

Table S1. Surgical complications observed in the initially treated cohort ($n = 120$).

Variable	T2 (n = 68)	T4 (n = 52)
Screw misplacement, n (%)	1 (1.5)	2 (3.8)
Proximal junctional kyphosis, n (%)	2 (2.9)	0 (0)
Pseudarthrosis, n (%)	2 (2.9)	2 (3.8)
Adding-on phenomenon, n (%)	2 (2.9)	1 (1.9)

Table S2 Distribution of Major Postoperative Complications According to Upper Instrumented Vertebra Selection.

Complication Status	T2 (n = 68)	T4 (n = 52)	p-Value
Major complication	7 (10.3%)	5 (9.6%)	1.00*
No major complication	61 (89.7%)	47 (90.4%)	

* Fisher's exact test (two-sided).

Table S3. Sagittal alignment at last follow-up, n (%).

Sagittal Alignment (Last FU)	T2 (n = 61)	T4 (n = 47)
Neutral	58 (95.1)	44 (93.6)
Positive	2 (3.3)	0 (0)
Negative	1 (1.6)	3 (6.4)

Data are presented as mean $\pm$ standard deviation or n (%). Preoperative bending radiographs were obtained to assess curve flexibility. The flexibility index was calculated as [(standing Cobb – bending Cobb)/standing Cobb] $\times$ 100. p values reflect within-group comparisons between the preoperative period and final follow-up. Sagittal alignment was evaluated categorically at final follow-up and is presented descriptively.

Table S4. Between-Group Comparisons of Final and Change-from-Baseline Outcomes According to UIV Selection.

Outcome	Final T2 (mean $\pm$ SD)	Final T4 (mean $\pm$ SD)	p (Final)	Cohen's d (Final)	Δ T2	Δ T4	p (Δ)	Cohen's d (Δ)
Radiological Outcomes								
Coronal Cobb (°)	8.4 $\pm$ 4.1	9.9 $\pm$ 6.7	0.15	0.28	-44.5	-42.1	0.21	0.22
Thoracic kyphosis (°)	26.6 $\pm$ 4.0	27.0 $\pm$ 3.9	0.62	0.10	+8.8	+9.0	0.74	0.05
Trunk shift (mm)	5.4 $\pm$ 2.9	6.8 $\pm$ 3.6	0.03	0.43	-23.4	-22.4	0.48	0.18
Shoulder imbalance (mm)	2.5 $\pm$ 3.2	4.1 $\pm$ 3.0	0.02	0.51	-9.6	-8.3	0.31	0.24
T1 tilt (°)	4.3 $\pm$ 1.7	4.9 $\pm$ 1.7	0.04	0.35	-4.4	-2.0	0.01	0.60
Lumbar lordosis (°)	49.4 $\pm$ 4.5	48.5 $\pm$ 4.0	0.29	0.21	+3.4	+2.7	0.41	0.15
Patient-Reported Outcomes								
PedsQL Physical	81.5 $\pm$ 7.4	79.8 $\pm$ 7.9	0.23	0.22	-12.6	-13.5	0.66	0.11
PedsQL Emotional	94.9 $\pm$ 6.1	93.8 $\pm$ 6.9	0.41	0.17	+10.5	+11.9	0.52	0.14
PedsQL Social	91.1 $\pm$ 6.8	90.7 $\pm$ 7.5	0.78	0.05	-4.2	-2.5	0.29	0.23
PedsQL School	88.6 $\pm$ 7.9	88.3 $\pm$ 8.4	0.87	0.04	+22.0	+21.9	0.96	0.01
SRS Function	4.22 $\pm$ 0.19	4.10 $\pm$ 0.22	0.01	0.59	+0.07	+0.12	0.18	0.24
SRS Pain	4.85 $\pm$ 0.18	4.78 $\pm$ 0.21	0.04	0.36	+0.81	+0.84	0.72	0.08
SRS Self-Image	4.88 $\pm$ 0.15	4.87 $\pm$ 0.17	0.79	0.06	+0.57	+0.69	0.11	0.38
SRS Mental Health	4.73 $\pm$ 0.20	4.66 $\pm$ 0.23	0.09	0.32	+0.87	+0.95	0.28	0.21

Data are presented as mean $\pm$ standard deviation. Δ indicates change from baseline (final follow-up minus preoperative value). Between-group comparisons were performed using independent-samples t-tests. Effect sizes were calculated using Cohen's d.