery'Yes	1.2554	0.5701	573.8219	2.2021	0.0281
'Osteoporosis / osteopenia'Yes	-1.1943	0.5880	575.2357	-2.0310	0.0427
essg_categoryidiopathic	-1.2420	0.6686	573.9649	-1.8577	0.0637
essg_categoryothers	-0.1755	0.9444	575.7035	-0.1858	0.8527
Non_instrumented_segments	0.0716	0.1303	572.3077	0.5493	0.5830
inc_preop	-0.1297	0.0283	575.1655	-4.5895	0.0000
preop	-0.1189	0.0255	575.2790	-4.6544	0.0000
time_point	-0.9543	0.2403	132.5616	-3.9715	0.0001
thoracic_typeUT	0.6534	0.8575	574.6277	0.7621	0.4463

Global Tilt
Base Time point 6W. Global Tilt

Time evolution

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	1.9396	0.3590	519.1160	5.4030	0.0000
time_point	2.1349	0.2383	137.9490	8.9572	0.0000
thoracic_typeUT	-0.2257	0.5149	552.0726	-0.4384	0.6612

Preop & Inc preop variable: Global Tilt
Basic Demographics

	Estimate	Std. Error	df	t value	Pr(>|t|)
(Intercept)	-1.1390	1.6745	547.6132	-0.6802	0.4966
Age	0.0423	0.0259	547.7873	1.6301	0.1037

```
SiteBOR Op          1.1541      0.6452 547.9063  1.7889      0.0742
SiteIST Op         -1.4770      1.3522 546.5859 -1.0924      0.2752
SiteMAD Op          1.8347      0.9336 547.9938  1.9653      0.0499
SiteZUR Op         -5.9249      1.6016 547.1123 -3.6993      0.0002
time_point          2.1401      0.2266 135.6283  9.4447      0.0000
thoracic_typeUT    -0.9072      0.5323 547.9478 -1.7043      0.0889
```

Factors

```
                                  Estimate Std. Error      df t value Pr(>|t|)
(Intercept)                        -1.1044     2.1467 540.9641 -0.5145   0.6071
Age                                 0.0359     0.0304 540.7086  1.1830   0.2373
SiteBOR Op                          0.6055     0.7169 540.8233  0.8447   0.3987
SiteIST Op                         -1.5632     1.3938 538.8203 -1.1216   0.2625
SiteMAD Op                          2.2256     1.0263 540.6326  2.1686   0.0305
SiteZUR Op                         -5.2030     1.6824 540.9328 -3.0926   0.0021
'Prior Spine Surgery'Yes           -0.9254     0.5802 540.9522 -1.5949   0.1113
'Osteoporosis / osteopenia'Yes     -0.2430     0.5807 540.7562 -0.4185   0.6757
essg_categoryidiopathic             0.2262     0.6657 540.9523  0.3397   0.7342
essg_categoryothers                 0.6163     0.9238 540.7685  0.6672   0.5049
Non_instrumented_segments          -0.0262     0.1314 540.7921 -0.1990   0.8424
inc_preop                          -0.0593     0.0317 540.9949 -1.8696   0.0621
preop                               0.0068     0.0281 540.9363  0.2419   0.8090
time_point                          2.1398     0.2210 136.4342  9.6800   0.0000
thoracic_typeUT                    -1.2525     0.8389 540.9426 -1.4931   0.1360
```


T1 Sagittal Tilt
Base Time point 6W. T1 Sagittal Tilt

Time evolution

```
                Estimate Std. Error        df t value Pr(>|t|)
(Intercept)       0.1794     0.2855 389.2002  0.6285   0.5301
time_point        0.4835     0.2056  82.2512  2.3516   0.0211
thoracic_typeUT  -1.2634     0.4020 424.1941 -3.1423   0.0018
```

Preop & Inc preop variable: T1 Sagittal Tilt
Basic Demographics

```
                Estimate Std. Error        df t value Pr(>|t|)
(Intercept)      -3.9641     1.3790 424.1364 -2.8747   0.0042
Age               0.0662     0.0222 424.8443  2.9884   0.0030
SiteBOR Op       -0.2404     0.5197 418.8467 -0.4626   0.6439
SiteIST Op        0.9484     1.1807 427.0199  0.8032   0.4223
SiteMAD Op        1.6131     0.7062 423.5621  2.2842   0.0229
SiteZUR Op       -1.8435     1.1428 417.5449 -1.6131   0.1075
time_point        0.4632     0.1961  87.1028  2.3621   0.0204
thoracic_typeUT  -1.5011     0.4147 422.7510 -3.6197   0.0003
```

Factors

```
                Estimate Std. Error      df t value Pr(>|t|)
(Intercept)      -5.4699     1.6759 421.8429 -3.2639   0.0012
Age               0.0354     0.0238 421.9852  1.4874   0.1377
SiteBOR Op       -0.6126     0.5376 421.9481 -1.1395   0.2551
SiteIST Op       -0.3226     1.1761 421.6573 -0.2743   0.7840
SiteMAD Op        1.5099     0.7314 421.3434  2.0644   0.0396
```

```
SiteZUR Op                          -0.9948    1.1202 421.9996 -0.8881   0.3750
'Prior Spine Surgery'Yes            -1.1389    0.4486 421.9370 -2.5386   0.0115
'Osteoporosis / osteopenia'Yes       0.4813    0.4554 421.3840  1.0570   0.2911
essg_categoryidiopathic              0.5274    0.4999 421.6266  1.0551   0.2920
essg_categoryothers                  1.1612    0.7115 421.9905  1.6322   0.1034
Non_instrumented_segments            0.2206    0.0988 421.8333  2.2318   0.0262
inc_preop                           -0.3731    0.0524 421.9608 -7.1230   0.0000
preop                               -0.2156    0.0503 421.9696 -4.2823   0.0000
time_point                           0.4491    0.1630  89.4638  2.7560   0.0071
thoracic_typeUT                     -0.2574    0.6543 421.9755 -0.3934   0.6942
```

Thoracolumbar L2-T10
Base Time point 6W. Thoracolumbar L2-T10

Time evolution
```
              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)     0.5089     0.4461 472.3811  1.1407   0.2546
time_point      0.2888     0.3477 108.2667  0.8306   0.4080
thoracic_typeUT -0.2908    0.6378 506.7488 -0.4559   0.6486
```

Preop & Inc preop variable: Thoracolumbar L2-T10
Basic Demographics
```
              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)     2.1221     2.0312 503.0748  1.0448   0.2966
Age            -0.0267     0.0311 504.4118 -0.8590   0.3907
SiteBOR Op      0.1967     0.7911 505.8415  0.2486   0.8038
SiteIST Op     -3.3576     1.6840 515.0500 -1.9938   0.0467
SiteMAD Op      0.6217     1.1447 504.9767  0.5431   0.5873
SiteZUR Op      2.0827     1.9883 485.1387  1.0475   0.2954
time_point      0.3124     0.3399 108.9114  0.9190   0.3601
thoracic_typeUT -0.2945    0.6747 506.0063 -0.4364   0.6627
```

Factors
```
                                Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                       1.0455     2.6885 495.7530  0.3889   0.6975
Age                              -0.0099     0.0346 497.4064 -0.2857   0.7752
SiteBOR Op                        0.1769     0.8260 500.9054  0.2142   0.8305
SiteIST Op                       -3.4749     1.7174 508.4518 -2.0233   0.0436
SiteMAD Op                        0.4445     1.2428 501.9029  0.3576   0.7208
SiteZUR Op                        1.9657     1.9755 481.0434  0.9950   0.3202
'Prior Spine Surgery'Yes         -0.7479     0.7121 499.7997 -1.0502   0.2941
'Osteoporosis / osteopenia'Yes   -0.5822     0.7582 502.4563 -0.7679   0.4429
essg_categoryidiopathic           0.8965     0.8182 497.4573  1.0956   0.2738
essg_categoryothers               1.8063     1.2139 504.7902  1.4880   0.1374
Non_instrumented_segments         0.1525     0.1676 493.0071  0.9098   0.3634
inc_preop                        -0.1770     0.0372 495.3295 -4.7551   0.0000
preop                            -0.1491     0.0345 495.9745 -4.3198   0.0000
time_point                        0.3202     0.3253 105.6531  0.9842   0.3273
thoracic_typeUT                  -0.7375     1.0990 500.8828 -0.6710   0.5025
```

RSA
Base Time point 6W. RSA

```
Time evolution
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)        1.8355     0.3527 518.6521  5.2047   0.0000
time_point         2.1012     0.2344 136.6822  8.9649   0.0000
thoracic_typeUT   -0.0450     0.5059 552.0219 -0.0889   0.9292


Preop & Inc preop variable: Global Tilt
Basic Demographics
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       -1.2881     2.1624 432.9487 -0.5957   0.5517
Age                0.0589     0.0333 430.8572  1.7719   0.0771
SiteBOR Op         1.7653     0.8259 429.3159  2.1373   0.0331
SiteIST Op        -2.9110     1.7833 407.4160 -1.6324   0.1034
SiteMAD Op         2.6295     1.1873 425.3055  2.2147   0.0273
SiteZUR Op        -7.9352     2.0730 428.5663 -3.8279   0.0001
time_point         1.6934     0.2389 169.5220  7.0869   0.0000
thoracic_typeUT   -1.0627     0.6805 428.8243 -1.5616   0.1191


Factors
                              Estimate Std. Error       df t value Pr(>|t|)
(Intercept)                    -1.1090     2.7388 421.6720 -0.4049   0.6857
Age                             0.0448     0.0385 424.2931  1.1622   0.2458
SiteBOR Op                      0.8438     0.9075 416.4258  0.9298   0.3530
SiteIST Op                     -3.3916     1.8129 398.5862 -1.8708   0.0621
SiteMAD Op                      3.2350     1.2925 413.9637  2.5029   0.0127
SiteZUR Op                     -6.8880     2.1655 414.4413 -3.1808   0.0016
'Prior Spine Surgery'Yes       -1.0430     0.7371 416.3457 -1.4150   0.1578
'Osteoporosis / osteopenia'Yes -0.2681     0.7349 415.9615 -0.3647   0.7155
essg_categoryidiopathic         0.5632     0.8409 417.3753  0.6698   0.5034
essg_categoryothers             0.9668     1.1888 415.8464  0.8133   0.4165
Non_instrumented_segments      -0.0891     0.1663 422.8554 -0.5360   0.5922
inc_preop                      -0.0788     0.0404 417.5731 -1.9482   0.0521
preop                           0.0283     0.0358 420.7207  0.7906   0.4296
time_point                      1.6951     0.2328 171.1177  7.2814   0.0000
thoracic_typeUT                -1.8554     1.0576 418.8542 -1.7543   0.0801


### RPV
Base Time point 6W. RPV

Time evolution
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       -1.0743     0.3101 553.2029 -3.4647   0.0006
time_point        -1.0406     0.2038 137.2944 -5.1047   0.0000
thoracic_typeUT   -1.3086     0.4449 588.6200 -2.9415   0.0034


Preop & Inc preop variable: Sacral Slope
Basic Demographics
                 Estimate Std. Error       df t value Pr(>|t|)
(Intercept)       -4.0498     1.8942 463.3744 -2.1379   0.0330
Age                0.0464     0.0288 460.9828  1.6089   0.1083
SiteBOR Op        -2.2318     0.7102 459.4199 -3.1426   0.0018
SiteIST Op         1.6791     1.5801 434.6859  1.0627   0.2885
```

```
SiteMAD Op        -0.0327      1.0303 456.5408 -0.0317    0.9747
SiteZUR Op         3.1354      1.7521 464.9959  1.7895    0.0742
time_point        -0.6691      0.2125 174.8349 -3.1482    0.0019
thoracic_typeUT   -1.3332      0.6012 458.7635 -2.2174    0.0271

Factors
                               Estimate Std. Error      df  t value Pr(>|t|)
(Intercept)                      4.1006     2.1744 432.9310   1.8858   0.0600
Age                              0.0191     0.0270 433.5963   0.7055   0.4809
SiteBOR Op                      -0.7577     0.6509 429.1317  -1.1641   0.2450
SiteIST Op                       0.2062     1.3601 410.5819   0.1516   0.8796
SiteMAD Op                      -0.4379     0.9167 420.7165  -0.4777   0.6331
SiteZUR Op                      -0.2402     1.5069 426.8646  -0.1594   0.8734
'Prior Spine Surgery'Yes        -0.0417     0.5445 426.4135  -0.0766   0.9390
'Osteoporosis / osteopenia'Yes   0.7489     0.5573 426.5598   1.3437   0.1798
essg_categoryidiopathic         -0.0996     0.6227 423.6254  -0.1600   0.8730
essg_categoryothers              1.2266     0.9211 429.9476   1.3317   0.1837
Non_instrumented_segments        0.0160     0.1249 428.5675   0.1283   0.8979
inc_preop                       -0.4438     0.0325 434.3790 -13.6461   0.0000
preop                           -0.1417     0.0248 419.8769  -5.7112   0.0000
time_point                      -0.6742     0.1687 188.0529  -3.9957   0.0001
thoracic_typeUT                 -0.1537     0.8103 426.0457  -0.1897   0.8497
```